15118

K'NEX®

MISSIONS™ IN SPACE

INTERNATIONAL SPACE STATION

⚠ WARNING:
CHOKING HAZARD – Small Parts.
Not for children under 3 years.

⚠ AVERTISSEMENT:
DANGER D'ÉTOUFFEMENT – Pièces de petite taille.
Ne pas donner aux enfants de moins de 3 ans.

⚠ ATENCIÓN:
PELIGRO DE ASFIXIA – Por contener piezas pequeñas,
no recomendable para niños menores de tres años.

COLOR CODED BUILDING SYSTEM

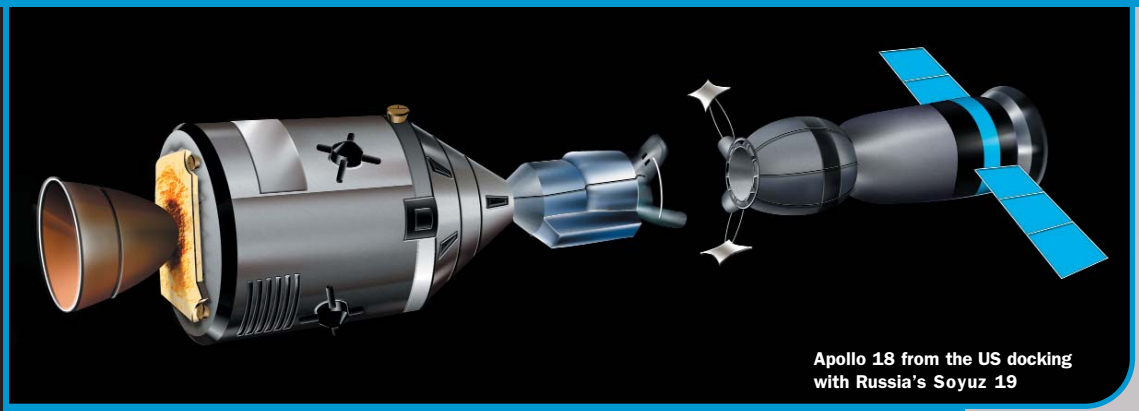
The Space Race 1950 to 1975

Countries used to work alone on space projects. Each one wanted to be the first to do something new. That's why this time in history is often referred to as "The Space Race."


Moon Walk

The Russians were the first to launch a satellite, an animal, a man and a woman into space. They also made the first space walk.

The United States had its firsts, too. The Mercury and Gemini programs led to the first docking of spacecraft in orbit. And America won the space race by landing the first man on the moon during the Apollo missions. Another US first was the Lunar Roving Vehicle or LRV. The LRV was a battery-powered car that helped the astronauts drive around on the moon.


Apollo 18 from the US docking with Russia's Soyuz 19

Working Together in Space 1975 to Today

The Space Race ended in 1975 when Apollo 18 from the US docked with Russia's Soyuz 19 in orbit. This was the first time spacecraft from two countries connected.

Today, countries help each other with space projects. This cooperation has made the hard work of space exploration easier. Now space programs around the world share research, machines, spacecraft and ideas.


Technicians in shuttle cockpit

In 1983 the European Space Agency built Spacelab, which was carried into orbit by a US Space Shuttle. And in 1995 the US Space Shuttle Atlantis docked with the Russian Mir Space Station. This made the largest spacecraft ever to orbit around the Earth.

The International Space Station
-Global Teamwork-

Now that countries are working together, amazing things are happening in space exploration. The most incredible is the International Space Station, or ISS.

The ISS is a huge laboratory in space where astronauts and scientists from 16 different countries will live for months at a time. The learning that takes place on the ISS will one day be used to help humans travel to Mars and beyond.

The station will be larger than a football field and the part of the ISS where astronauts will live and work will be bigger than a 747 jet plane. The ISS will be so big you will be able to see it pass overhead from your backyard.

A Construction Site 250 Miles in Space


Space Shuttle ready for take off!

It's easier to build things on earth than in space, so pieces of the ISS will be built on Earth and flown into space. Some of the pieces are the size of a school bus, and some are even larger!

The pieces will be flown into space and put together by astronauts. Just think of the ISS as a giant model. It will take 45 Space Shuttle missions and over 4 years to carry the pieces of the ISS into orbit. That's about one Shuttle launch each month. Russia, Japan and the European Space Agency will also launch rockets carrying parts of the ISS.

Astronauts will walk in space and use special tools to put the ISS together. It will take over 2,000 hours of space walks to put the ISS pieces together. That's more time in space than all the other space walks combined!

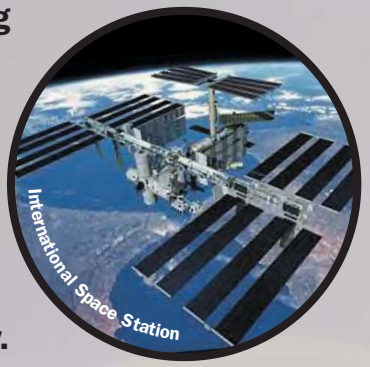
Far Out Facts About the ISS

Zero Gravity - Because there is no gravity in space, astronauts will weigh the same as pieces of the ISS. Some of these pieces weigh 10 tons on Earth.

Robotic arms - Huge, strong robot arms will be used to move the pieces of the ISS into place. Then astronauts will bolt the pieces together.

New Space Suits - New space suits have been designed for the astronauts building the ISS. These suits are tougher and will last longer. Each suit will have a built-in radio and a jet pack to fly an astronaut back to the station if a safety rope breaks.

Flying Robot Camera - NASA has developed a flying camera that looks like a soccer ball. The camera will zoom through space inspecting the ISS while the astronauts watch from a safe spot inside the station.

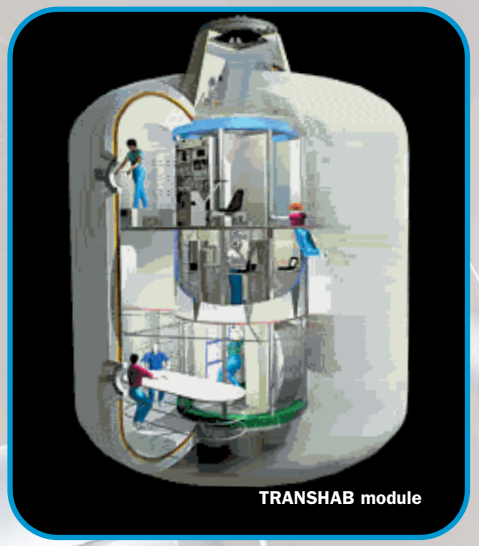



X-38 Escape Pod

Escape Pod - A special Crew Return Vehicle called the X-38 is being designed. This will be an escape pod or life-boat for astronauts in case of an emergency. The X-38 has no wings, but its shape will allow it to sail through the Earth's atmosphere safely.


Astronaut in space suit

Living in a Balloon - The ISS crew will live and work inside a giant balloon called the TRANSHAB module. The walls of the balloon are 12 inches thick and will be tough enough to stop an object moving seven times faster than a bullet. TRANSHAB will contain a kitchen, hospital, bedrooms and more. The balloon will be carried into space in the Space Shuttle's cargo bay and inflated in orbit.


TRANSHAB module

16 Countries - 1 Mission

The following 16 countries are working together to build the ISS. Their contributions are listed below:

1. UNITED STATES	2 Laboratories, TRANSHAB Module, 3 Connection Nodes, Solar Panels, X-38 Crew Return Vehicle, Truss (Scaffolding)
2. SPAIN	Columbus Orbital Facility Lab, Robotic Arm
3. FRANCE	
4. UNITED KINGDOM	
5. BELGIUM	
6. NETHERLANDS	
7. NORWAY	
8. SWEDEN	
9. DENMARK	
10. GERMANY	
11. SWITZERLAND	
12. ITALY	
13. RUSSIA	11 Orbital Modules
14. CANADA	2 Robotic Arms
15. JAPAN	KIBO Laboratory, Experiment platform
16. BRAZIL	Logistics Carrier, Express Pallet

Additional Information

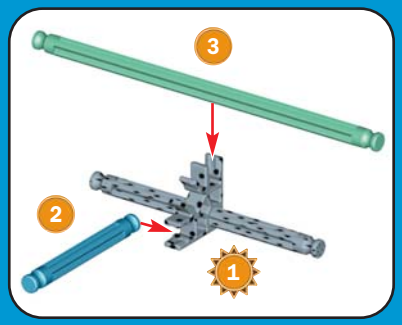
For cool pictures and even more information on the INTERNATIONAL SPACE STATION visit NASA's official ISS Web site at: www.spaceflight.nasa.gov/station

And to find out more about other exciting MISSIONS IN SPACE models from K'NEX, visit our Web site at: www.knex.com

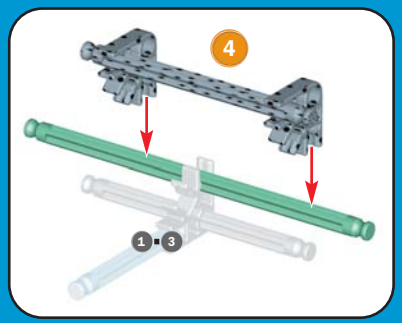
Learn how bridges stay up, machines work, roller coasters stay on track, and so much more. Check it out at: www.knexeducation.com

The information and images presented have been derived from NASA's official Web site in accordance with NASA's guidelines for the use and reproduction of NASA material for educational purposes.

K'NEX Building Tips / Safety Information

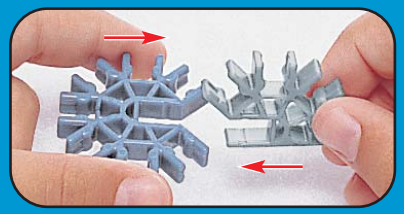


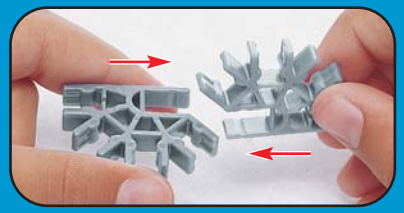
Each K'NEX piece has its own color and shape; match it to pieces in the picture instructions. Put pieces together exactly as pictures show. Be sure to put Rods in the correct slots of Connectors, so you have proper angles in your finished model. Install batteries before building models. The instructions get you going, but the fun doesn't stop there. Design your own models!



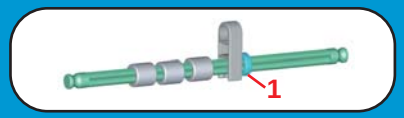
Faded colors indicate sections previously built; connecting points will be in full color.

LOOK OUT! When you see this symbol on the instructions, pay close attention to the area being pointed out. It's important to build this section correctly, or the model may not work properly.





It's very important to position blue and silver Connectors in a specific direction. Pay close attention to the instructions, and position these Connectors horizontally or vertically exactly as they are shown. Push together tightly until you hear a "click".



Pay close attention to the number of blue and silver Spacers needed.

Keep this important information for future reference.

- Do not connect model to more than one PowerPack™.
- Remove rechargeable batteries from model before charging; they must be charged only under adult supervision.
- Non-rechargeable batteries must not be recharged.
- Do not mix different types of batteries; do not mix alkaline, standard (carbon-zinc), or rechargeable (nickel-cadmium) batteries. Do not mix new and used batteries. Only batteries of the same or equivalent type recommended should be used.
- Insert batteries with correct polarity (+/–) as shown.
- Remove exhausted batteries from model; do not short-circuit supply terminals.
- Keep PowerPack™ free of dust; do not immerse or use in water.
- Alkaline batteries AA (LR6) are recommended.
- Do not put small black Rods in any openings of the PowerPack™; they will damage the motor, and cannot be removed.

⚠ WARNING: As with all small items, these batteries should be kept away from children. If swallowed, seek medical attention immediately.

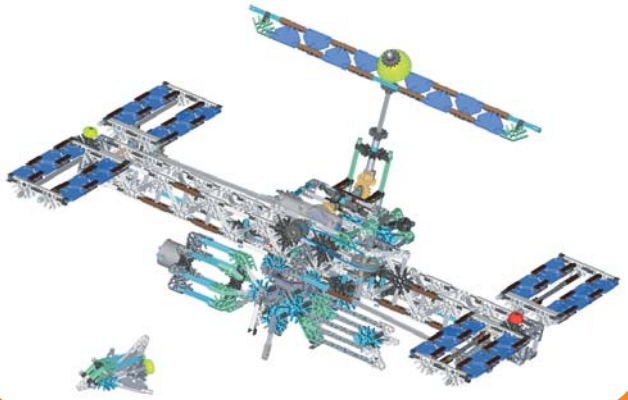
- The sound module comes with 3 batteries already installed for you.
- To replace batteries, remove screw. Insert 3 button cell LR44 batteries (A76 or SR44), matching the (+/-) diagram inside the compartment.

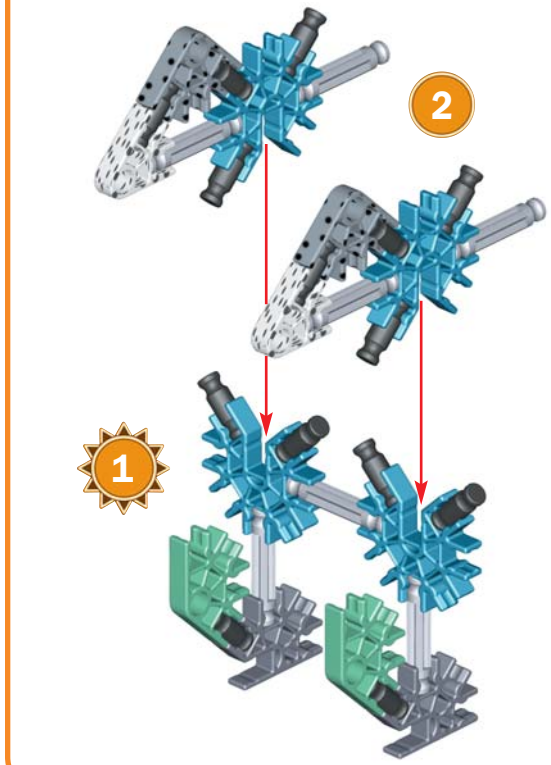
CAUTION! Do not use close to the ear! Misuse may cause damage to hearing.

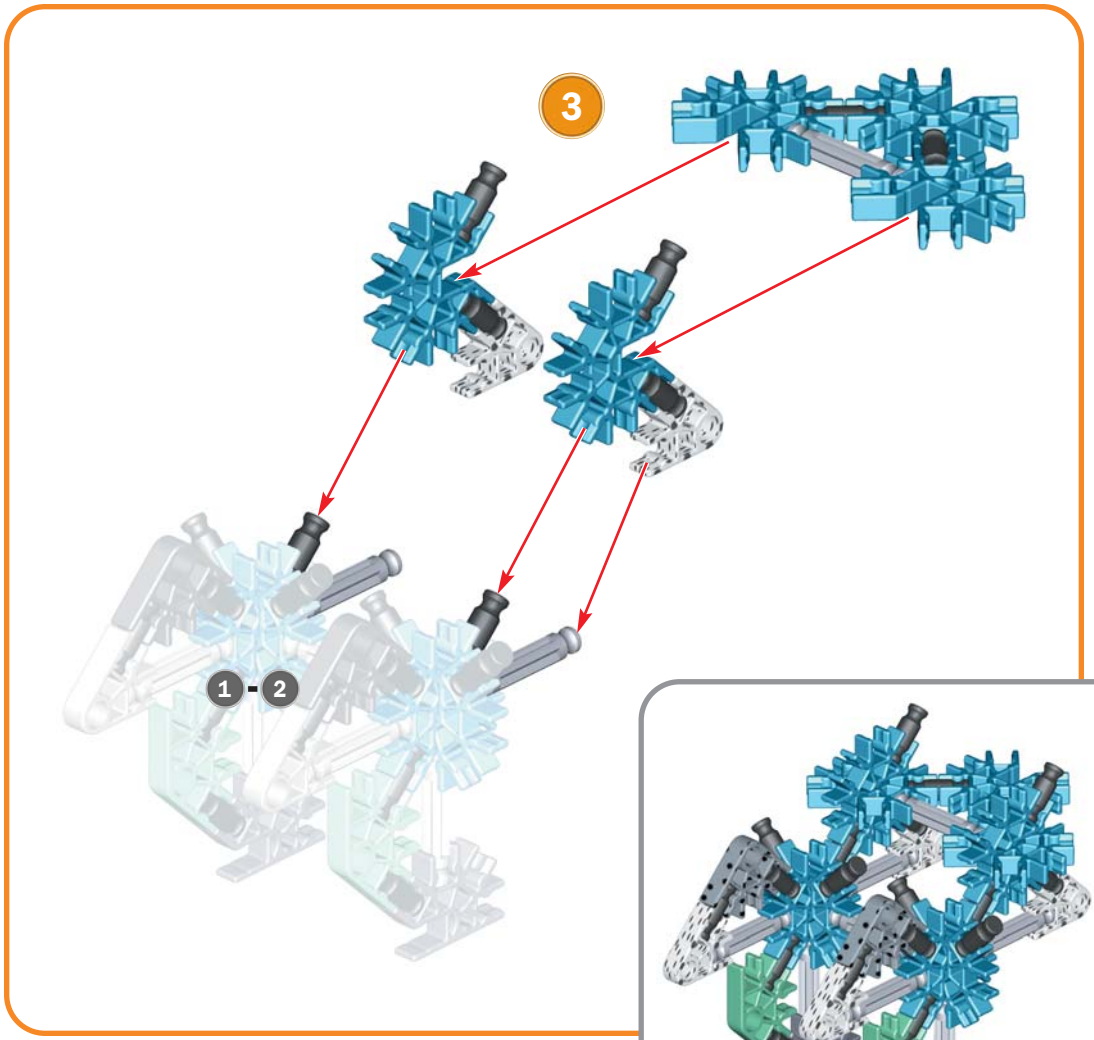
⚠ CAUTION: Rubber Bands can cause injury from snap-back, breaking, or loss of control. While assembling models shown in instructions, hold Rubber Band tightly, and do not over-stretch. Use Rubber Bands only as shown in these instructions. DO NOT USE FRAYED OR TORN RUBBER BANDS.

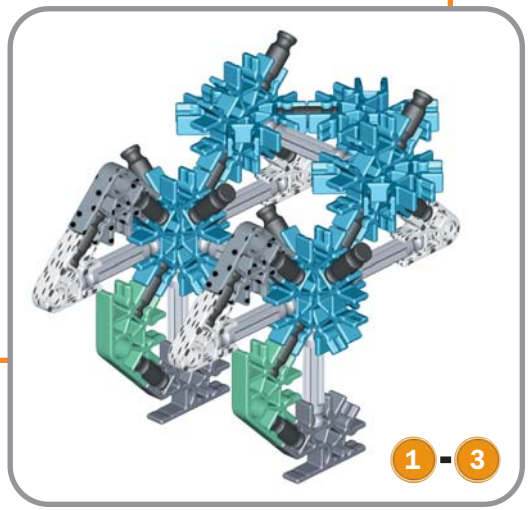
⚠ CAUTION: Keep hands, face, hair, clothing and Power Cord away from all moving parts.

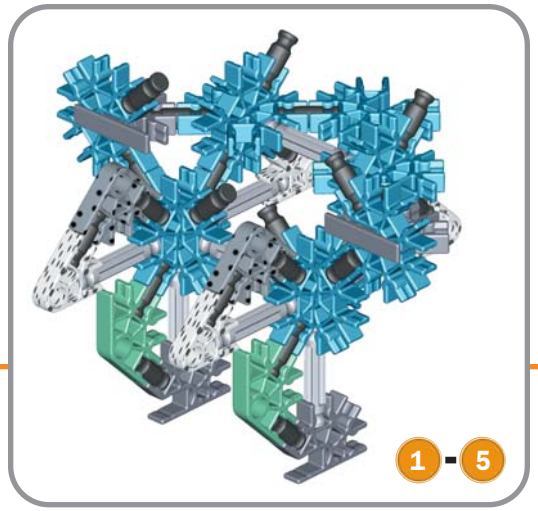
INTERNATIONAL SPACE STATION







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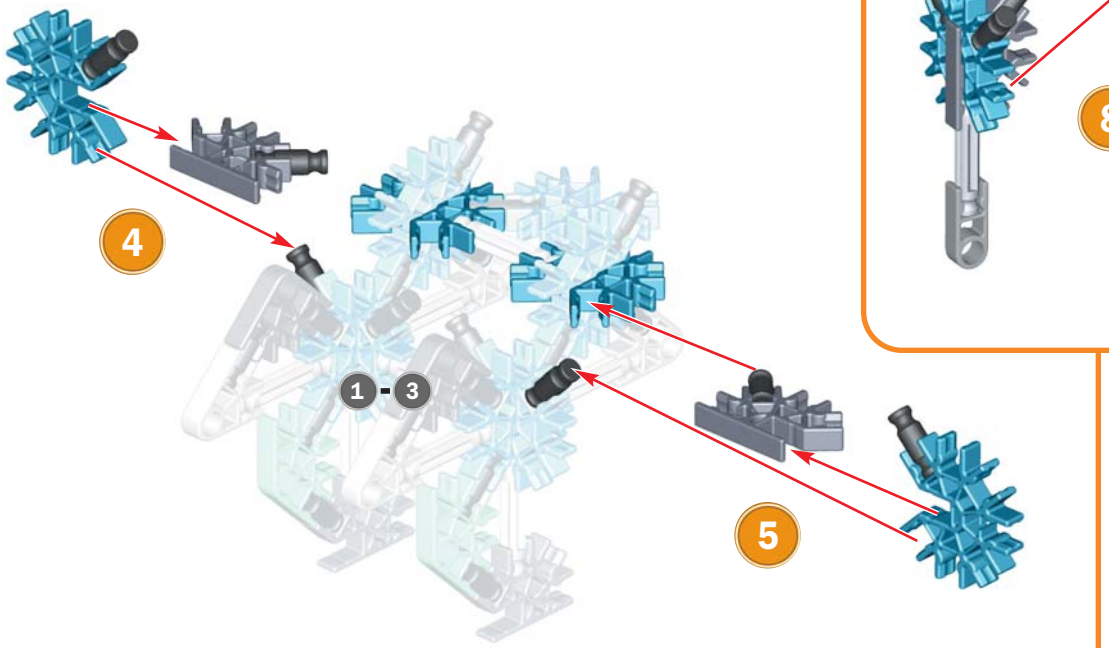
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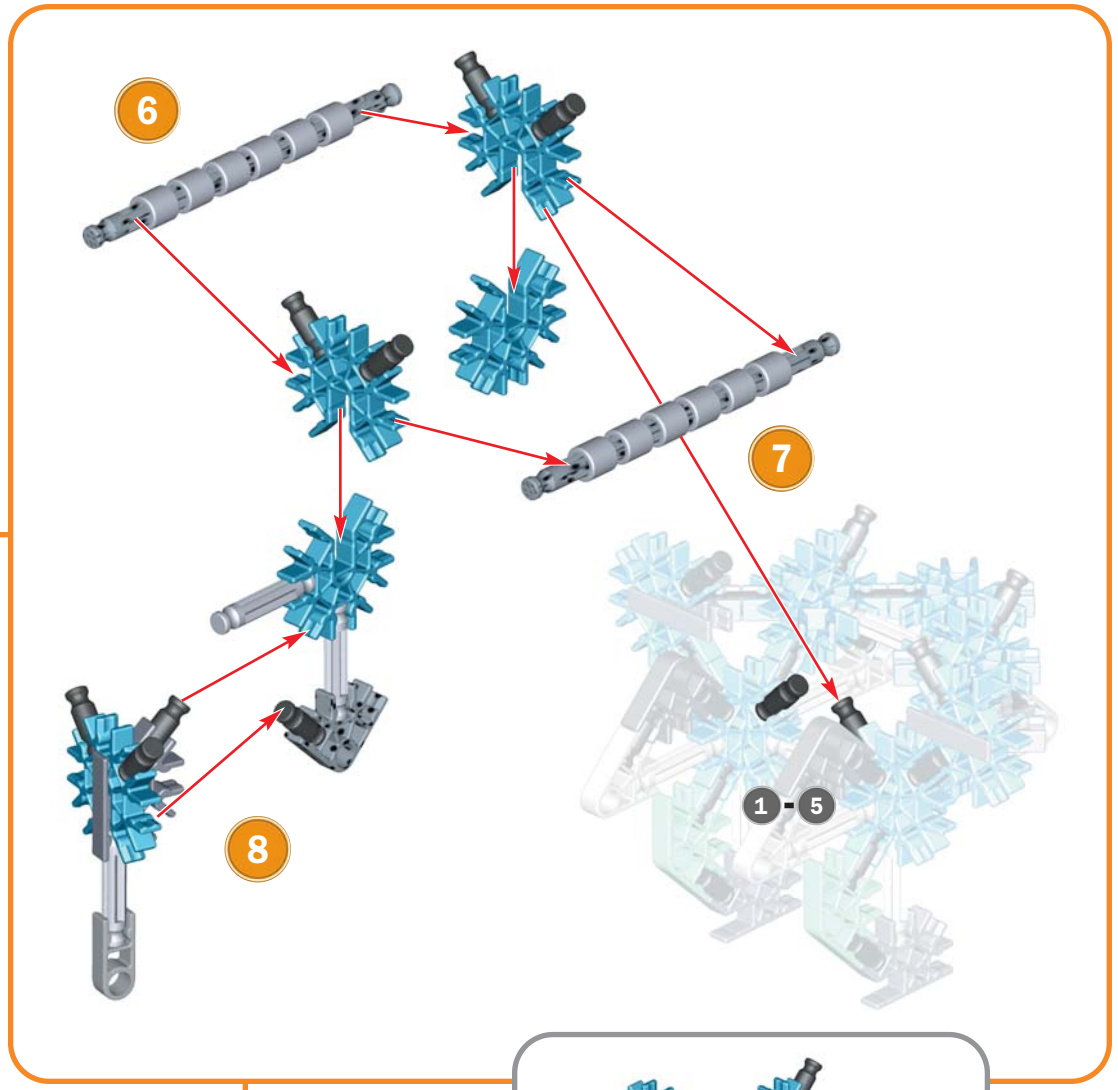
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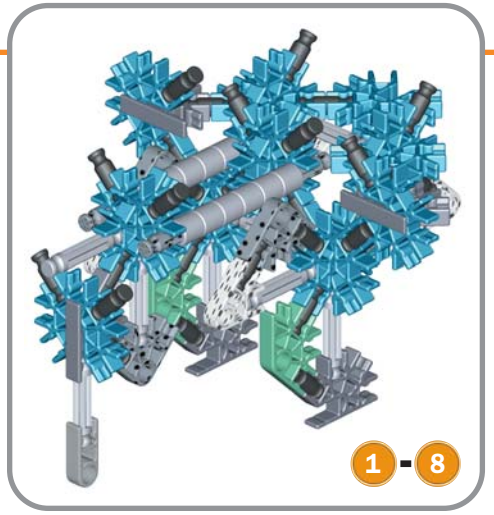
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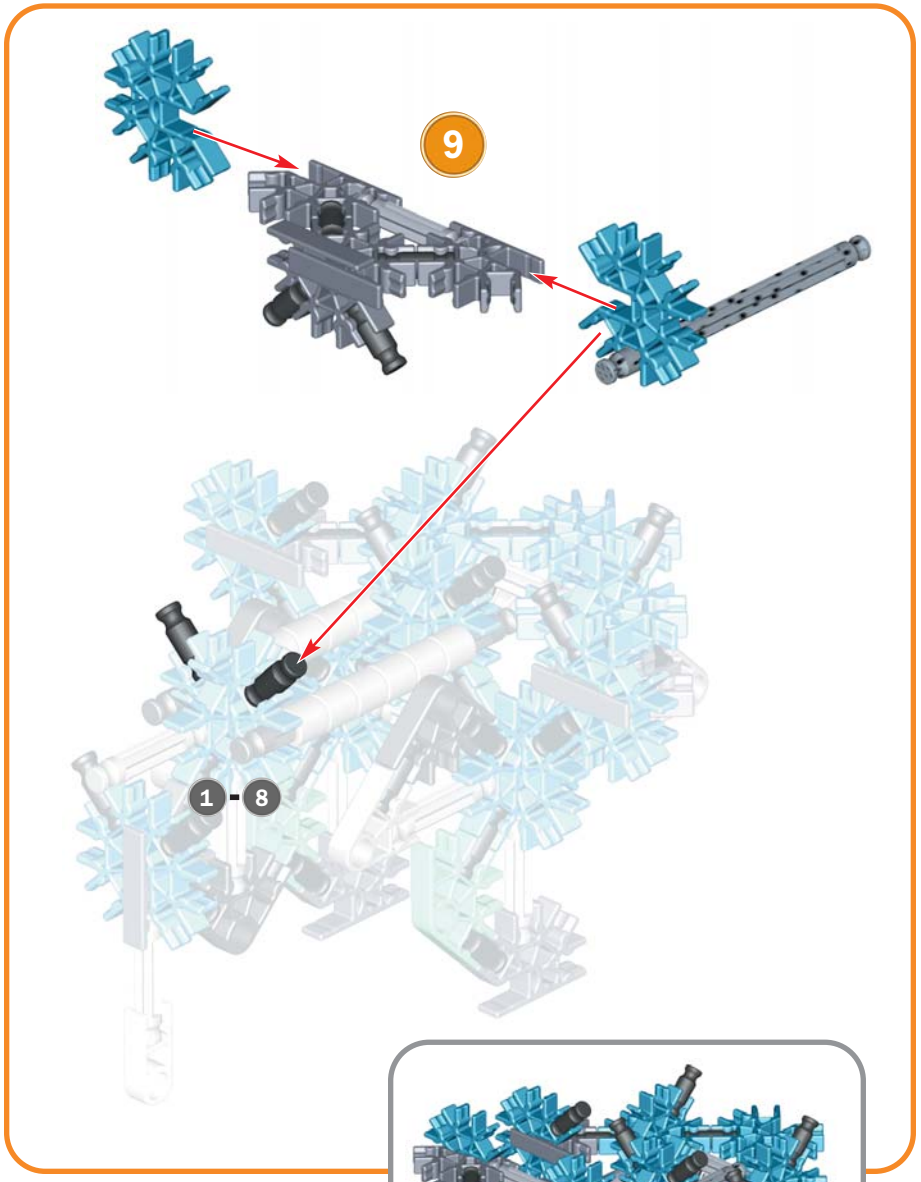
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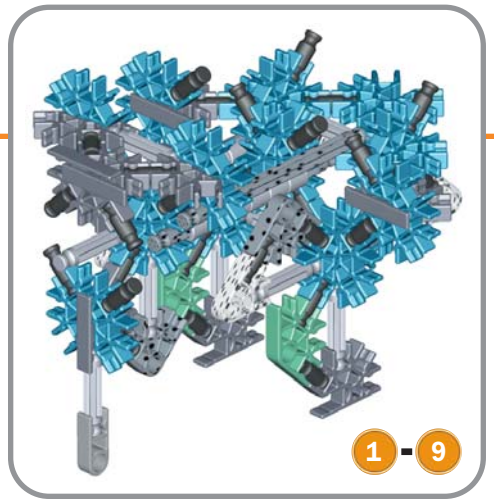
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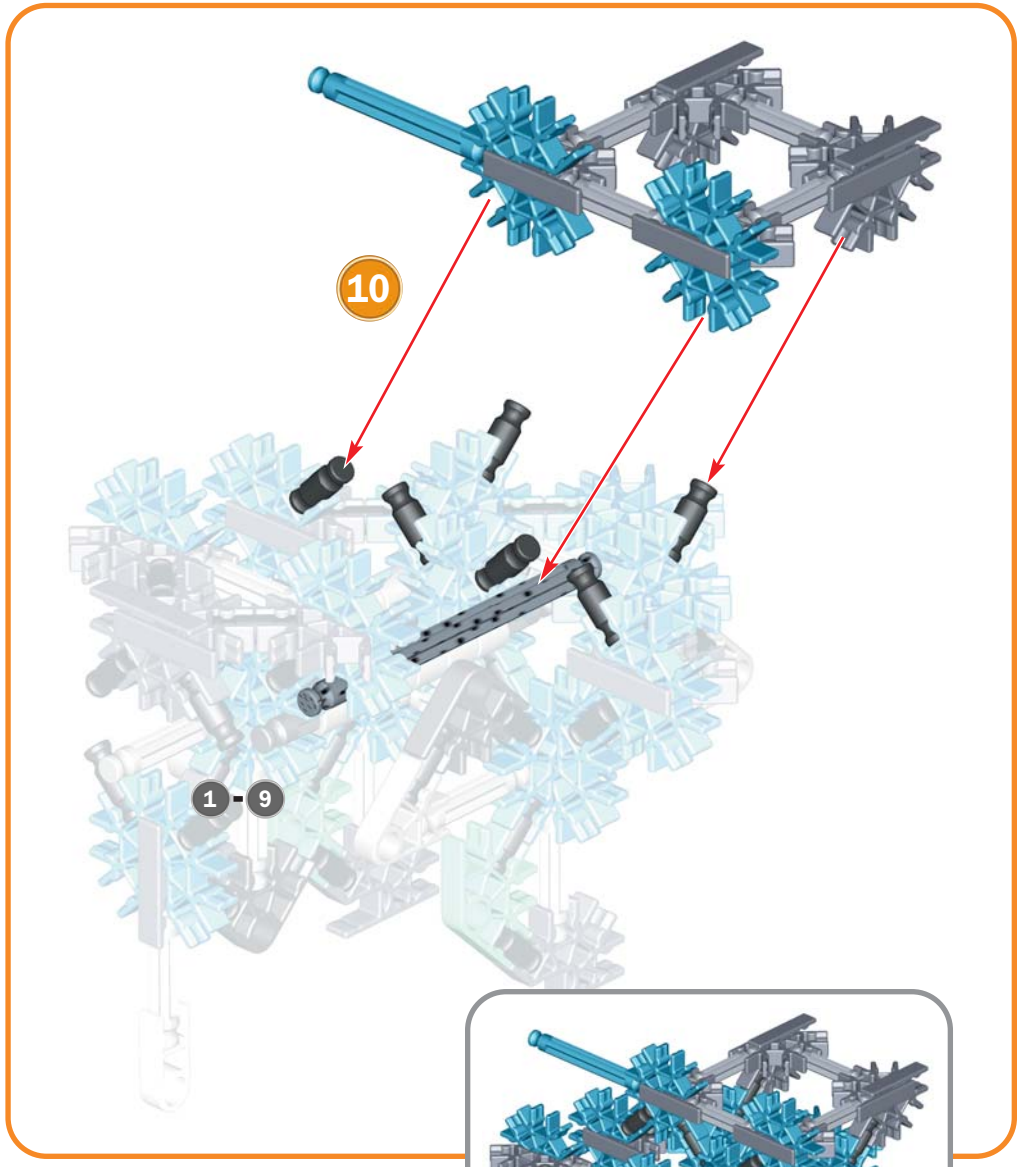
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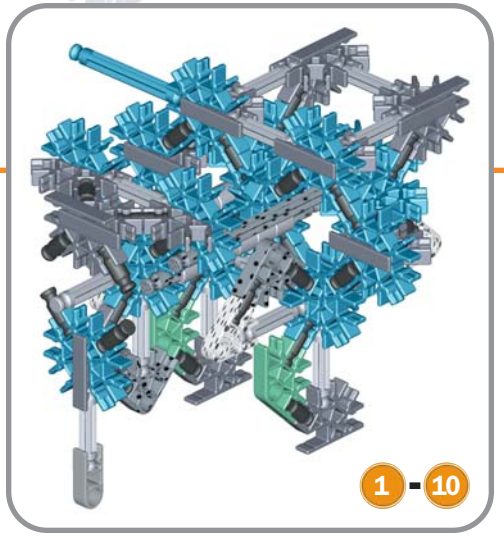
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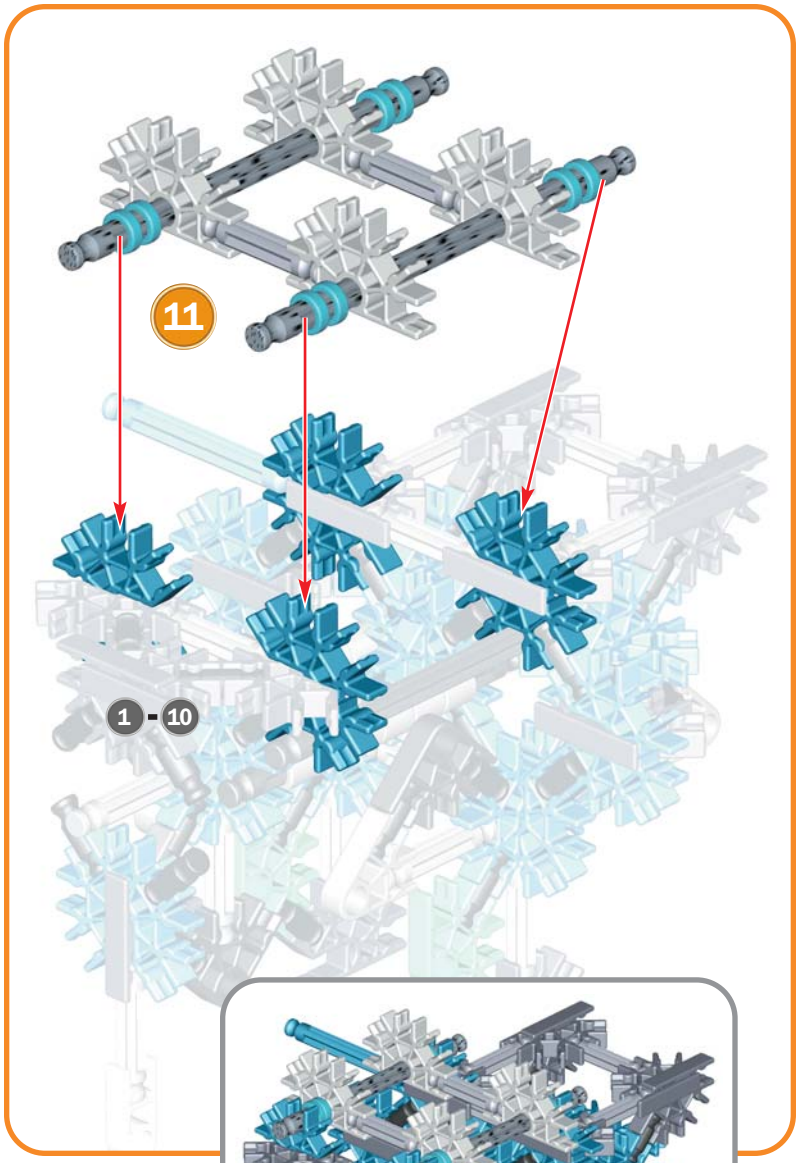
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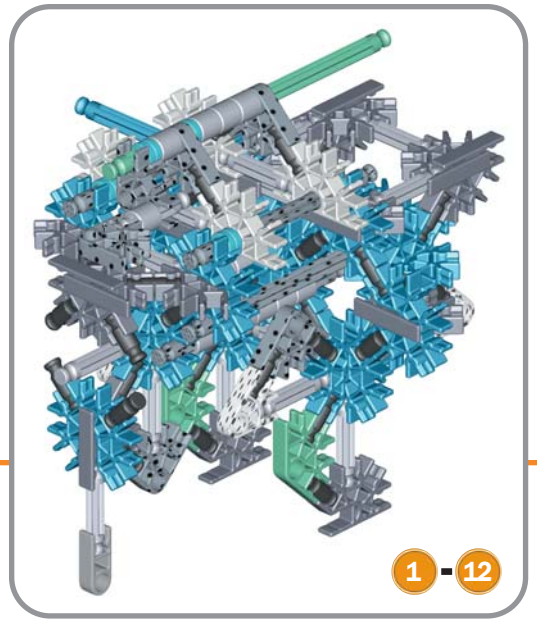
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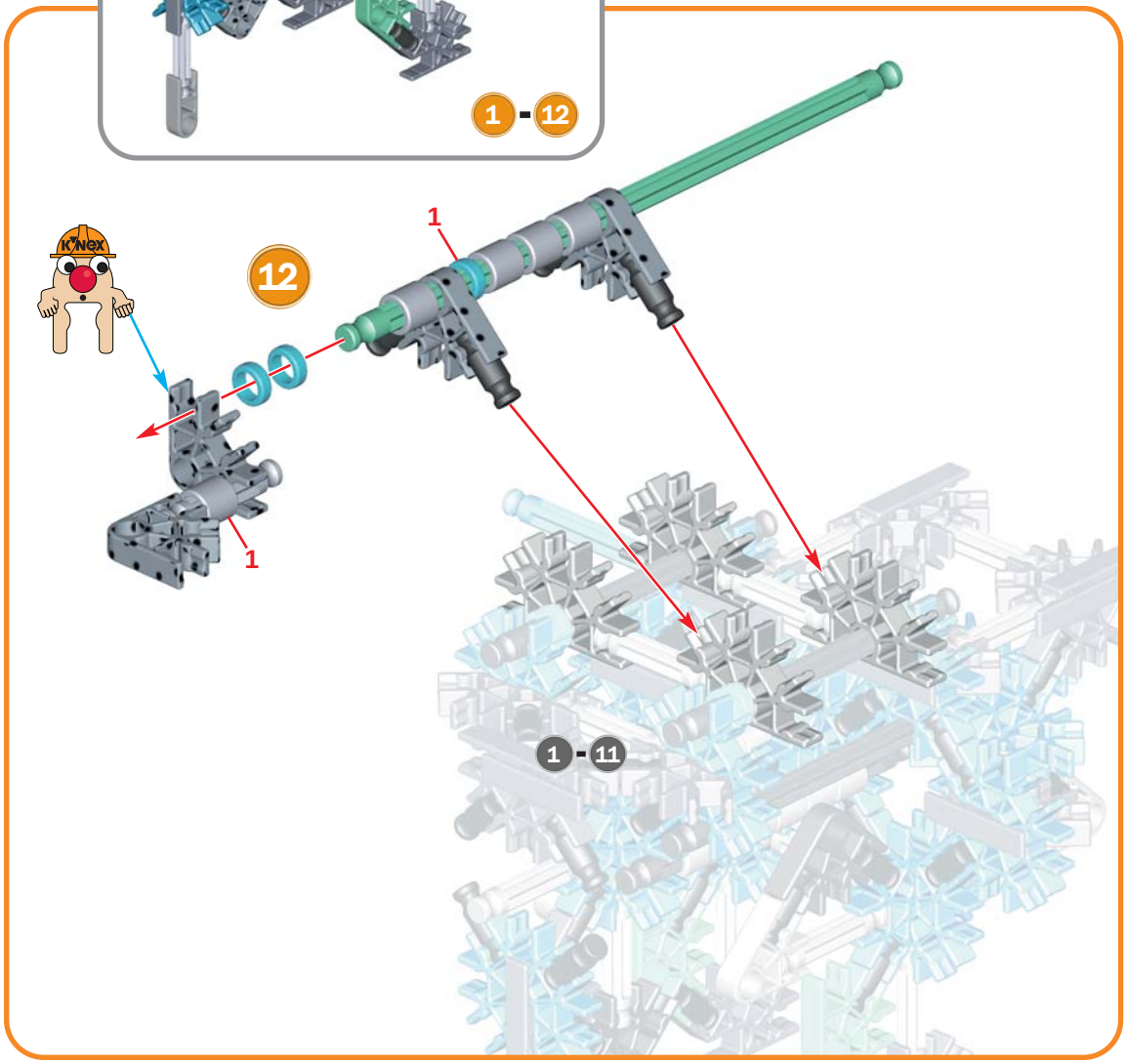
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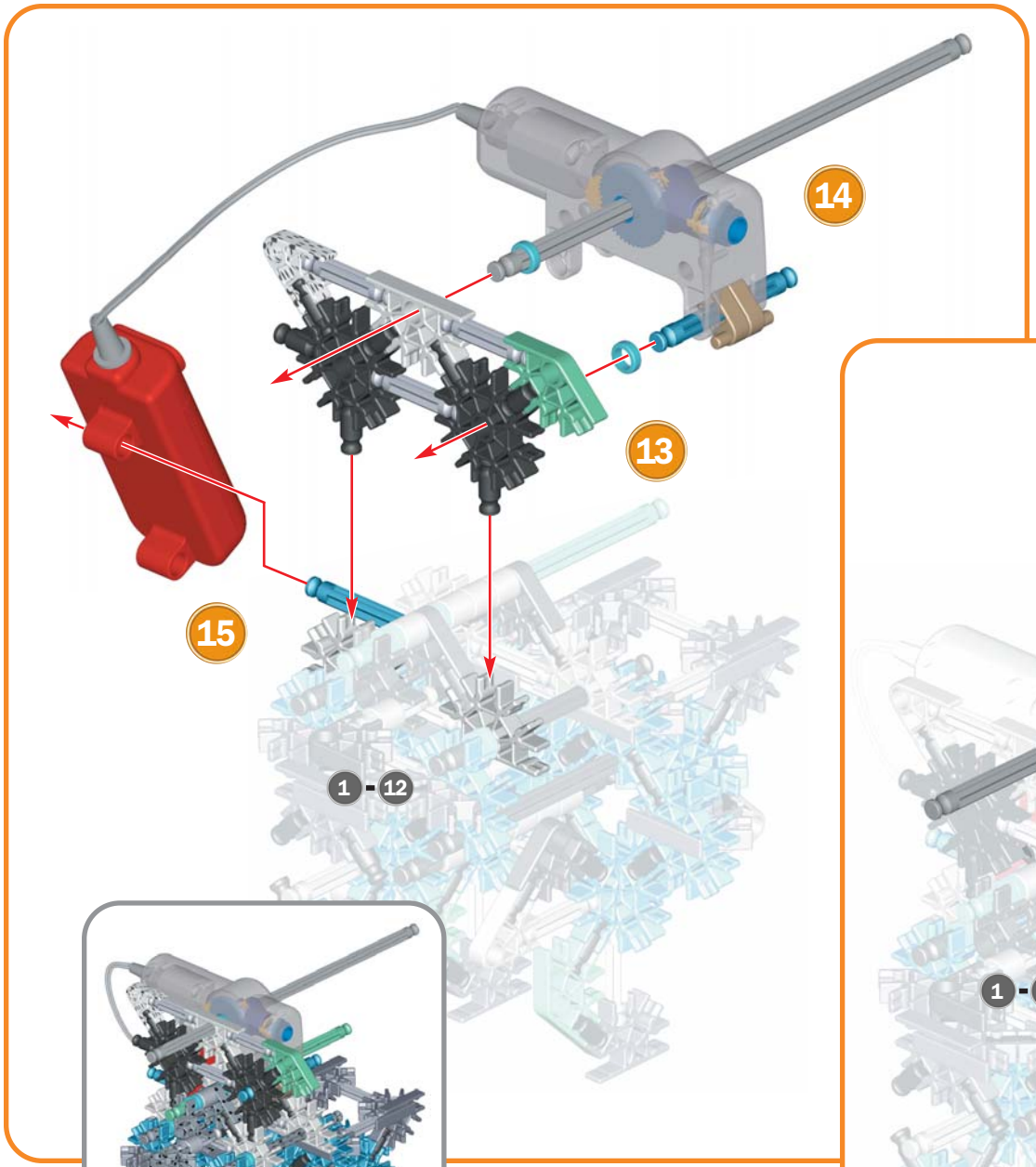
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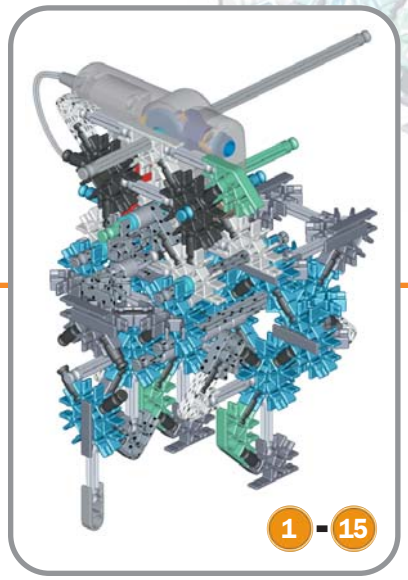
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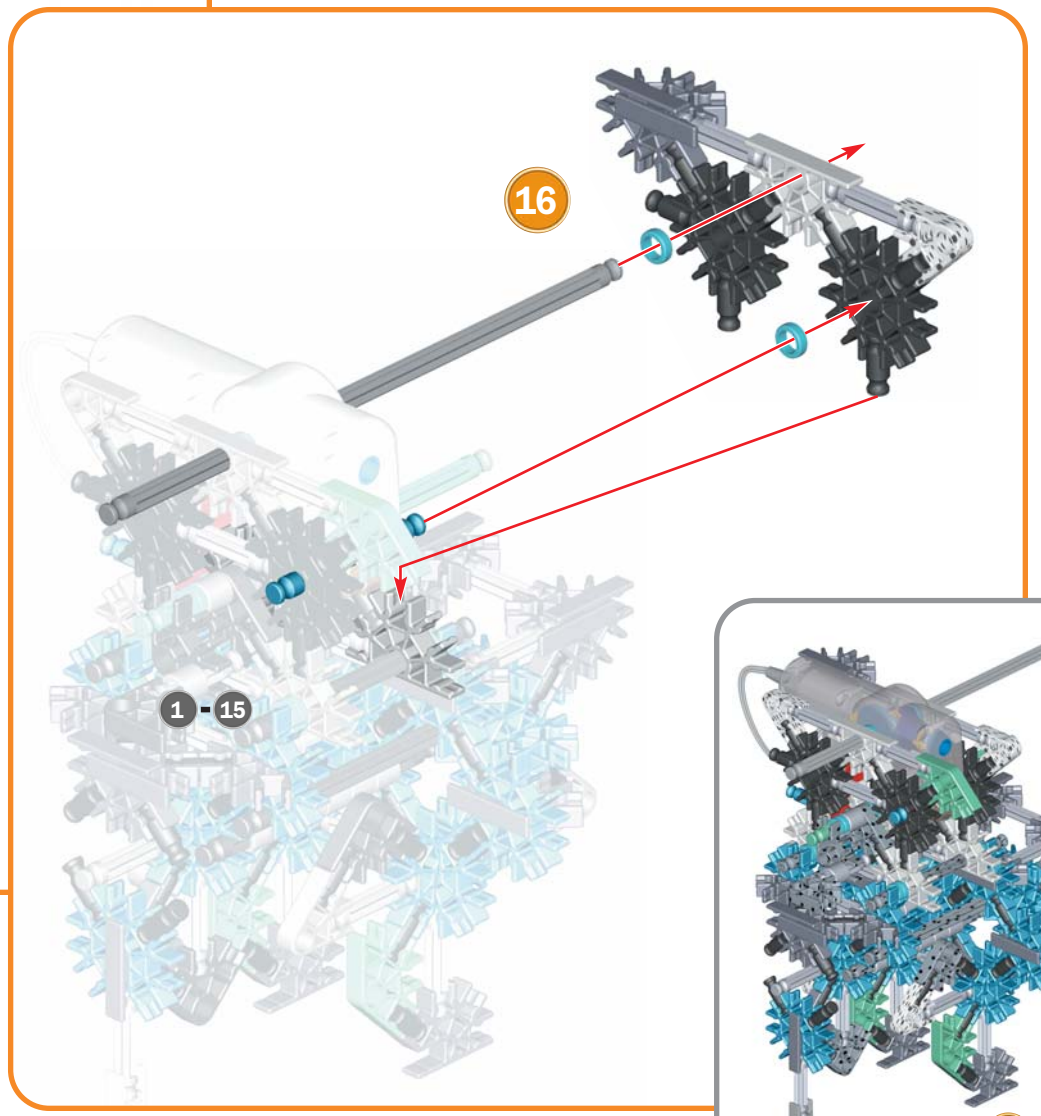
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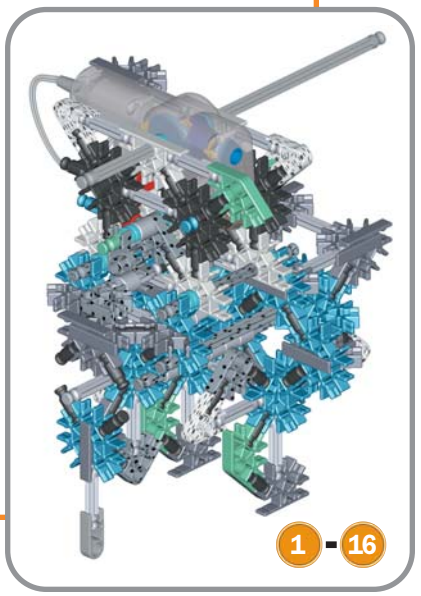
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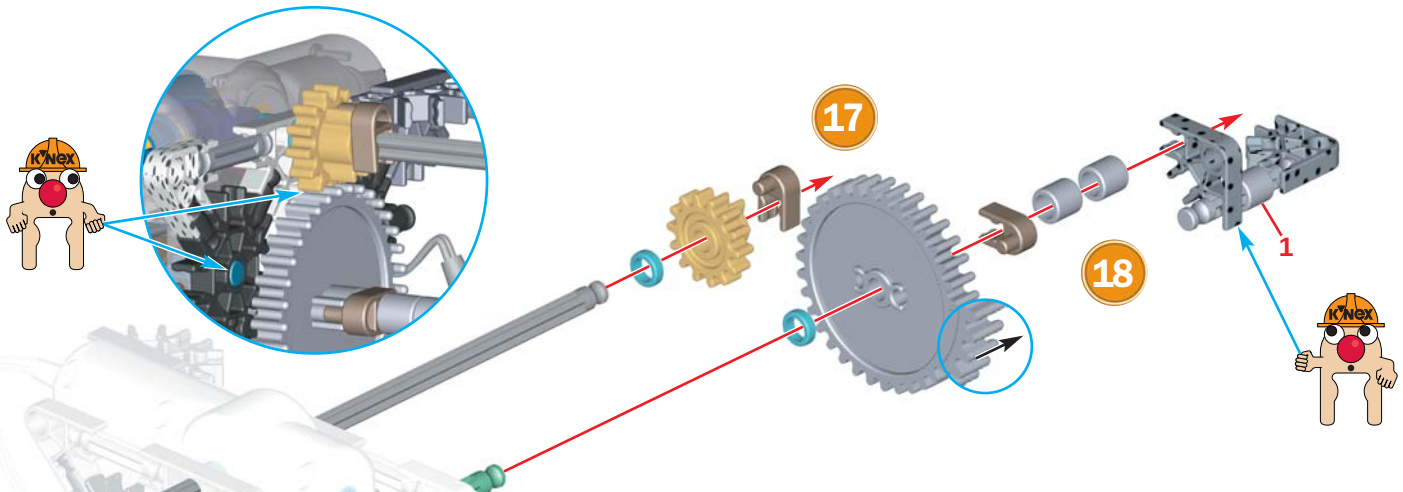
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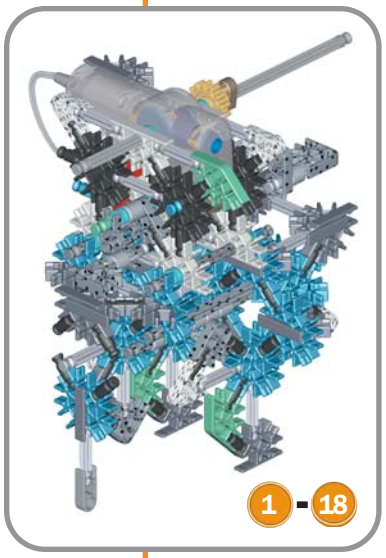
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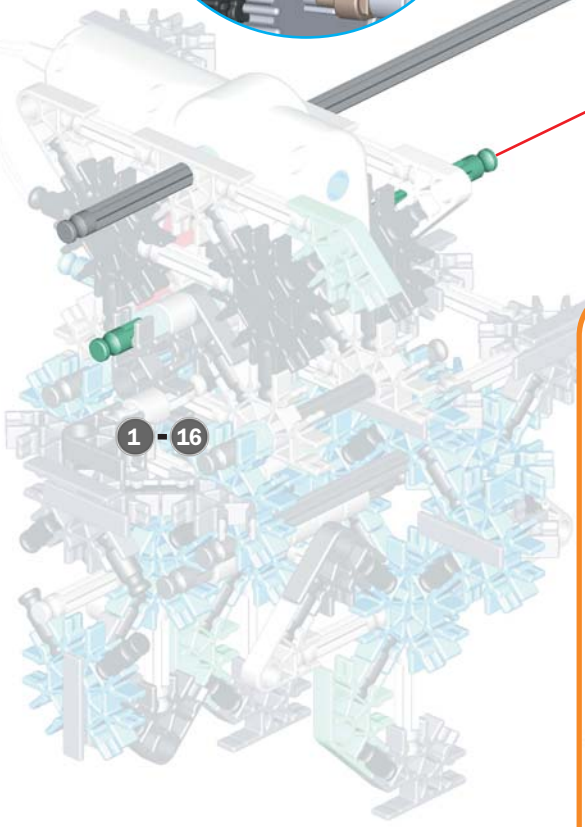
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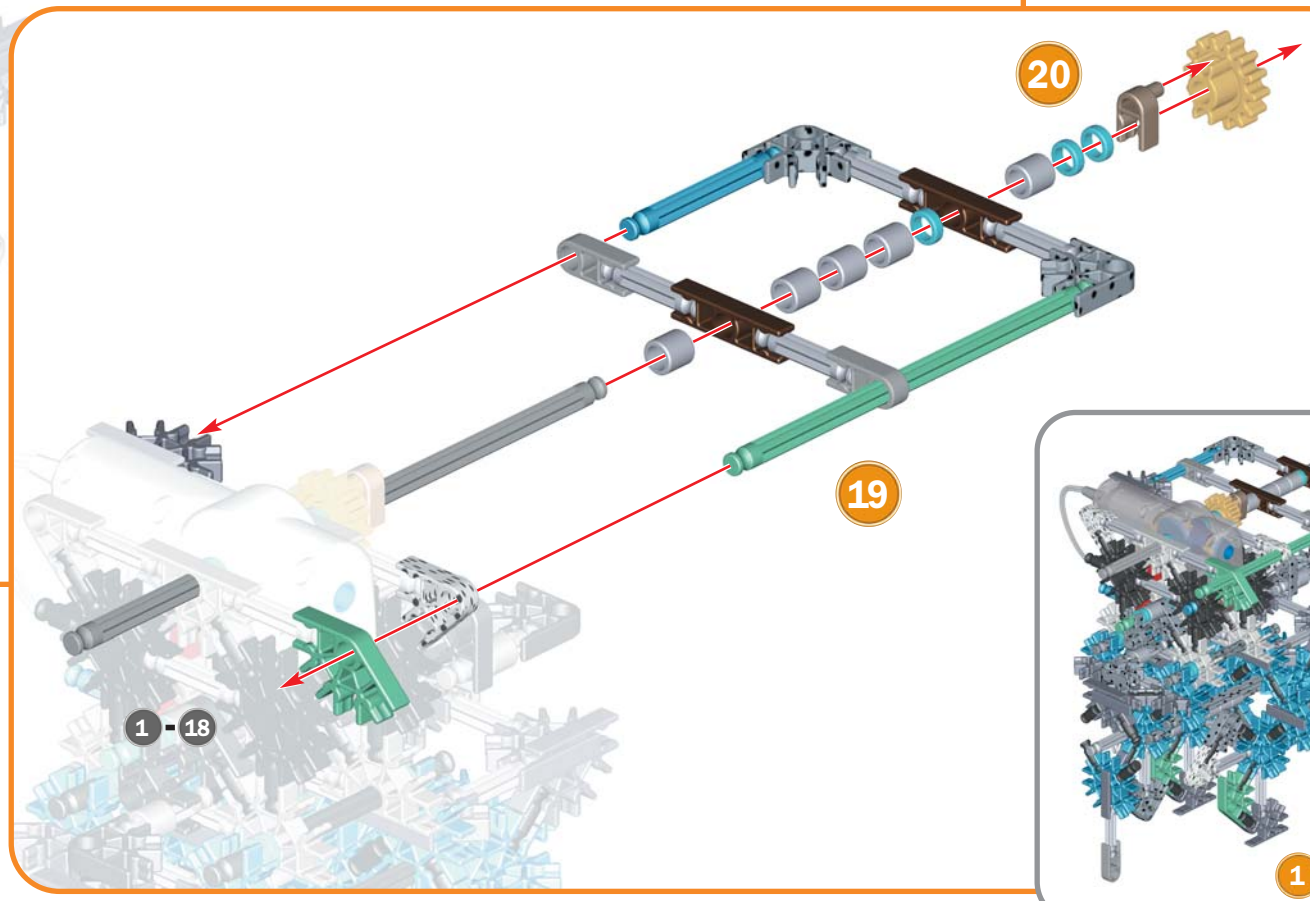
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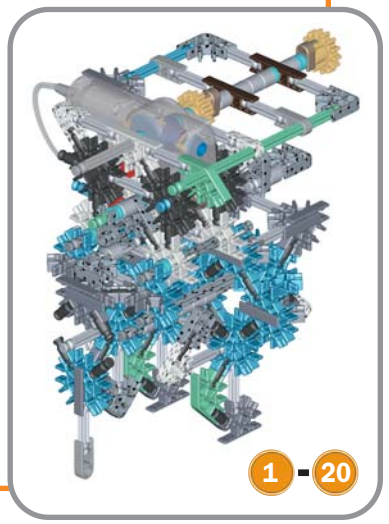
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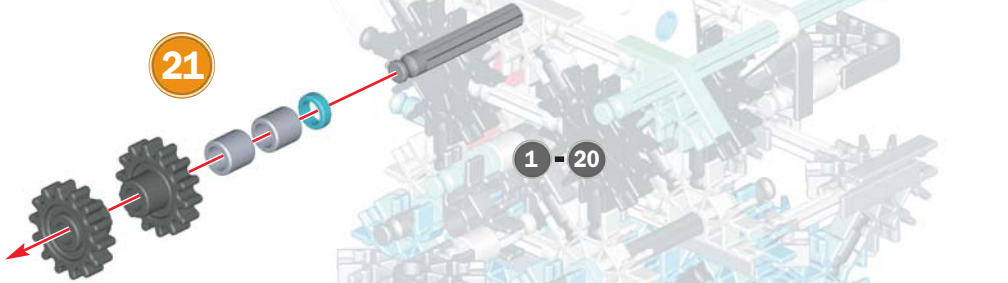
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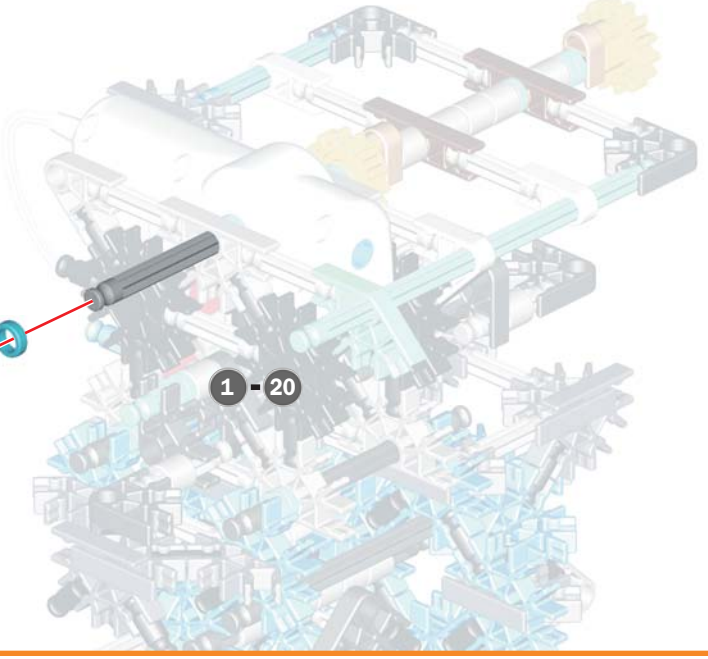
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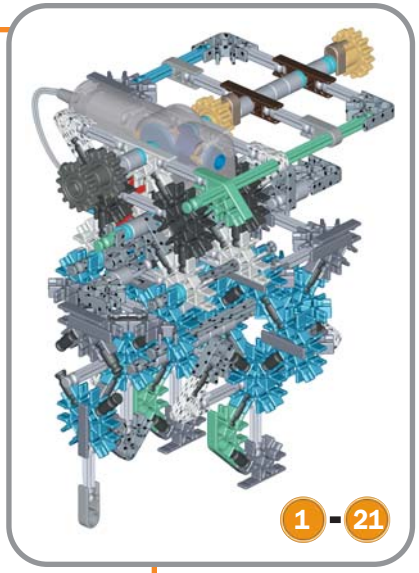
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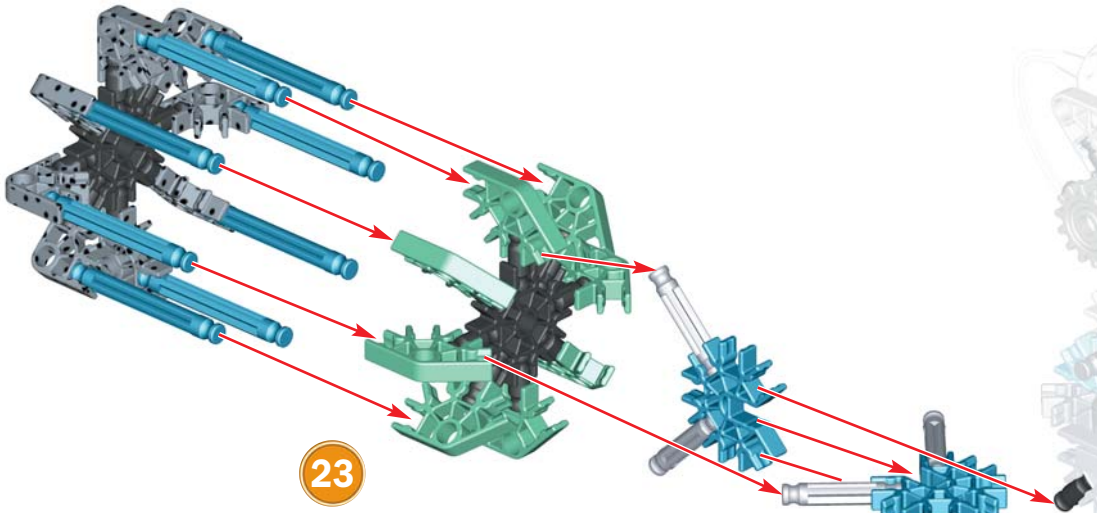
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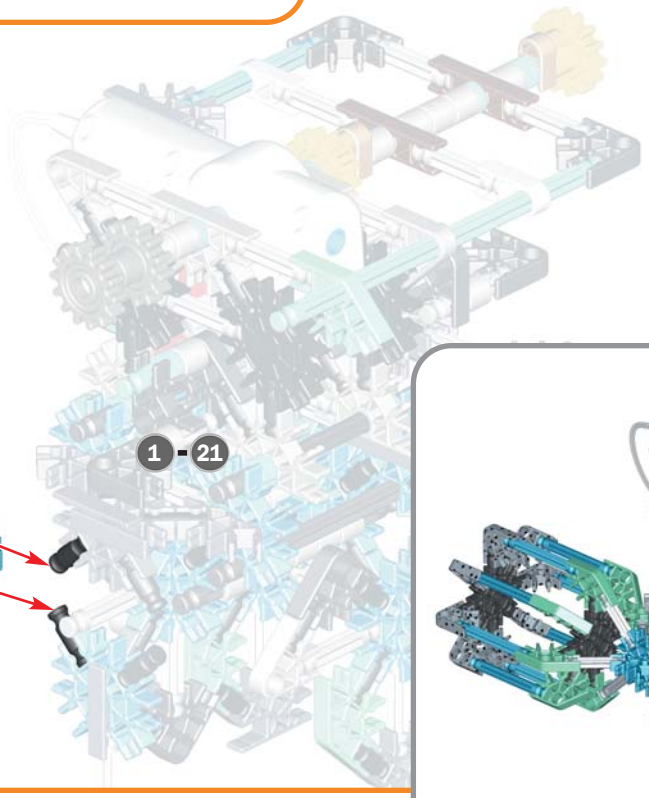
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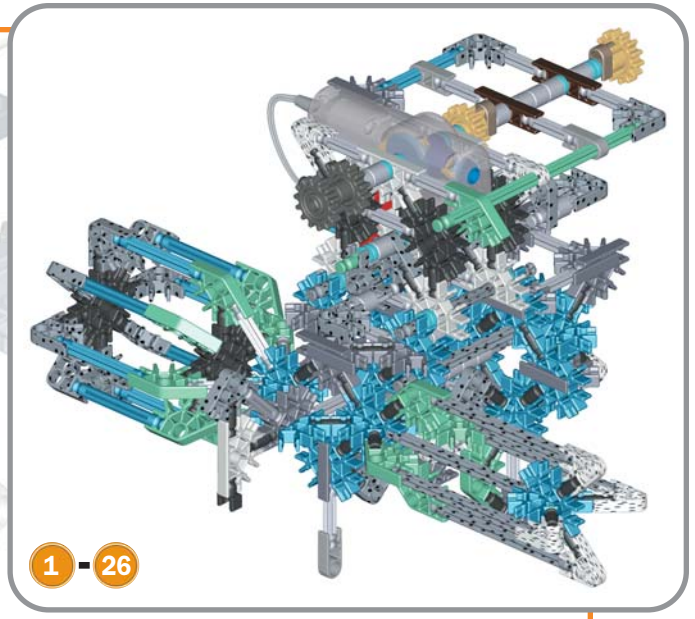
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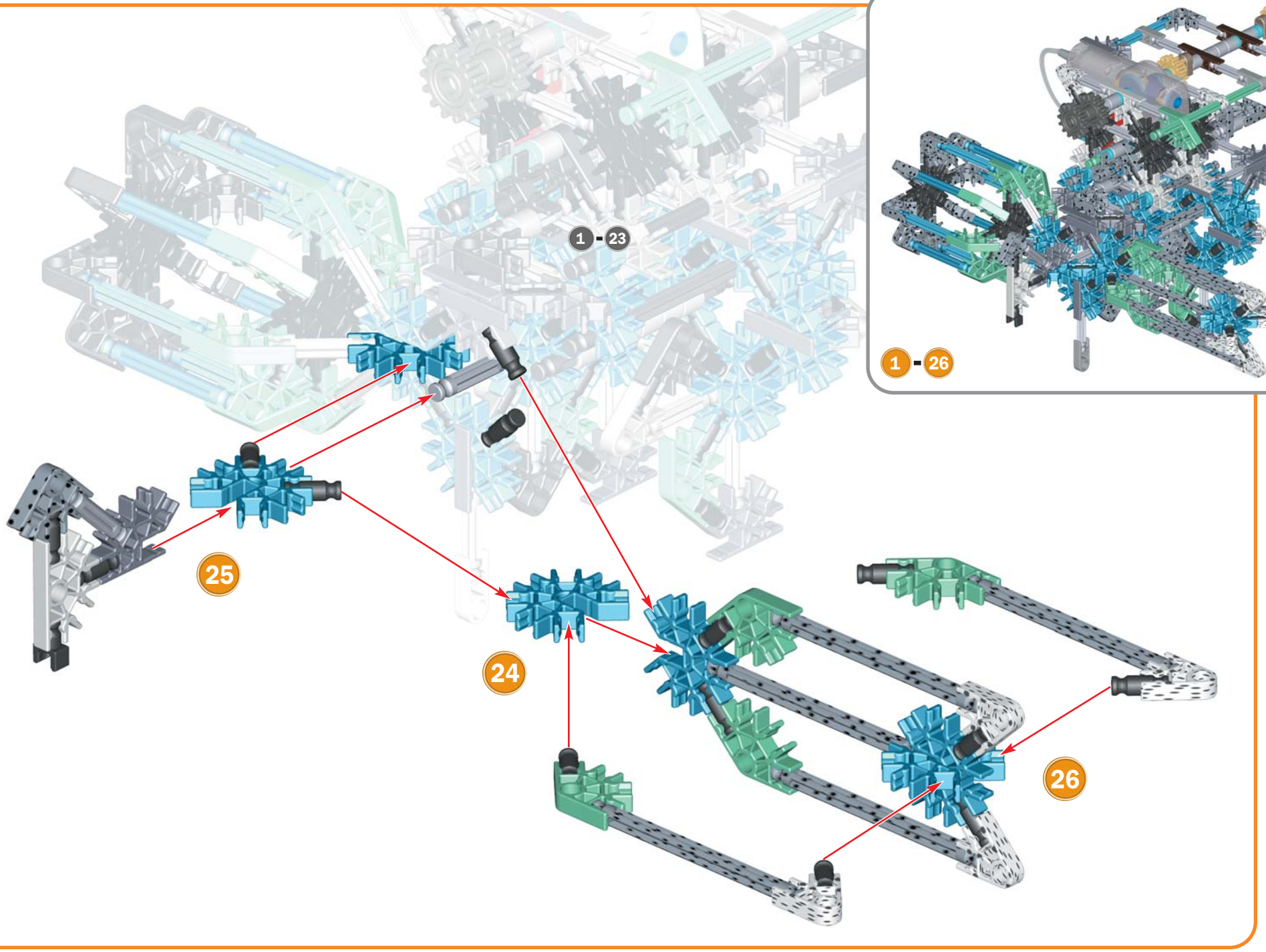
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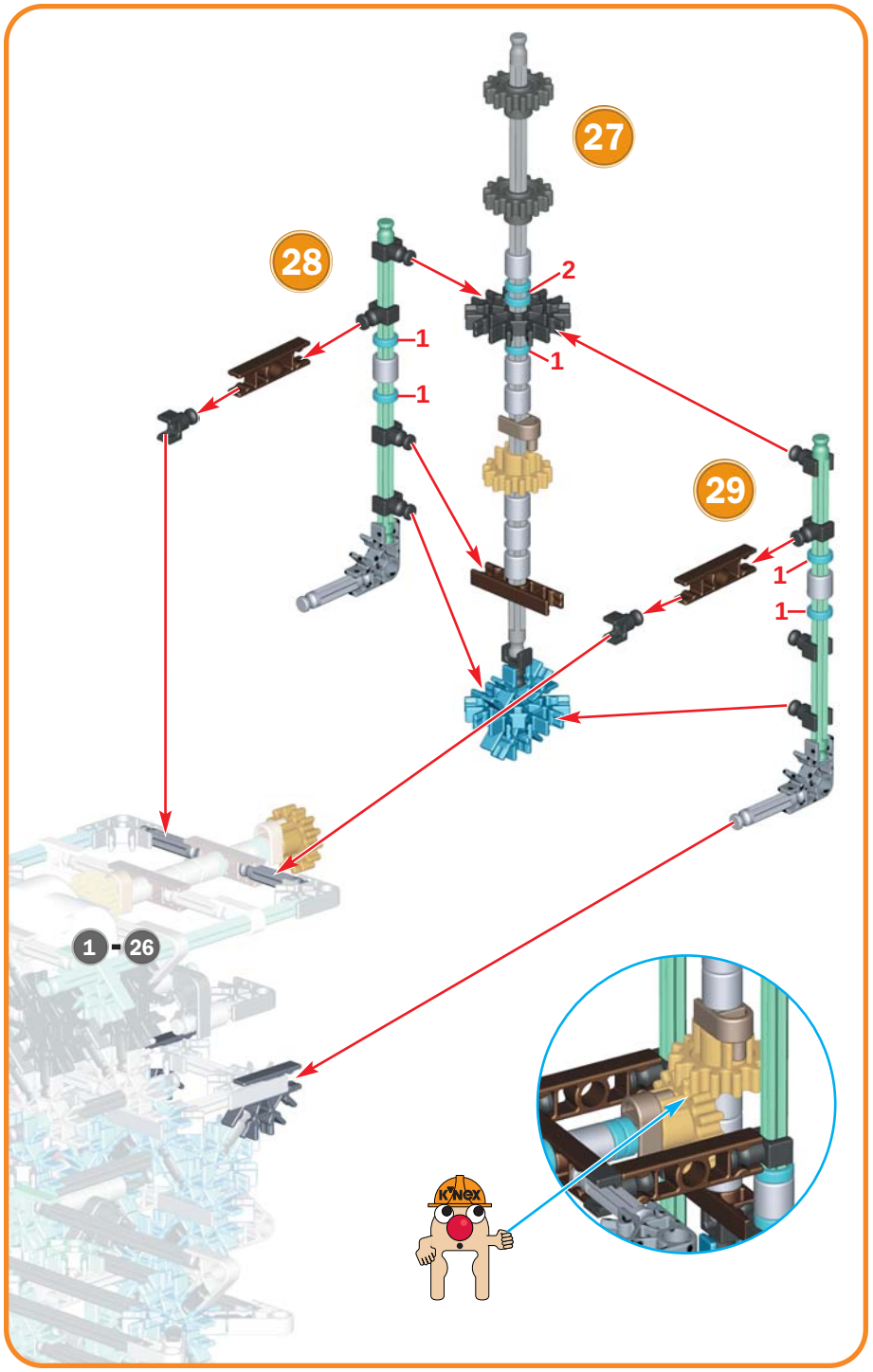
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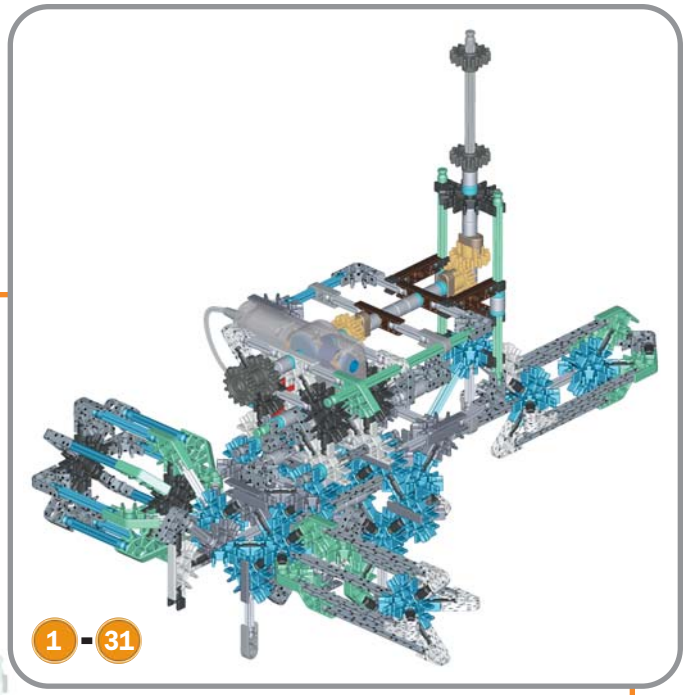
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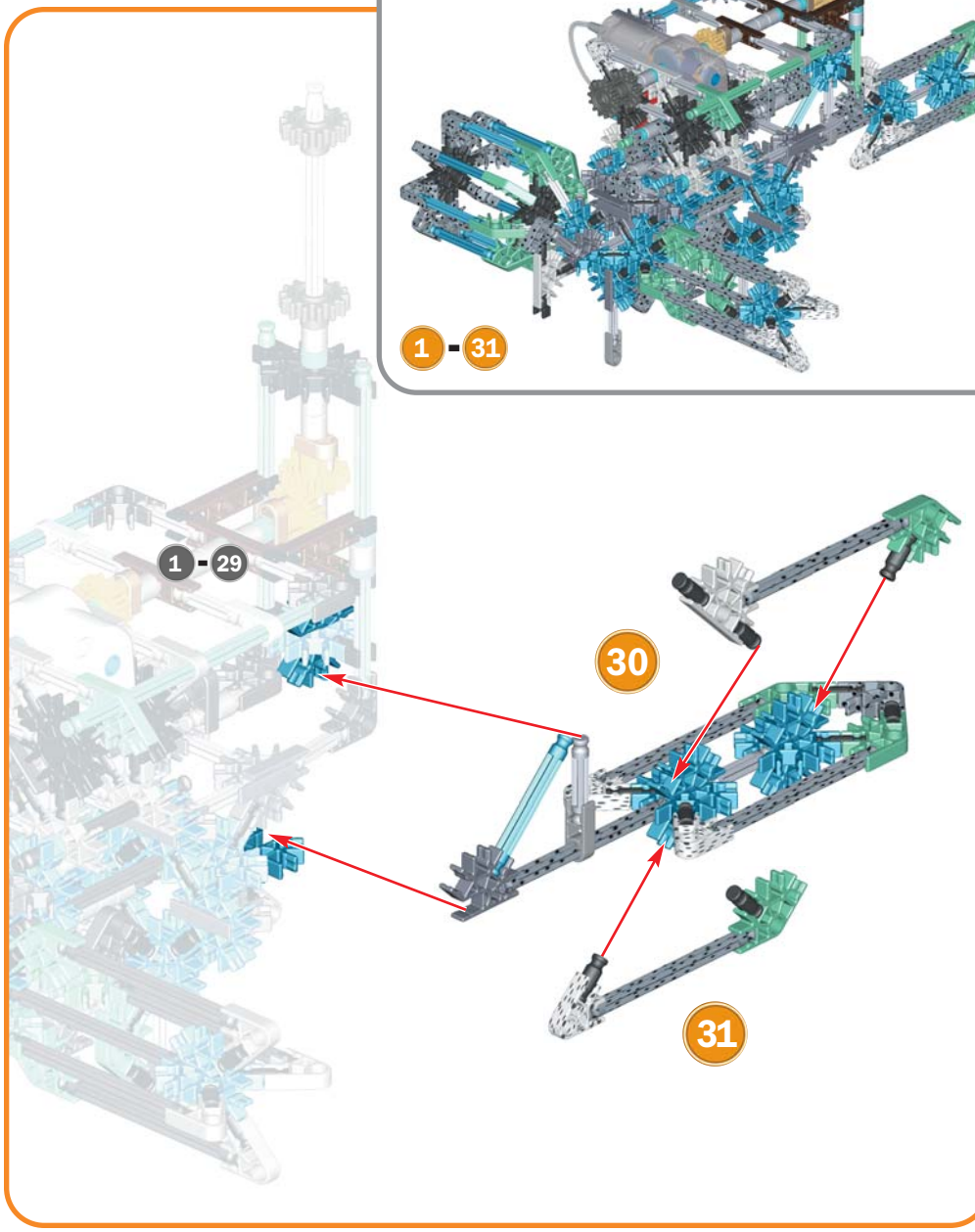
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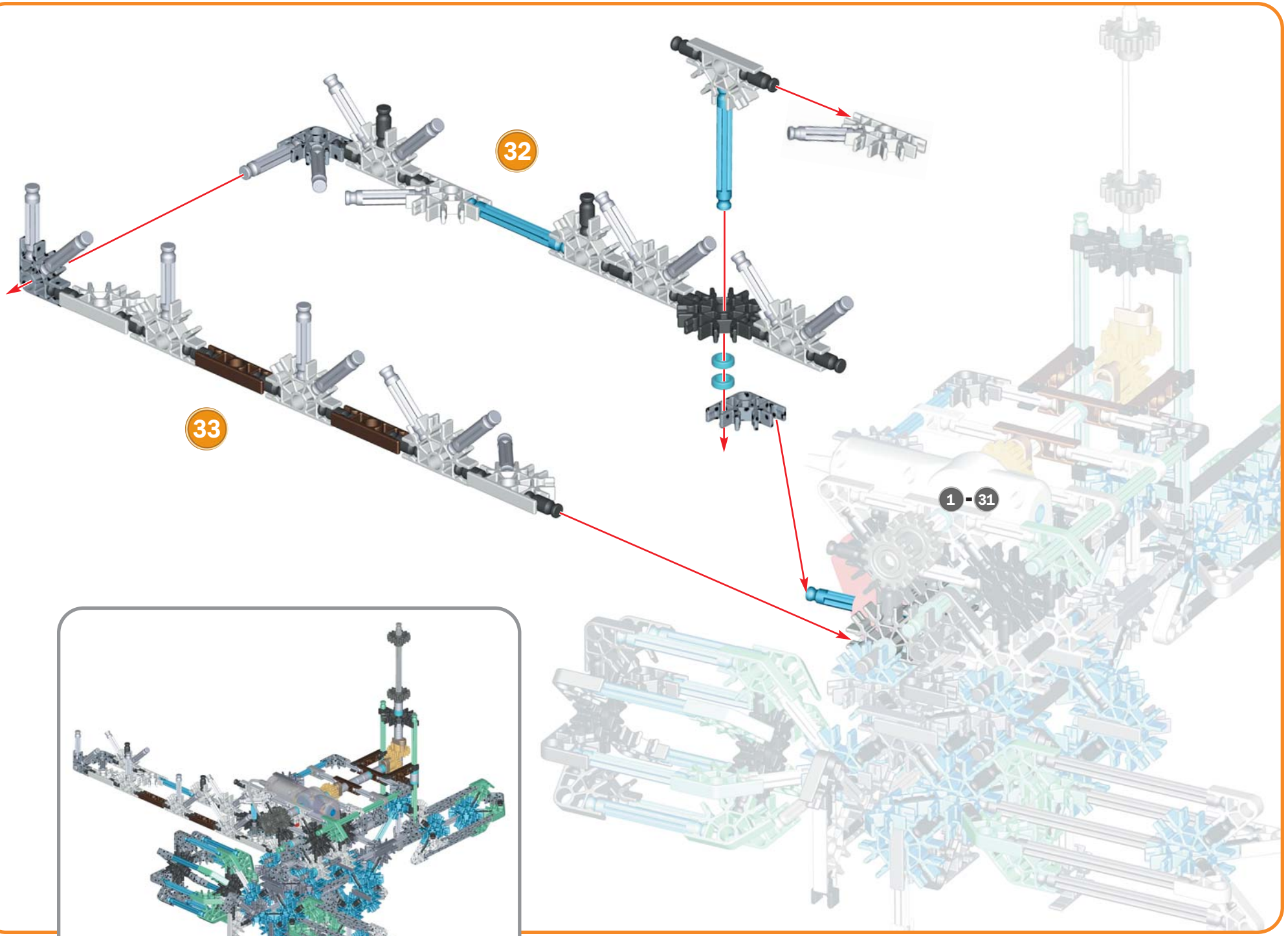
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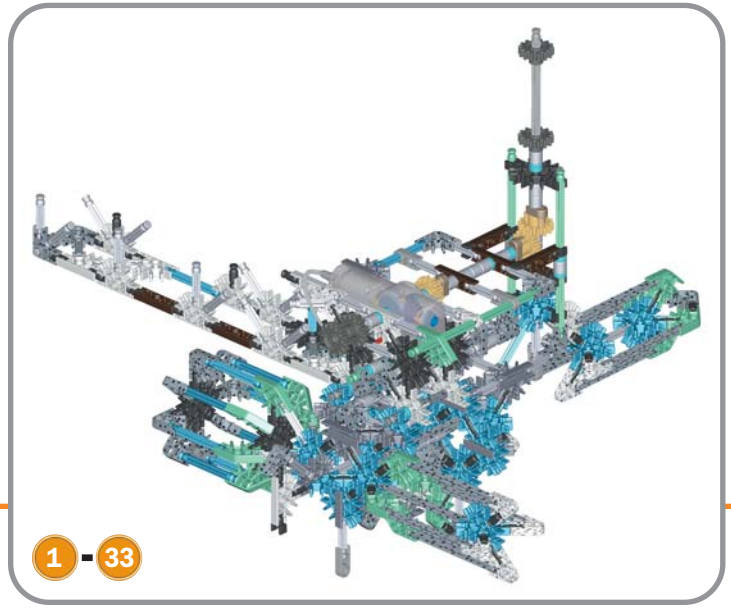
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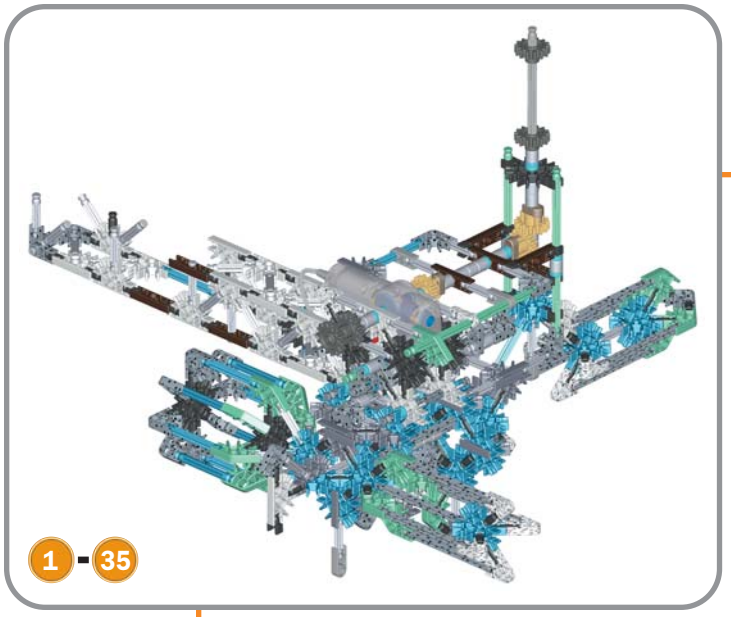
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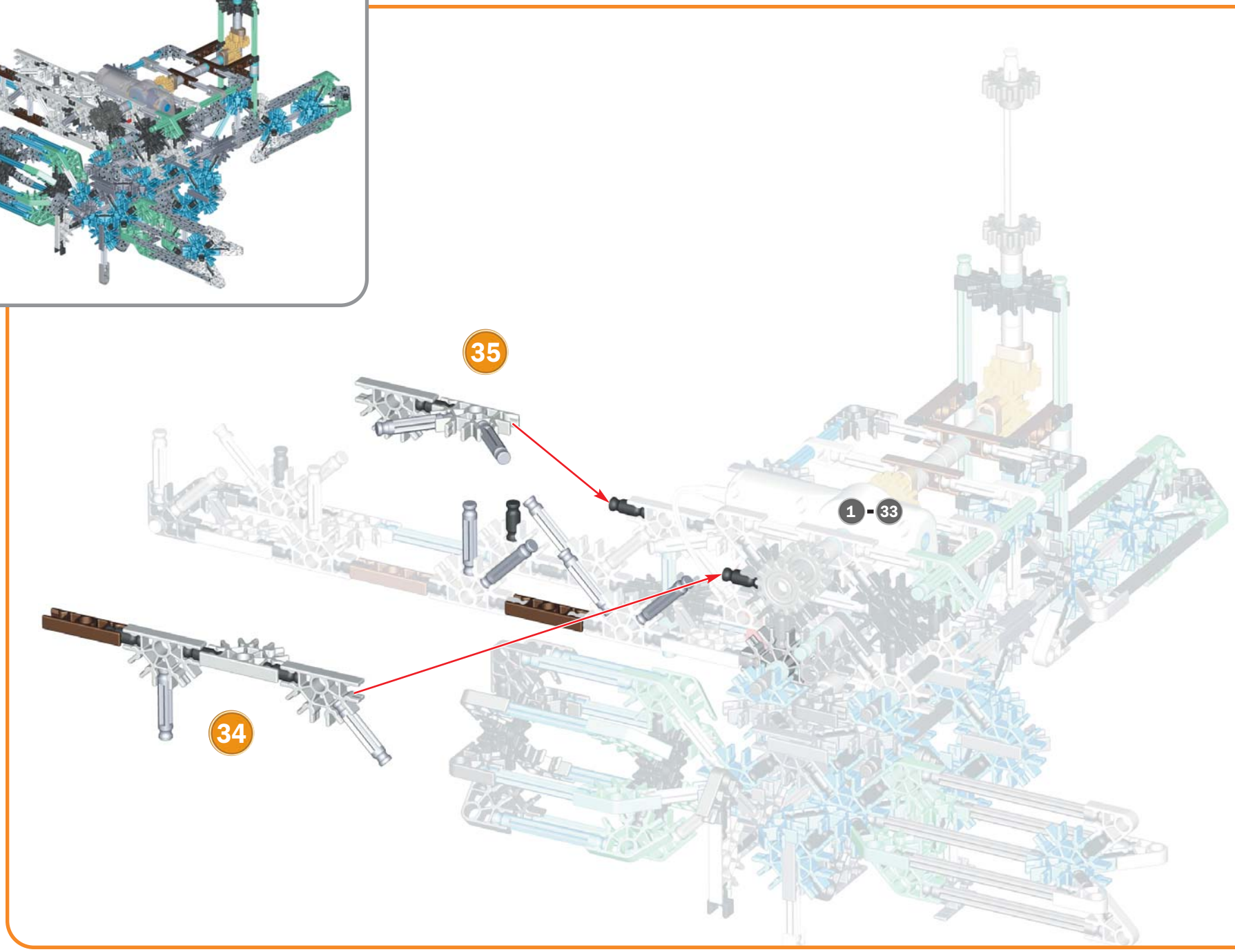
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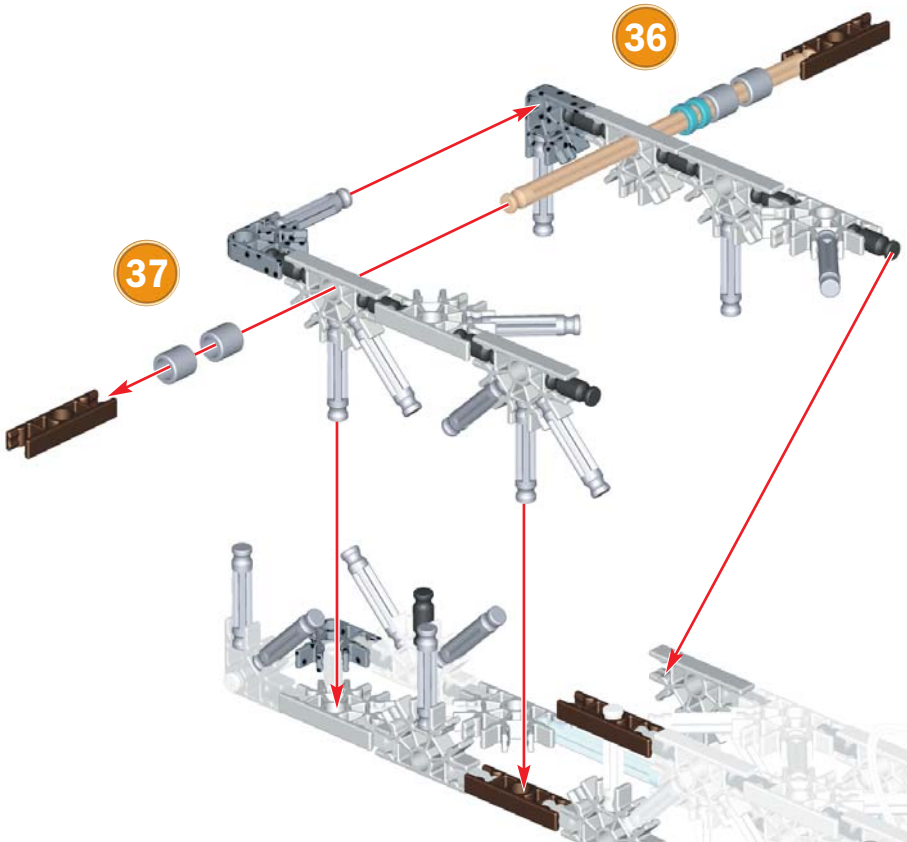

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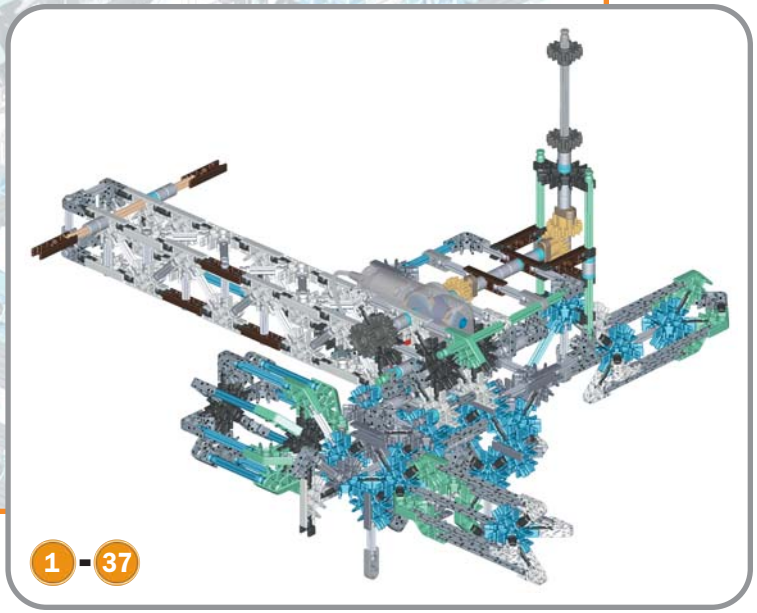

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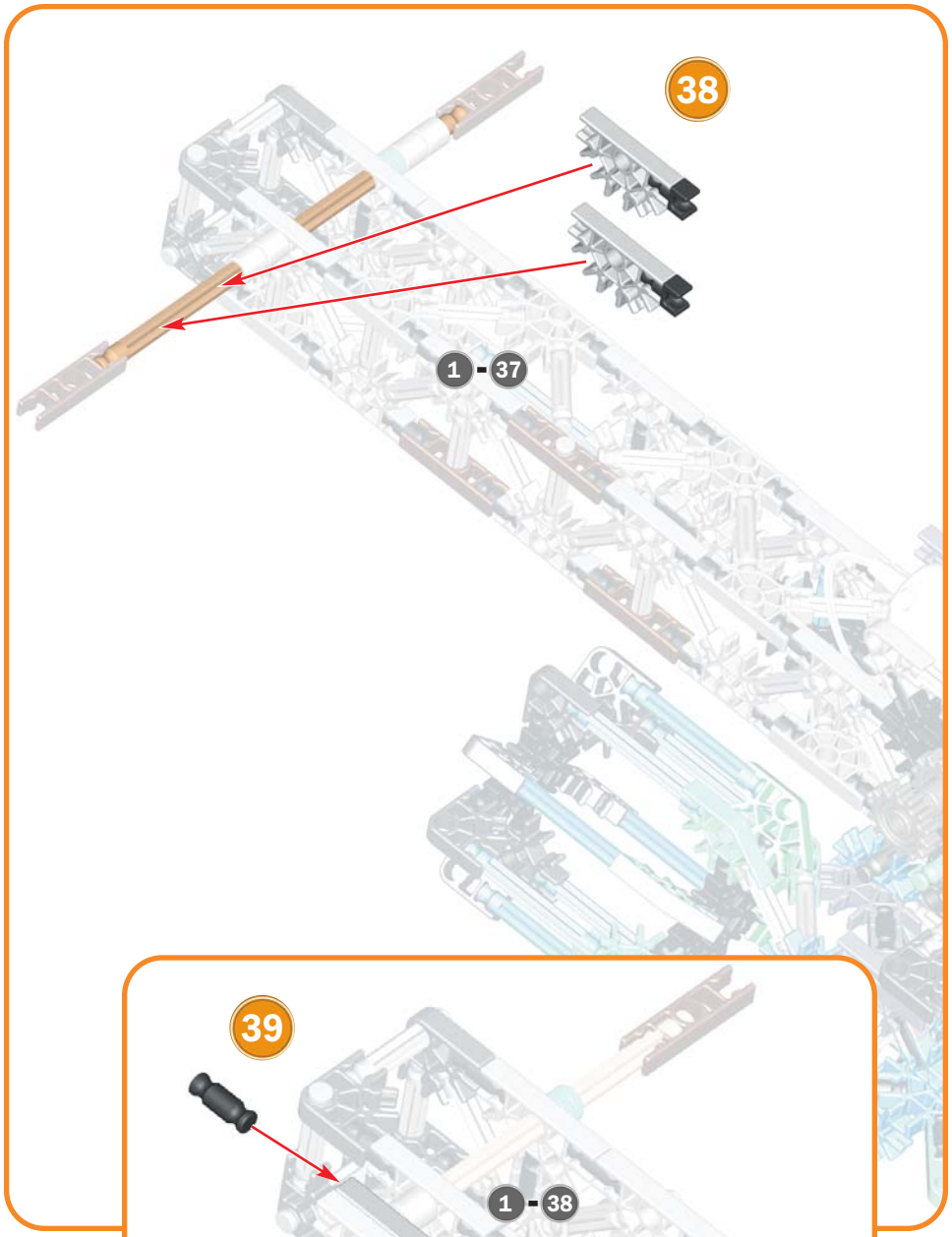
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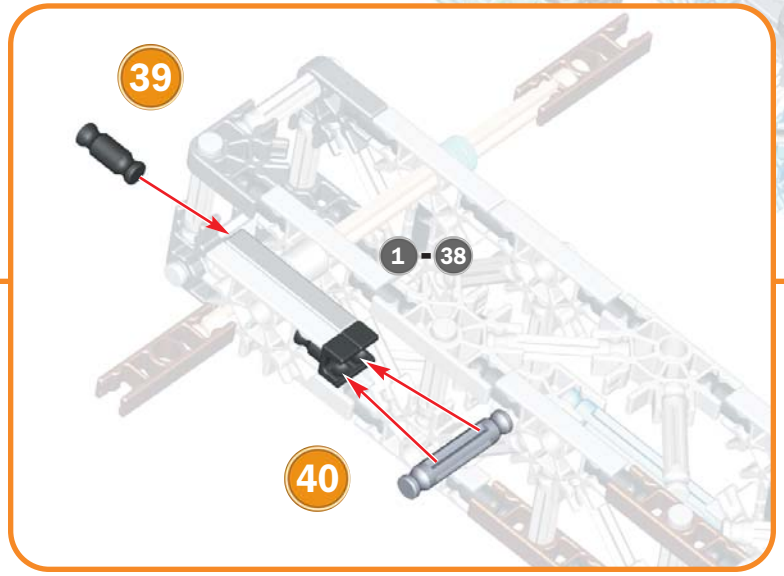
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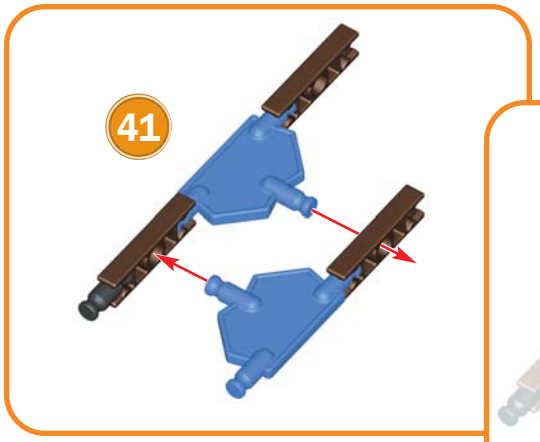
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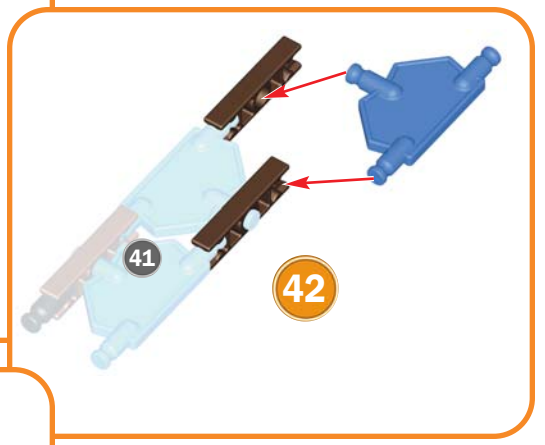
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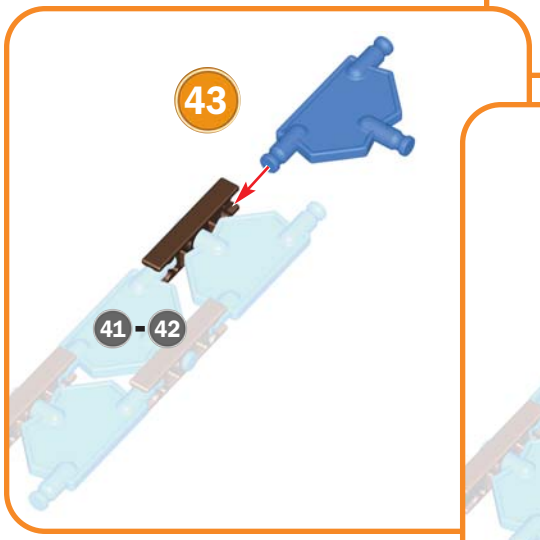
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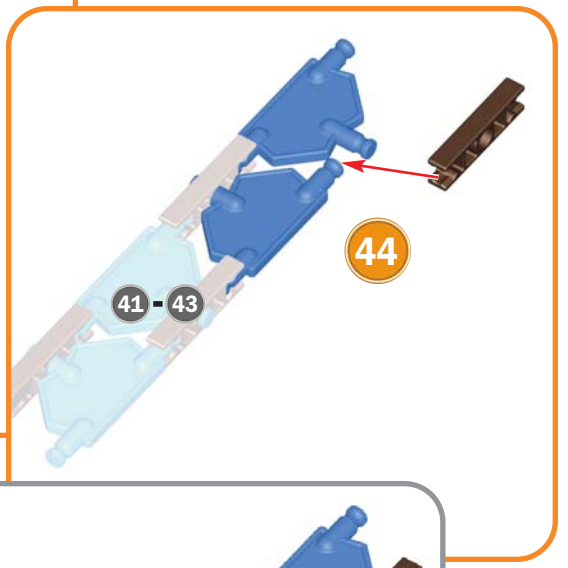
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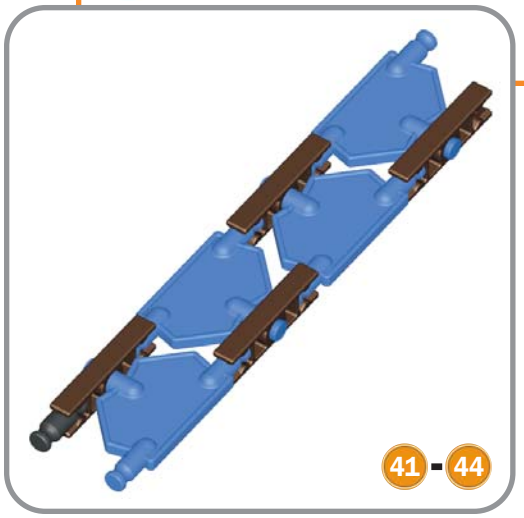
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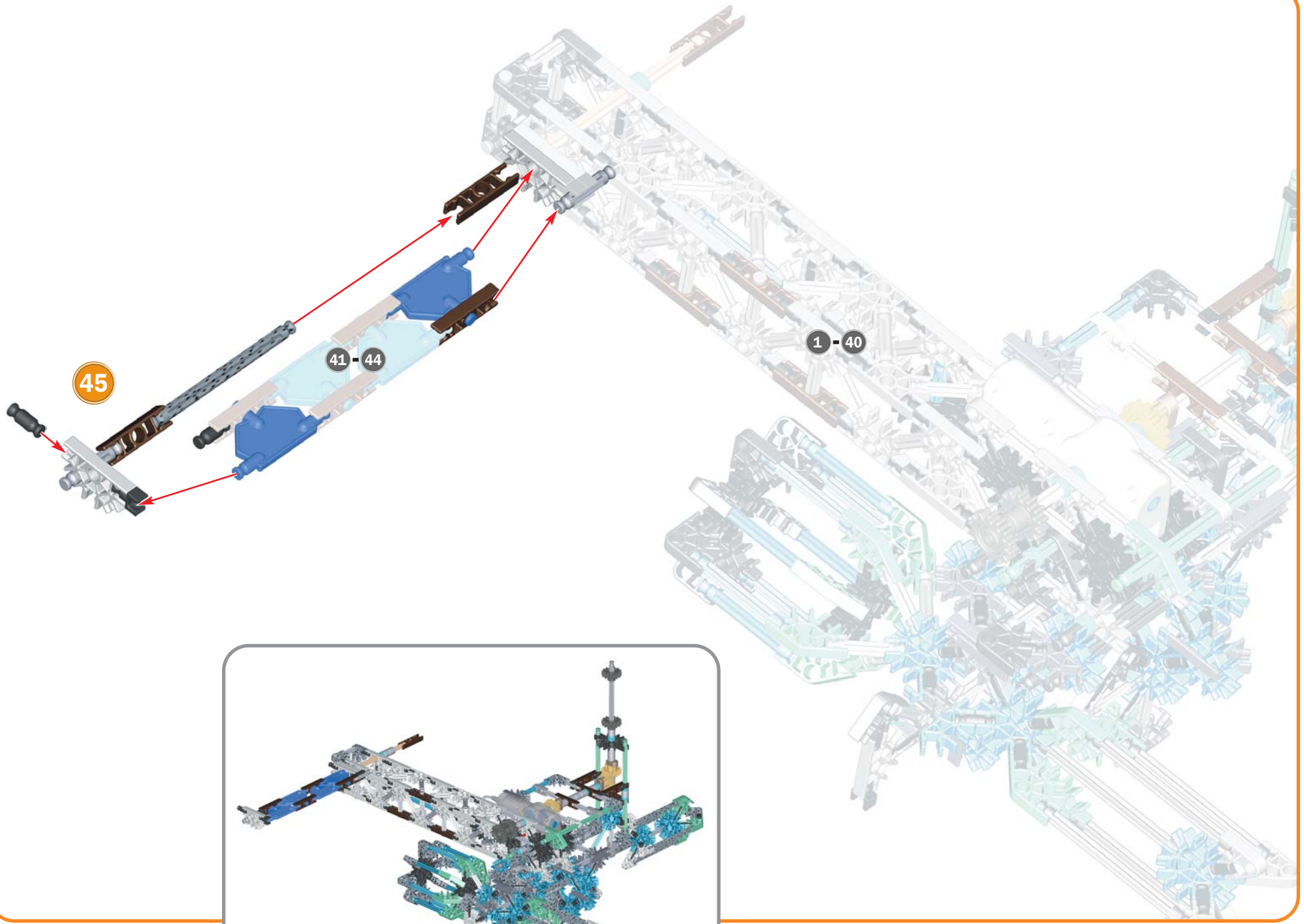
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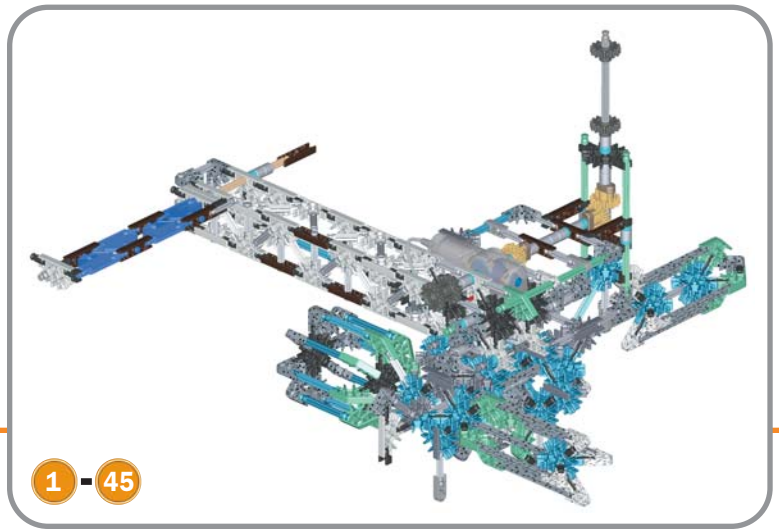
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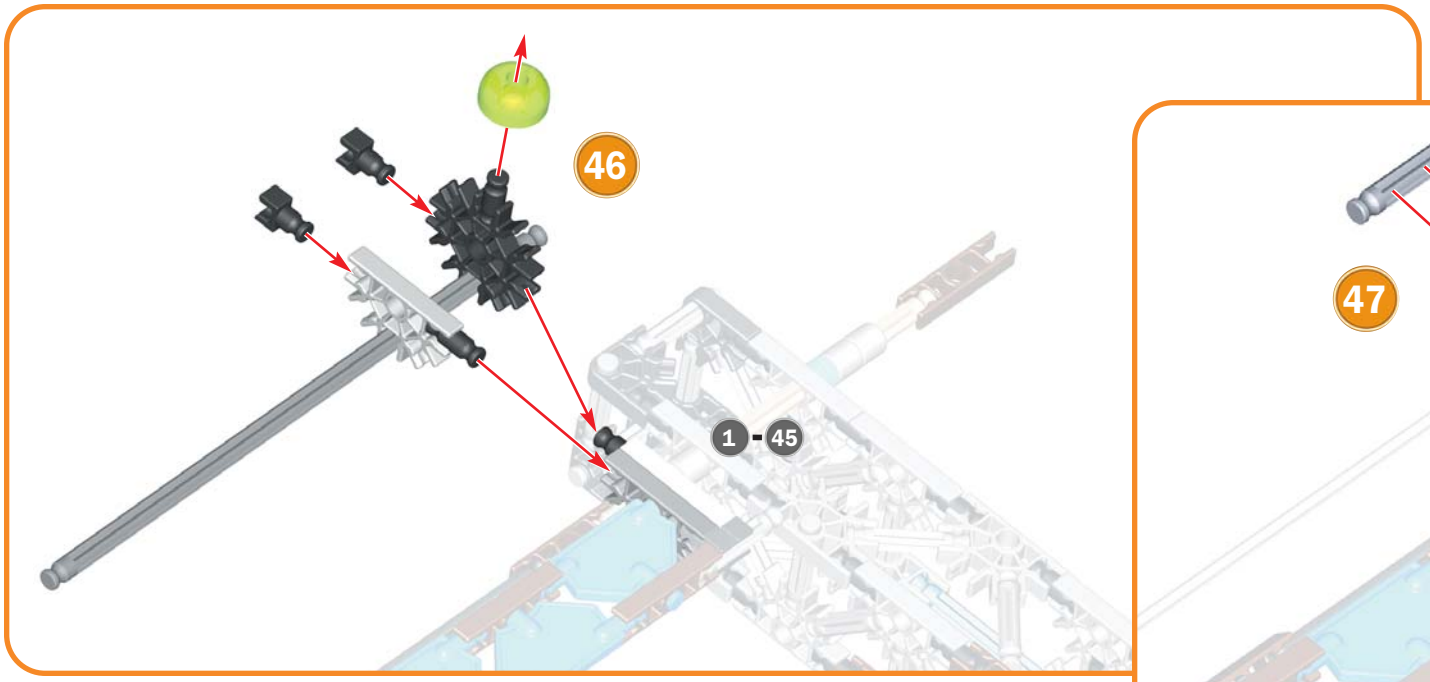
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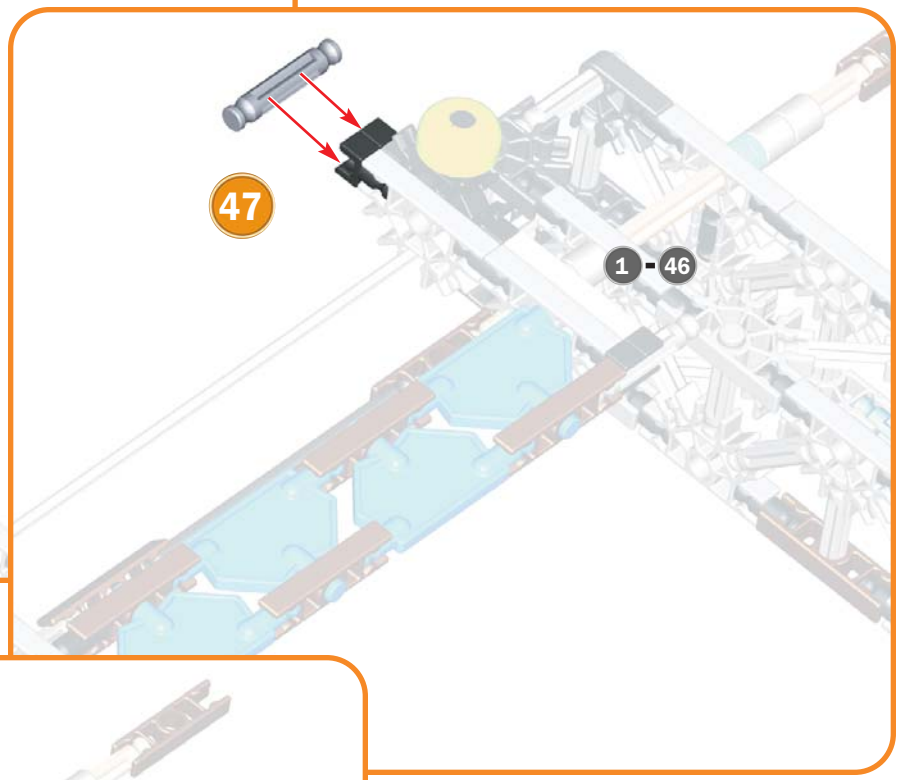
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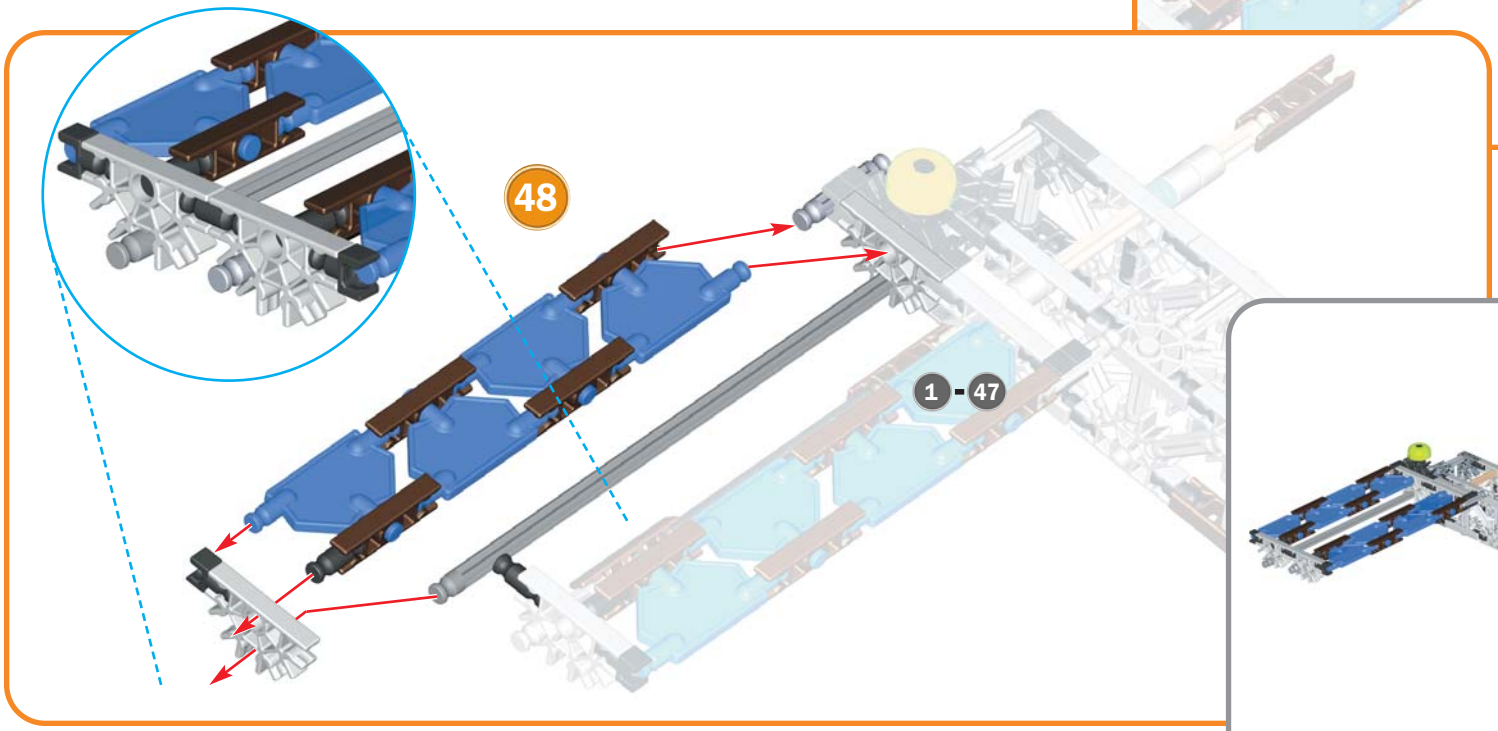
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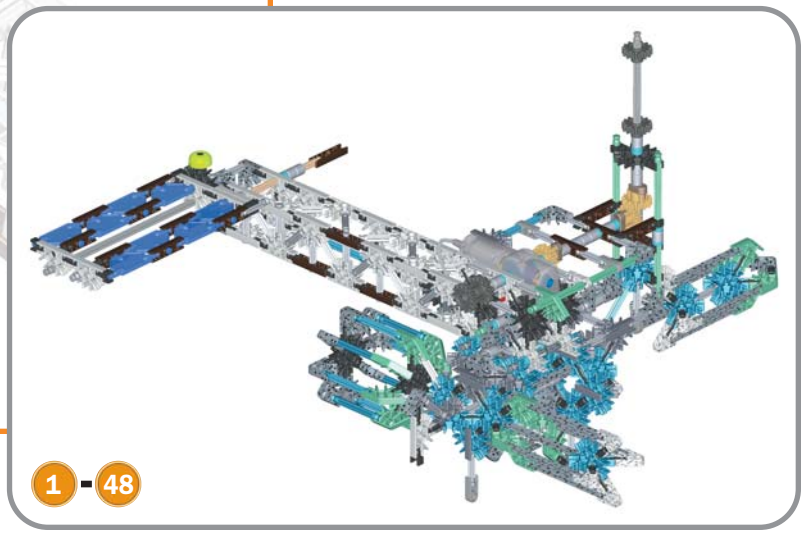
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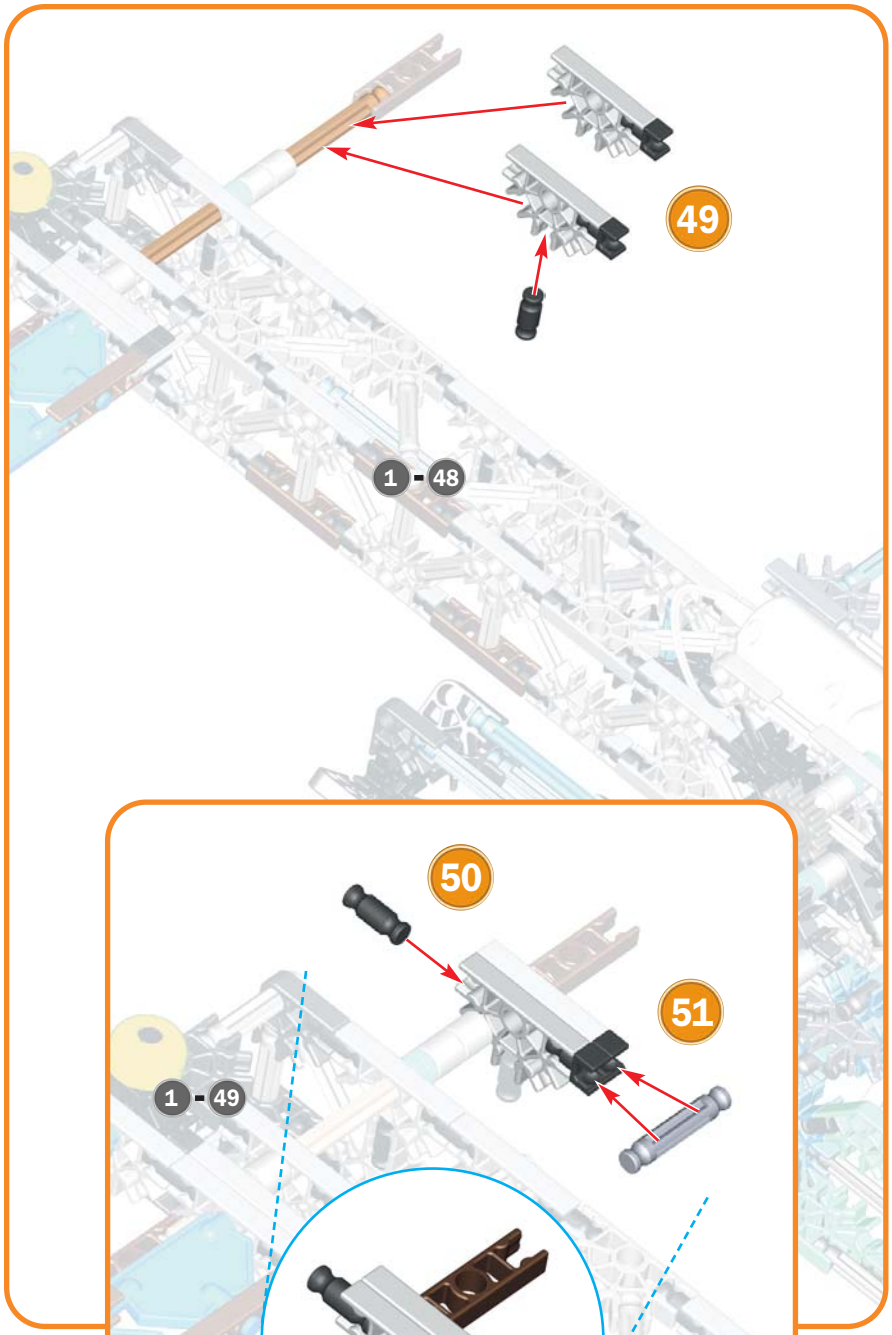
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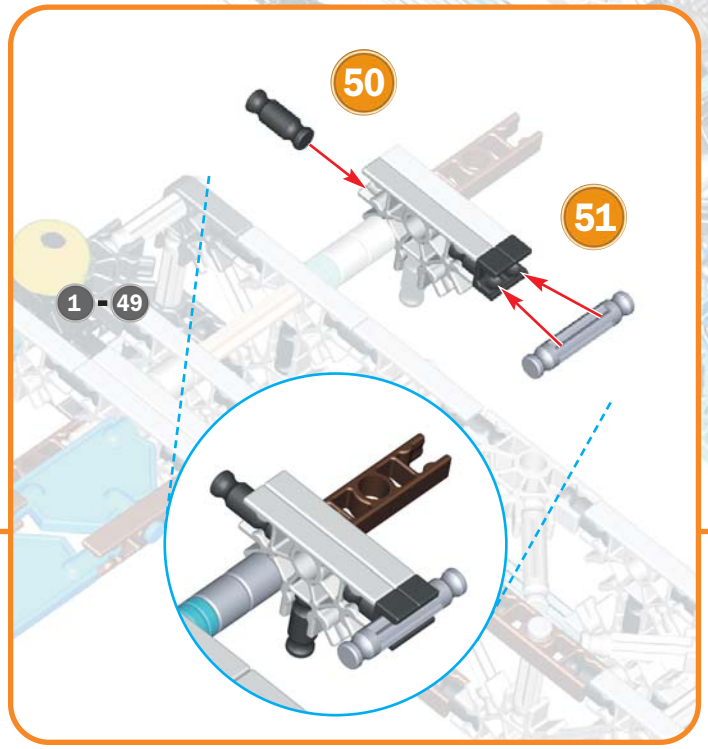
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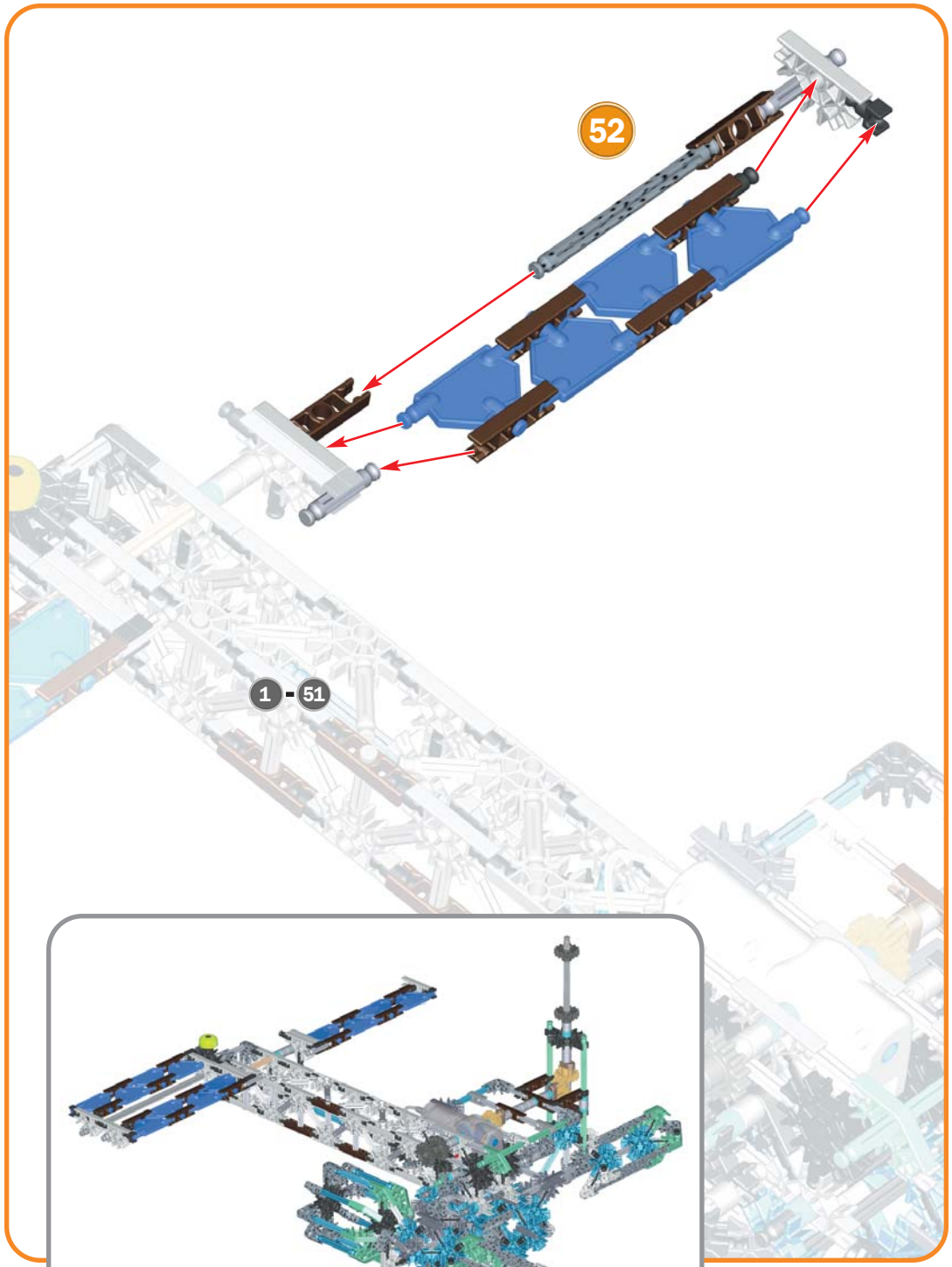
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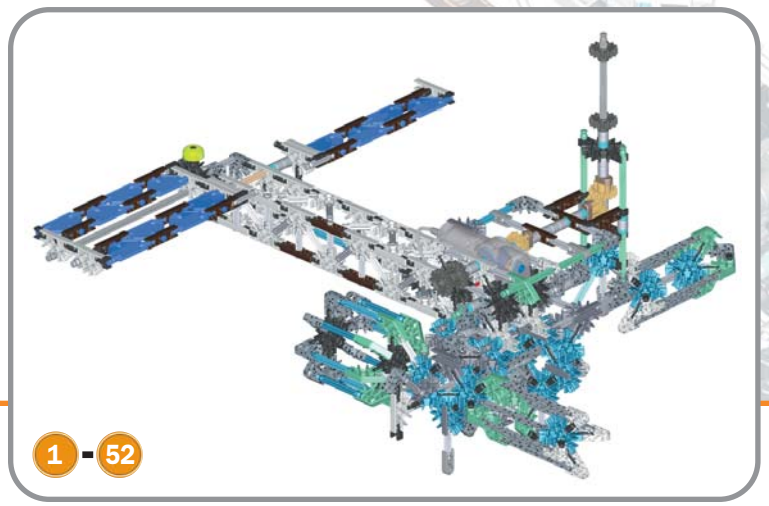
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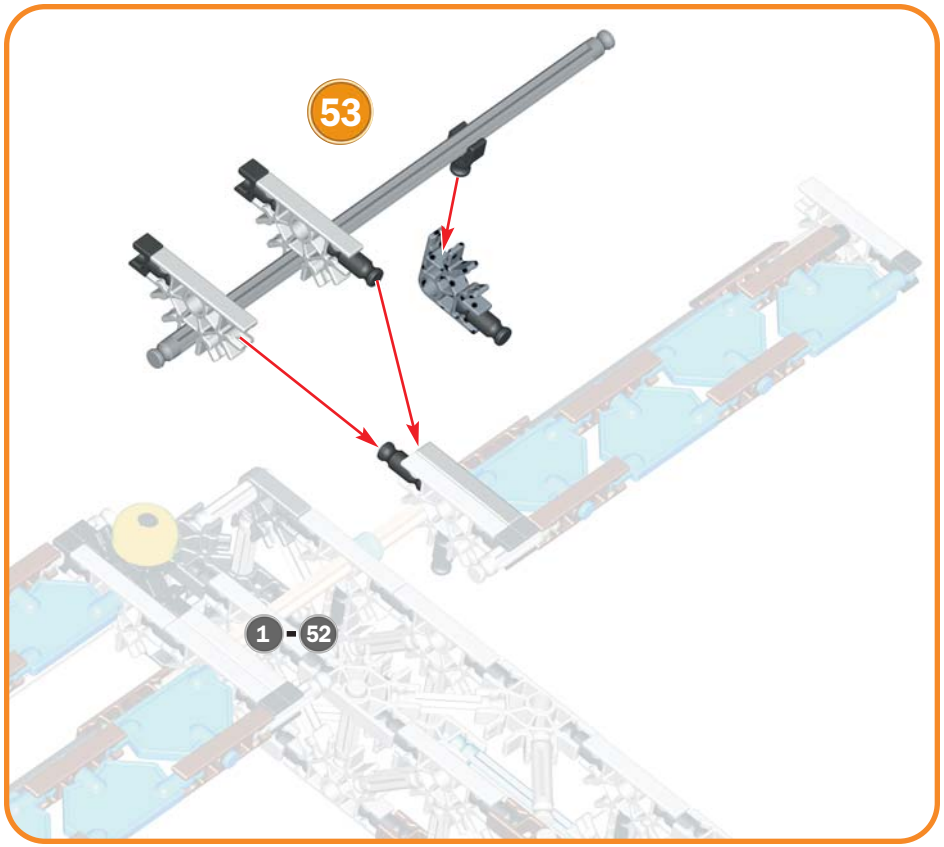
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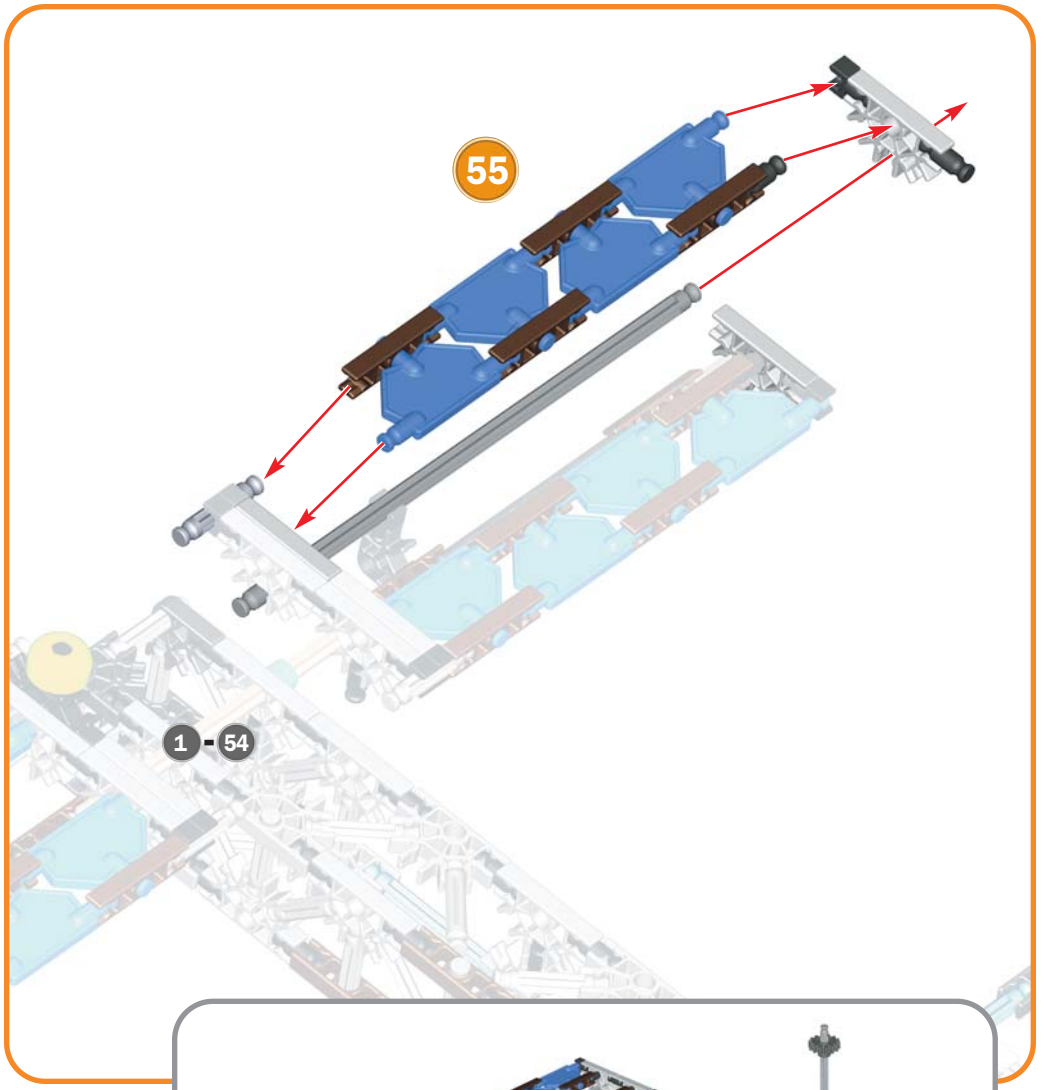
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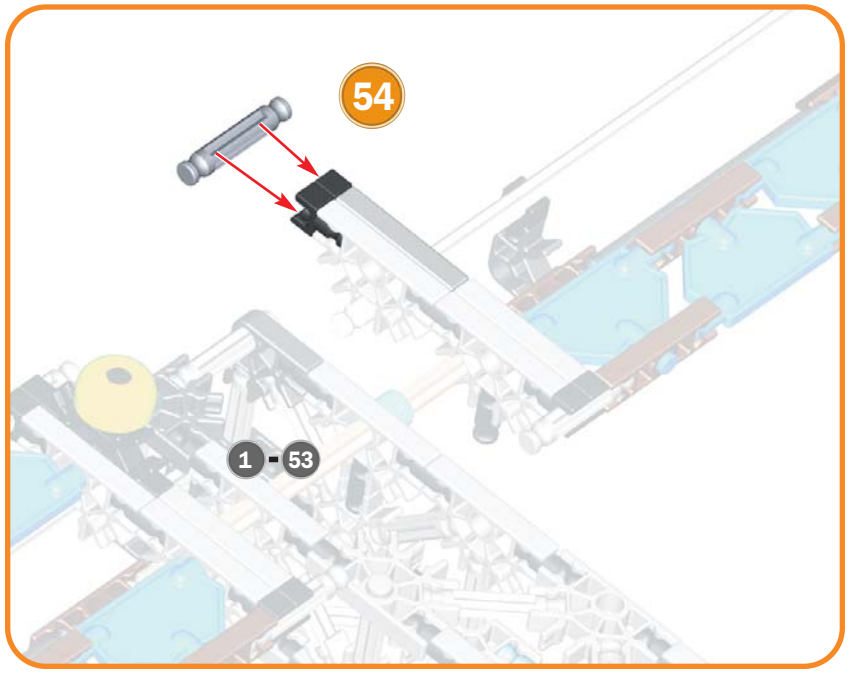
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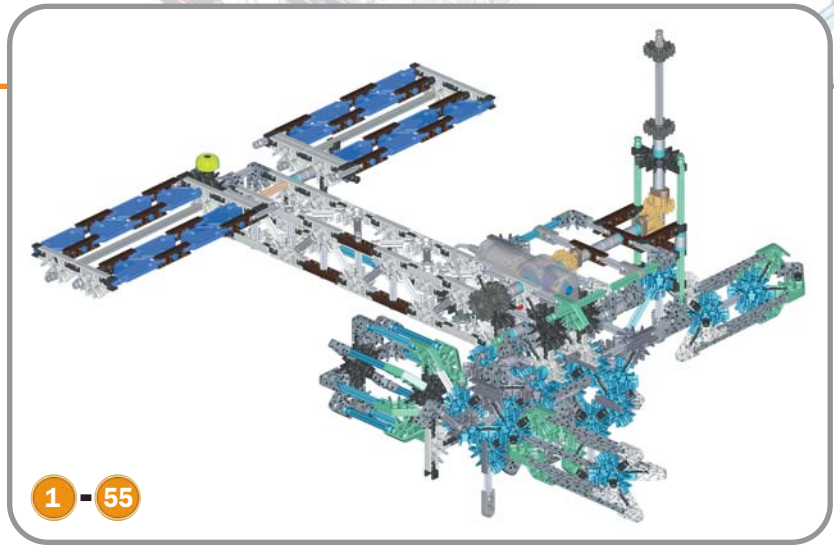
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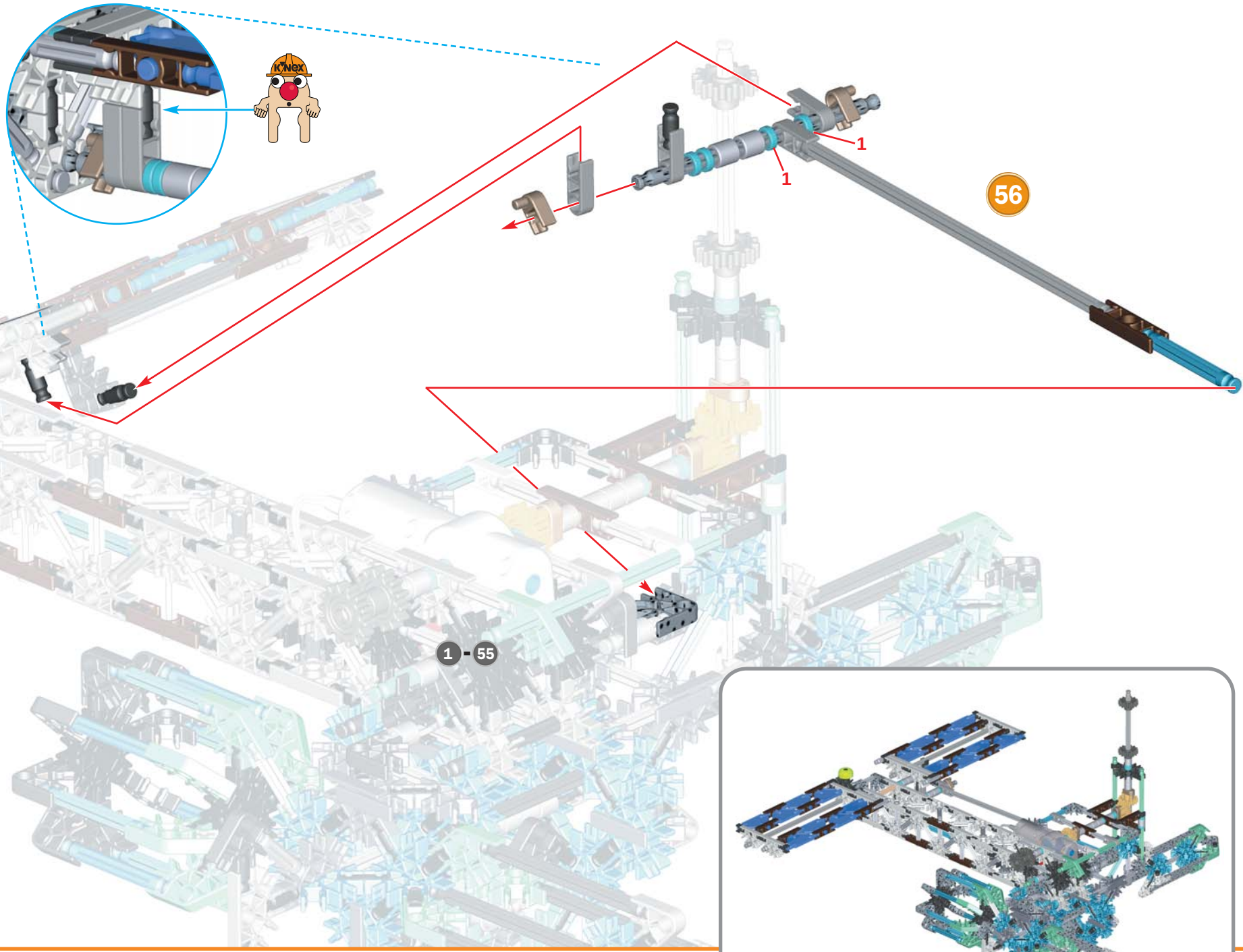
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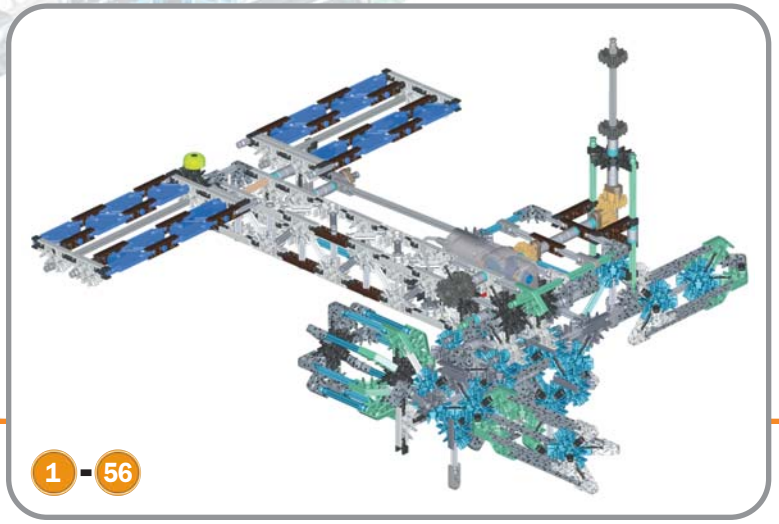
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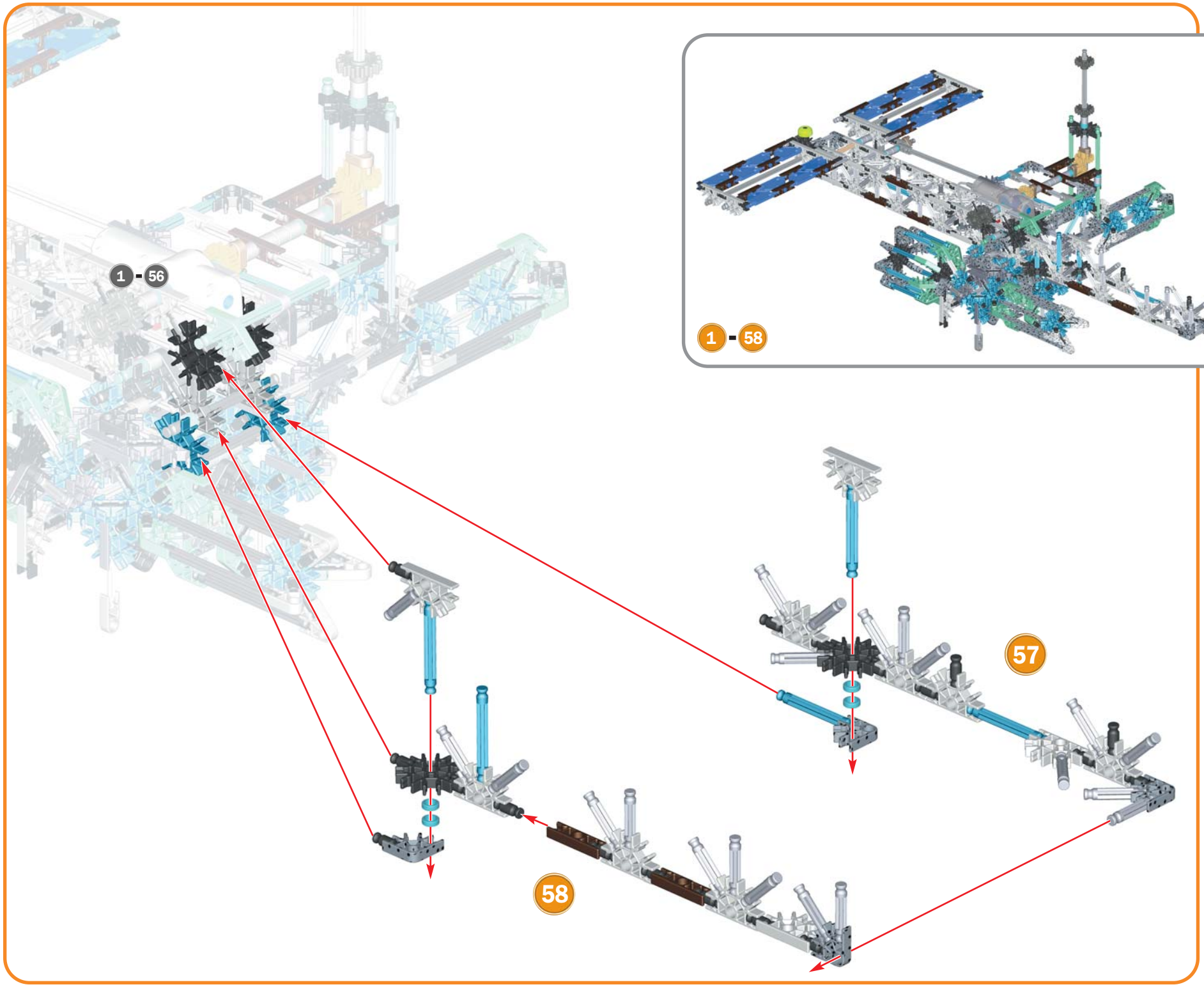
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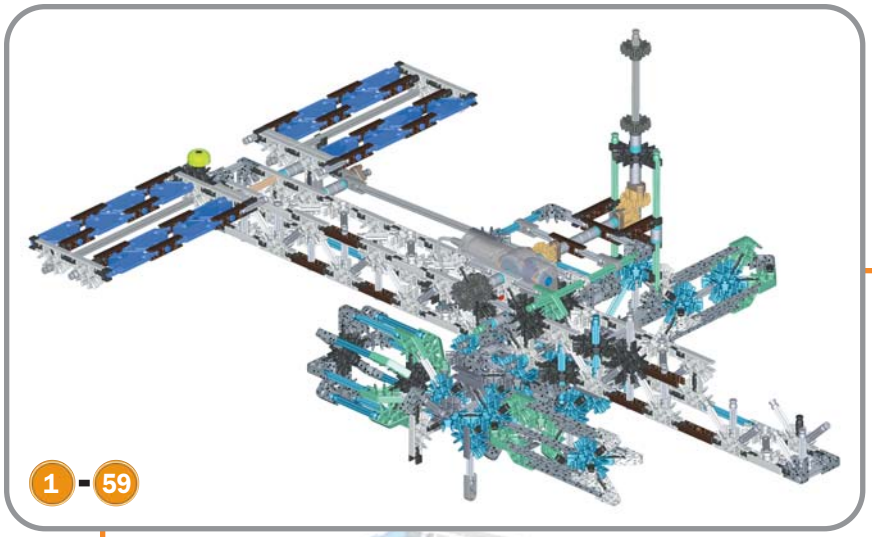
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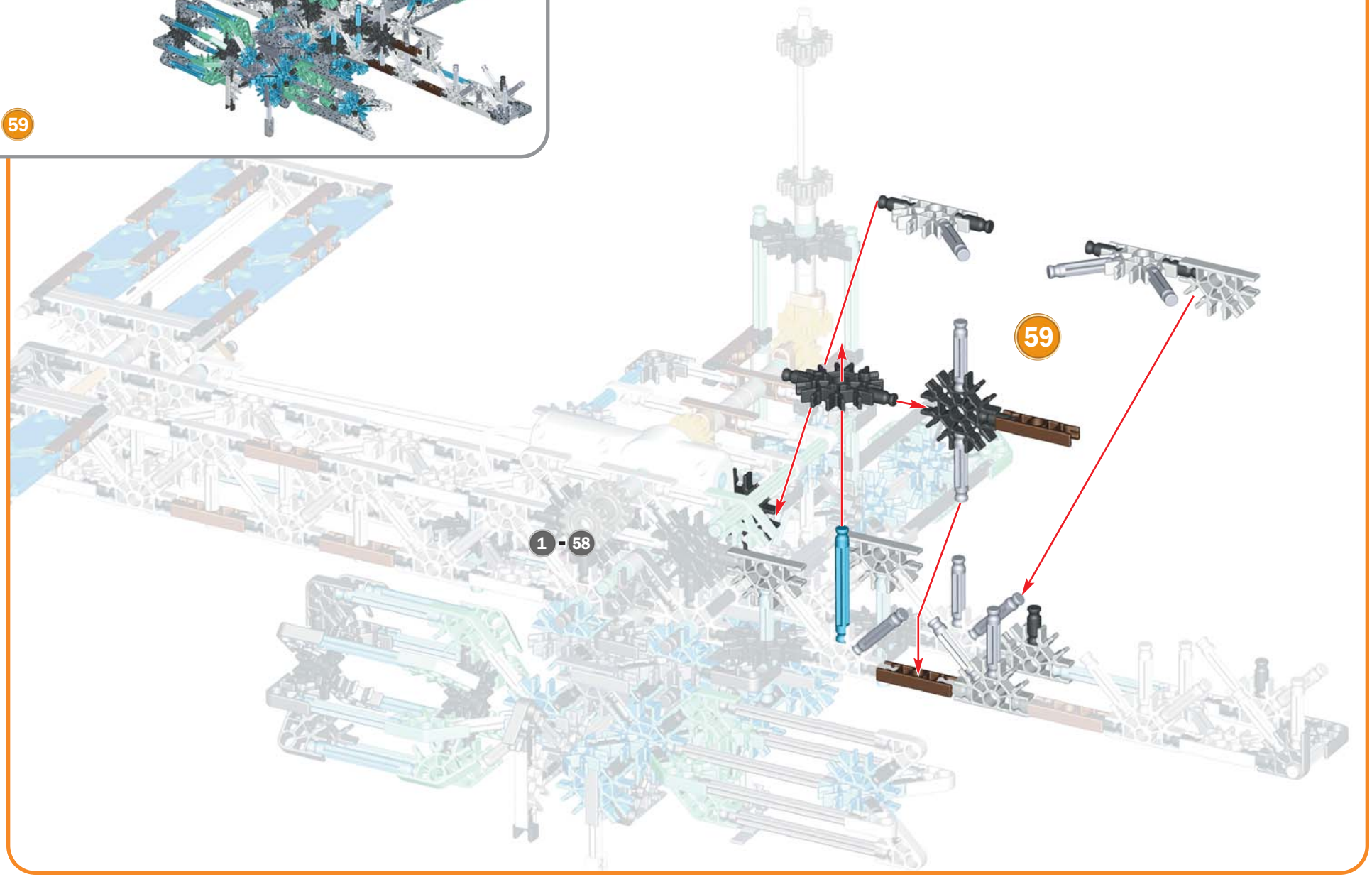
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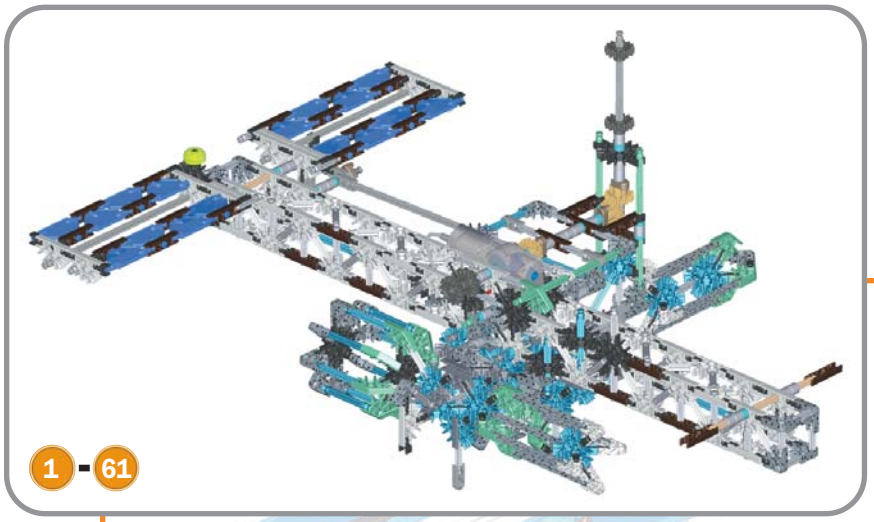
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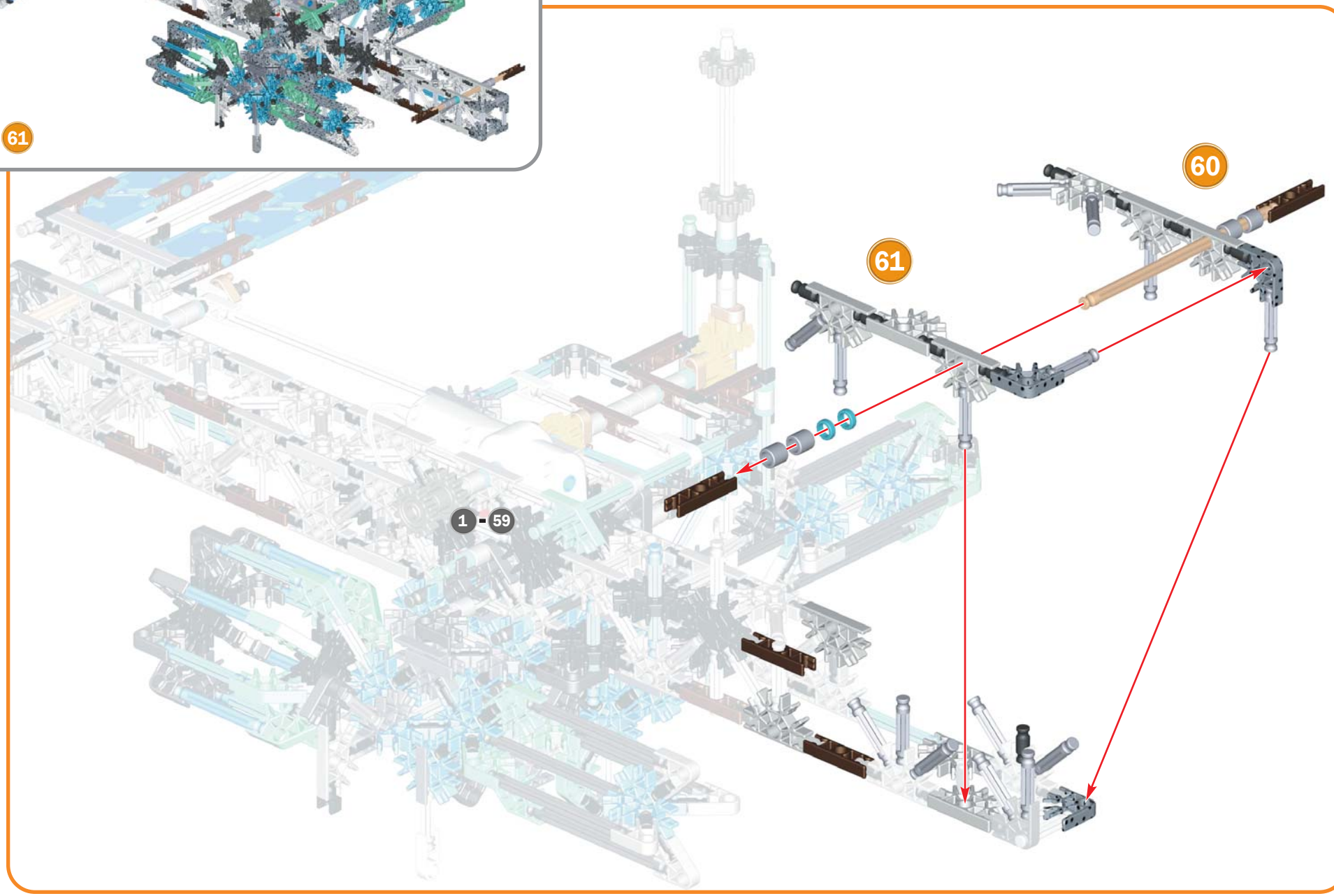
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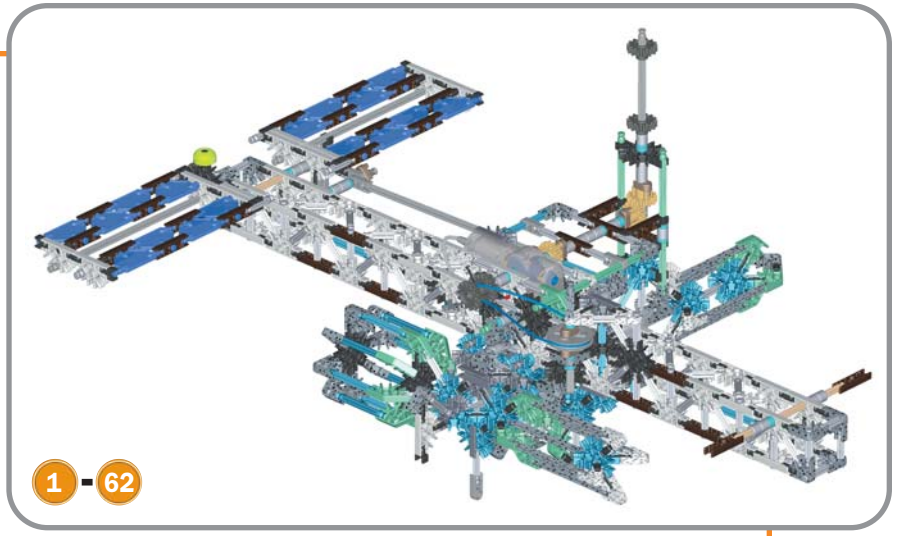
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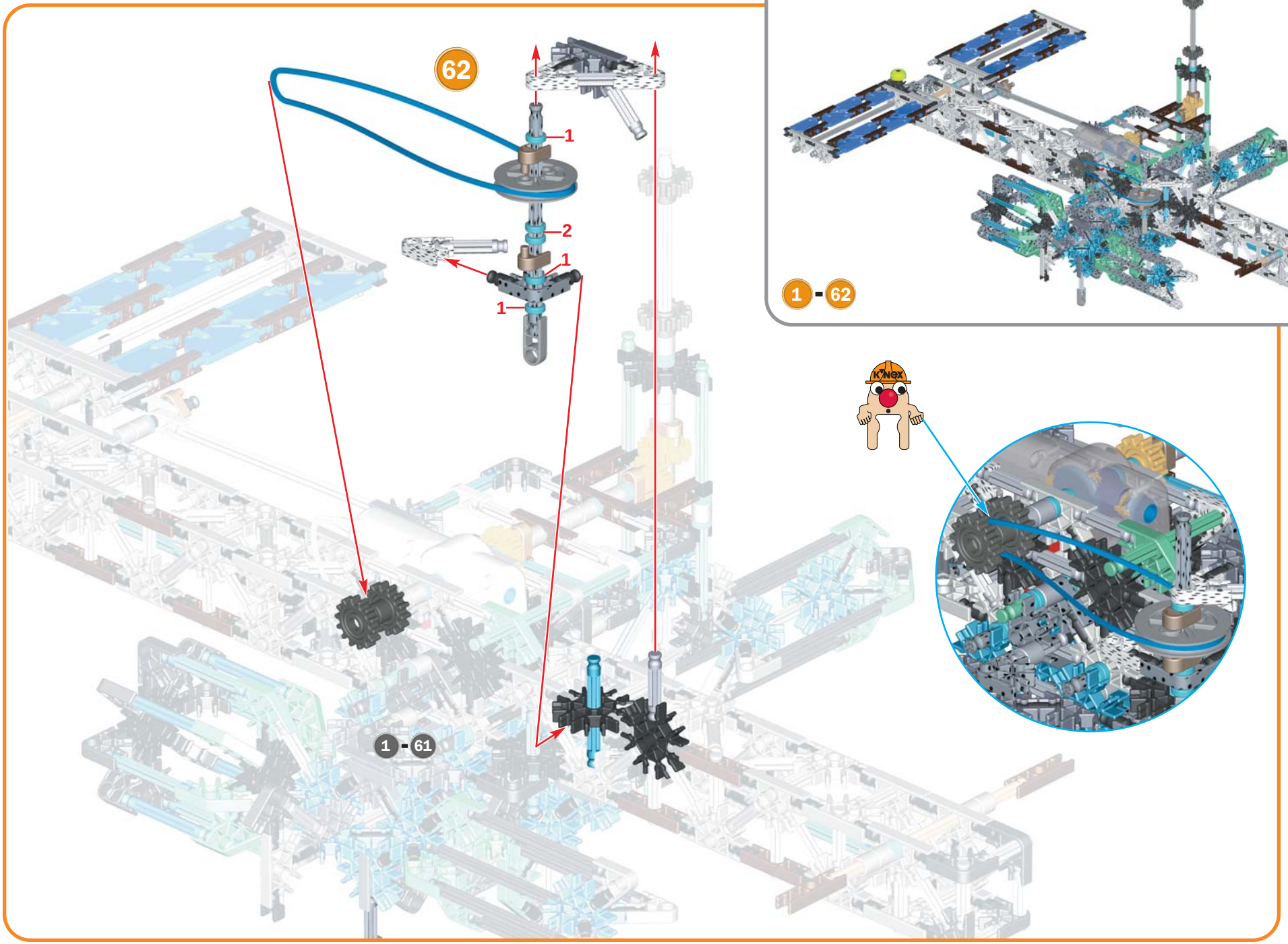
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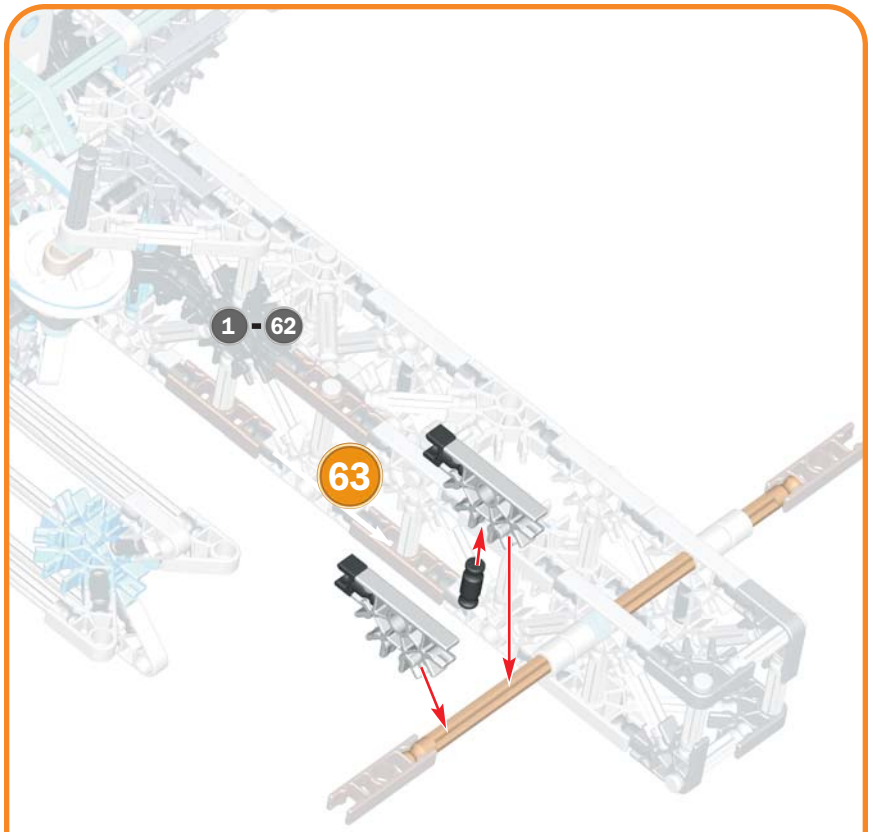
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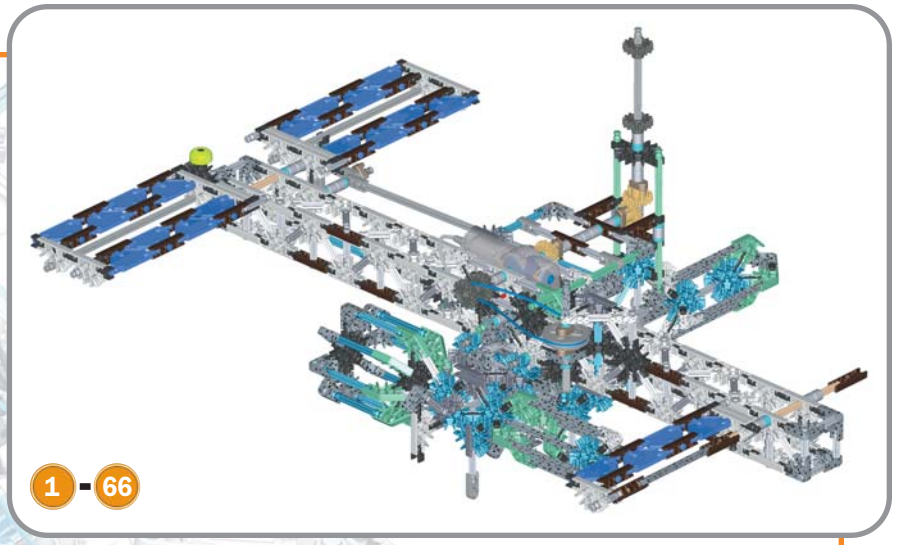
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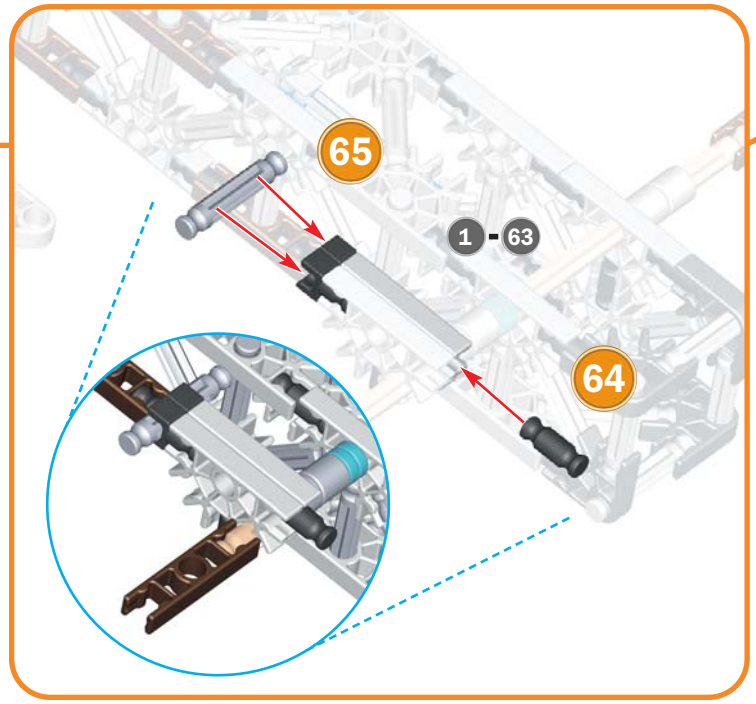
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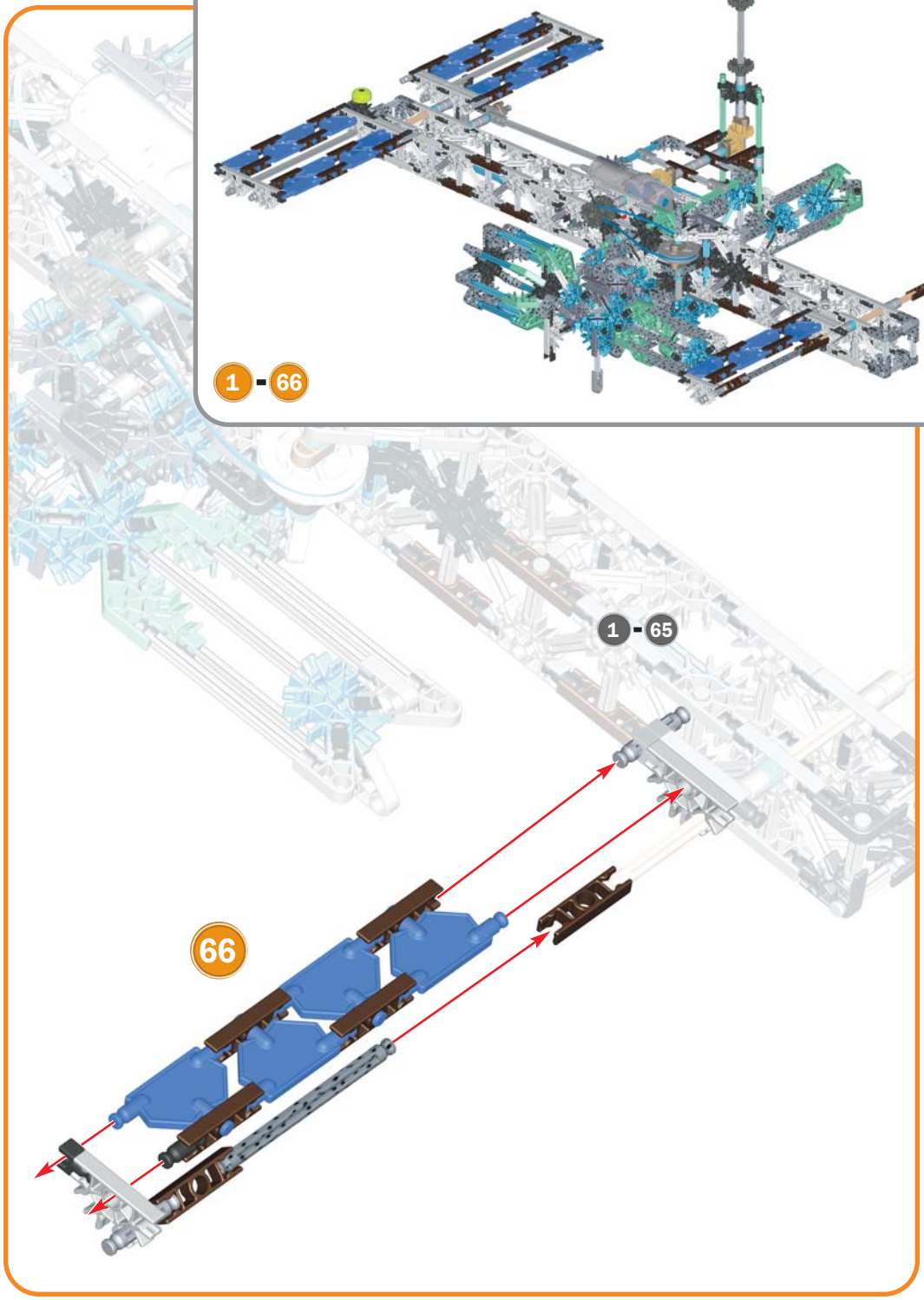
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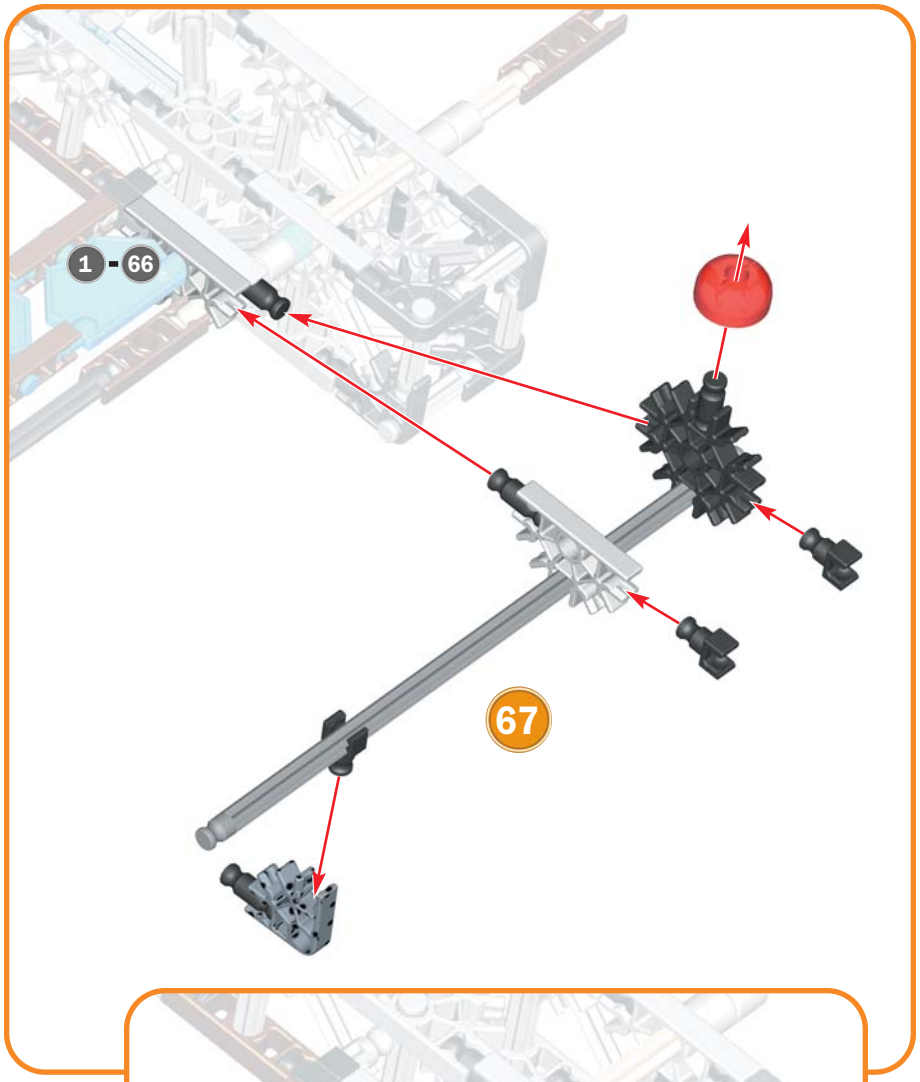
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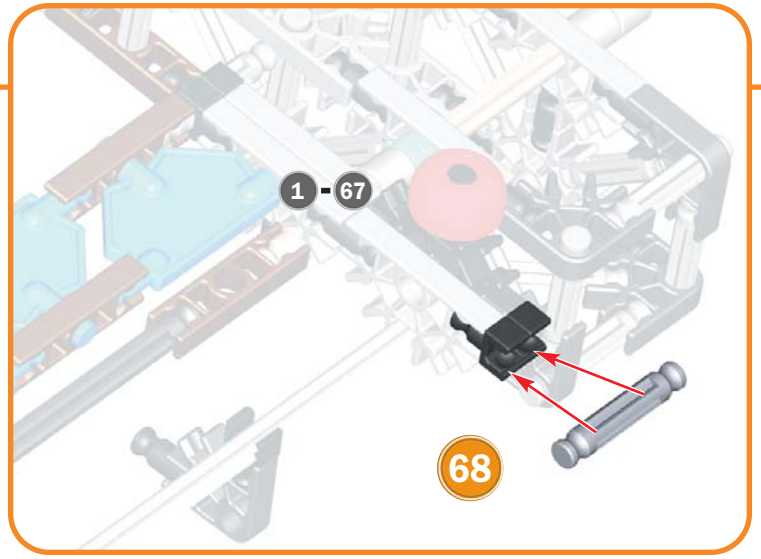
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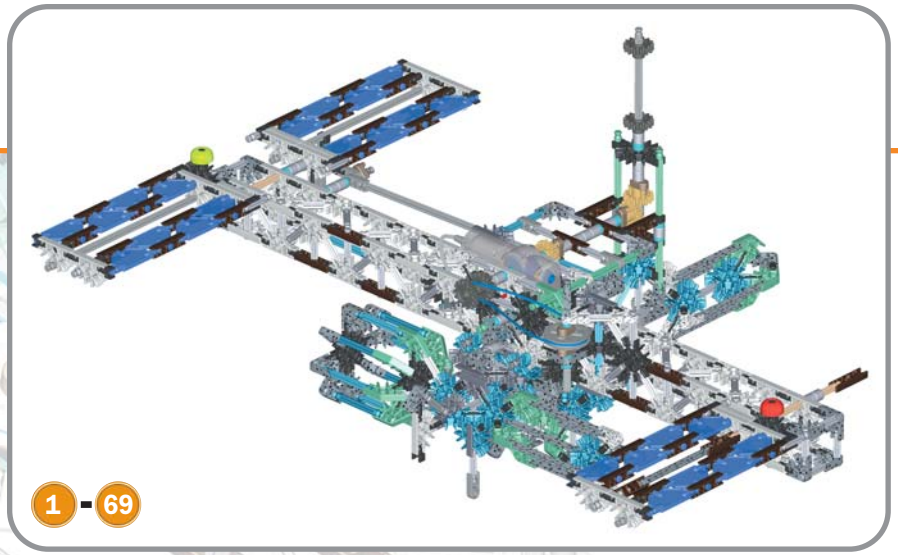
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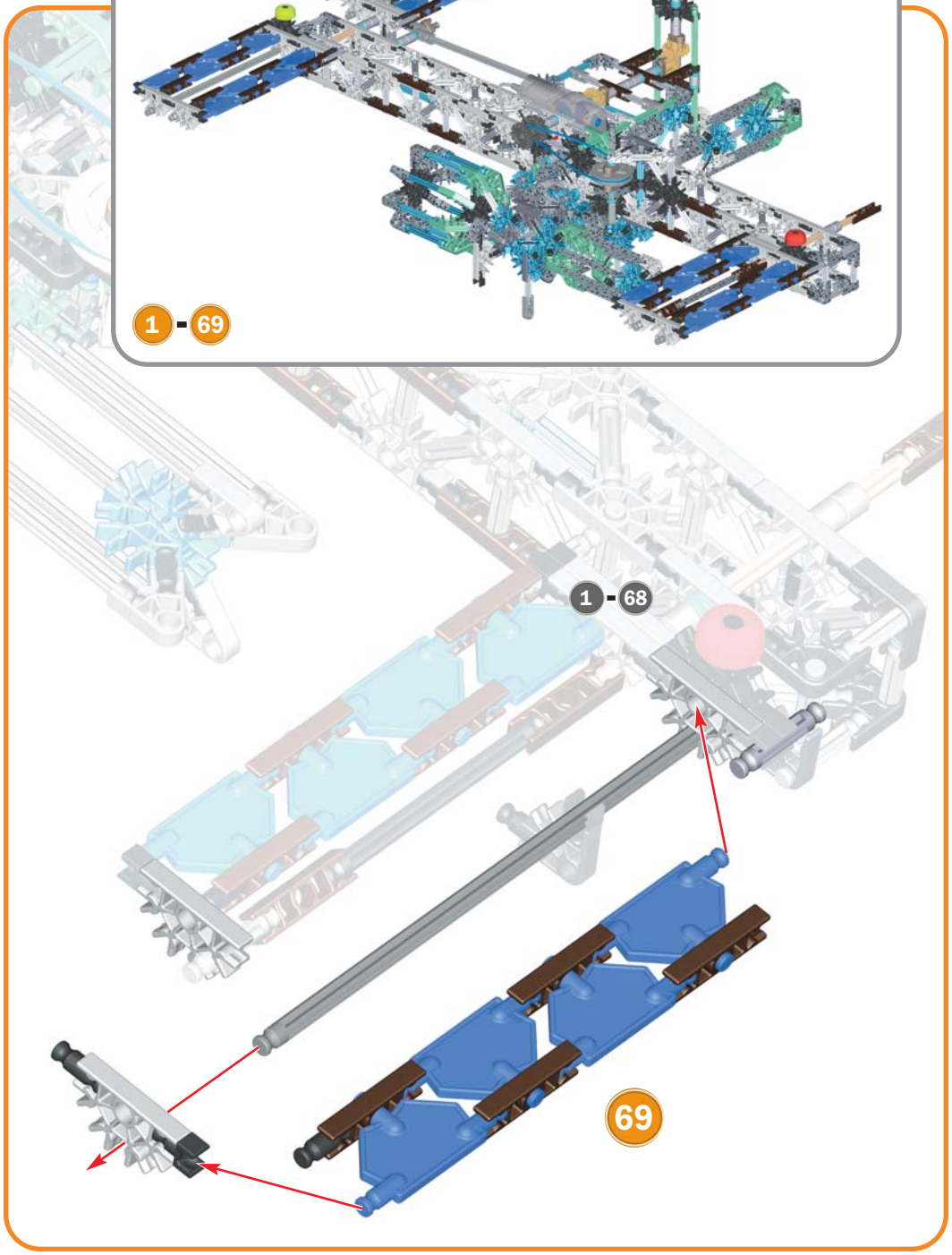
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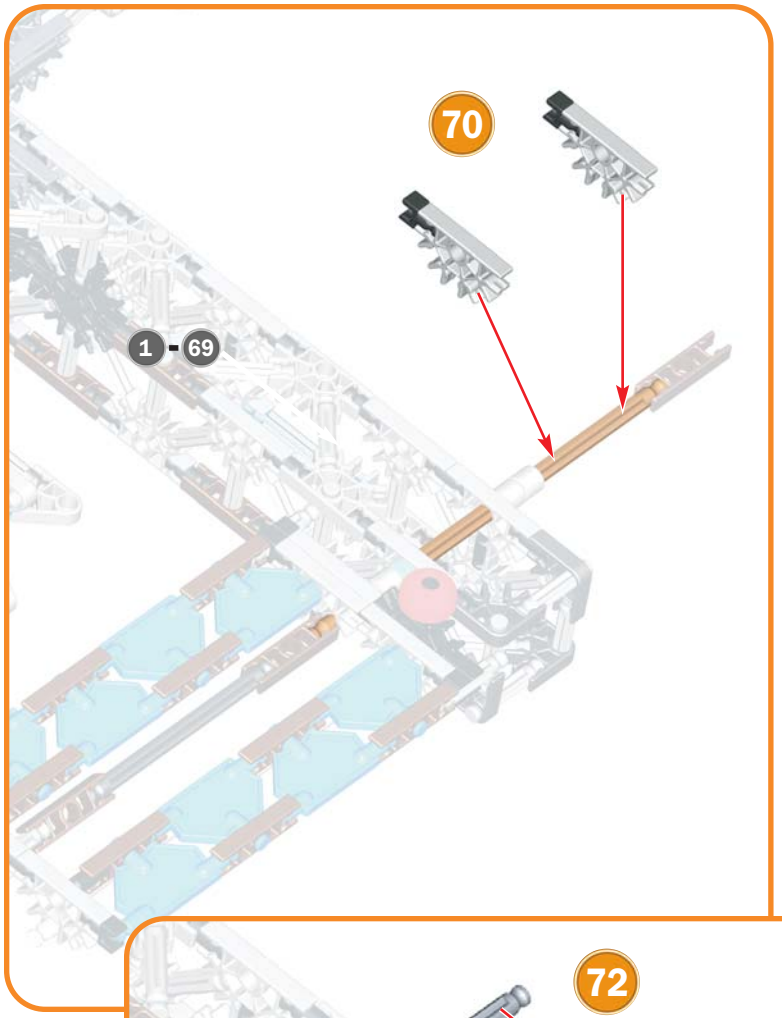
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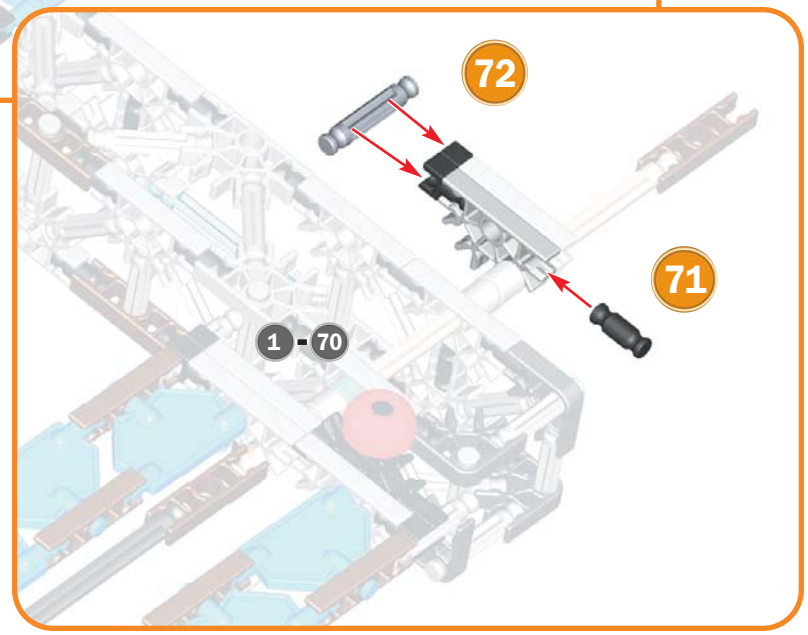
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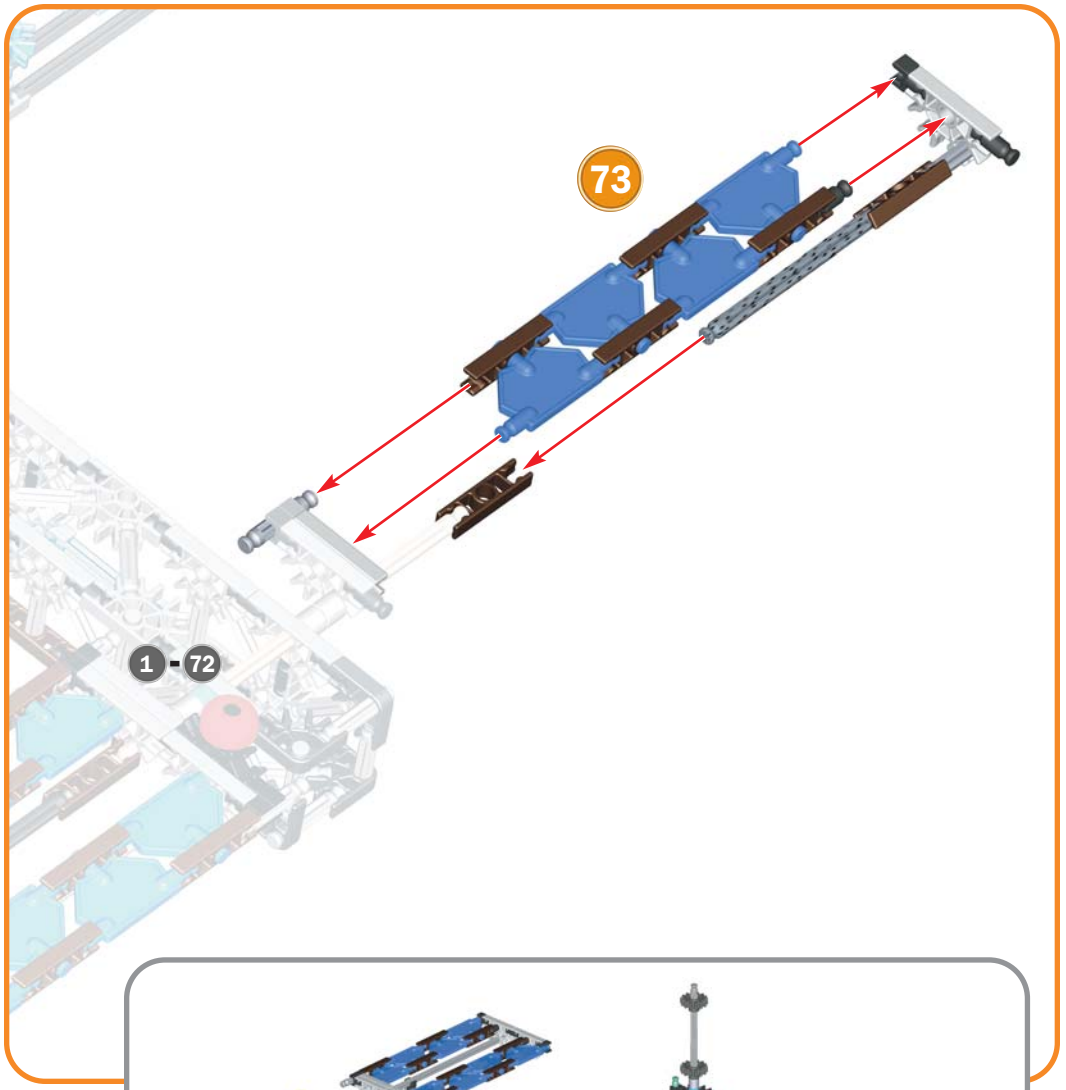
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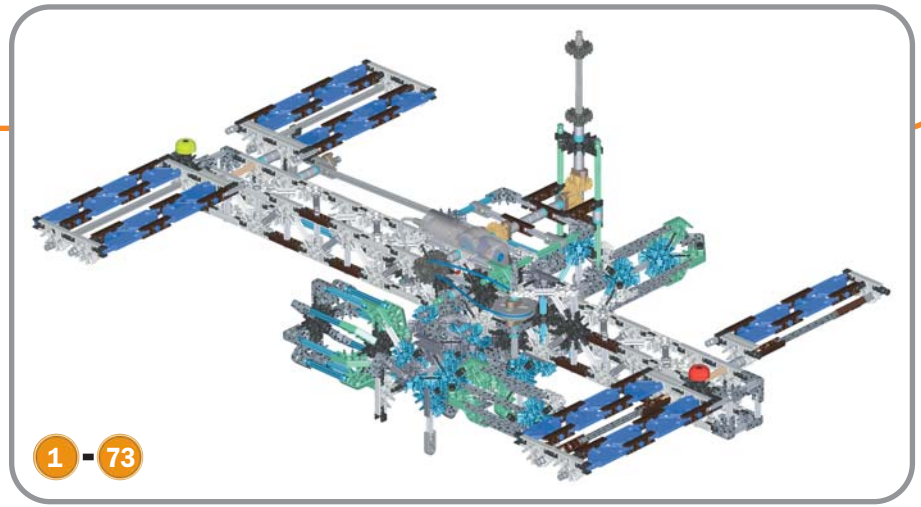
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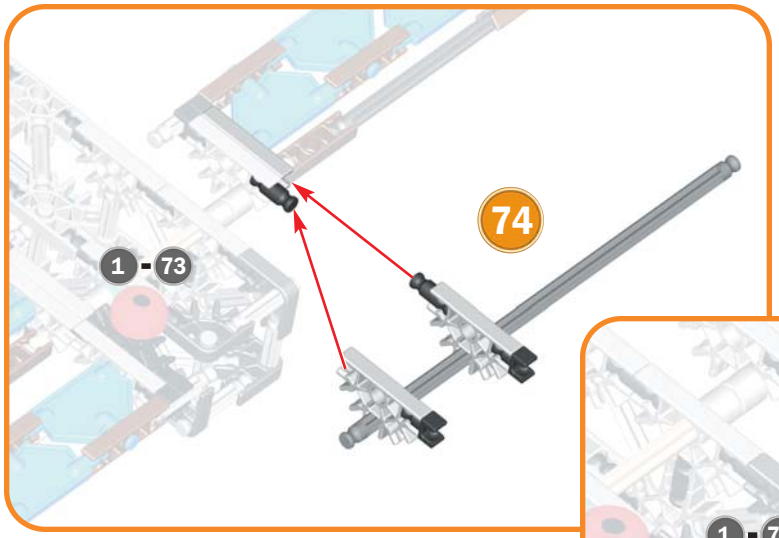
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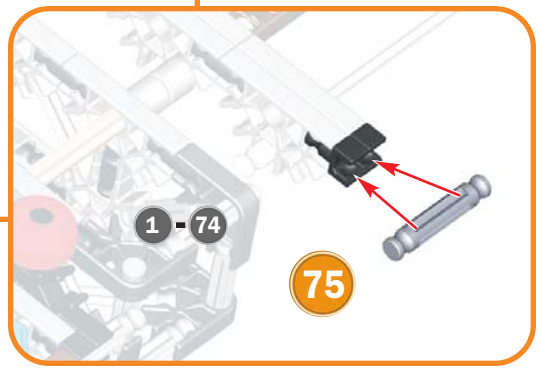
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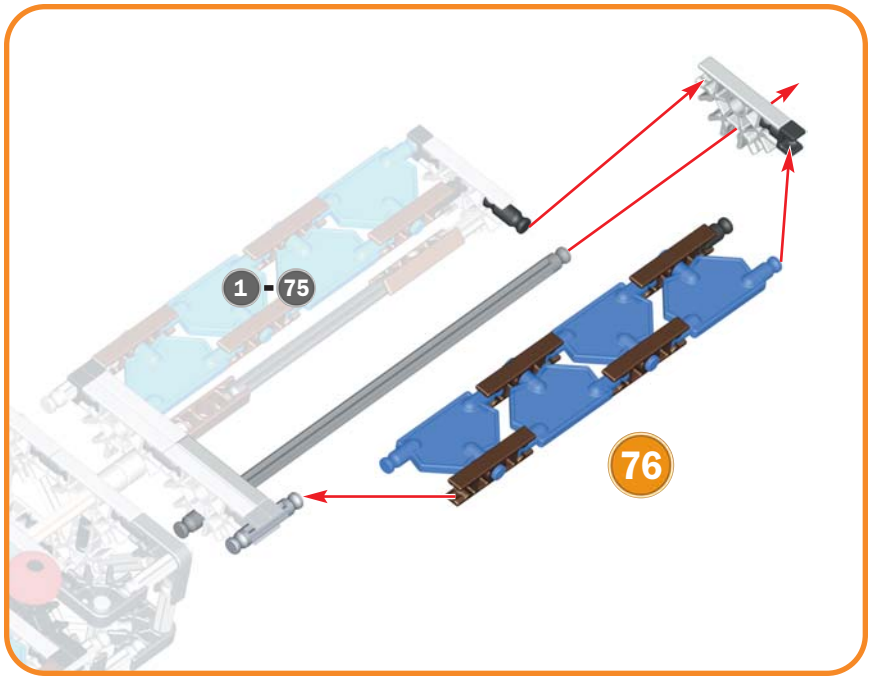
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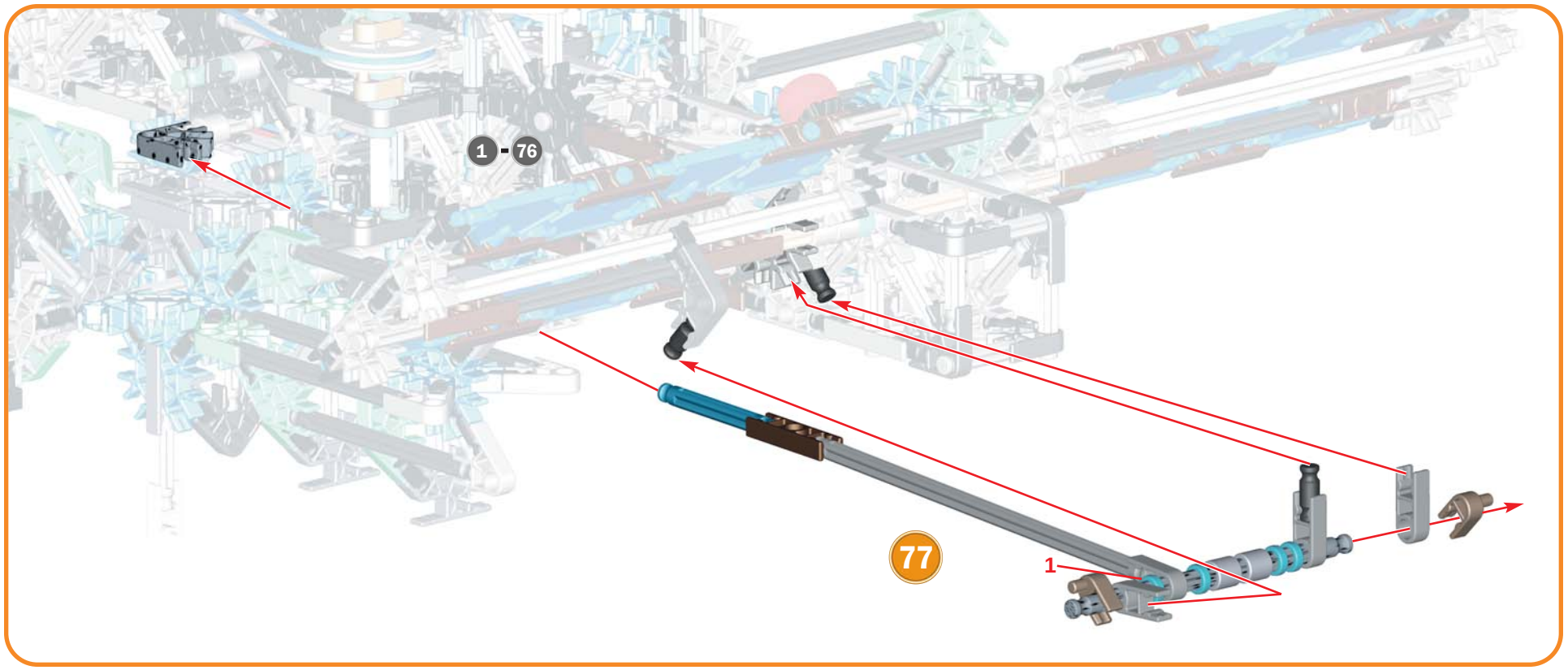
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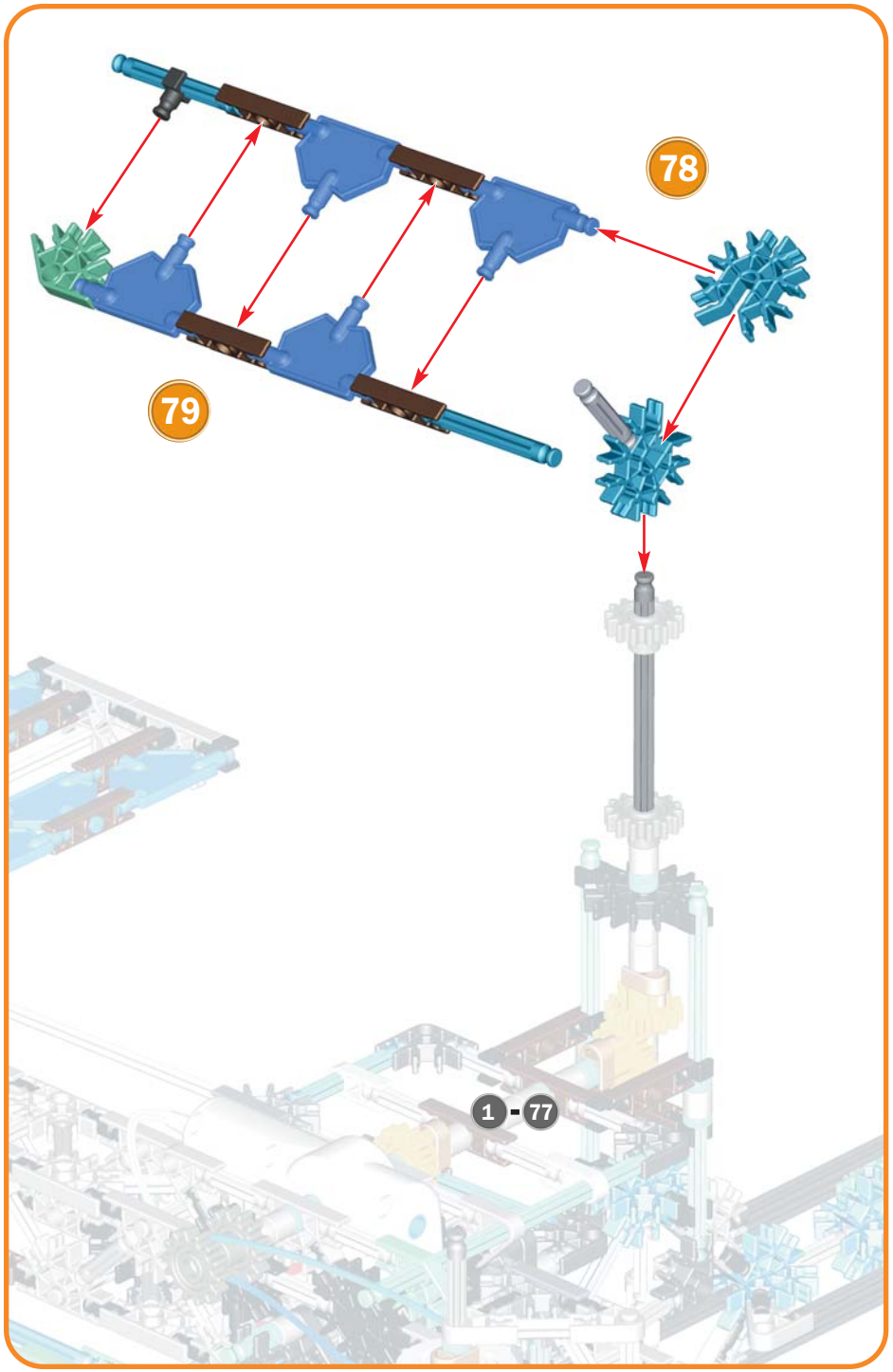
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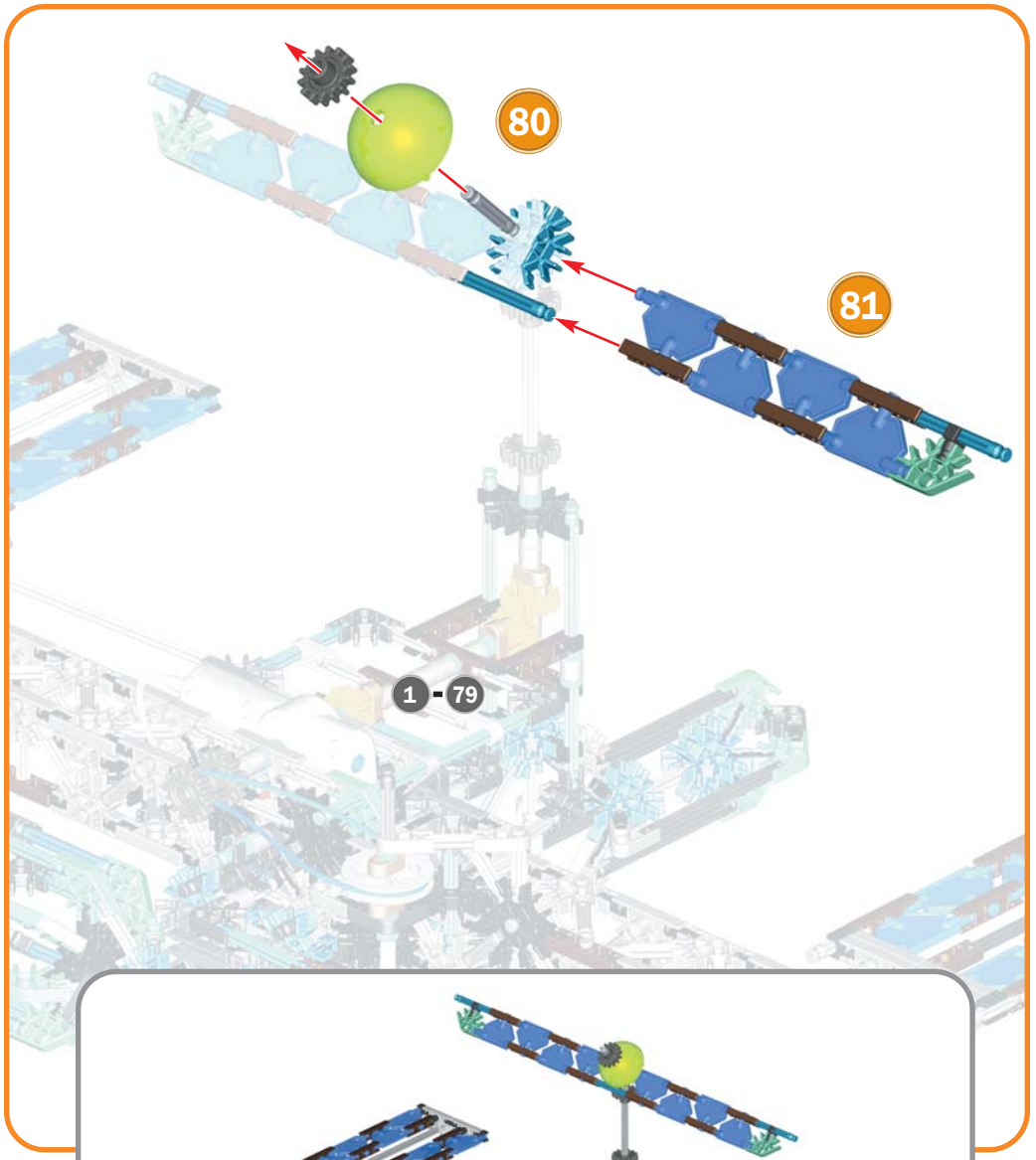
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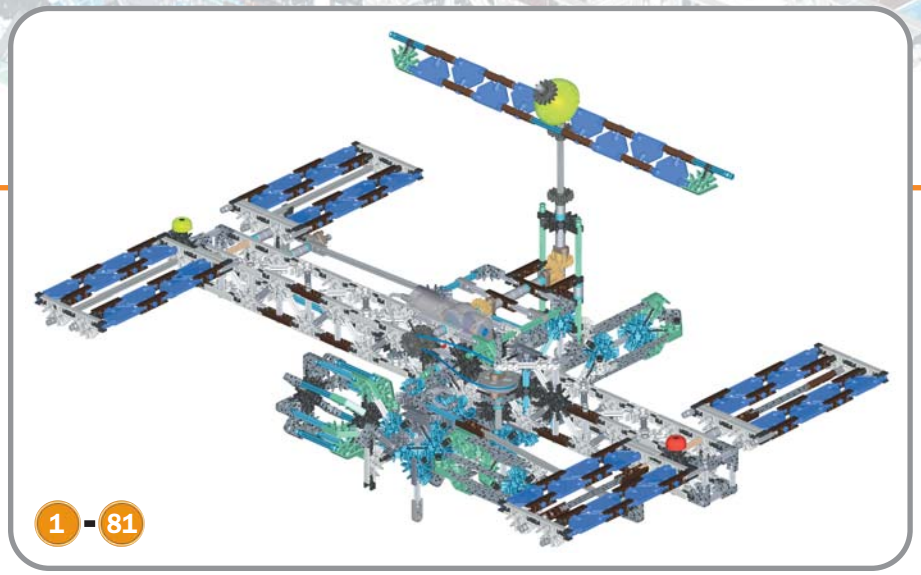
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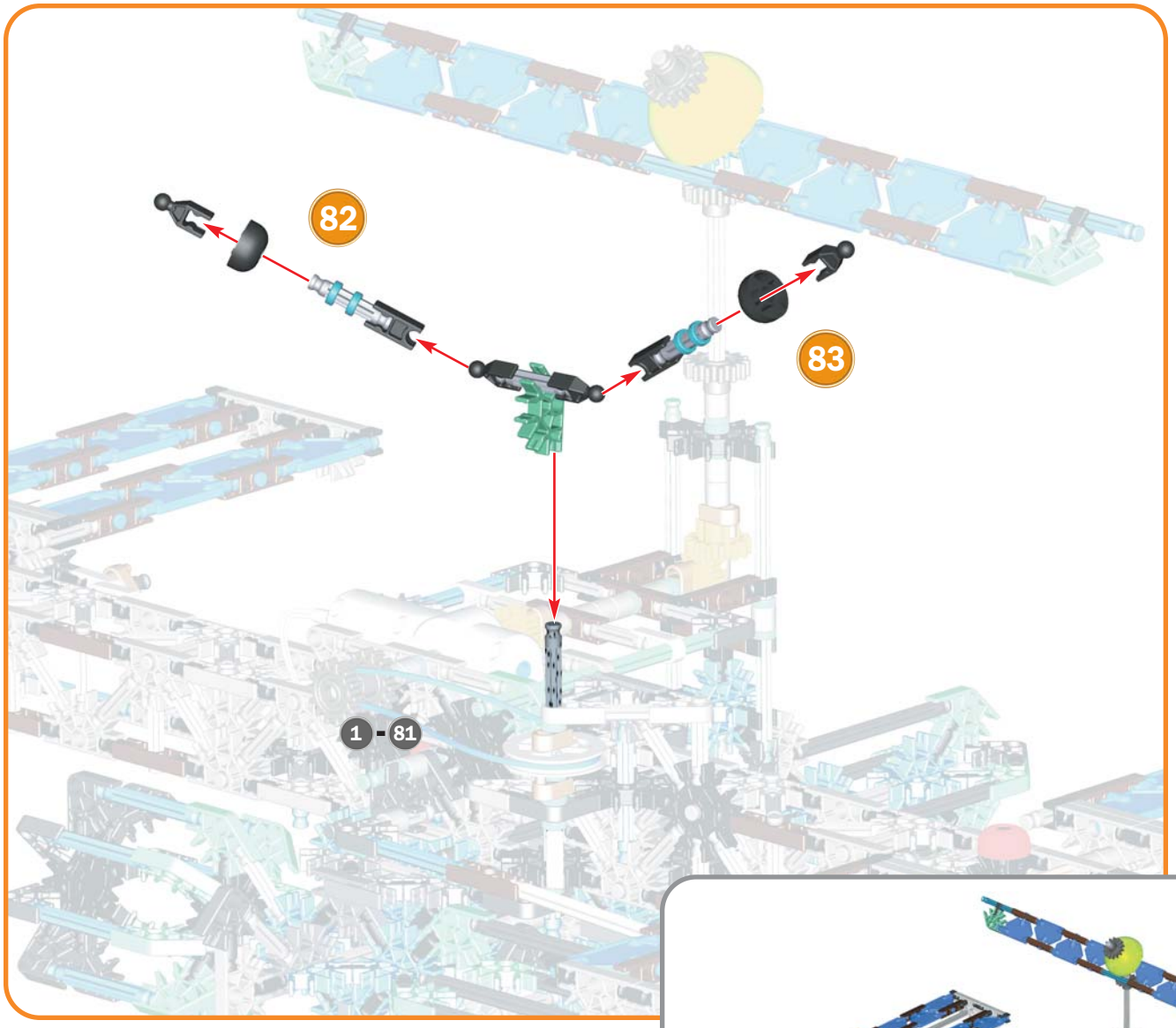
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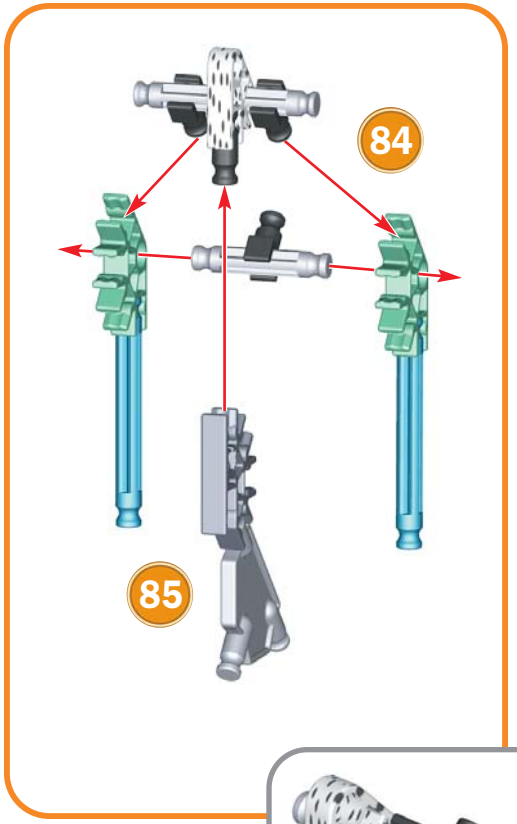
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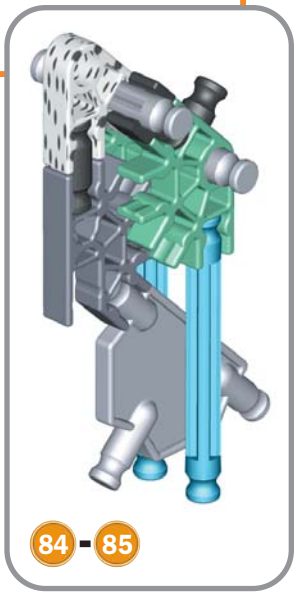
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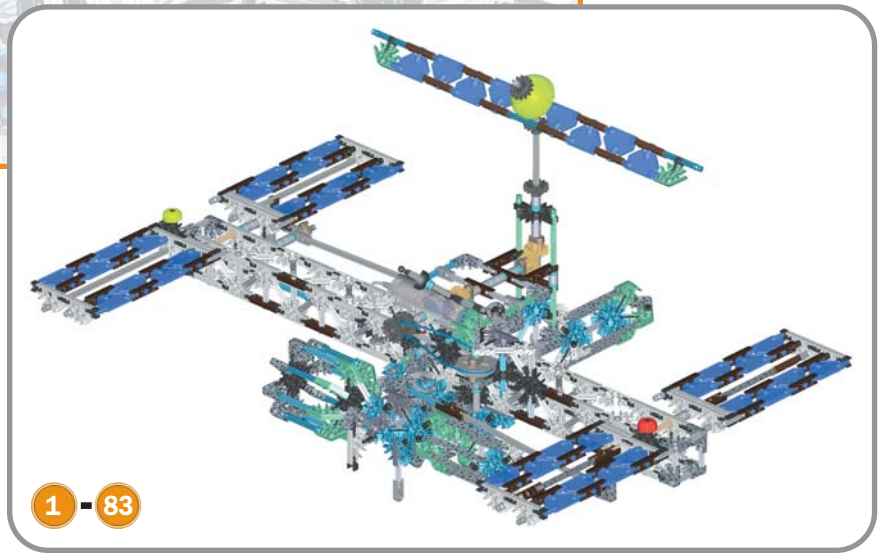
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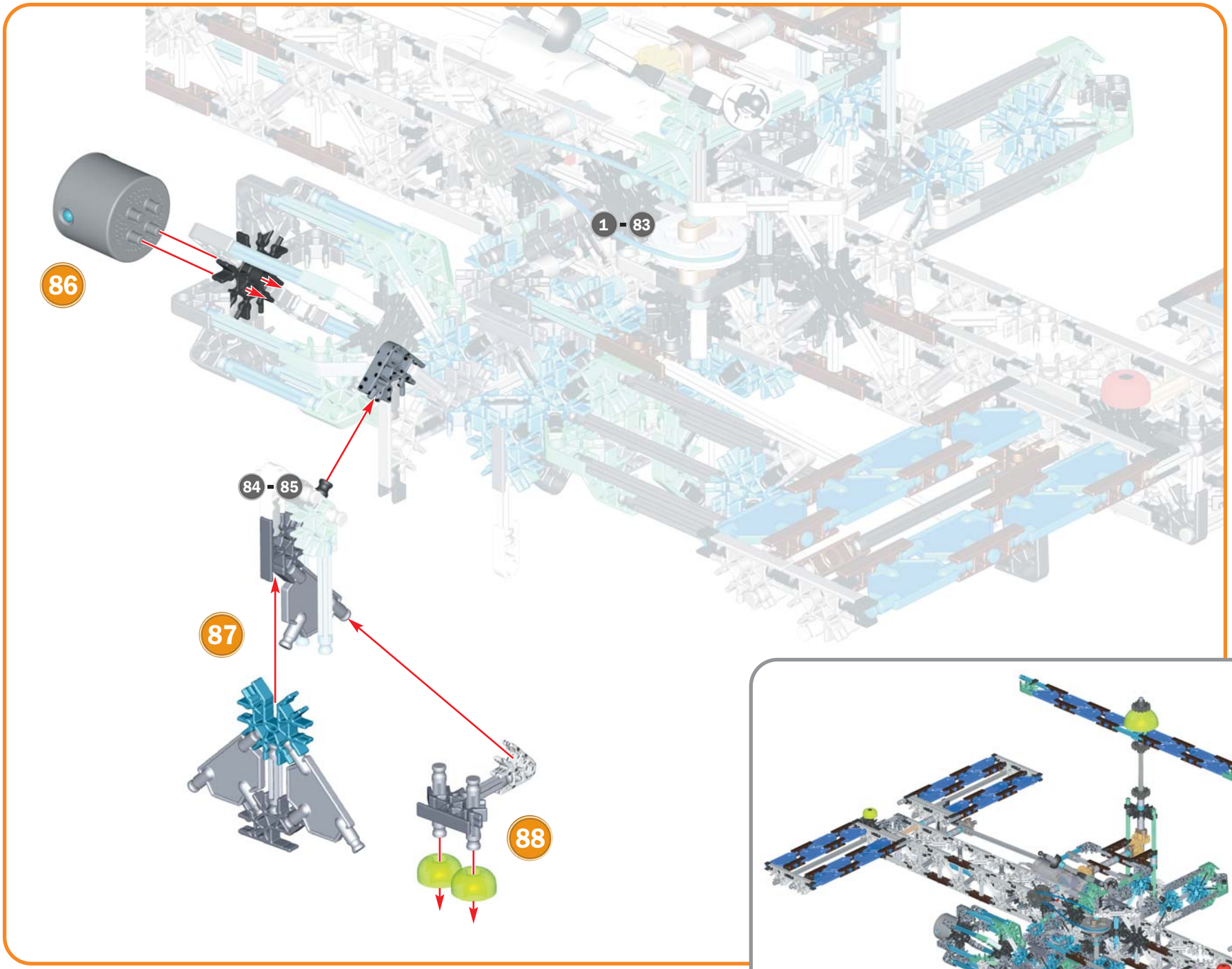
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84 - 85
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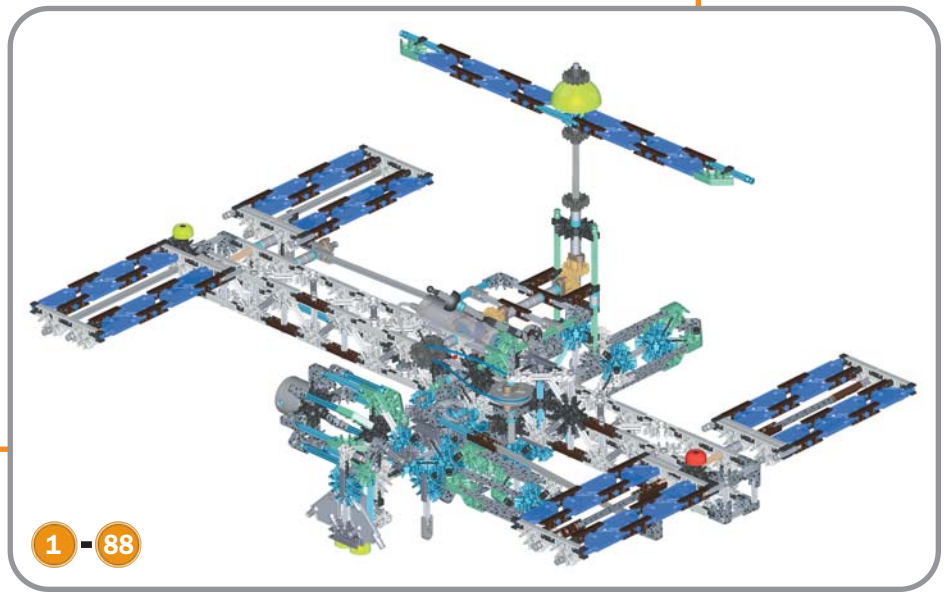
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