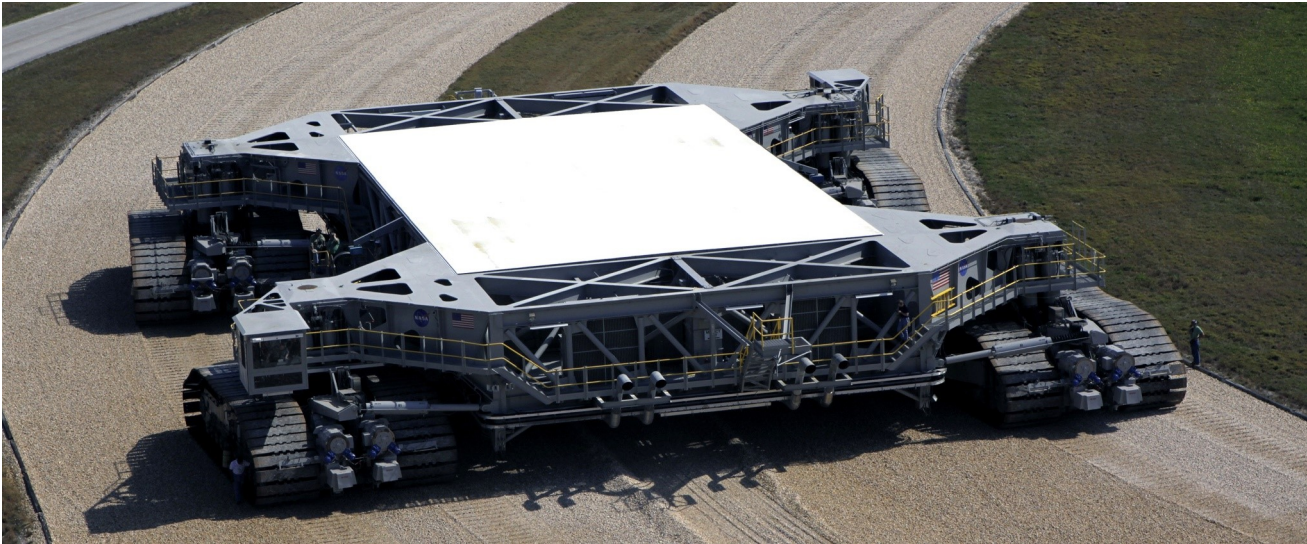




The Crawler

The crawler-transporters, formally known as the "Missile Crawler Transporter Facilities", are a pair of giant tracked transport vehicles. They were used on all Saturn V launches as well as all the Space Shuttle launches to transport the Mobile Launcher Platform into the Vehicle Assembly Building and then to the Launch Pad with an assembled space vehicle.



Crawler-transporter-2 (CT-2) is on its way from the Vehicle Assembly Building to the Park Site west of the building.

Credits: NASA/Jim Grossmann

The two crawler-transporters were designed and built by Marion Power Shovel Company in 1964-65 using components designed and built by Rockwell International at a cost of US\$14 million each. Upon its construction, the crawler-transporter became the largest self-powered land vehicle in the world. The name-giving maximum speed of a crawler is 1.6km (one mile) per hour loaded, about 3.2 km (2 miles) per hour unloaded. Launch Pad to VAB trip time with the Mobile Launcher Platform is about 5 hours. The crawler burns 568 liters of diesel oil per mile.

Each crawler-transporter has a mass of 2,721 tonnes (6,000,000 lb) and has eight tracks, two on each corner. It is driven by 16 electric motors that are powered by two generators. Each track has 57 shoes, and each shoe weighs 900 kg (1,984 lb). The vehicle measures 40 by 35 metres (131 by 114 ft). The height from ground level to the platform is adjustable from 6.1 to 7.9 m (20 to 26 ft), and each side can be raised and lowered independently of the other. The crawler uses a laser guidance system and a leveling system to keep the Mobile Launcher Platform level within 10 minutes of arc



Above: Space Shuttle Discovery climbs the five percent grade to the top of the hardstand at Launch Pad 39A. Rollout is a milestone for the STS-120 mission to the International Space Station.

Credit: NASA

Overleaf: Crawler-Transporter No.2, carrying the Shuttle's Mobile Launcher Platform.

Credit: NASA

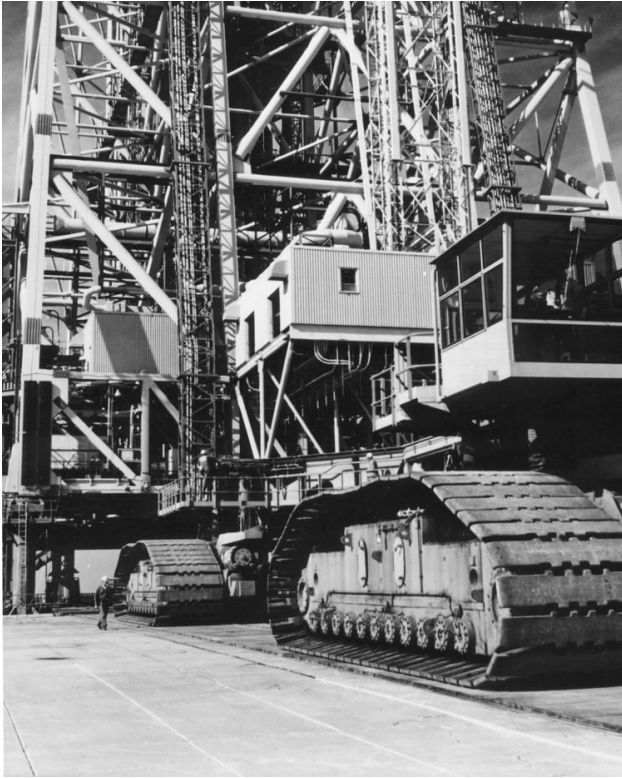
(0.16 degrees; about 30 cm (1 ft) at the top of the Saturn V), while moving up the 5 percent grade to the launch site. A separate laser docking system provides pinpoint accuracy when the crawler-transporter and Mobile Launcher Platform are positioned in the VAB or at the launch pad. A team of nearly 30 engineers, technicians and drivers operates the vehicle from an internal control room.

These massive machines have performed well for more than 40 years. So far, KSC's two crawler-transporters have accumulated 1,243 miles since 1977. Including the Apollo years, the transporters have racked up 2,526 miles, about the same distance as a one-way trip from KSC to Los Angeles by interstate highway or a round trip between KSC and New York City. Responsibility for the ongoing maintenance work for these monstrous vehicles fall to United Space Alliance's Transporter Operations team

Crawler No. 2 was upgraded in 2012-14 from its a lifting capacity of 12 million pounds -- the combined weight of the shuttle and mobile launcher -- to 18 million pounds, for NASA's new heavy lift rocket. They will serve NASA into the 21st century.

Designers Notes

1. The Crawler-Transporter model is strong enough to support the Saturn V (but has not been tested with a launch pad and Tower).
2. Exhaust stacks use click hinge connectors to set the angle, I sometimes knock them and have to reposition them. The hinges look better than the alternate fixed pieces which have holes through them.
3. Picking up the model sometimes moves the side hinged access gangways It is best to pick up the model from the side as the bottom row of the front and back structure have bricks which are only held on by their studs
4. The top deck is a tight fit - I had to add the two levers to pop the lid open and one edge is only one plate thick as it was impossible to fit when it was two plates thick. The thin edge goes to the rear of the Crawler.



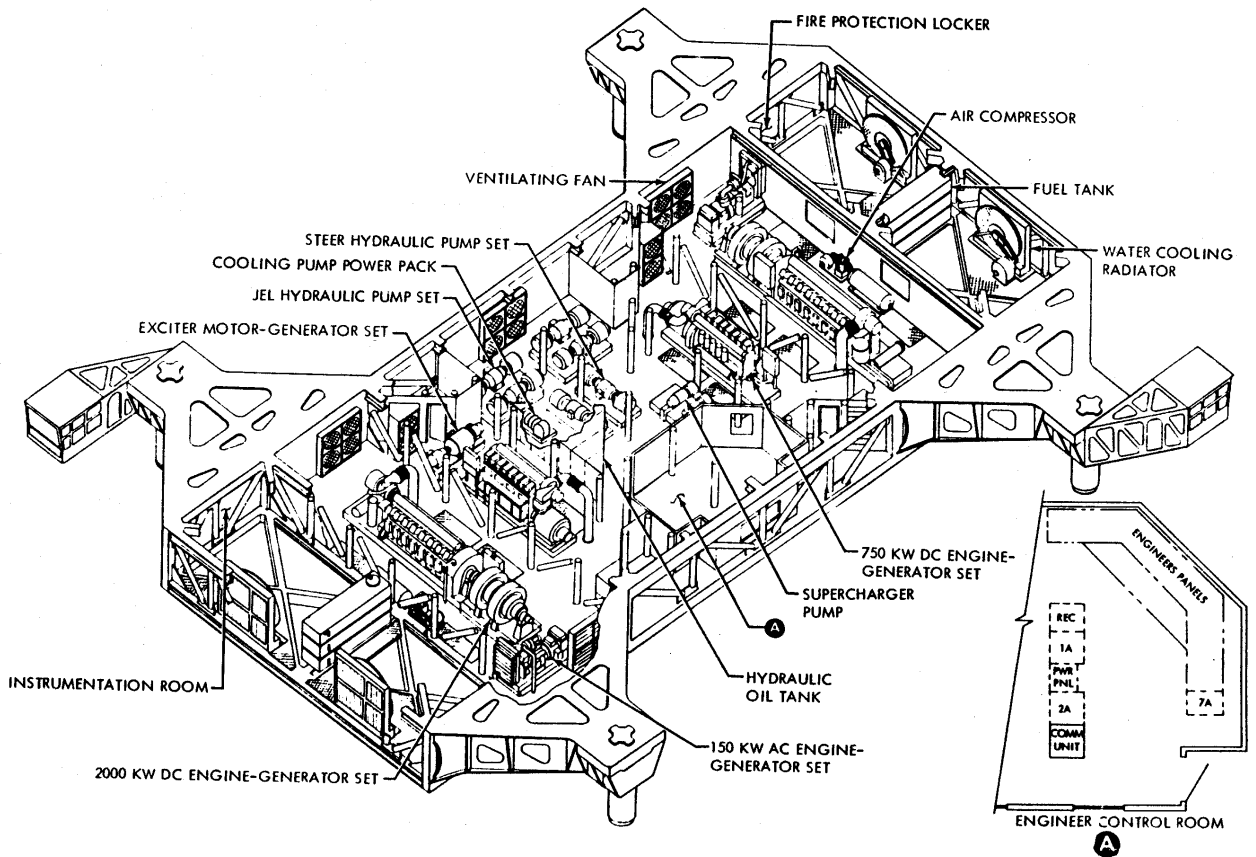
The „Missile Crawler Transporter Facilities“ Or Crawler Transporter carrying the Umbilical Launch Tower in 1966
Credit: NASA

5. First time fitting the tracks it can take a few attempts to adjust the length of the hydraulic rams so that the tracks are parallel to the Crawler body. Setting them means fitting and removing the track units a few times (once set there is no issue). Its easier to take off the two 2x2 plates with the ball socket and leave the two side rams attached to the body than try and separate the ball socket connection.

6. The large hydraulic fluid tank in the middle of the interior is only held by one stud (the second stud just keeps it aligned so that it cannot turn), this has not proven to be an issue as I have inverted the model and it doesn't fall out (when the top deck is fitted the tank is sandwiched between the floor and top deck and cannot move)

7. The track are loosely fitted - not to the point where it can come off, but they do sag when the model is picked up. This was done to let the top of the tracks move in a wave and look like they have a lot of weight.

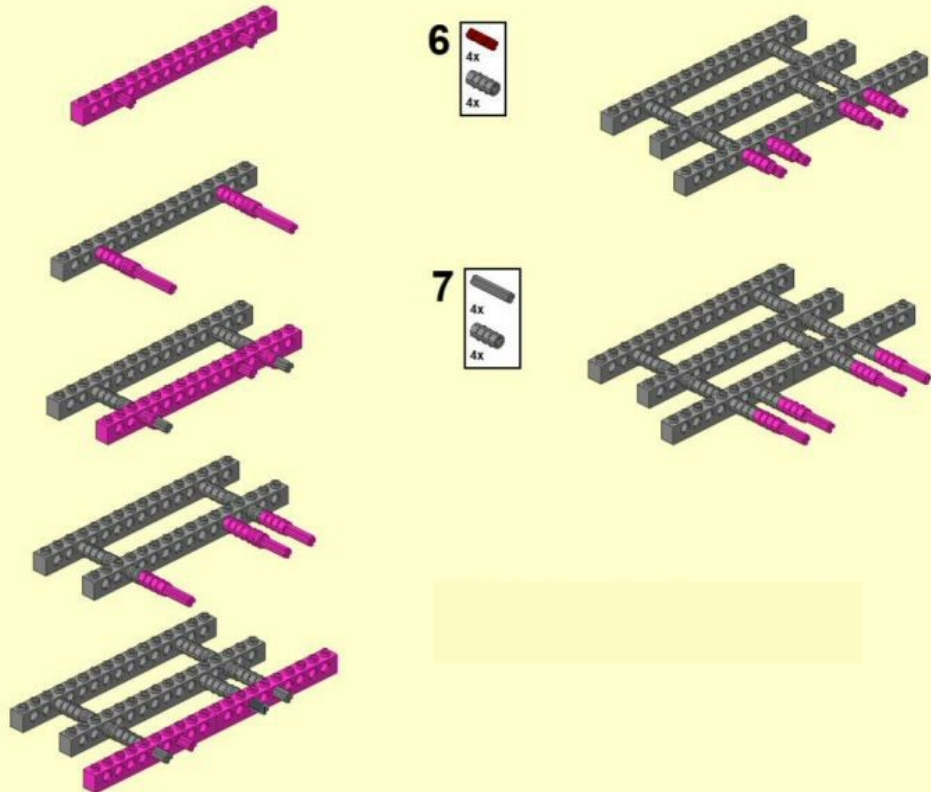
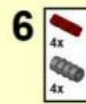
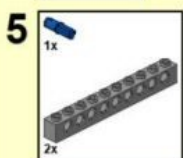
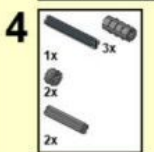
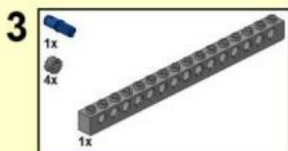
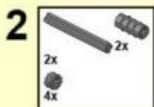
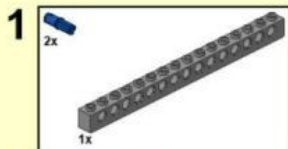
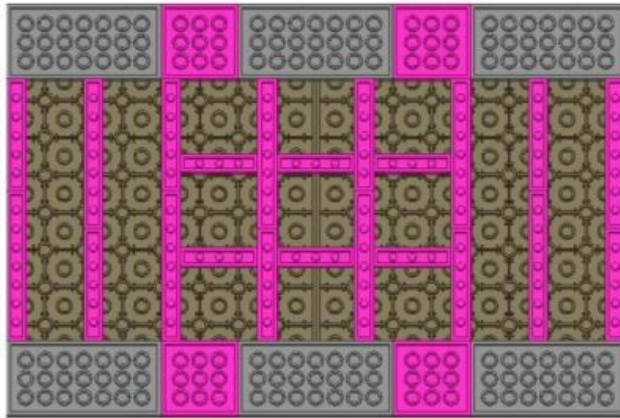
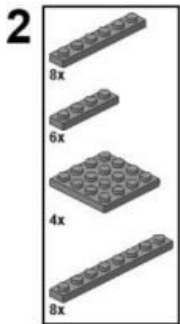
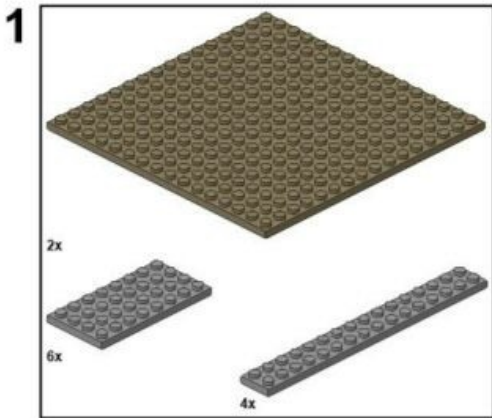
8. The cross axle's main purpose is not structural, it connects the track unit to the main body. The load is passed through the flat plates on the top of the unit. Directional stability comes from the four 'hydraulic rams' which attach the track unit to the main body of the crawler.

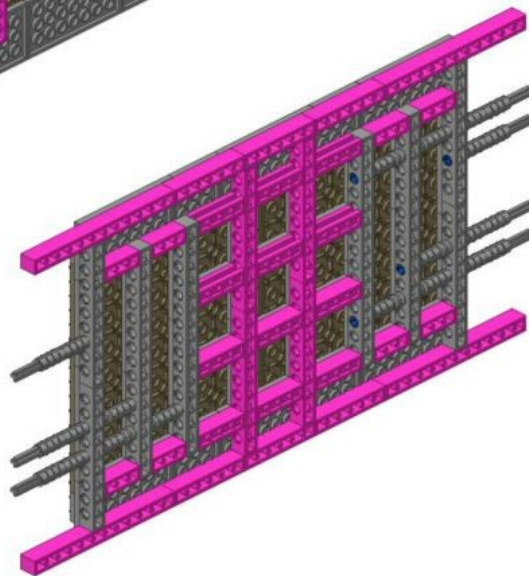
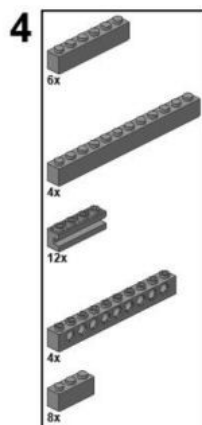
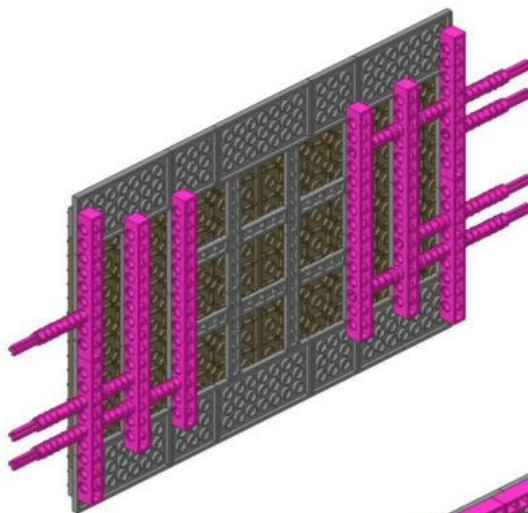
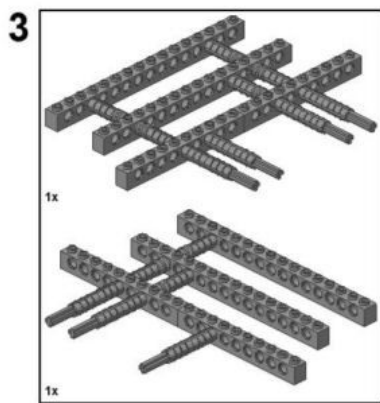
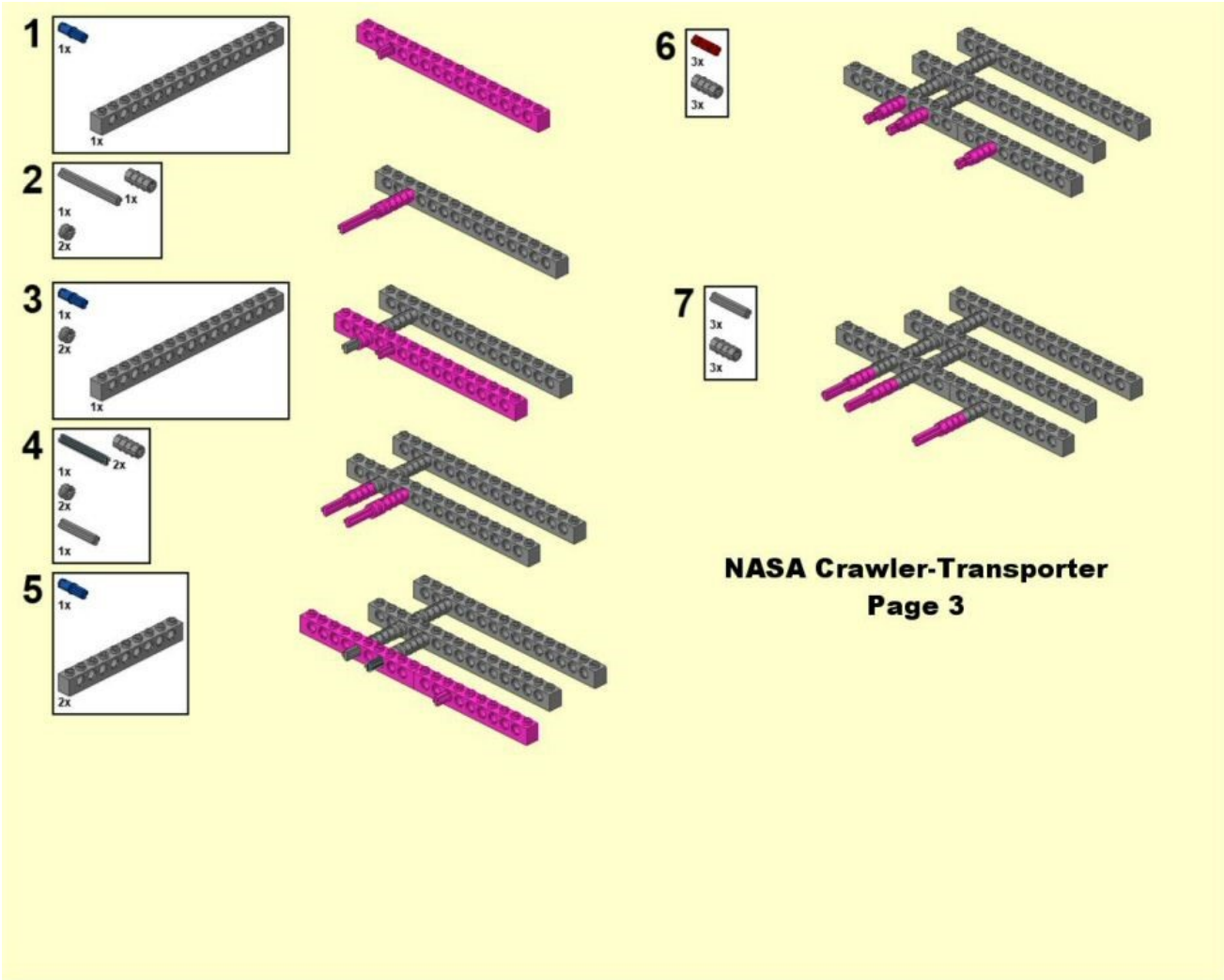


CT Equipment Location

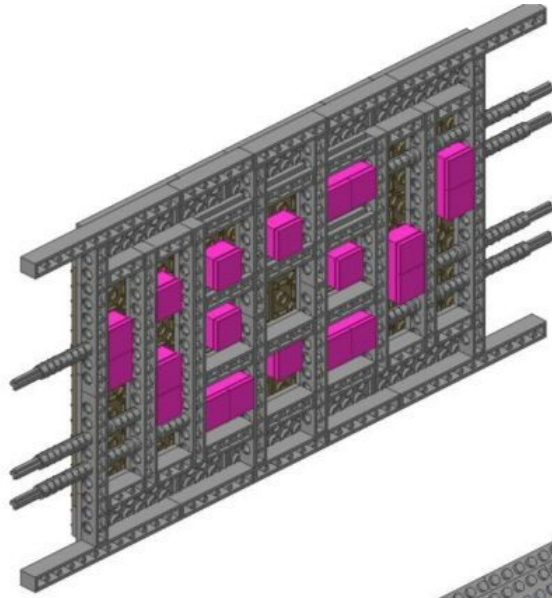
NASA Crawler

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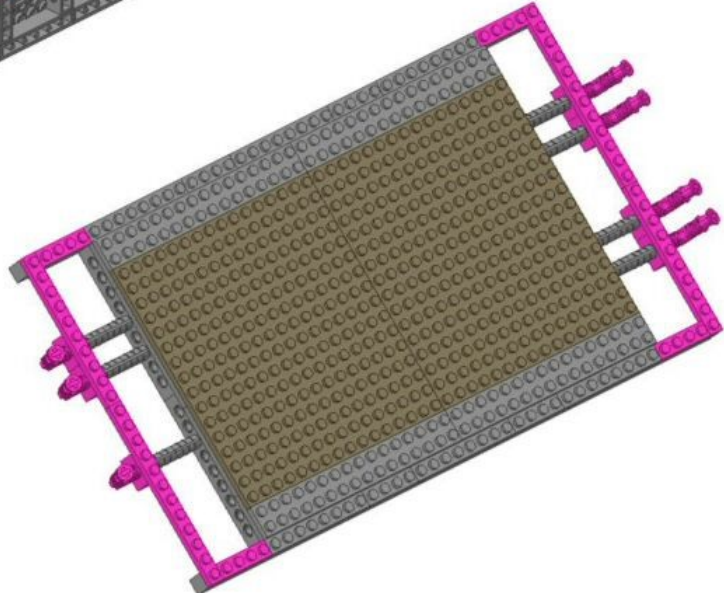




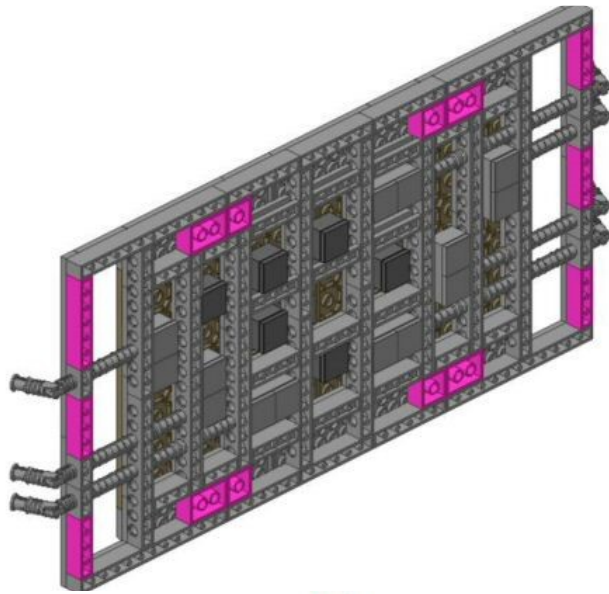
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 - 14x
 - 6x
 - 6x



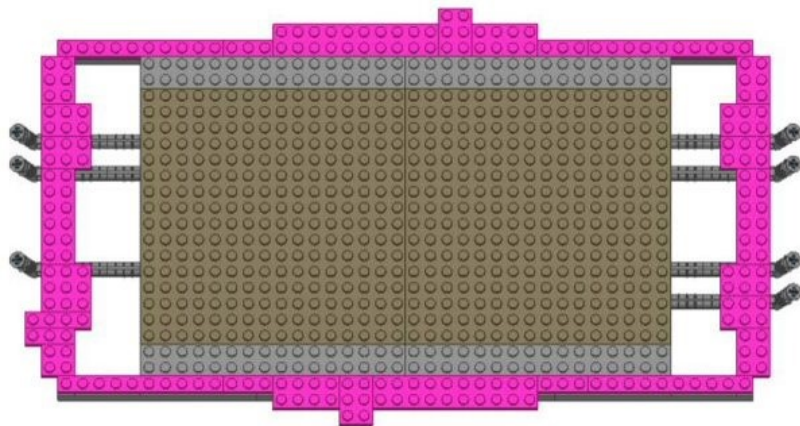
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 - 7x
 - 4x
 - 7x
 - 7x
 - 2x
 - 2x
 - 7x
 - 2x



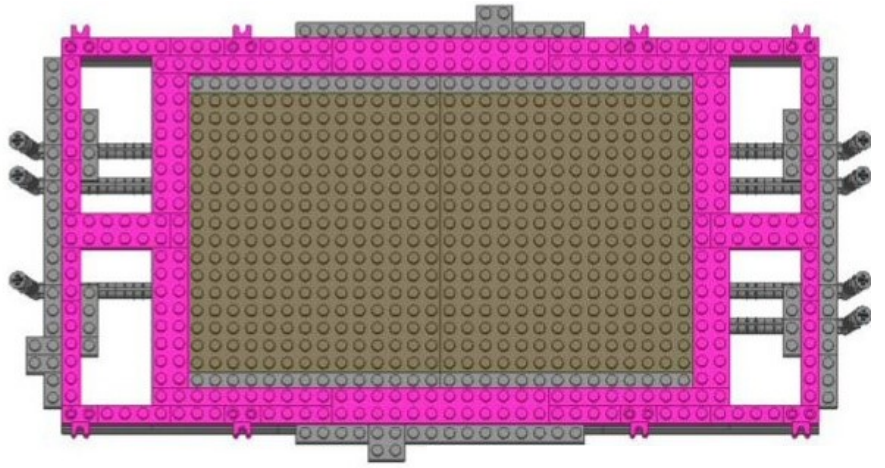
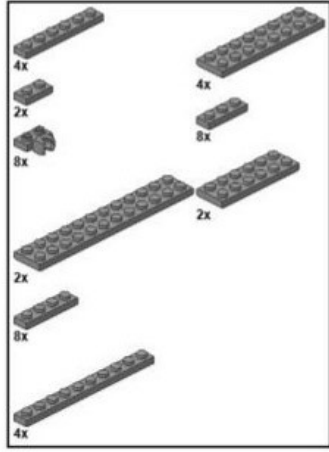
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 - 4x
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 - 4x



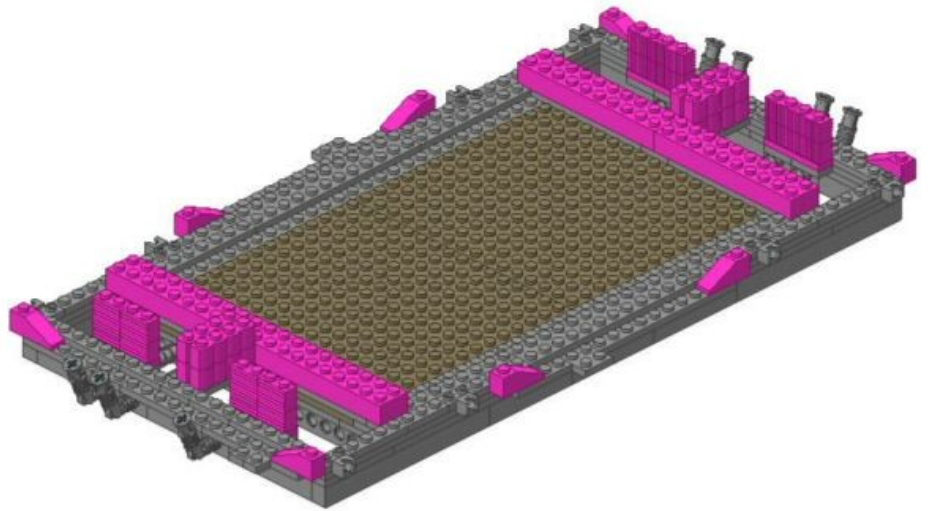
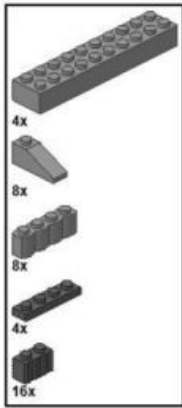
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 - 11x
 - 1x
 - 1x
 - 2x
 - 2x
 - 4x
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 - 2x



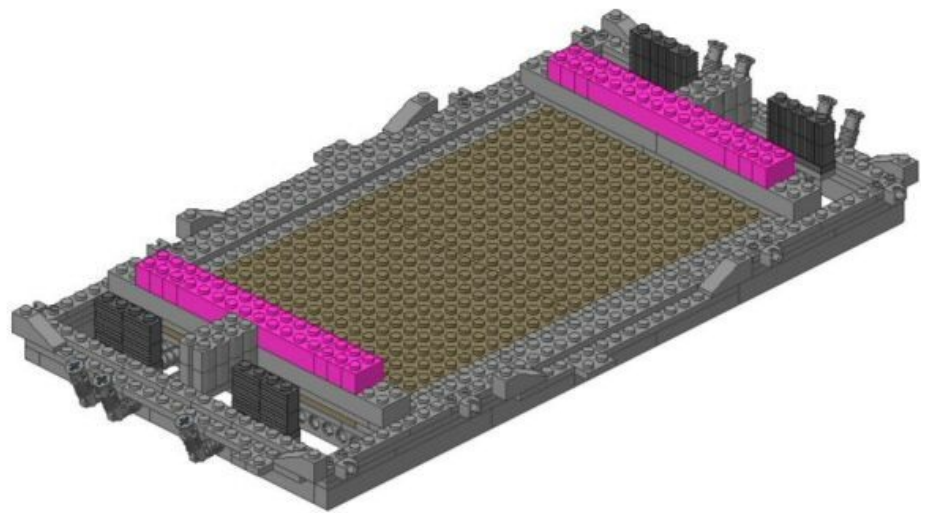
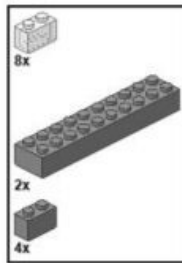
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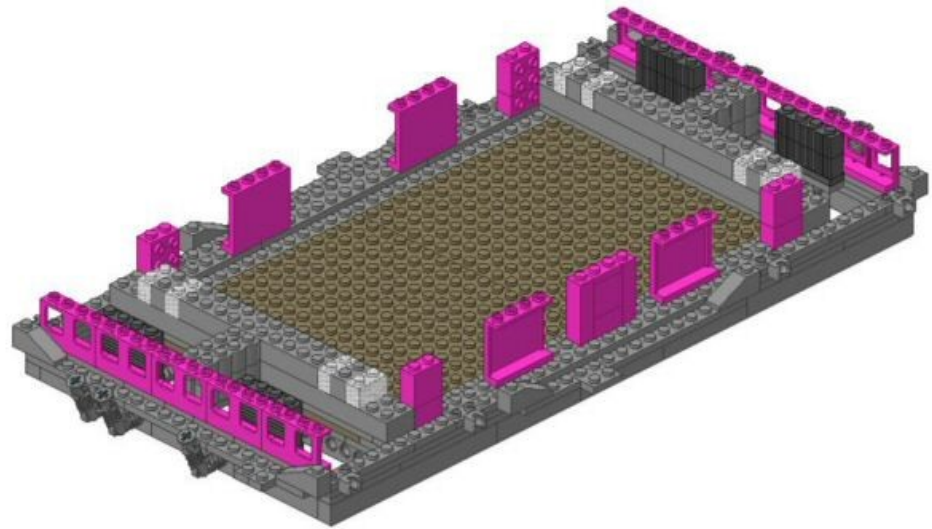
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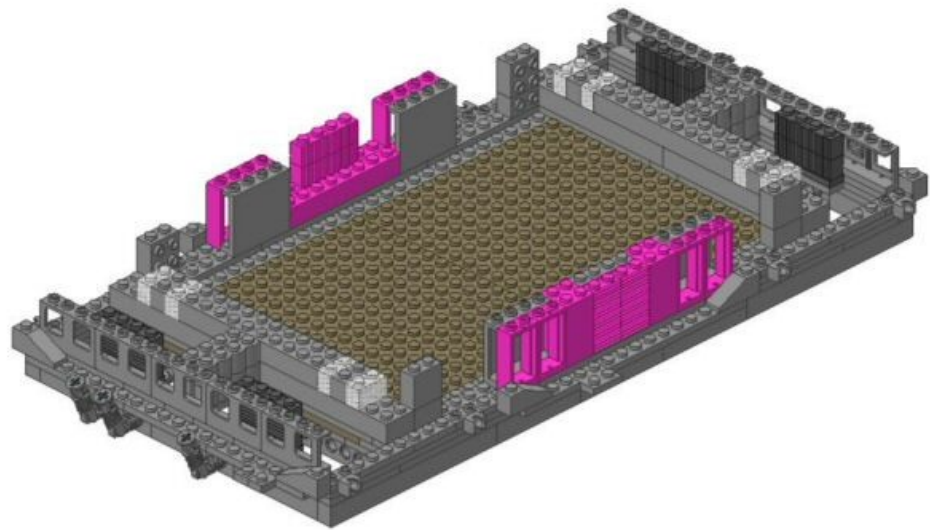
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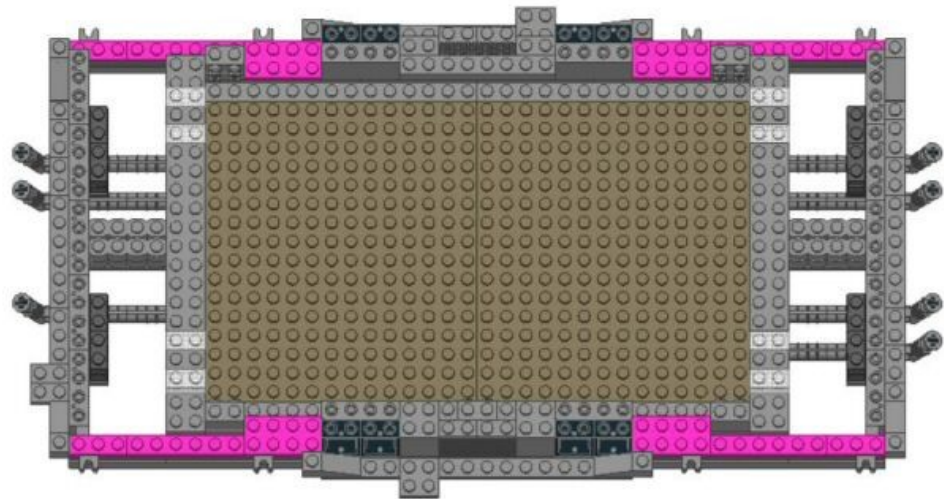
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 - 5x
 - 4x
 - 1x
 - 5x
 - 10x



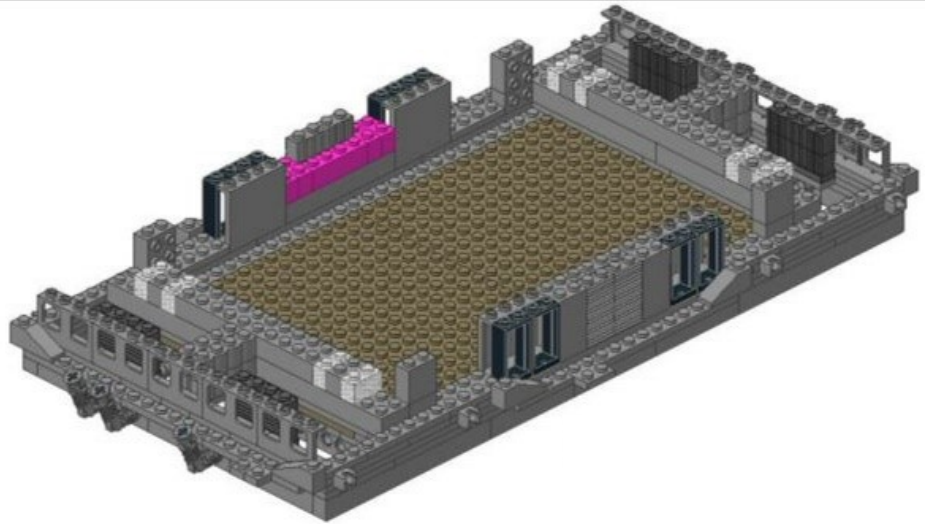
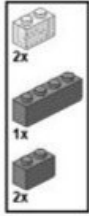
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 - 12x
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 - 2x



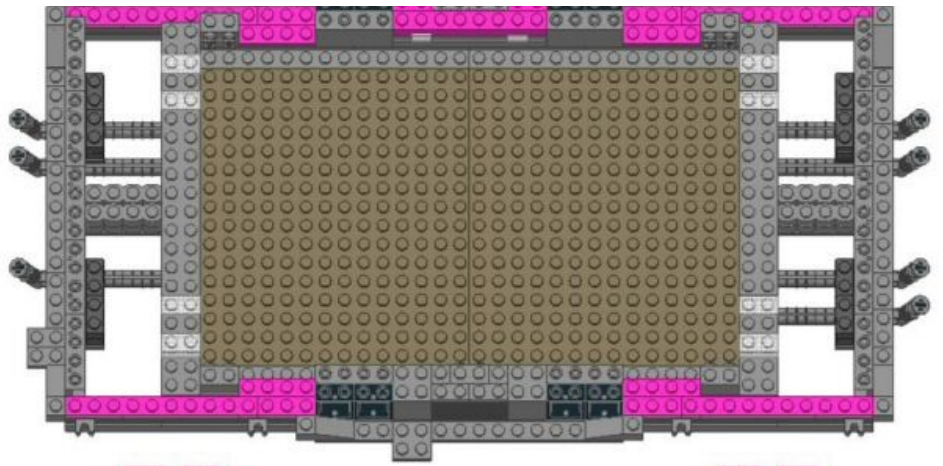
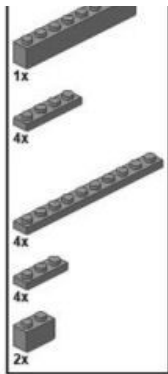
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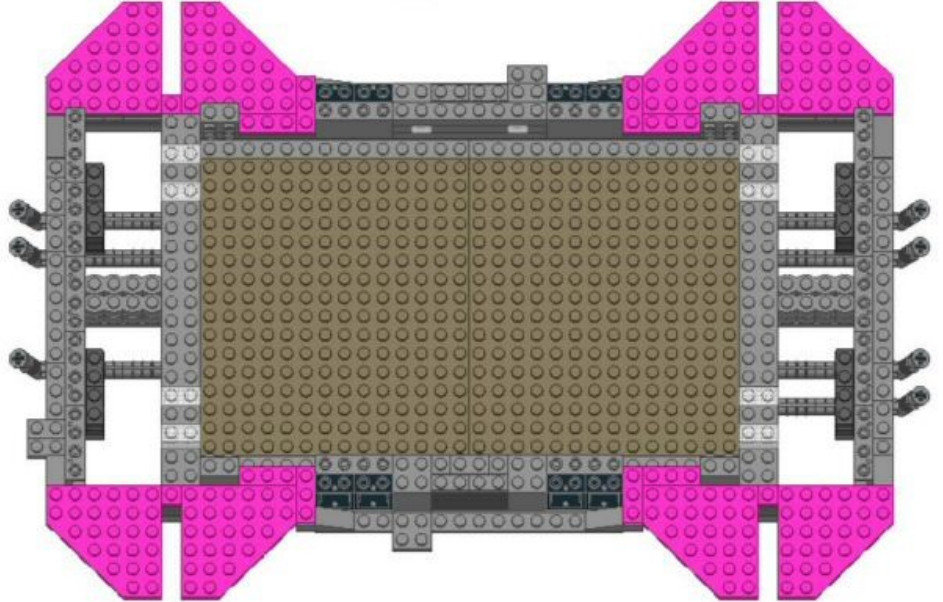
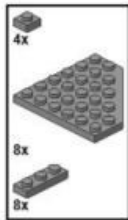
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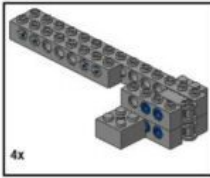
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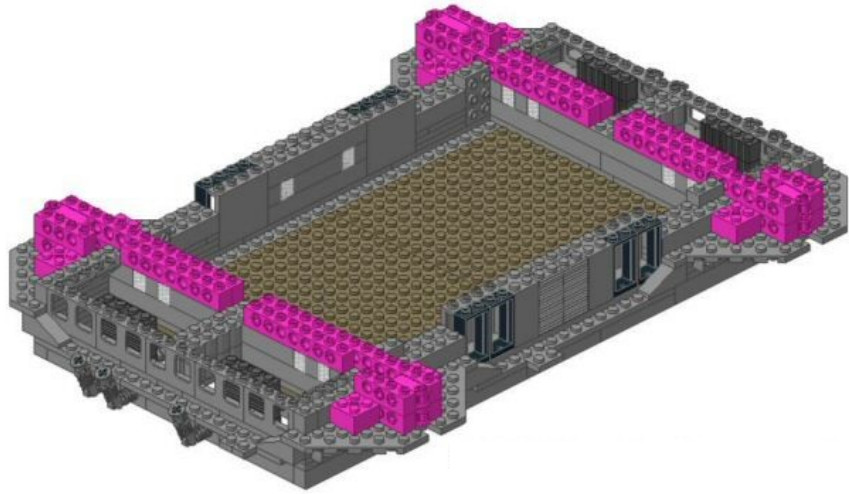
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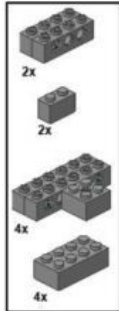


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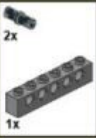


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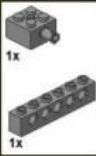
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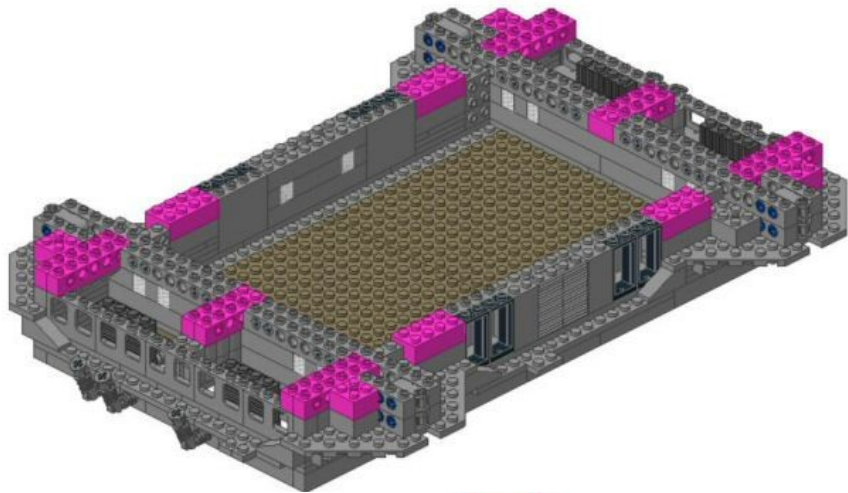
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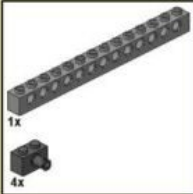
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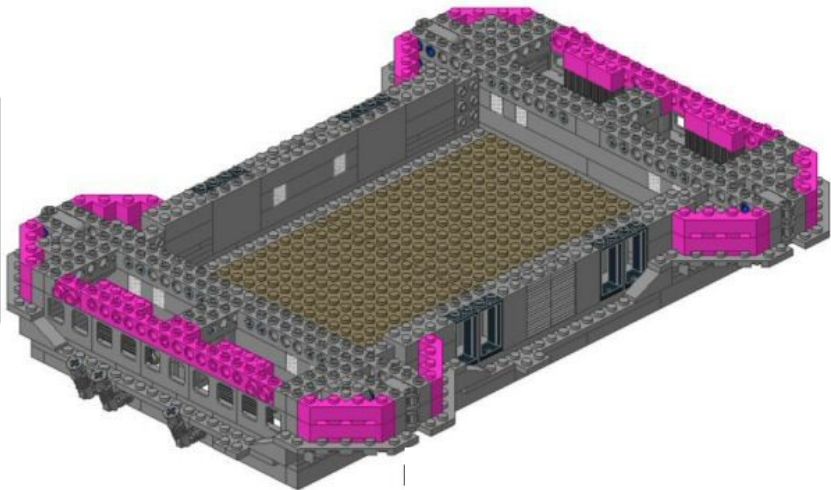
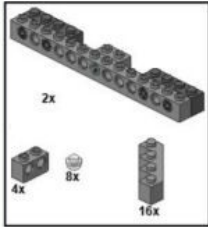


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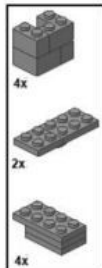


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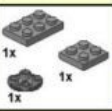


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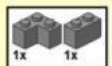


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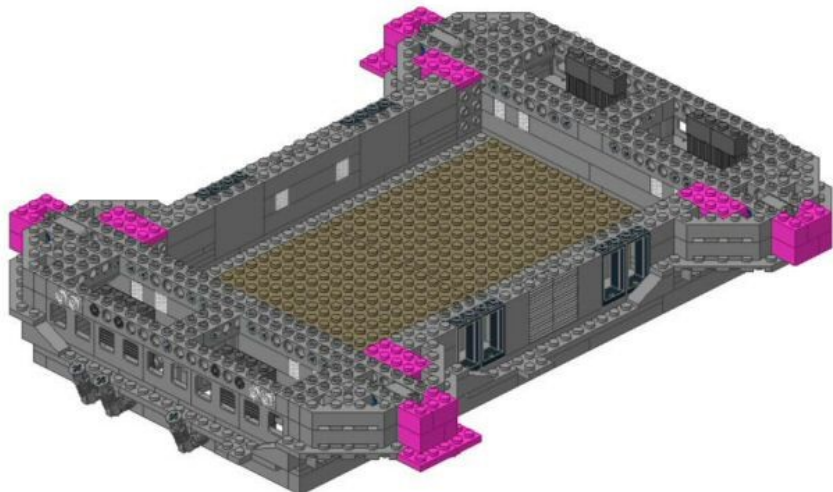
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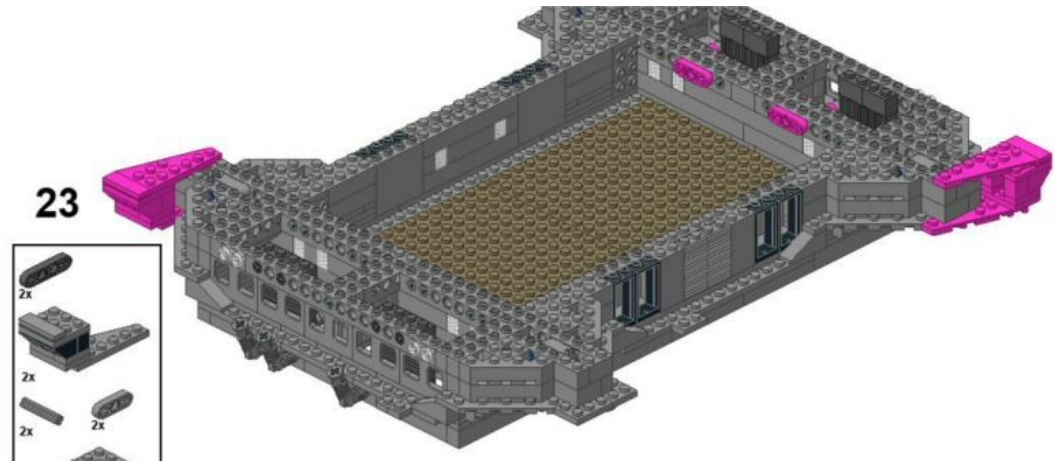
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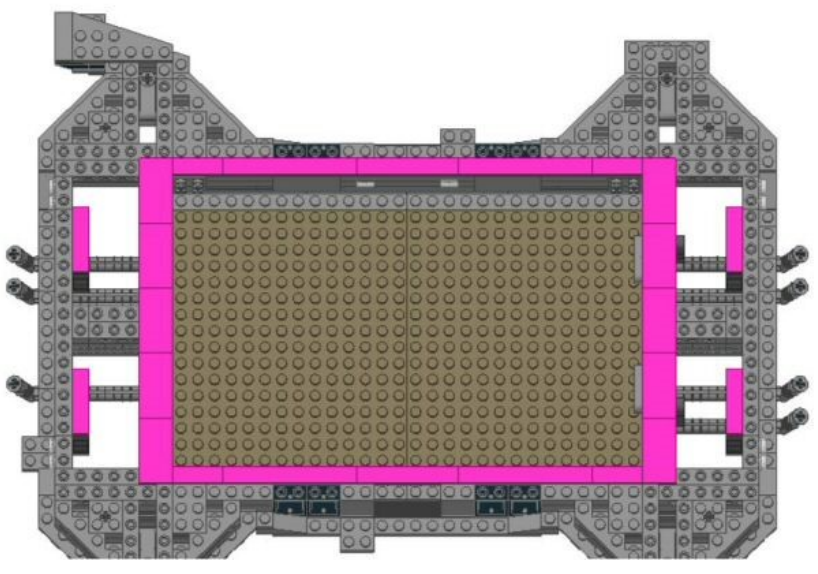


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 - 1x
 - 1x
 - 1x
 - 1x
 - 1x
 - 2**
 - 2x
 - 3x
 - 1x
 - 3**
 - 1x
 - 1x
 - 1x
- x2**

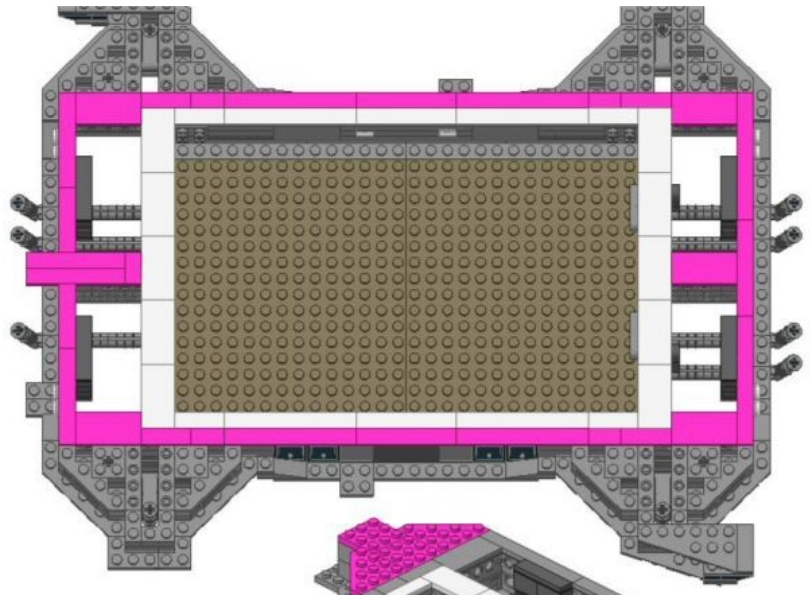


- 2x
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- 2x
- 2x

- 24**
- 2x
 - 10x
 - 4x
 - 4x
 - 4x
 - 4x



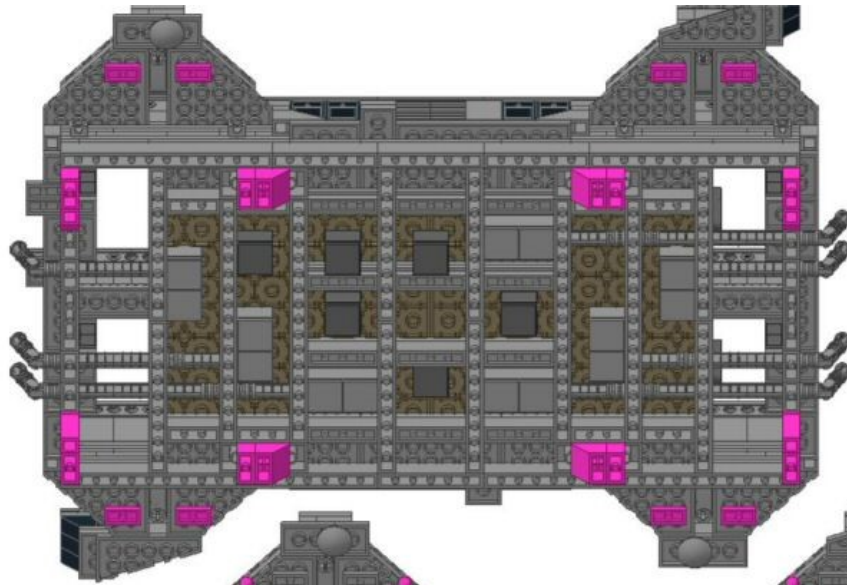
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 - 5x



- 26**
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 - 1x
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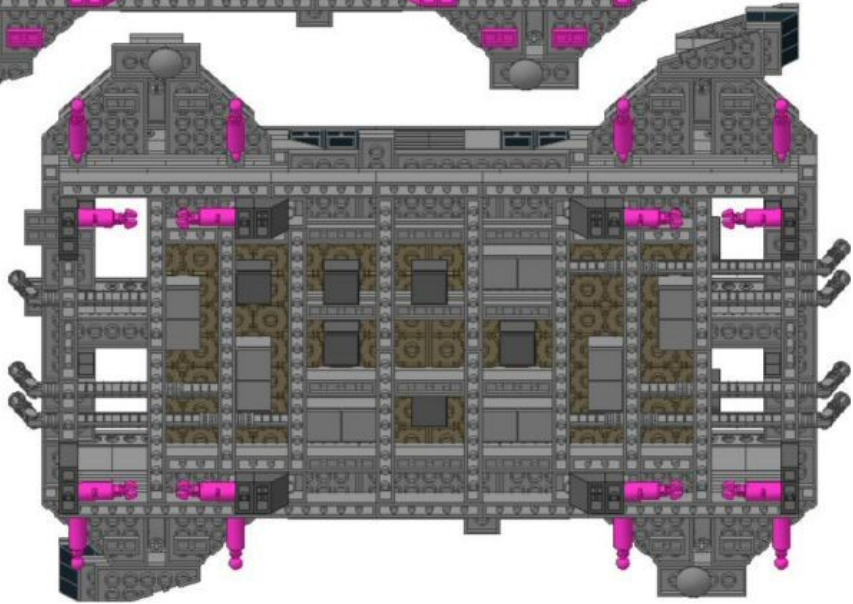


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 - 4x



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- 1 x8

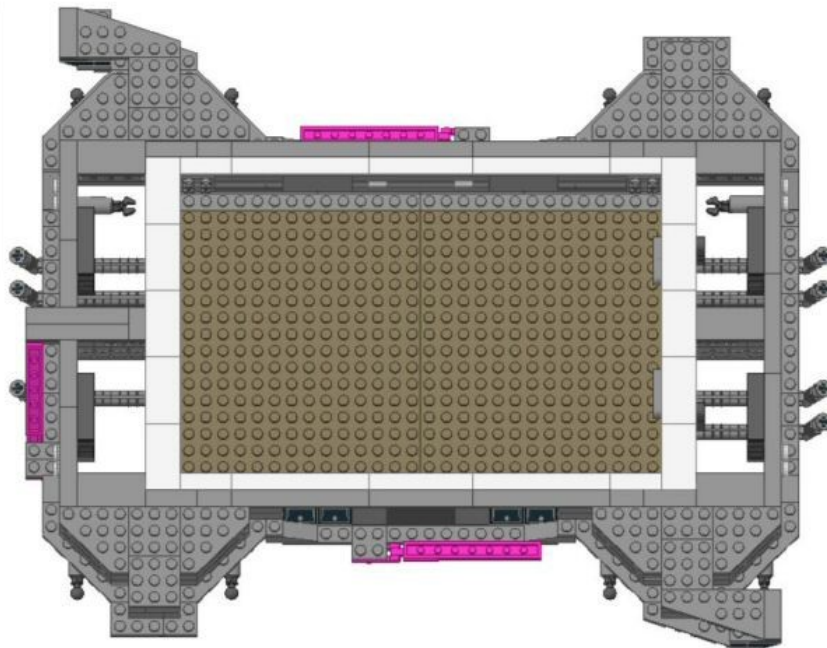
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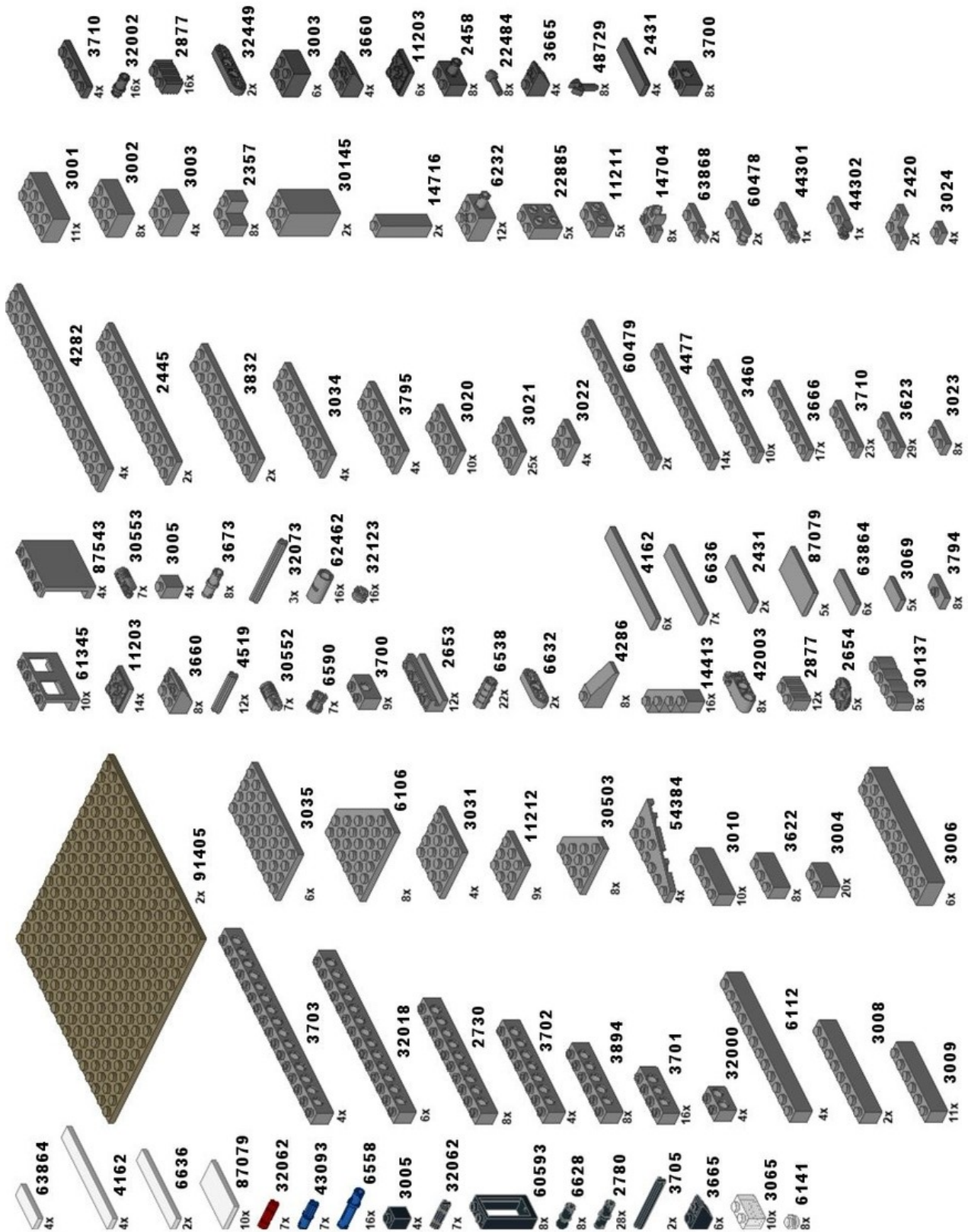


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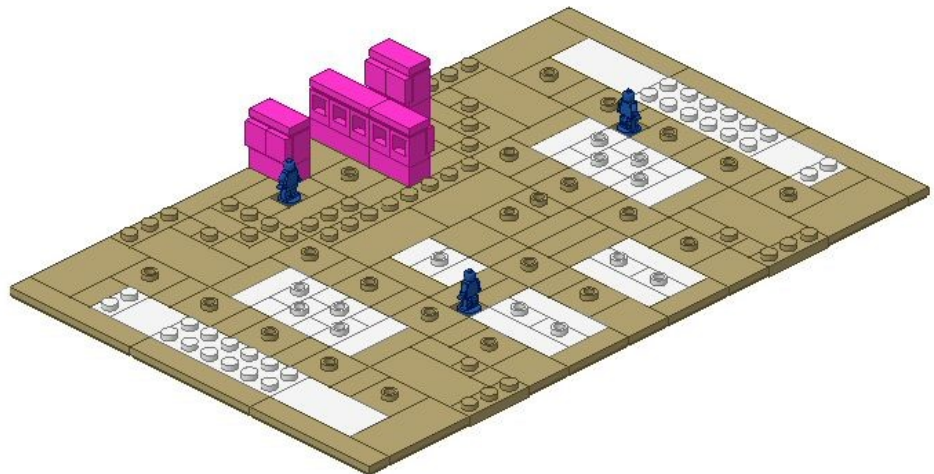
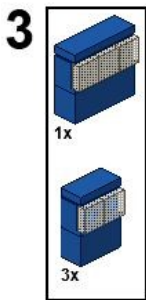
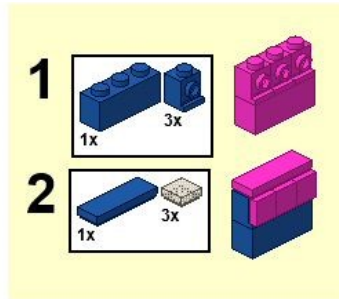
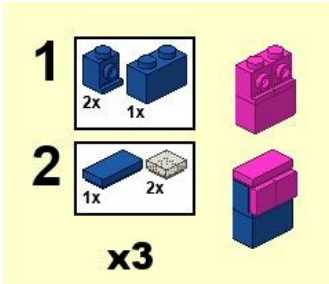
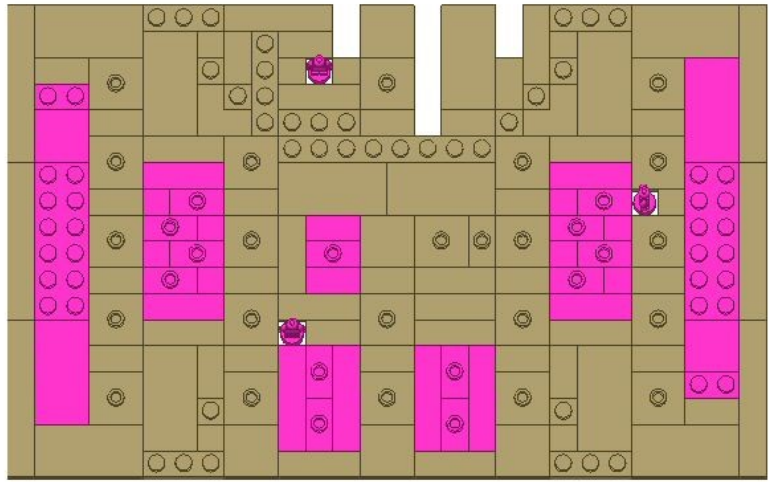
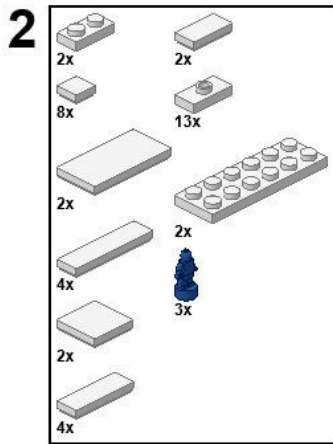
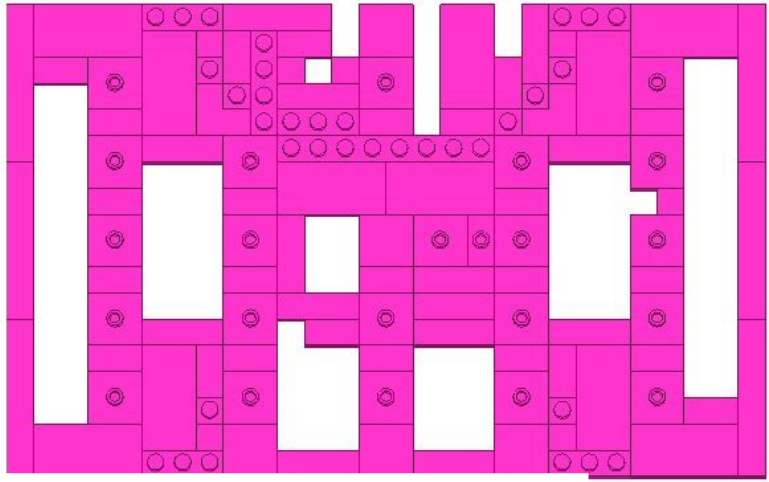
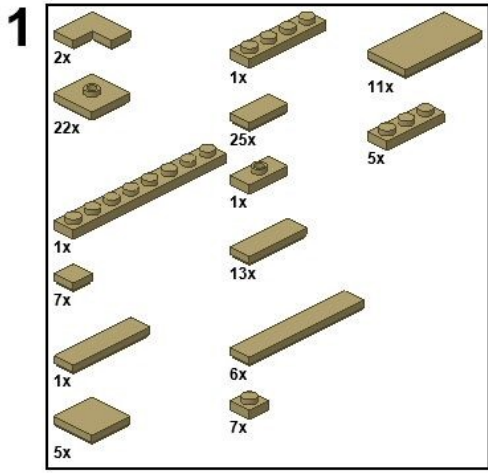
- 1 x2
- 2 x2

- 29
- 1x
 - 2x





NASA Crawler-Transporter Body - Parts List



NASA Crawler-Transporter

page 3

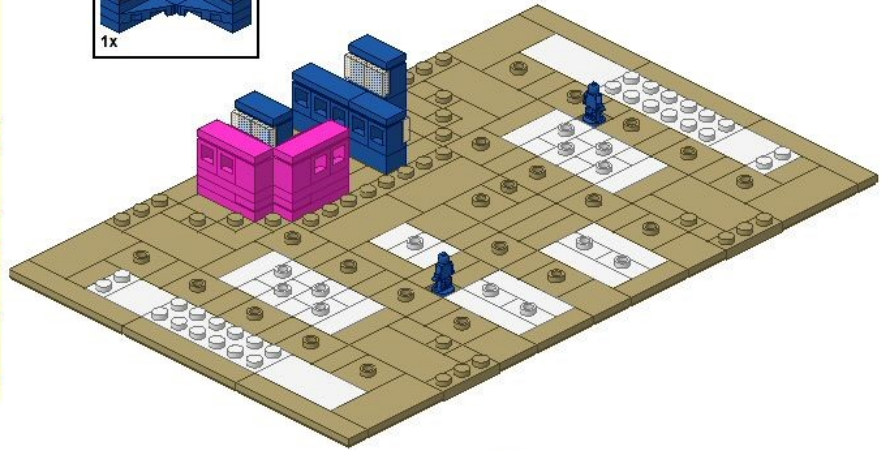
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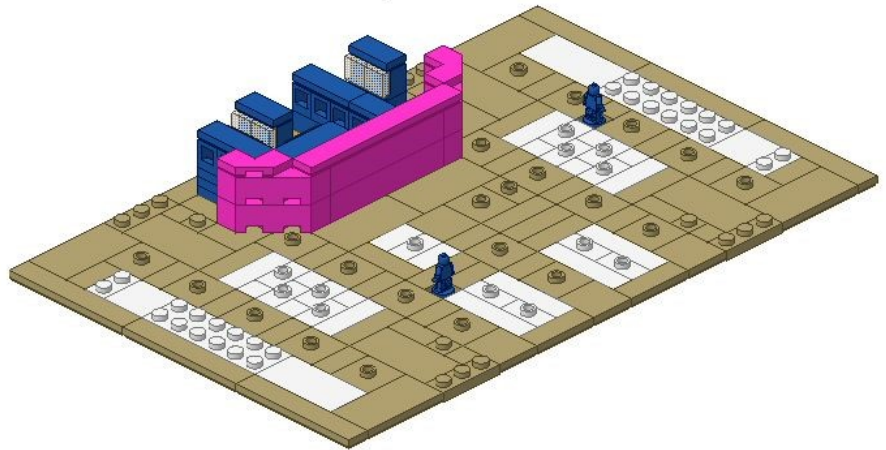
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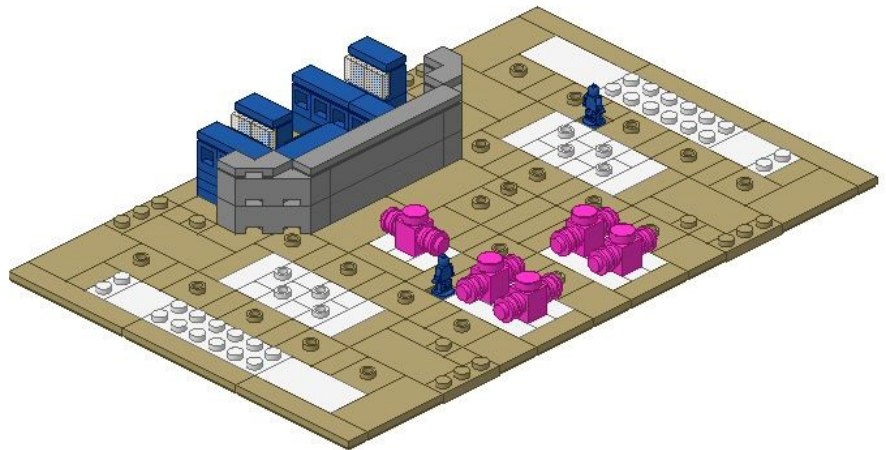
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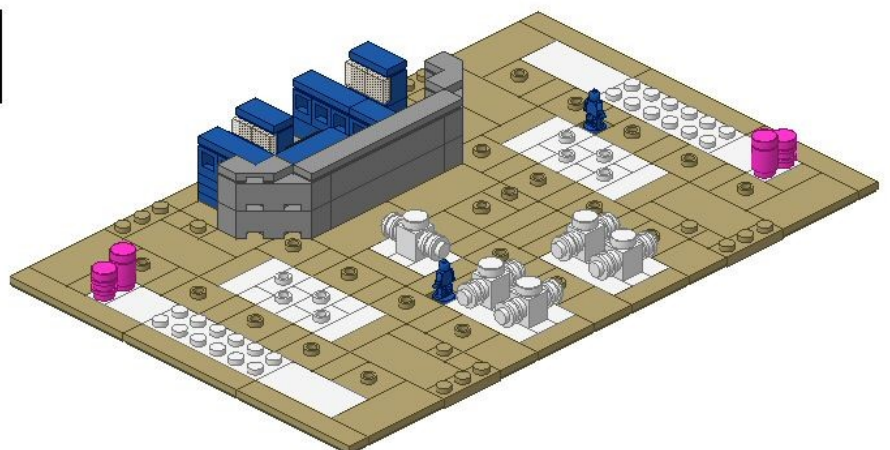
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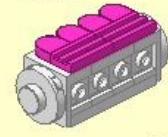
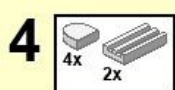
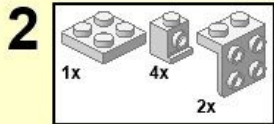
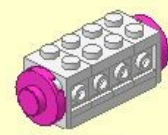
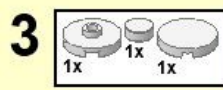
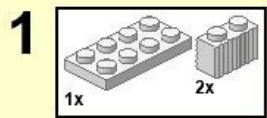
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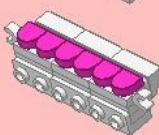
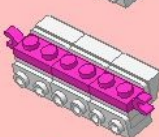
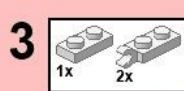
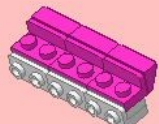
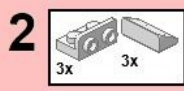
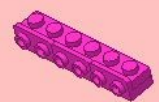
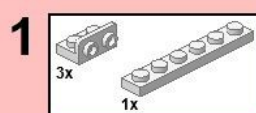
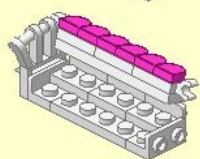
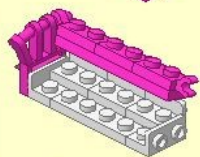
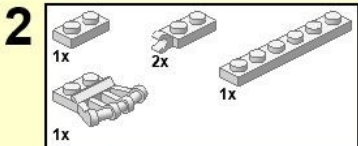
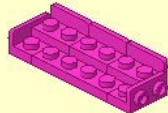
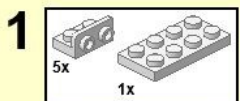
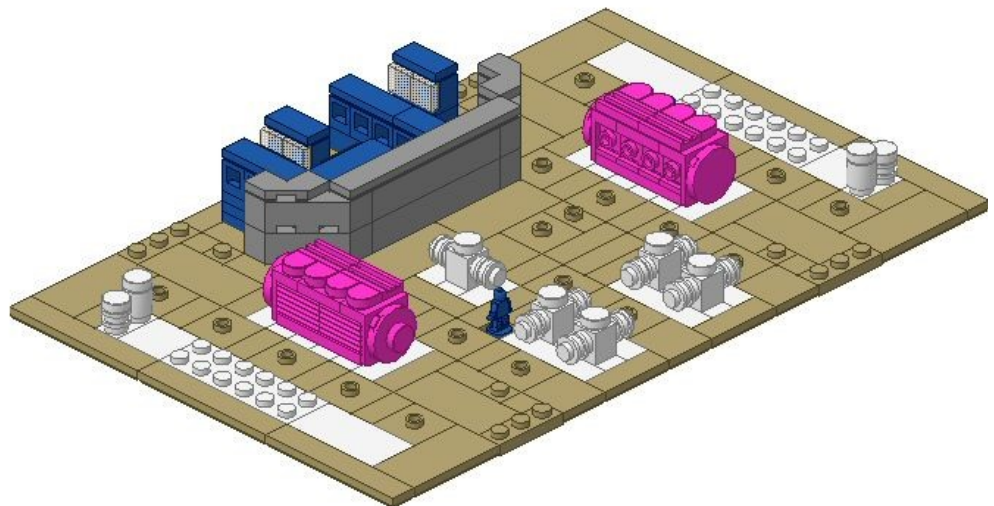
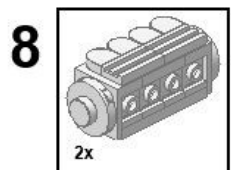
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x2

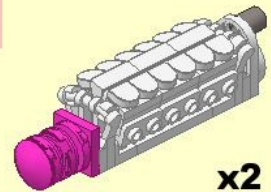
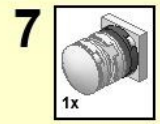
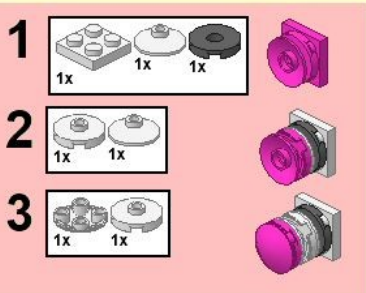
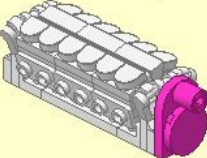
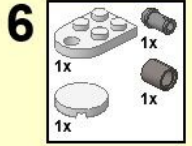
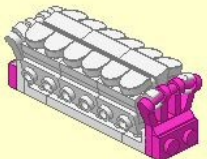
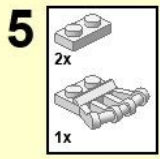
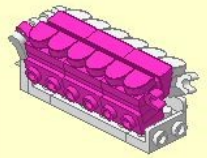
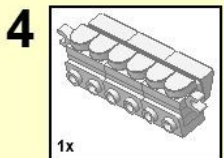




x2

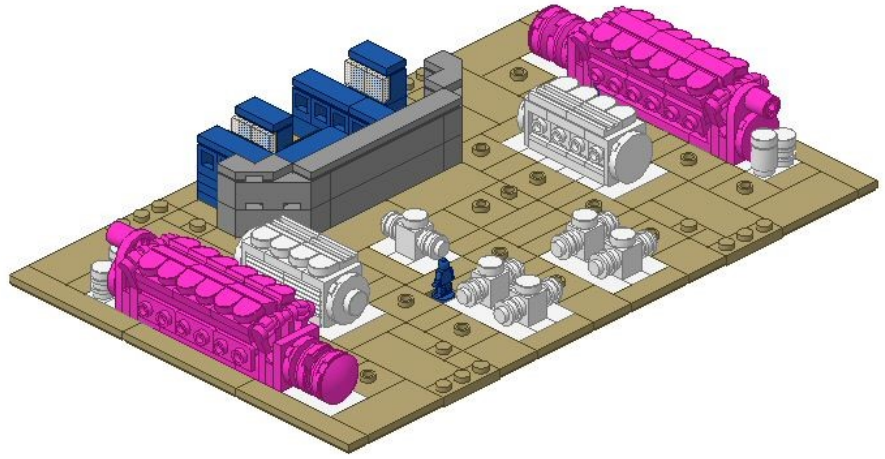
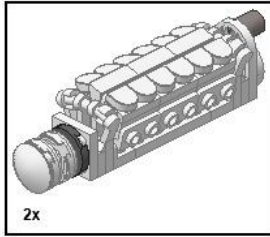


NASA Crawler-Transporter - Page 6



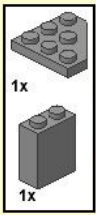
x2

9

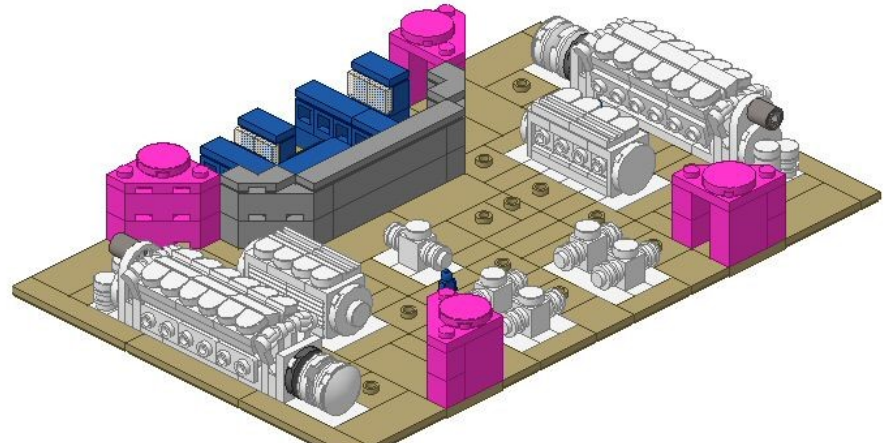
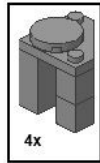


x4 Build 2 as mirror image

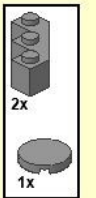
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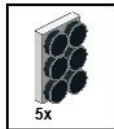
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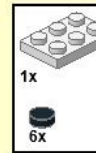
2



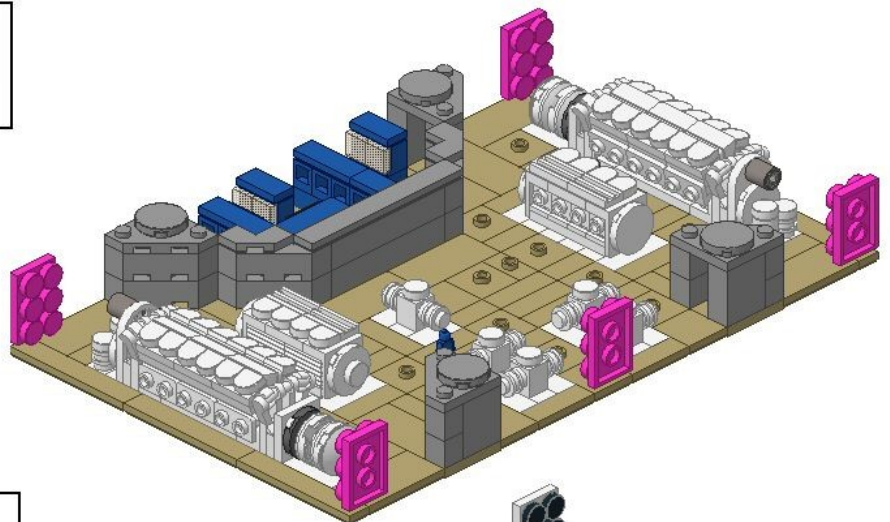
11



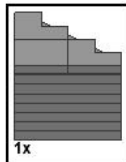
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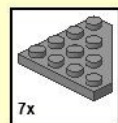
x5



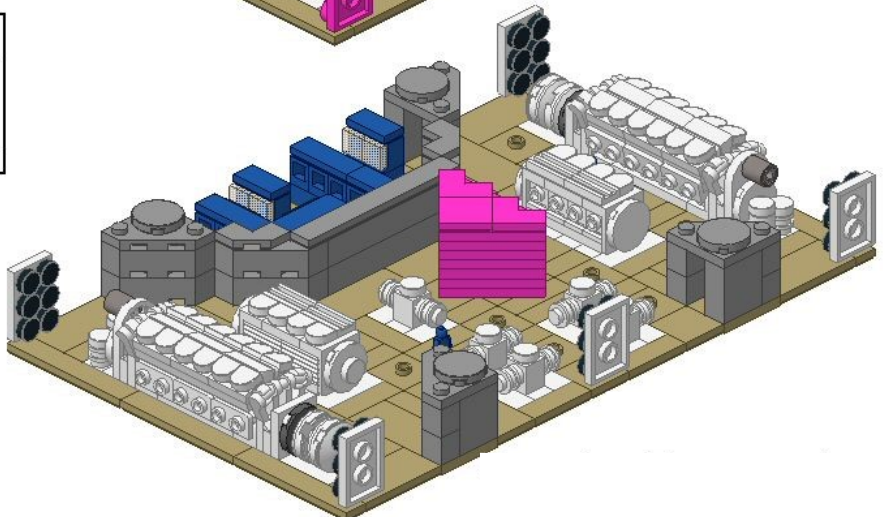
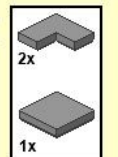
12

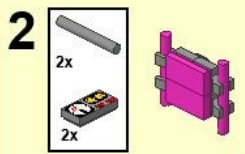
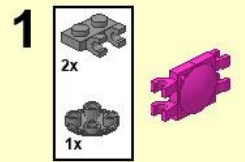
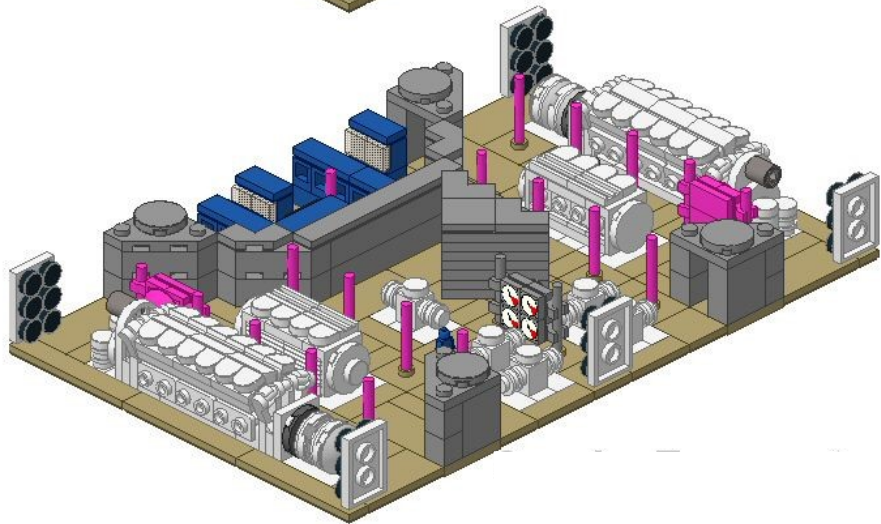
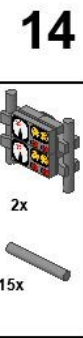
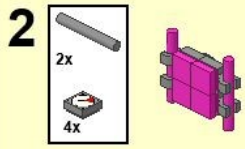
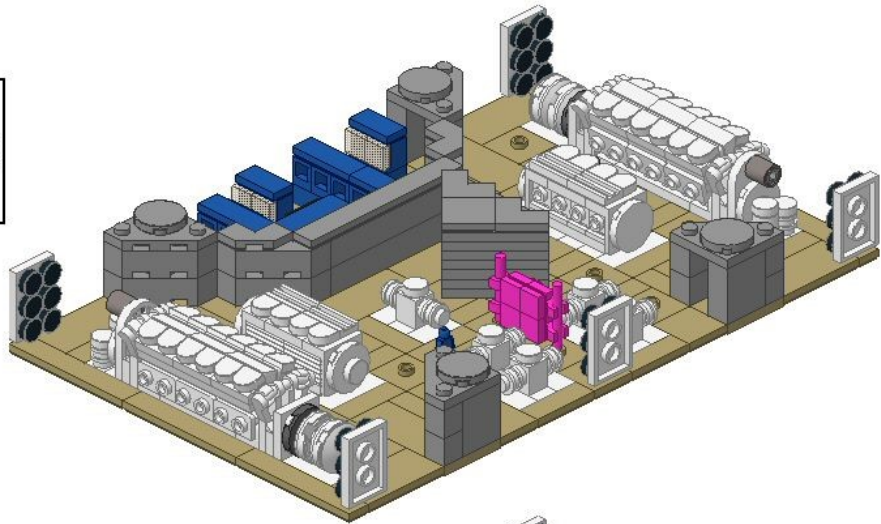
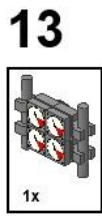
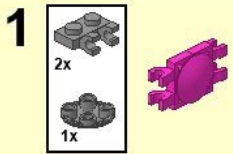


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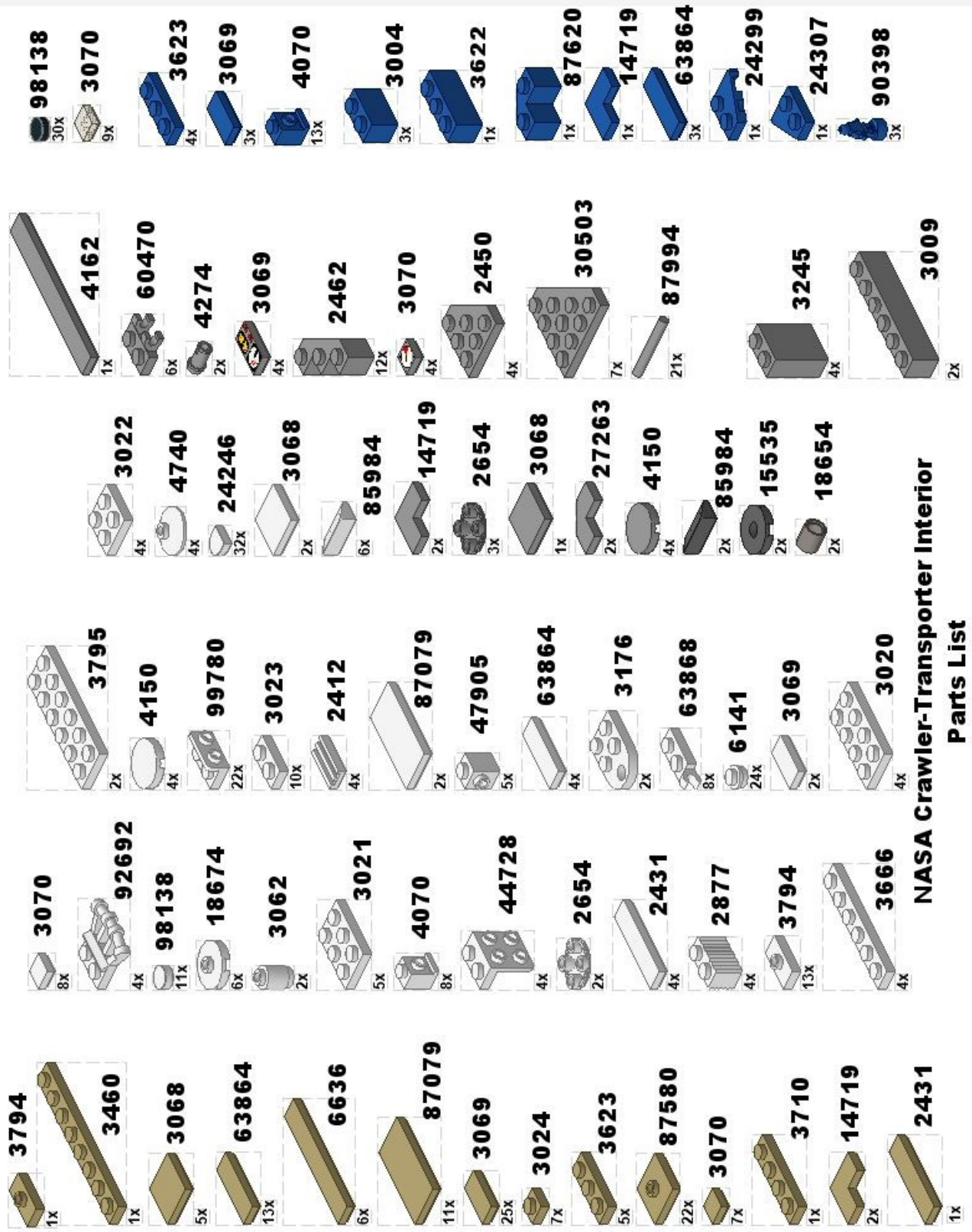


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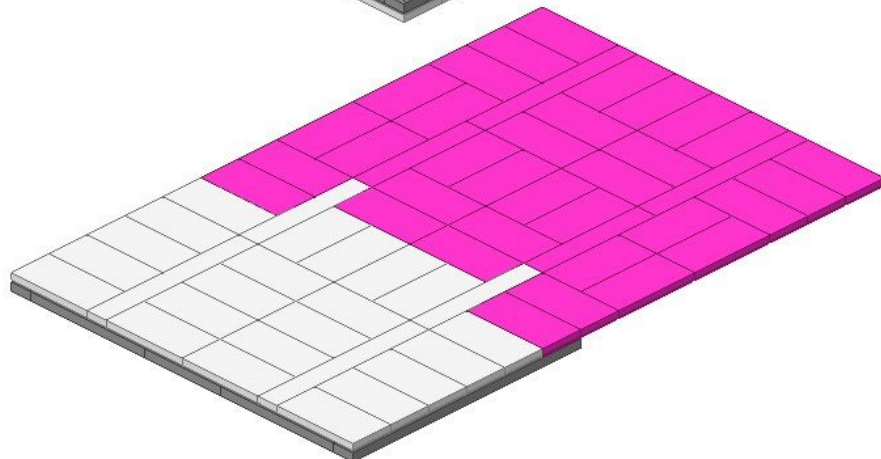
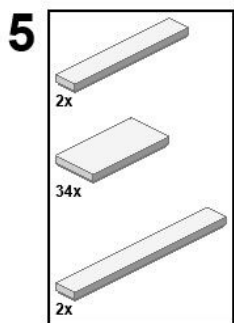
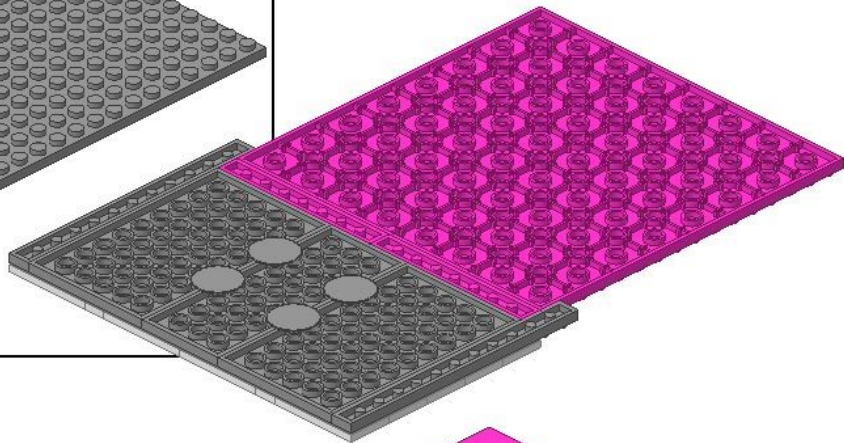
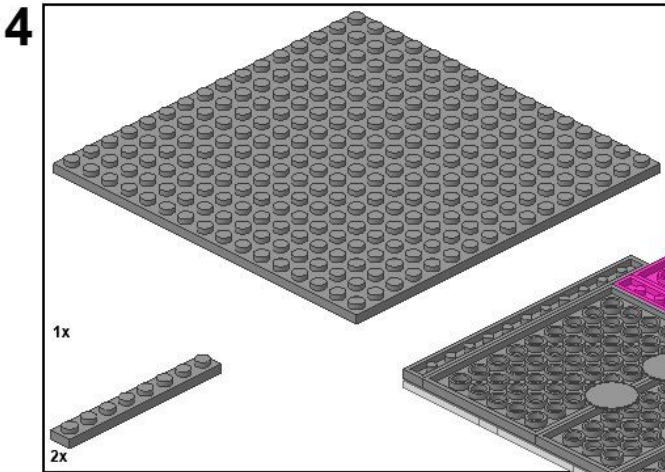
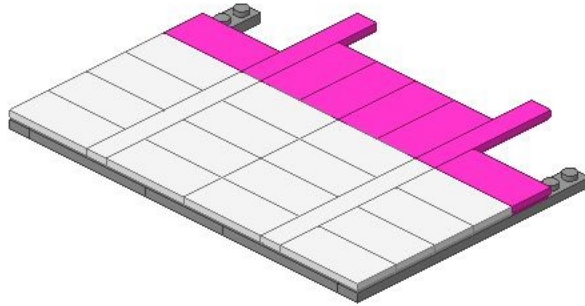
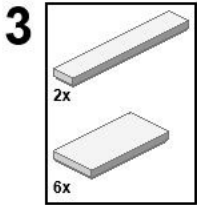
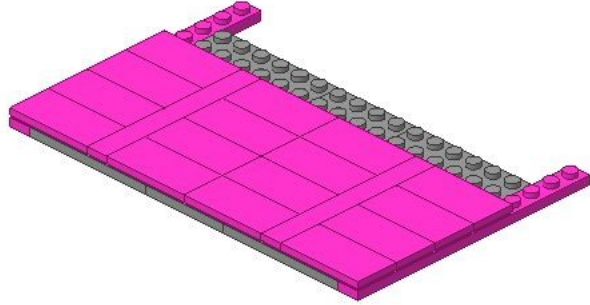
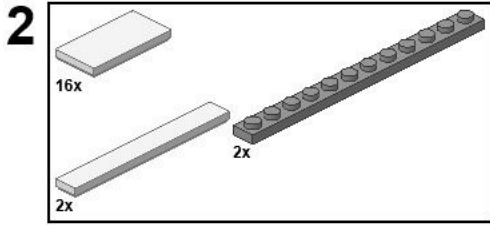
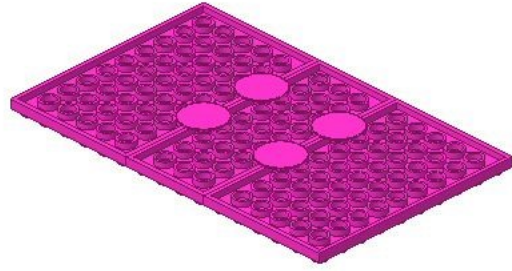
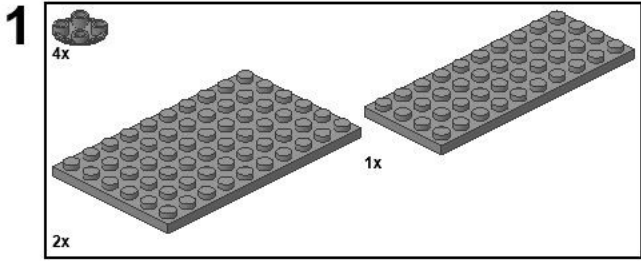


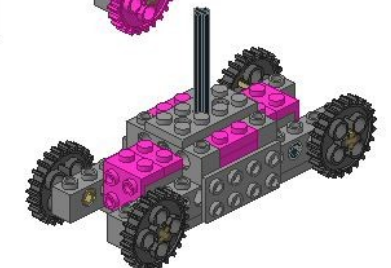
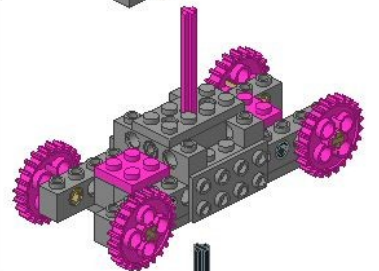
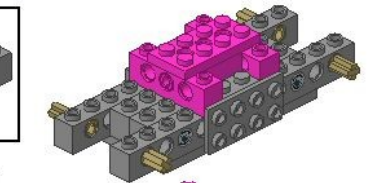
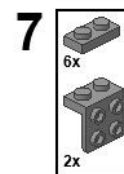
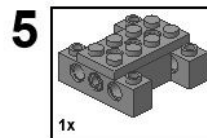
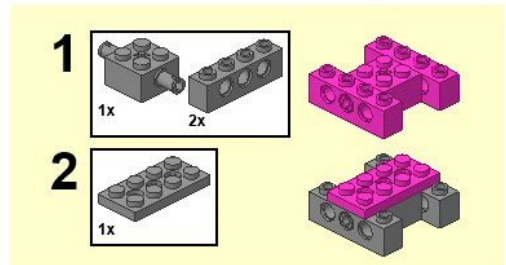
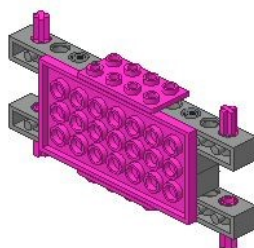
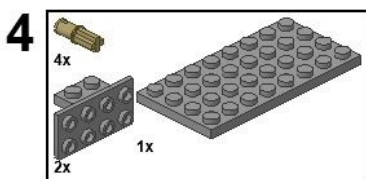
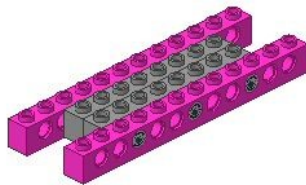
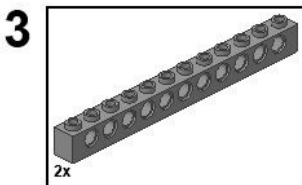
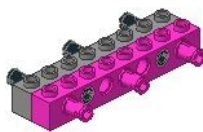
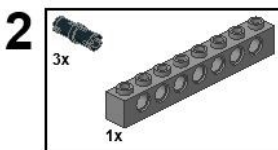
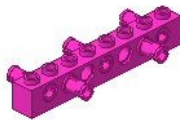
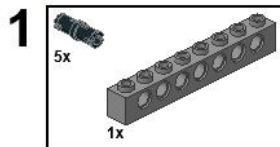
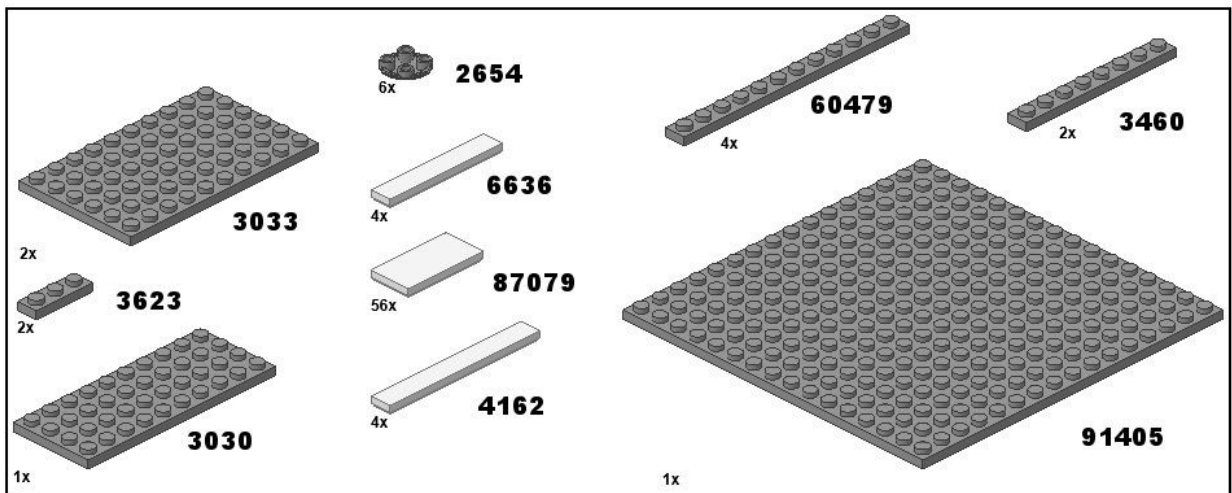
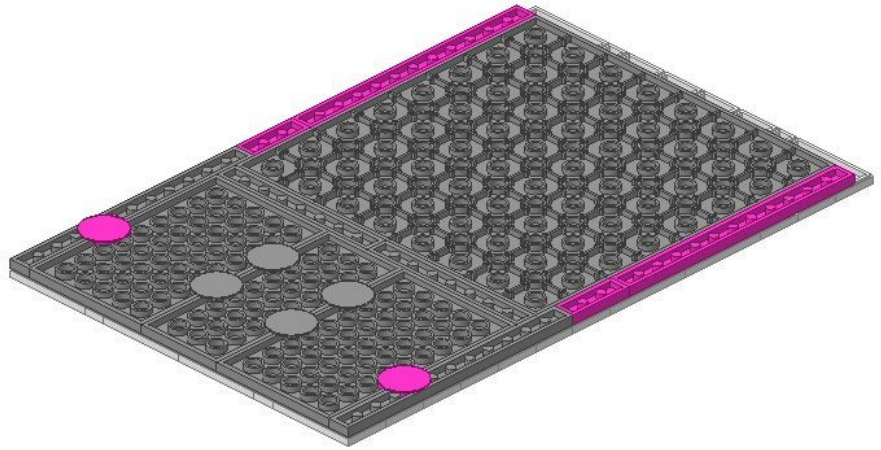
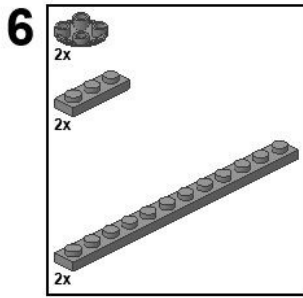


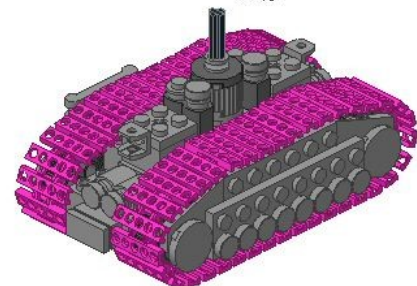
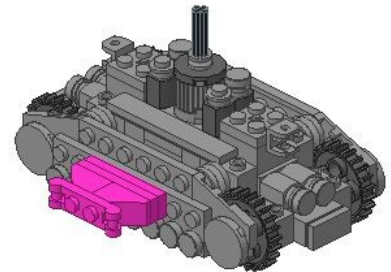
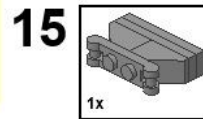
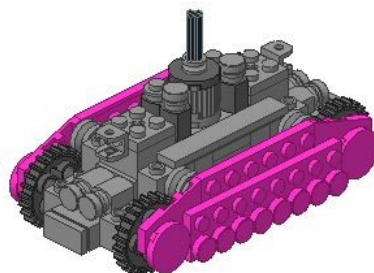
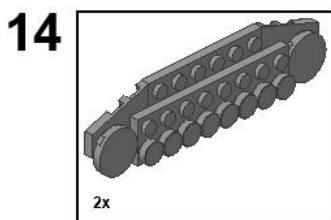
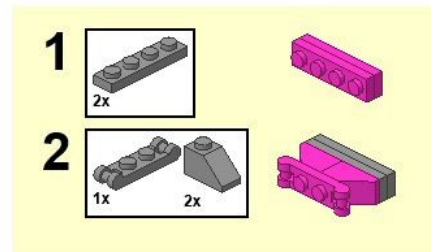
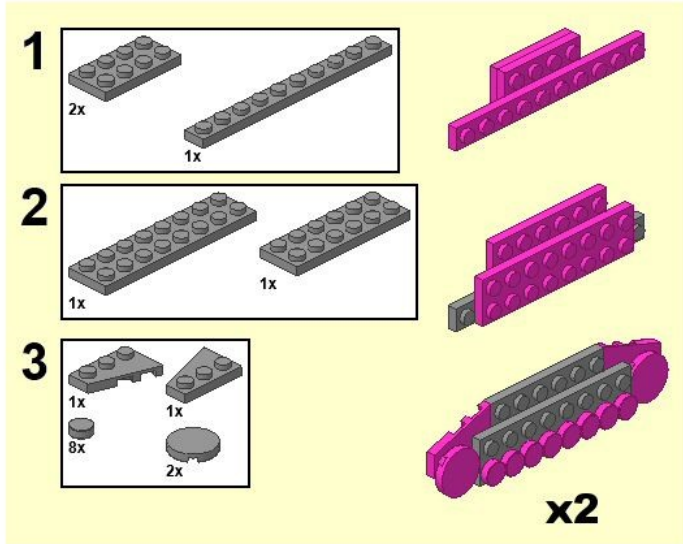
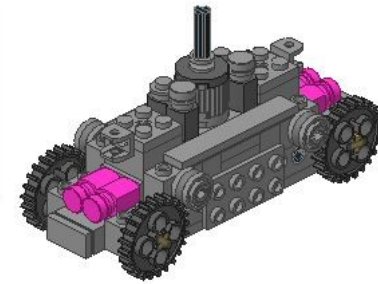
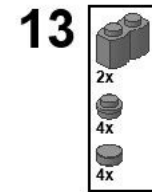
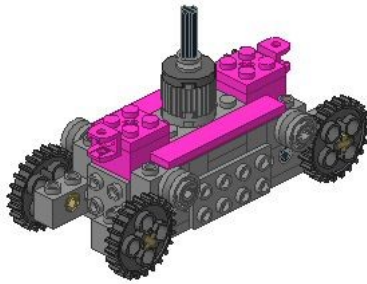
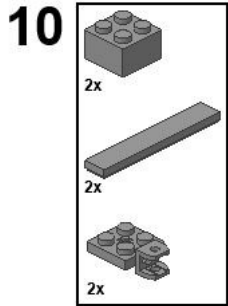
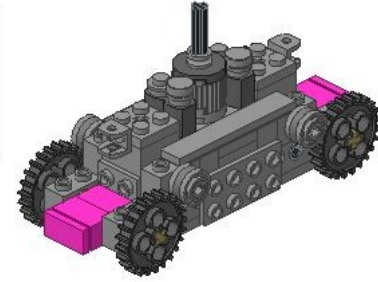
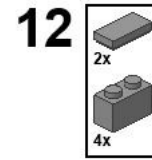
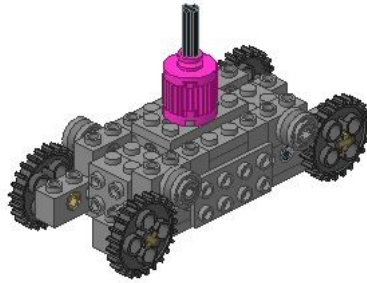
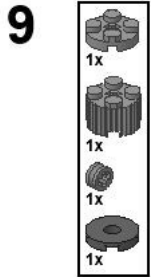
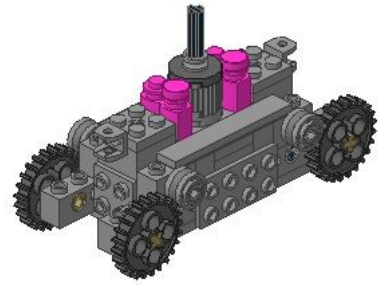
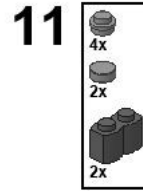
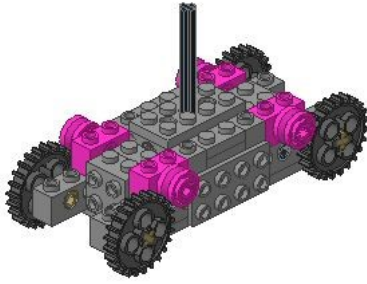
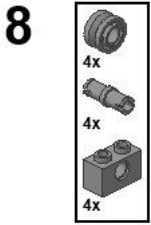
x2


















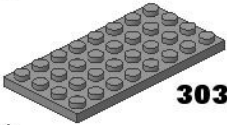


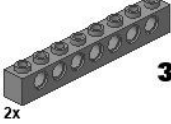
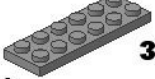



**NASA Crawler-Transporter Interior
Parts List**






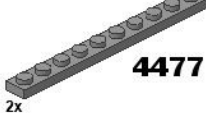

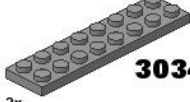






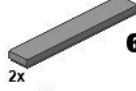










-  **6562**
4x
-  **3873**
74x
-  **3706**
-  **2780**
1x
-  **18649**
8x
-  **18649**
1x
-  **3003**
2x
-  **3040**
2x
-  **4032**
1x
-  **43723**
2x
-  **93274**
2x
-  **42610**
4x
-  **30136**
2x

-  **63082**
2x
-  **3710**
2x
-  **3035**
1x
-  **3069**
2x
-  **3673**
4x
-  **3702**
2x
-  **3795**
2x
-  **3700**
4x
-  **3023**
6x
-  **30000**
1x

-  **44728**
2x
-  **3709**
1x
-  **92947**
1x
-  **6141**
8x
-  **98138**
22x
-  **4477**
2x
-  **32123**
1x
-  **3034**
2x
-  **3895**
2x
-  **3701**
2x

-  **43722**
2x
-  **4150**
4x
-  **6636**
2x
-  **3022**
2x
-  **3020**
4x
-  **3004**
4x
-  **30136**
2x
-  **3648**
4x
-  **15535**
1x

**Parts to build
one track unit.
Four required.**