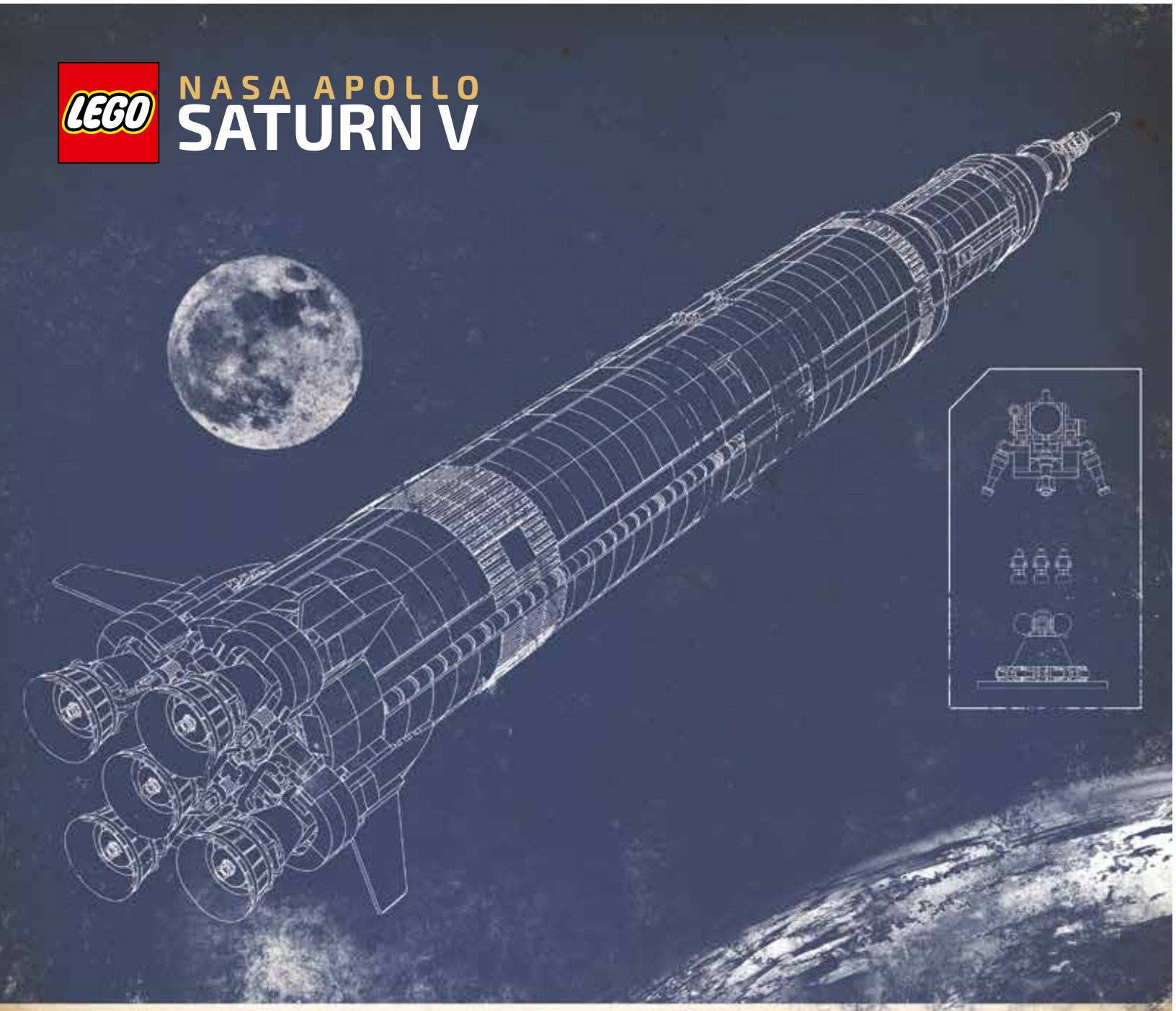
NASA APOLLO

SATURN V



SATURN V

BUILDING INSTRUCTIONS

INSTRUCTIONS DE MONTAGE

INSTRUCCIONES DE CONSTRUCCIÓN

- 21309 -

LEGO® IDEAS NO. 17

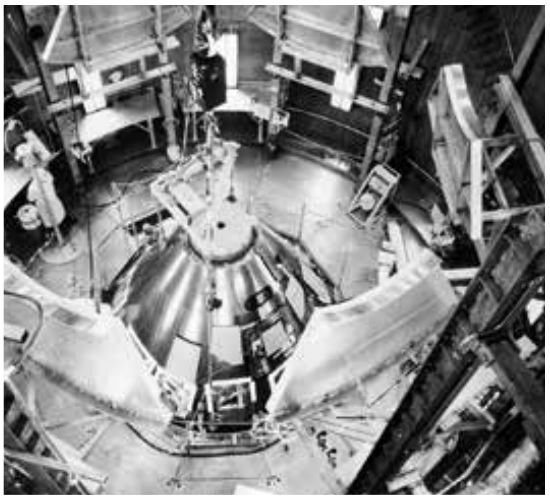
The Apollo Program

On May 25, 1961, President John F. Kennedy challenged his country to safely send and return an American to the Moon before the end of the decade. NASA met that challenge with the Apollo program. It would be the first time human beings left Earth orbit and visited another world. The Apollo program played a crucial role in space exploration and made it possible to explore more distant worlds further in the future.

The Apollo program consisted of 11 spaceflights. The first two missions, Apollo 7 and 9, were Earth-orbiting missions used to test the Command and Lunar Modules. The next two, Apollo 8 and 10, tested various components while orbiting the Moon, also taking photographs of the lunar surface. While Apollo 13 did not land on the moon due to a malfunction, a total of six other missions did and returned with a wealth of scientific data and almost 881.8 lbs (400 kilos) of lunar samples.

The first manned mission to the moon was Apollo 8. It circled around the moon on Christmas Eve in 1968. Just over six months later on July 20, 1969, the world witnessed one of the most astounding technological achievements of the 20th century when a NASA astronaut on Apollo 11 became the first human to set foot on the Moon.

The Apollo 11 mission lasted 195 hours, 18 minutes and 35 seconds - about 36 minutes longer than planned. After lunar orbit insertion, the Command Module (CM) and Lunar Module (LM) separated. While one crewmember remained in the CM, which orbited the Moon, the other two astronauts made the historic journey to the lunar surface in the LM. After exploring the surface and setting up experiments for 21 hours and 36 minutes, the astronauts returned safely to the CM and began the journey back to Earth.



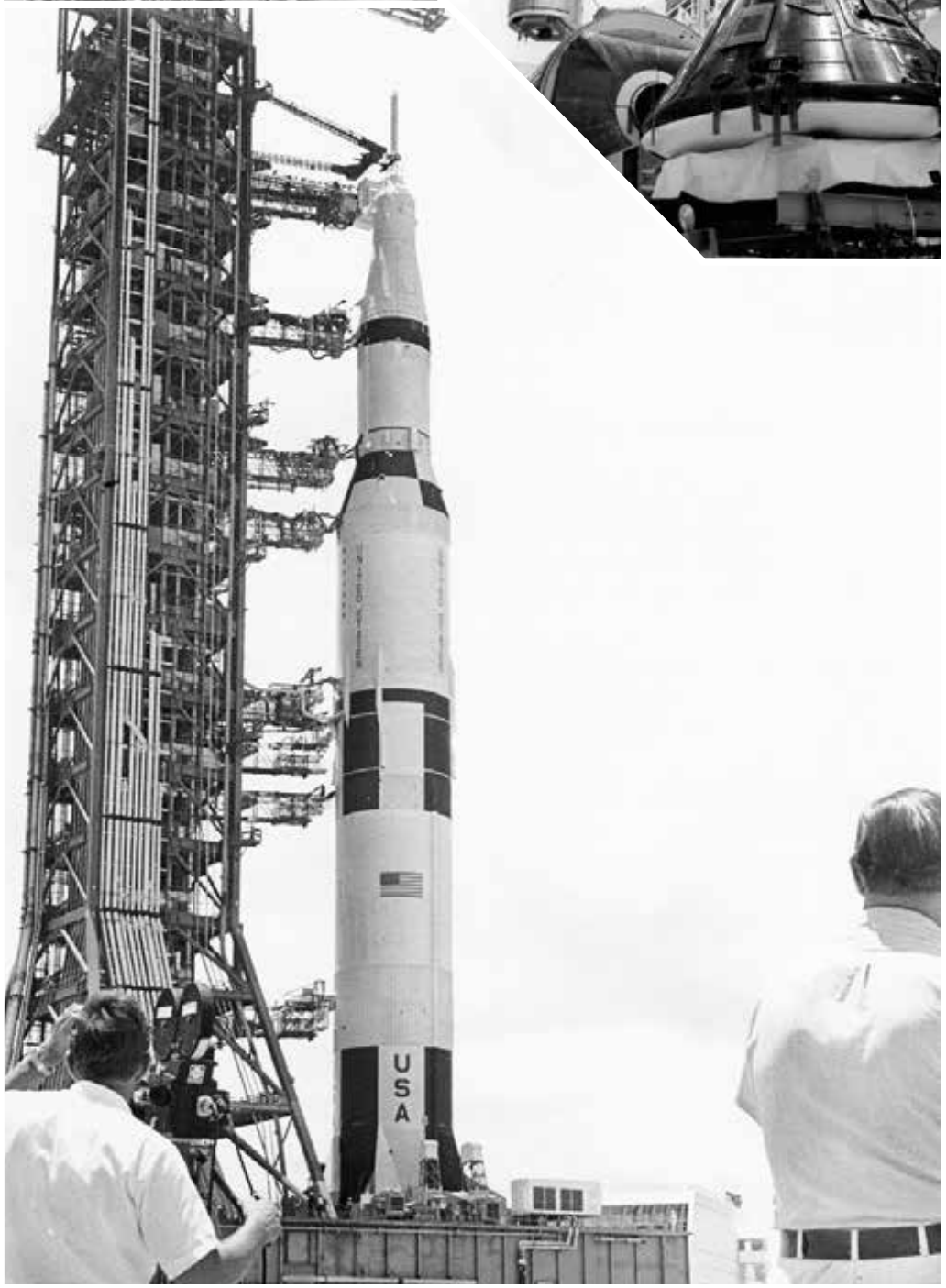
The Saturn V moves at one mile per hour down the crawlerway toward pad 39A

Workers prepare the S-IC first stage in the transfer aisle of the Vehicle Assembly Building

Photographers film the Apollo 11 rollout

Pre-flight training

Kennedy Space Center technicians inspect the LRV.

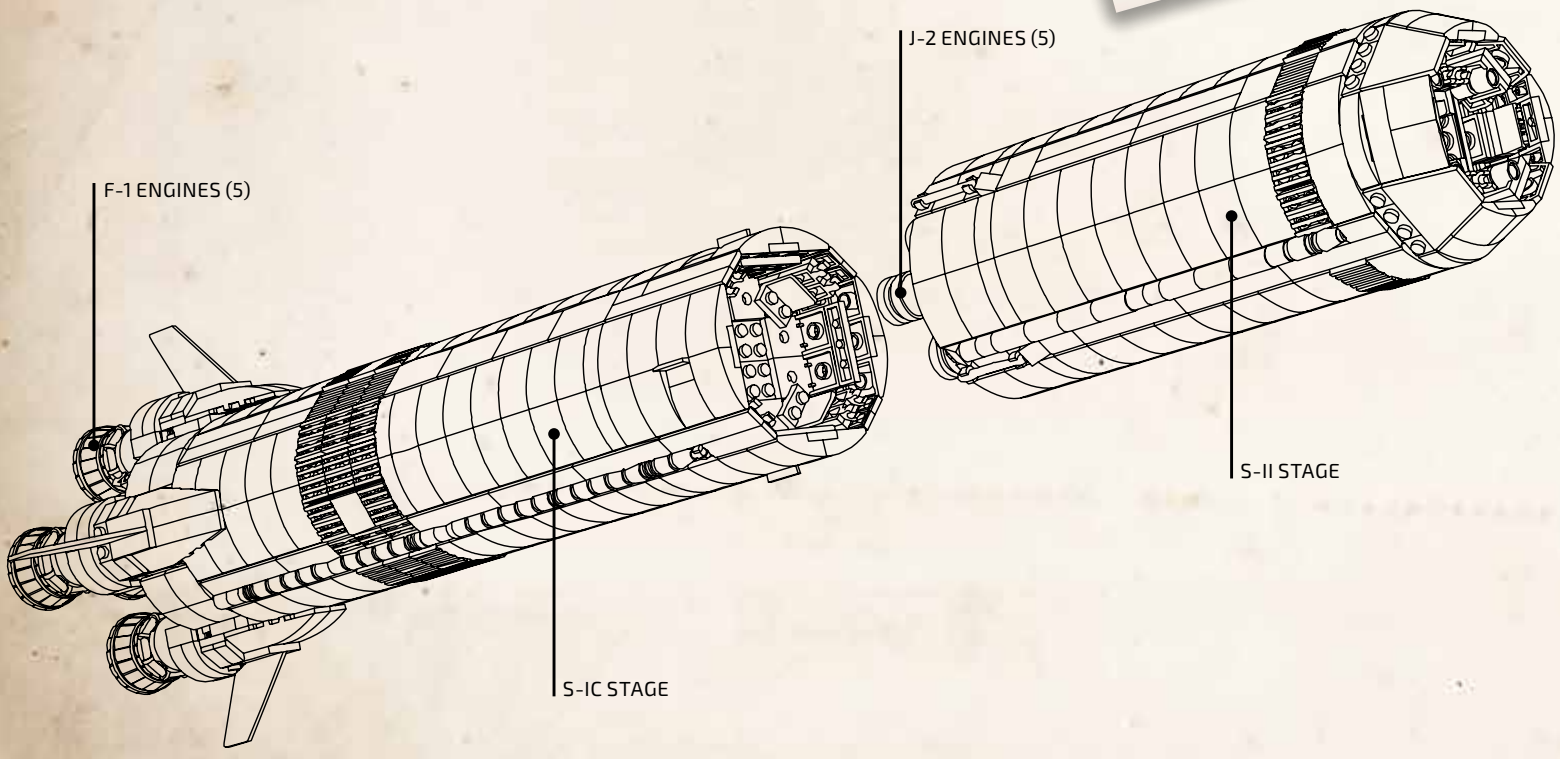


Saturn V

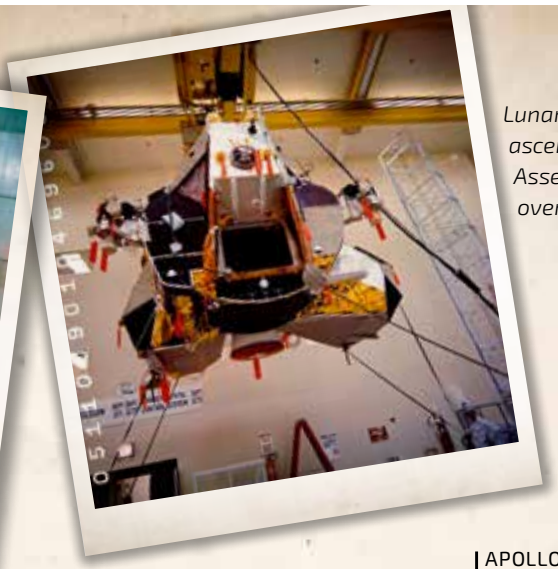
Saturn V was the most powerful rocket that had ever flown successfully and was used in the Apollo program in the 1960s and 1970s. The rocket was 363 ft. (111 m) tall and weighed 6.2 million lbs (2.8 million kilos) when fully fueled for liftoff. The Saturn V used for the later Apollo missions had three stages. Each stage would burn its engines until it was out of fuel and would then separate from the rocket. The engines on the next stage would fire, and the rocket would continue into space. The first stage had the most powerful engines, since it had the challenging task of lifting the fully fueled rocket off the ground. The first stage lifted the rocket to an altitude of about 42 miles (68 km). The second stage carried it from there almost into orbit. The third stage placed the Apollo spacecraft into Earth orbit and pushed it toward the moon.

The S-II second stage is moved into position for mating with the S-IC first stage

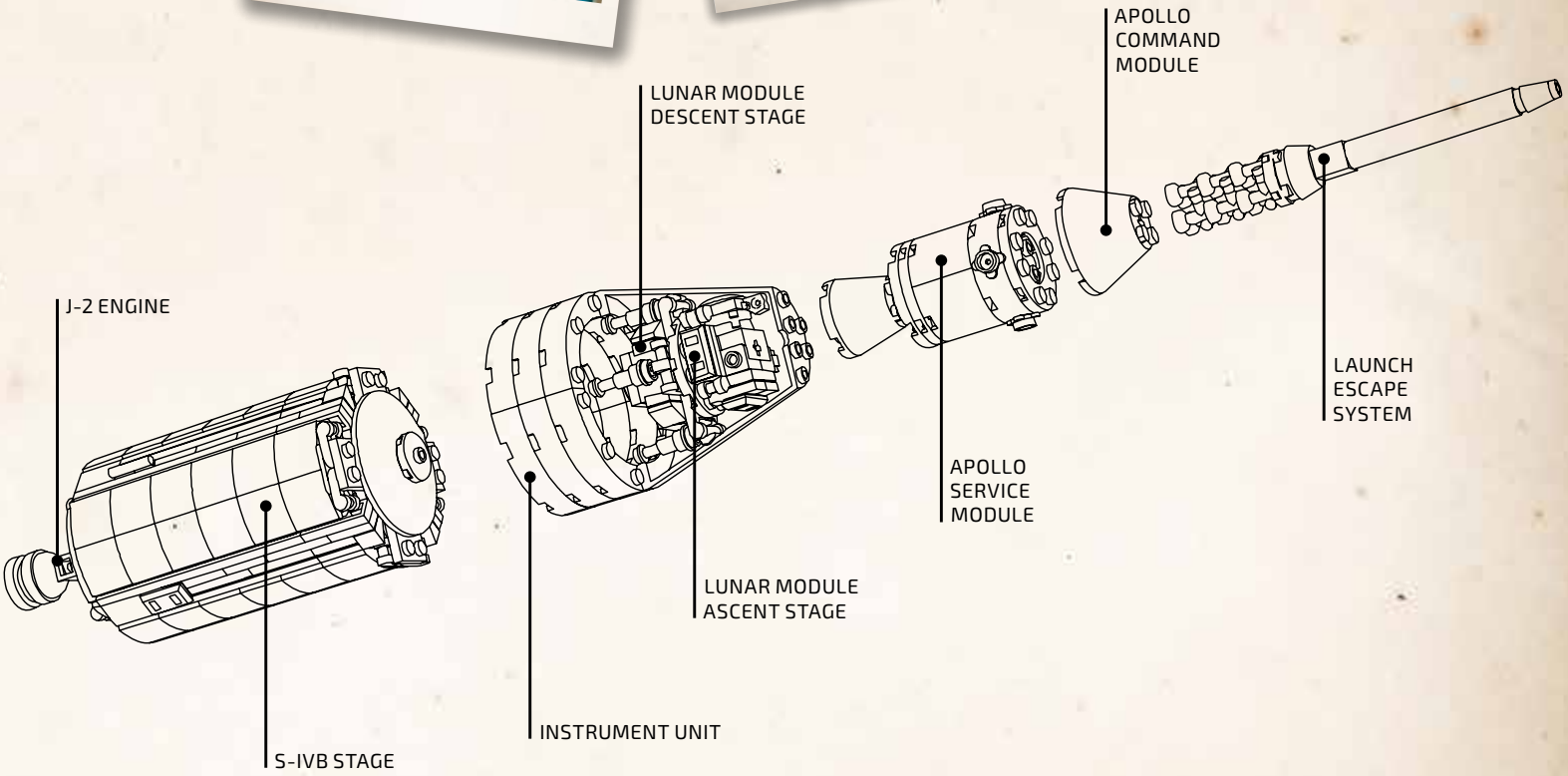
Mating of the Apollo 11 spacecraft to the Saturn V launch vehicle



The Apollo 11 CSM being moved from work stand for mating



Lunar Module 5 ascent stage in Final Assembly area on overhead hoist



Transposition, docking, and extraction

Shortly after the trans-lunar injection maneuver that placed the Apollo spacecraft on its trajectory towards the Moon, the transposition and docking maneuver would be performed. This involved an astronaut separating the Apollo Command/Service Module (CSM) spacecraft from the adapter which fastened it to its launch vehicle upper stage, turning it around, and docking its nose to the Apollo Lunar Module (LM), then pulling the combined spacecraft away from the upper stage.

The Command/ Service Module (CSM) separates from the adapter.

The CSM then turns around in preparation for docking with the Lunar Module (LM)

After docking, the CSM pulls the LM away from the launch vehicle's upper stage

Journey to the Moon

LIFTOFF

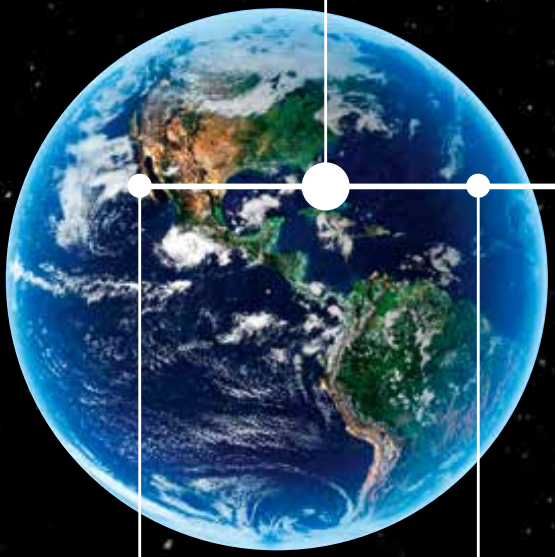
LAUNCH ESCAPE TOWER JETTISON.

S-IVB ENGINE CUTOFF.

S-IVB 2ND ENGINE IGNITION

CSM SEPARATION FROM LM ADAPTER.

CSM DOCKING WITH LM/S-IVB.



TRANSLUNAR INJECTION "GO" DECISION.

CSM 180° TURNAROUND.

S-II/S-IVB SEPARATION. S-IV ENGINE IGNITION.

S-IVB ENGINE CUTOFF.

APOLLO SATURN V ROLLS OUT OF THE MASSIVE VEHICLE ASSEMBLY BUILDING

THE FIRST STAGE FALLS AWAY AS THE S-II STAGE IGNITES

CSM SEPARATION FROM S-IVB.

SYSTEMS STATUS CHECKS / EAT AND SLEEP PERIODS / DATA TRANSMIT PERIODS.

SM ENGINE IGNITION.

SM ENGINE IGNITION.

BEGIN NAVIGATION SIGHTINGS.

PILOT TRANSFER TO LM.

COMMANDER TRANSFER TO LM.

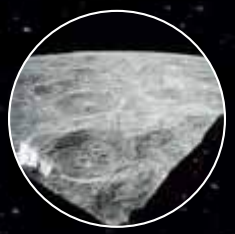
CSM/LM SEPARATION 3RD ORBIT.

LM DESCENT ENGINE IGNITION.

LM DESCENT ENGINE CUTOFF.

LM DESCENT ENGINE IGNITION.

TOUCHDOWN



Fan designers

With a shared passion for both space exploration and LEGO® building, Valérie Roche (aka Whatsuptoday) and Felix Stiessen (aka Saabfan) worked closely together to create their impressive Apollo 11 Mission model for LEGO Ideas.

"The most challenging part was the Lunar Landing module. I (Felix) tried building it as small as possible (I wanted it to fit in the half-cone parts as seen in the model) while still looking good and accurate. After that, we began building the rocket around it. We also tried to make the rocket as sound as possible, so Valérie included pillars and beams inside for structural integrity."

"It actually took quite a long time to finish the whole model. There were often times when one of us just abandoned the project for a few weeks and came back to it later; however, thanks to the fact that it is a collaborative project, it was always the case that one of us continued making progress on the project and re-motivated the other. All in all, we would say it took us about a year to complete."

"We were surprised (and happy, of course) when we learned our model would be the latest one in the LEGO Ideas series. What we like about the LEGO Ideas platform is the feedback and support you get from the community. It's great to reply to comments, read suggestions and improve your model in the updates. Of course, the chance of designing your own LEGO set is also really cool!"

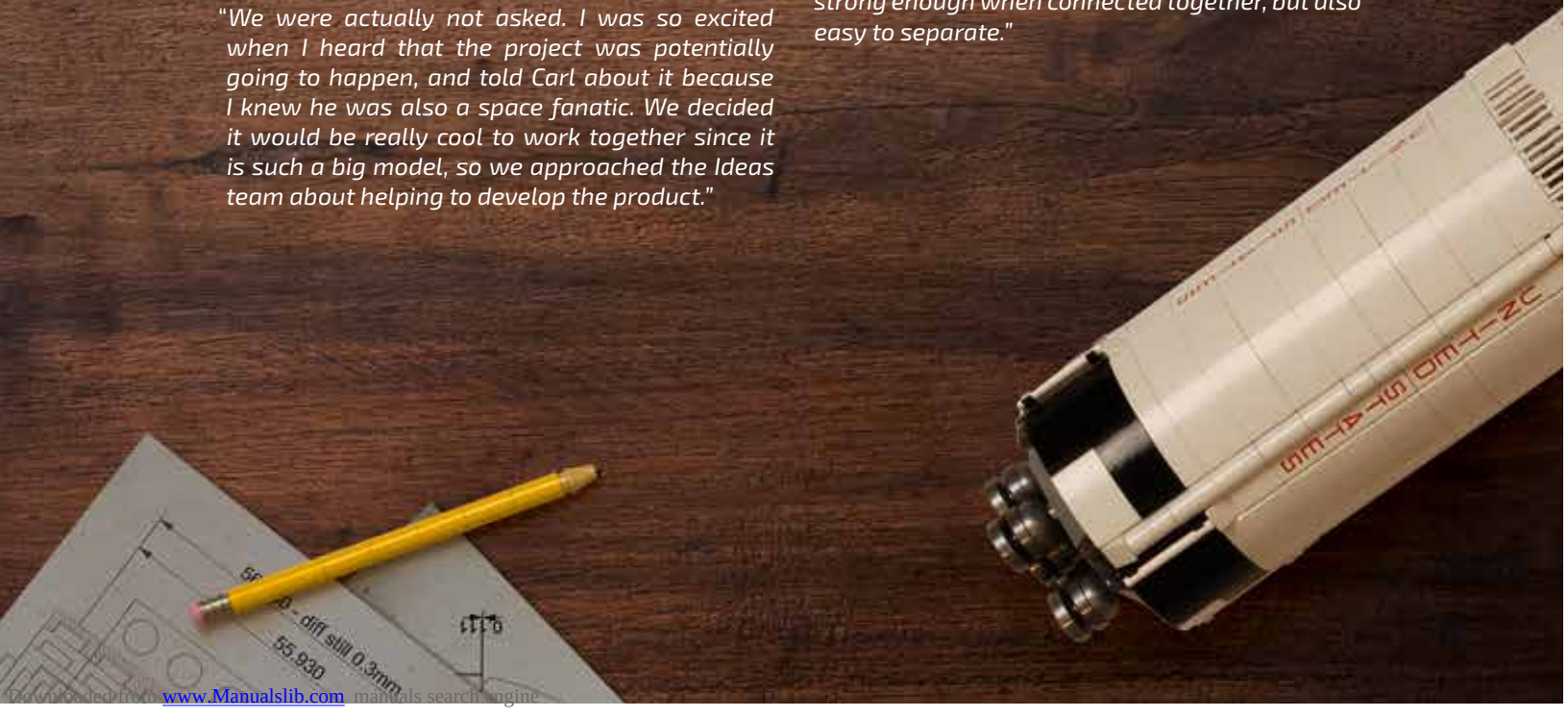
Carl Thomas Merriam (left)
Michael Psiaki (middle)
Austin William Carlson (right)

LEGO® designers

Michael Psiaki, Carl Thomas Merriam and Austin William Carlson are all full-time LEGO® designers and avid space enthusiasts, so this was a project they very much wanted to be a part of. As Michael explains:

"We were actually not asked. I was so excited when I heard that the project was potentially going to happen, and told Carl about it because I knew he was also a space fanatic. We decided it would be really cool to work together since it is such a big model, so we approached the Ideas team about helping to develop the product."

"We were amazed by how big the actual model was and how it was able to separate into all of the different stages and components. This was very difficult to implement in our final design, since we needed to make sure that the rocket was strong enough when connected together, but also easy to separate."



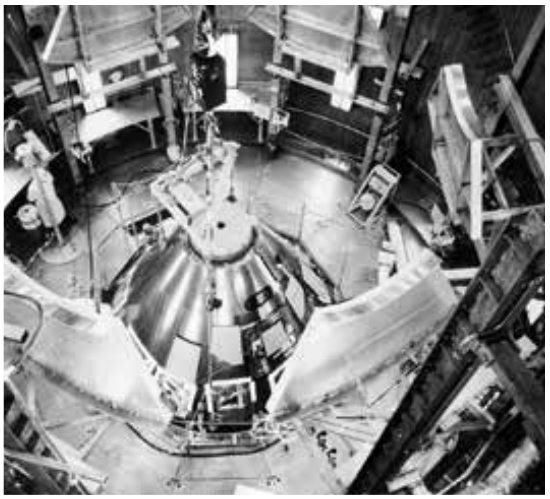
Le programme Apollo

Le 25 mai 1961, le président des États-Unis John F. Kennedy lança le défi suivant à son pays : parvenir, avant la fin de la décennie, à envoyer un Américain sur la Lune et à le faire revenir, en toute sécurité. Le programme Apollo permit à la NASA de relever ce défi. Pour la première fois, des êtres humains quittèrent l'orbite de la Terre pour partir explorer un autre monde. Le programme Apollo joua un rôle essentiel dans l'exploration spatiale et permit, par la suite, d'étudier des univers plus lointains.

Dans le cadre du programme Apollo, 11 voyages dans l'espace furent organisés. Les deux premières missions, Apollo 7 et 9, qui consistaient en des voyages en orbite autour de la Terre, avaient pour objectif de tester les modules lunaire et de commande. Les deux missions suivantes, Apollo 8 et 10, visaient à tester des composants en orbite autour de la Lune et à prendre des clichés de la surface lunaire. Même si une défaillance empêcha le vaisseau de la mission Apollo 13 d'atterrir sur la Lune, au total, six autres missions réussirent, et revinrent sur Terre avec une grande quantité de données scientifiques et près de 400 kg d'échantillons lunaires.

La première mission habitée vers la Lune fut Apollo 8. Au cours de cette mission menée en 1968, le vaisseau tourna autour de la Lune la veille de Noël. Un peu plus de six mois plus tard, le 20 juillet 1969, le monde entier assista à l'une des plus incroyables prouesses technologiques du XX^{e} siècle lorsque, dans le cadre de la mission Apollo 11, un astronaute de la NASA devint le premier homme à marcher sur la Lune.

La mission Apollo 11 dura 195 heures, 18 minutes et 35 secondes, c'est-à-dire environ 36 minutes de plus que prévu. Après leur mise sur orbite lunaire, les modules de commande et lunaire se séparèrent. Tandis que l'un des membres de l'équipage resta dans le module de commande, les deux autres astronautes accomplirent le voyage historique vers la surface de la Lune à bord du module lunaire. Après avoir exploré la surface et mis en place des expériences pendant 21 heures et 36 minutes, les astronautes rejoignirent le module de commande en toute sécurité avant de commencer le voyage de retour vers la Terre.



Le lanceur Saturne V se déplace à 1,6 kilomètre par heure le long de la route Crawlerway vers la rampe de lancement 39A

Les travailleurs préparent le premier étage S-IC dans l'aile de transition du bâtiment d'assemblage des véhicules

Les photographes filment le lancement d'Apollo 11

Formation de vol

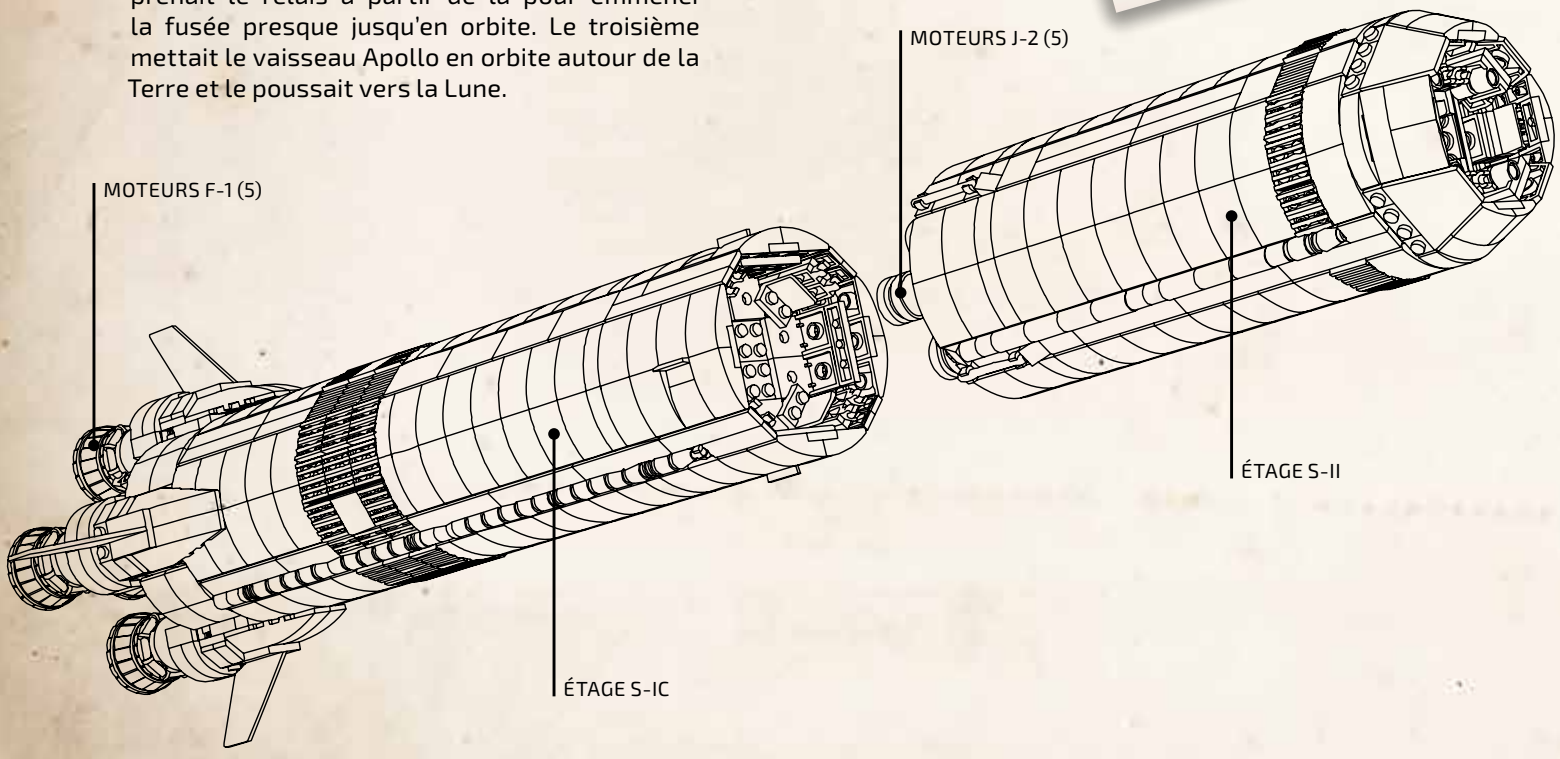
Les techniciens du centre spatial Kennedy inspectent le Rover lunaire

Saturne V

La fusée Saturne V est la plus puissante à avoir jamais réussi à voler. Elle fut utilisée dans le cadre du programme Apollo dans les années 1960 et 1970. Elle mesurait 111 mètres de haut et pesait 2,8 millions de kilos lorsque ses réservoirs de carburant étaient pleins ; condition nécessaire à son décollage. La fusée Saturne V, utilisée pour les dernières missions Apollo, comptait trois étages. Les moteurs de chaque étage brûlaient la totalité du carburant qu'ils renfermaient avant de se détacher de la fusée. Les moteurs de l'étage suivant prenaient ensuite le relais, et la fusée poursuivait son voyage dans l'espace. Les moteurs du premier étage étaient les plus puissants, car c'était à eux qu'incombait la tâche difficile de faire s'élever la fusée alors que ses réservoirs de carburant étaient pleins. Le premier étage permettait de faire monter la fusée à environ 68 km d'altitude. Le deuxième prenait le relais à partir de là pour emmener la fusée presque jusqu'en orbite. Le troisième mettait le vaisseau Apollo en orbite autour de la Terre et le poussait vers la Lune.

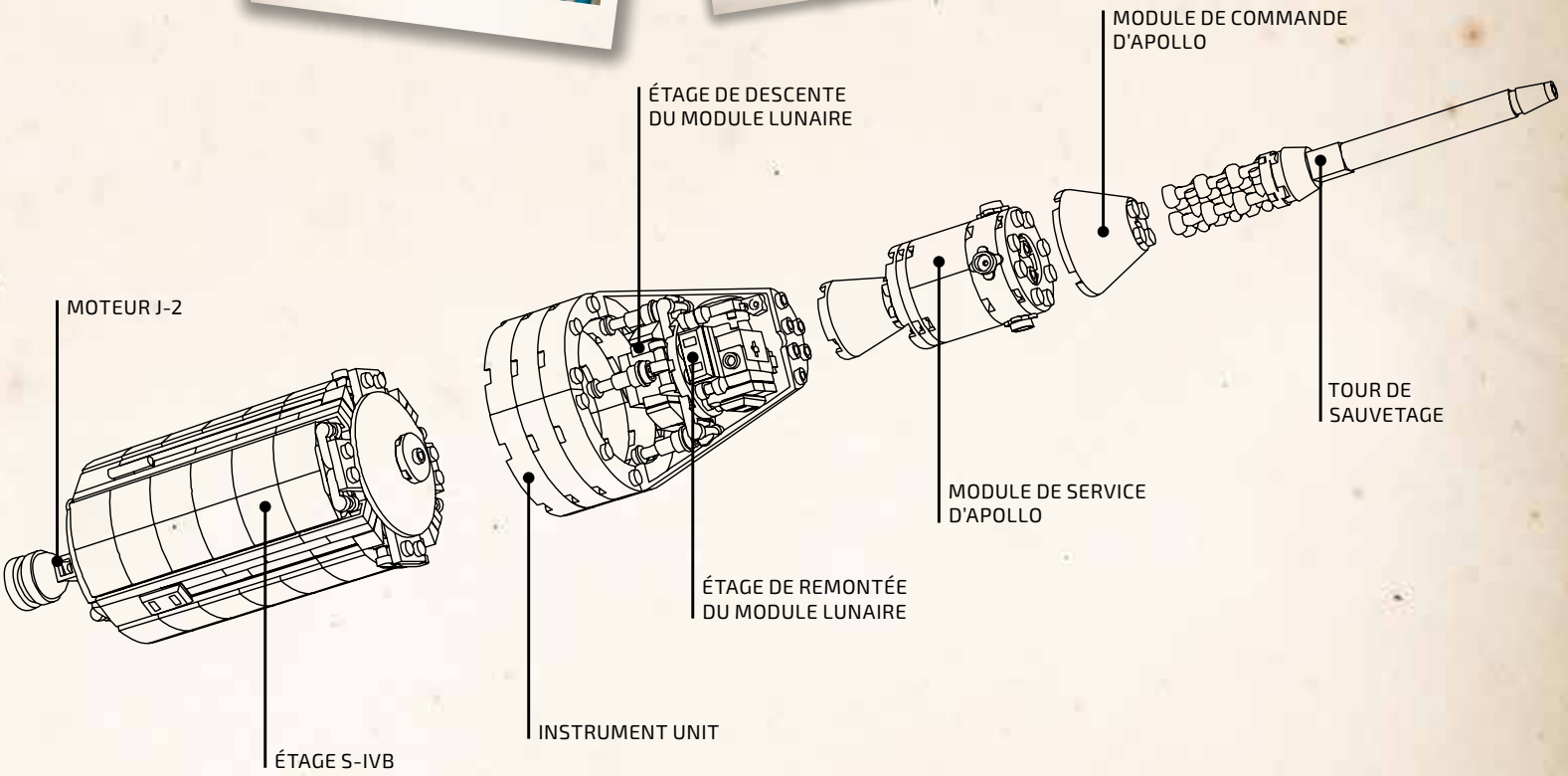
Le deuxième étage S-II est placé en position pour l'accouplement avec le premier étage S-IC

Accouplement de la navette spatiale Apollo 11 au lanceur Saturne V



Le module de commande et de service d'Apollo 11 déplacé de l'échafaud de travail pour l'accouplement

L'étage de remontée du module lunaire 5 dans la zone d'assemblage final, soulevé par un palan



Transposition, amarrage et extraction

Peu de temps après la manœuvre d'injection translunaire, qui permettait de mettre le vaisseau spatial Apollo sur sa trajectoire vers la Lune, les manœuvres de transposition et d'amarrage étaient exécutées. Pour ce faire, l'un des astronautes devait détacher le module de commande et de service Apollo de l'adaptateur qui le reliait à l'étage supérieur, responsable du décollage. Afin d'y parvenir, l'astronaute devait faire tourner le module et en amarrer la tête au module lunaire Apollo, puis détacher le vaisseau ainsi combiné de l'étage supérieur.

Le module de commande et de service (CSM) se sépare de l'adaptateur

Le CSM se retourne ensuite et se prépare pour l'amarrage au module lunaire

Après l'amarrage, le CSM pousse le module lunaire pour l'éloigner de l'étage supérieur du lanceur

En route pour la Lune

DÉCOLLAGE

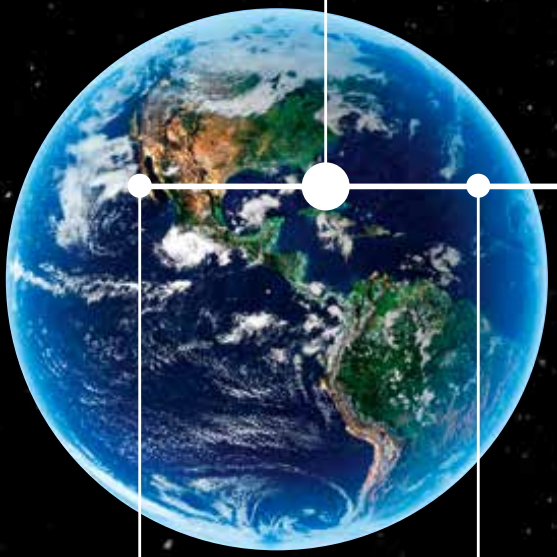
LARGAGE DE LA TOUR DE SAUVETAGE

EXTINCTION DU MOTEUR S-IVB

ALLUMAGE DU DEUXIÈME MOTEUR S-IVB

SÉPARATION ENTRE LE CSM ET L'ADAPTATEUR DU MODULE LUNAIRE

AMARRAGE DU CSM AU MODULE LUNAIRE/S-IVB



LE LANCEUR D'APOLLO, SATURNE V, SORT DE L'ÉNORME BÂTIMENT D'ASSEMBLAGE DES VÉHICULES

LE PREMIER ÉTAGE SE DÉTACHE À L'ALLUMAGE DE L'ÉTAGE S-II

SÉPARATION ENTRE S-II ET S-IVB / ALLUMAGE DU MOTEUR S-IV

DÉCISION D'ENTAMER L'INJECTION TRANSLUNAIRE

EXTINCTION DU MOTEUR S-IVB

ROTATION À 180° DU CSM

ALLUMAGE DU MOTEUR DU MODULE DE SERVICE

ALLUMAGE DU MOTEUR DU MODULE DE SERVICE

SÉPARATION ENTRE LE CSM ET LE MODULE LUNAIRE (3_e ORBITE)

TRANSFERT DU PILOTE AU MODULE LUNAIRE

EXTINCTION DU MOTEUR DE DESCENTE DU MODULE LUNAIRE

ALUNISSAGE

SÉPARATION ENTRE LE CSM ET LE S-IVB

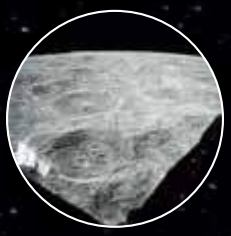
VÉRIFICATIONS DE L'ÉTAT DES SYSTÈMES/ PÉRIODES DE RAVITAILLEMENT ET DE REPOS/ PÉRIODES DE TRANSMISSION DE DONNÉES

DÉBUT DES OBSERVATIONS DE NAVIGATION

TRANSFERT DU COMMANDANT AU MODULE LUNAIRE

ALLUMAGE DU MOTEUR DE DESCENTE DU MODULE LUNAIRE

ALLUMAGE DU MOTEUR DE DESCENTE DU MODULE LUNAIRE



Fans designers

Partageant une passion pour l'exploration spatiale et les constructions LEGO®, Valérie Roche (aussi connue sous le nom de Whatsuptoday) et Felix Stiessen (aussi connu sous le nom de Saabfan) ont travaillé en étroite collaboration pour créer leur impressionnant modèle inspiré de la mission Apollo 11 pour LEGO Ideas.

Felix : « La partie la plus difficile à recréer était le module d'atterrissage lunaire. J'ai essayé de faire en sorte qu'il soit le plus petit possible (je voulais que l'on puisse l'insérer dans les pièces en forme de demi-cône, comme on peut le voir sur le modèle) tout en restant beau et fidèle au vaisseau d'origine. Après cela, nous avons commencé à construire la fusée en tenant compte des dimensions de ce module. Nous avons également tenté de rendre la fusée aussi solide que possible. C'est pourquoi Valérie a inclus des colonnes et des poutres à l'intérieur pour renforcer l'intégrité structurale. »

« La finalisation de la totalité du modèle nous a pris beaucoup de temps. Il est souvent arrivé que l'un d'entre nous abandonne tout simplement le projet pendant quelques semaines pour y revenir plus tard. Toutefois, étant donné qu'il s'agit d'une collaboration, il y avait toujours quelqu'un qui faisait avancer le projet, ce qui remotivait l'autre. Au total, il nous a fallu environ un an pour mener le projet à bien. »

« Nous avons été surpris (et heureux, bien sûr) lorsque nous avons appris que notre modèle intégrerait la gamme LEGO Ideas. En ce qui concerne la plate-forme LEGO Ideas, nous aimons le fait de recevoir des commentaires et le soutien de la communauté. C'est super de pouvoir répondre aux commentaires, lire des suggestions et améliorer le modèle grâce à la section "Updates". Bien entendu, la possibilité de créer son propre ensemble LEGO est, elle aussi, vraiment géniale ! »

Carl Thomas Merriam (à gauche)
Michael Psiaki (au milieu)
Austin William Carlson (à droite)

Designers LEGO®

Michael Psiaki, Carl Thomas Merriam et Austin William Carlson sont tous designers LEGO® à temps plein et des fans inconditionnels de l'espace. Il s'agissait donc d'un projet auquel ils avaient vraiment envie de participer. Michael explique d'ailleurs :

« En réalité, on ne nous a rien demandé. J'étais véritablement enthousiaste lorsque j'ai entendu dire que le projet allait peut-être se concrétiser et j'en ai parlé à Carl, car je savais qu'il était aussi fan de l'espace. Nous nous sommes dit qu'il serait vraiment sympa de travailler ensemble vu la taille imposante du modèle, c'est pourquoi nous avons contacté l'équipe chargée des projets Ideas afin de les aider à développer le produit. »

« Nous avons été impressionnés par la taille réelle du modèle, ainsi que par la façon dont il est possible d'en séparer les différents étages et composants. Il n'a vraiment pas été facile d'intégrer cette spécificité dans notre modèle final, car nous devions nous assurer que la fusée soit suffisamment solide une fois assemblée, mais également qu'elle soit facile à diviser. »

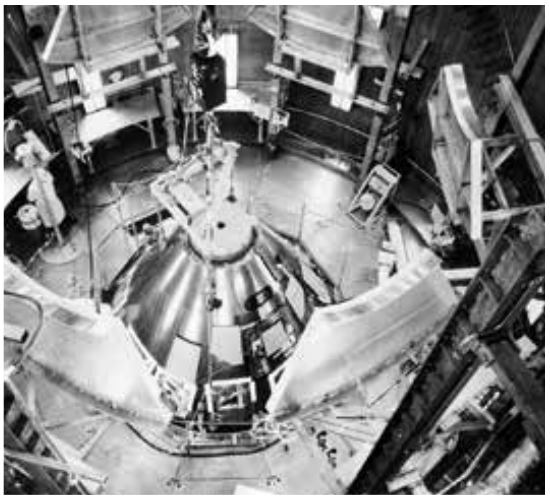
El programa Apolo

El 25 de mayo de 1961, el presidente John F. Kennedy desafió a su país a enviar a un americano a la Luna y traerlo de vuelta sano y salvo antes del final de esa década. La NASA aceptó el desafío con el programa Apolo. Sería la primera vez que un ser humano abandonase la órbita de la Tierra y visitase otro mundo. El programa Apolo interpretó un papel fundamental en la historia de la exploración espacial y abrió las puertas a la posibilidad de explorar mundos aún más lejanos.

El programa Apolo se componía de 11 vuelos espaciales. Las dos primeras misiones, denominadas Apolo 7 y Apolo 9, se desarrollaron en la órbita de la Tierra y sirvieron para probar el módulo de control y el módulo lunar. Las dos siguientes, denominadas Apolo 8 y Apolo 10, tenían por objetivo poner a prueba diferentes componentes en la órbita de la Luna y tomar fotografías de su superficie. Aunque la misión Apolo 13 no llegó a posarse en la Luna debido a problemas técnicos, sí que lo hicieron otras seis misiones que volvieron a la Tierra con gran cantidad de datos científicos y casi 400 kg de muestras lunares.

La primera misión tripulada a la Luna fue la Apolo 8, que describió una órbita completa alrededor del satélite en la Nochevieja de 1968. Tan sólo seis meses más tarde, el 20 de julio de 1969, el mundo fue testigo de uno de los logros tecnológicos más asombrosos del siglo XX cuando un astronauta de la NASA a bordo de la nave Apolo 11 se convirtió en el primer ser humano en pisar la superficie de la Luna.

La misión Apolo 11 duró 195 horas, 18 minutos y 35 segundos (unos 36 minutos más de lo planeado). Tras la entrada en la órbita lunar, el módulo de control (MC) y el módulo lunar (ML) se separaron. Mientras uno de los miembros de la tripulación permanecía en el MC, en órbita alrededor de la Luna, los otros dos astronautas emprendieron el histórico viaje a la superficie lunar en el ML. Después de explorar la superficie y realizar experimentos durante 21 horas y 36 minutos, los astronautas retornaron sanos y salvos al MC e iniciaron el viaje de vuelta a la Tierra.



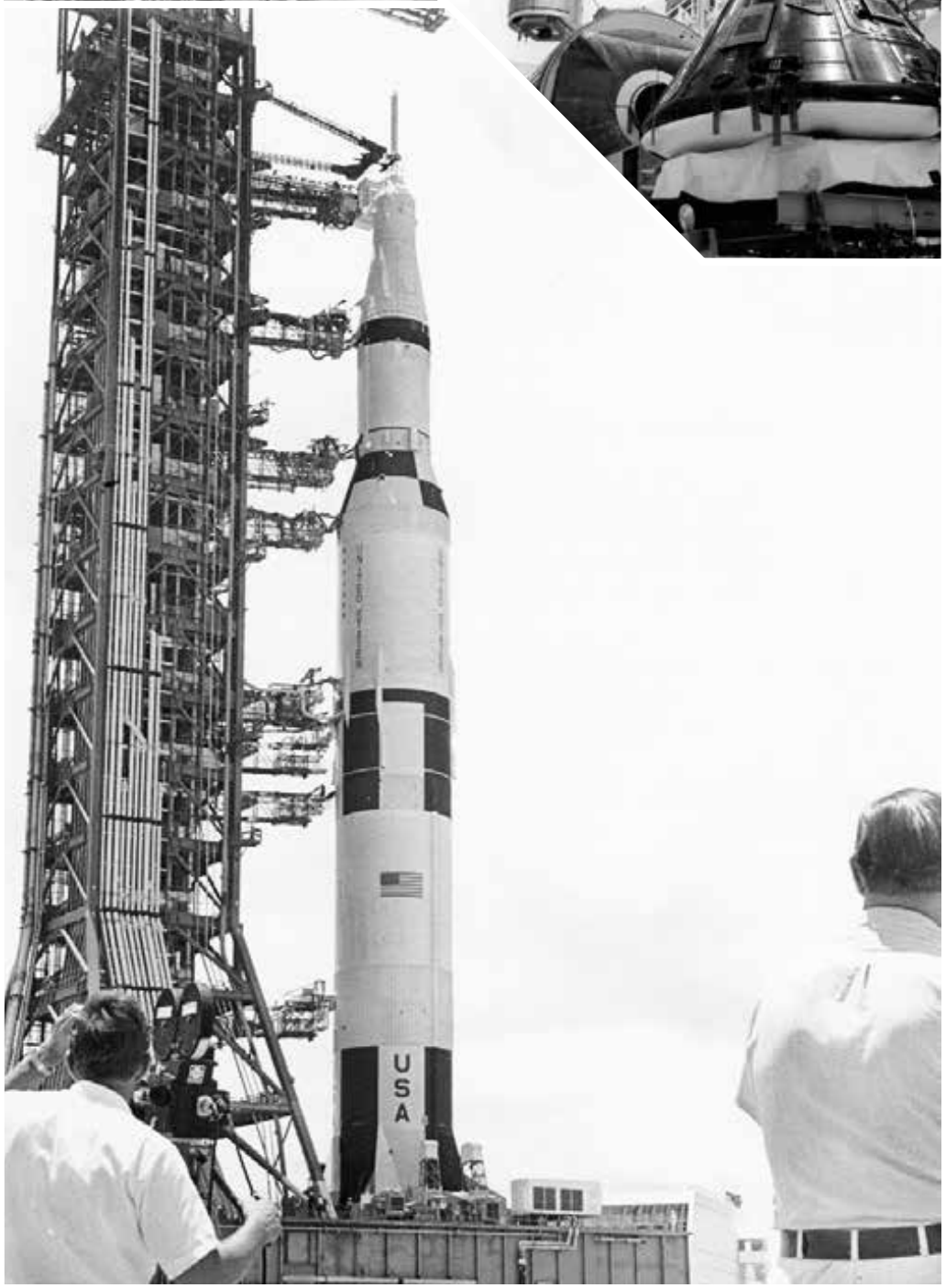
El Saturno V se desplaza a 1,6 km/h por la vía de transporte hasta la plataforma 39A

Los operarios preparan la primera fase (S-IC) en el corredor de transferencia del Edificio de Ensamblaje de Vehículos

Fotógrafos filman los preparativos de la misión Apolo 11

Entrenamiento previo al vuelo

Técnicos del Centro Espacial Kennedy inspeccionan el vehículo de exploración lunar (VEL)

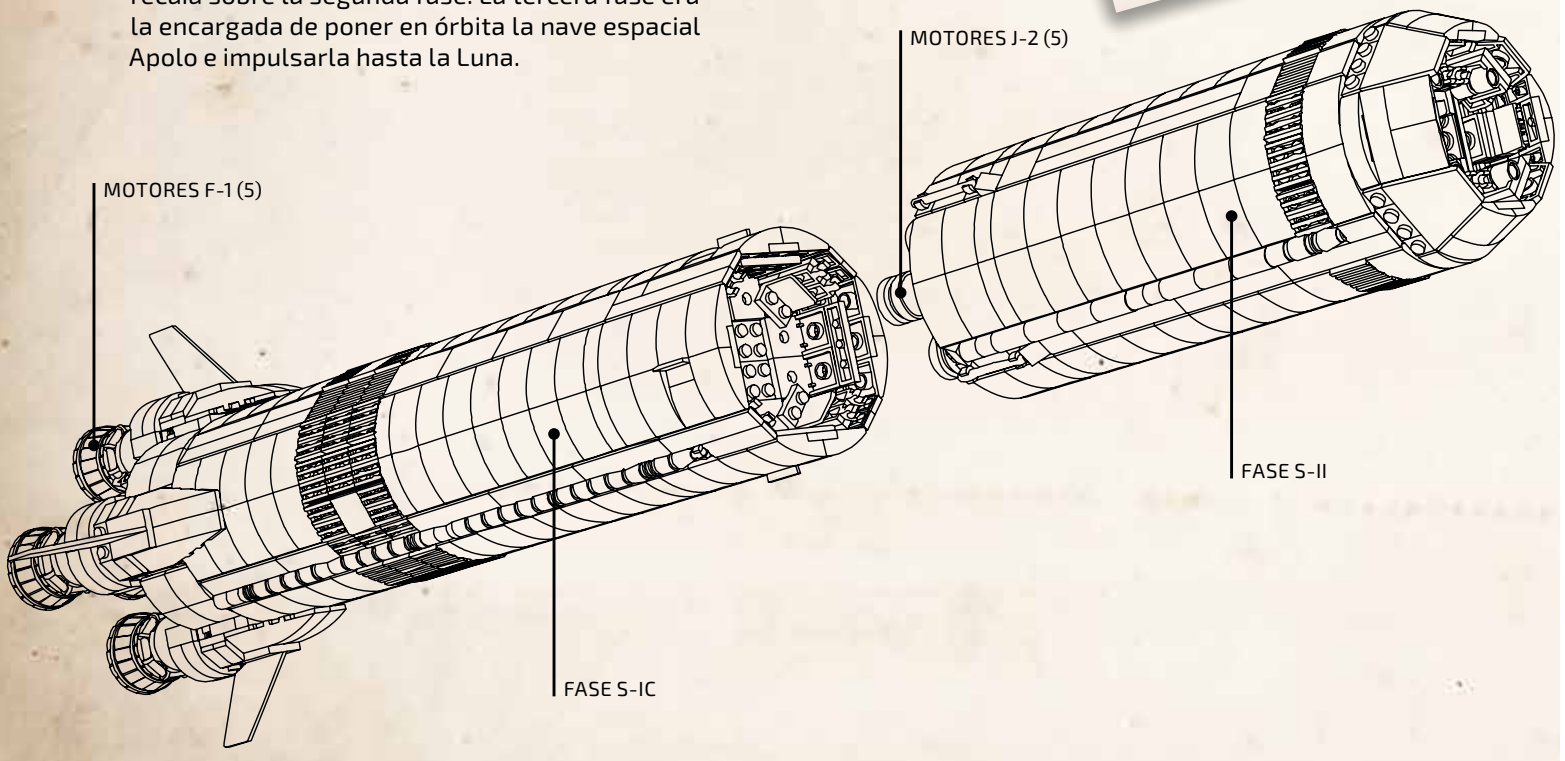


Saturno V

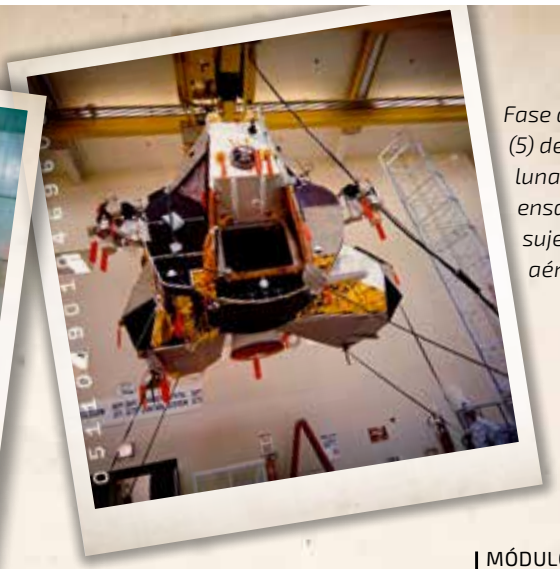
El cohete Saturno V fue el más potente que jamás ha volado con éxito y formó parte del programa Apolo durante las décadas de 1960 y 1970. Medía 111 m de altura y, con el depósito lleno de combustible y preparado para el lanzamiento, pesaba 2,8 millones de kilogramos. El Saturno V que participó en las posteriores misiones Apolo se componía de tres fases. Cada fase debía alimentar sus motores hasta agotar el combustible para separarse entonces del cohete. A continuación, se ponían en marcha los motores de la siguiente fase, permitiendo al cohete continuar su viaje hacia el espacio. La primera fase contaba con los motores más potentes, pues su desafiante tarea era levantar el cohete del suelo con el depósito lleno de combustible. De este modo, era capaz de elevar el cohete a una altura de unos 68 km. A partir de entonces y hasta casi la entrada en órbita, la responsabilidad recaía sobre la segunda fase. La tercera fase era la encargada de poner en órbita la nave espacial Apolo e impulsarla hasta la Luna.

La segunda fase (S-II) se prepara para su acoplamiento a la primera fase (S-IC)

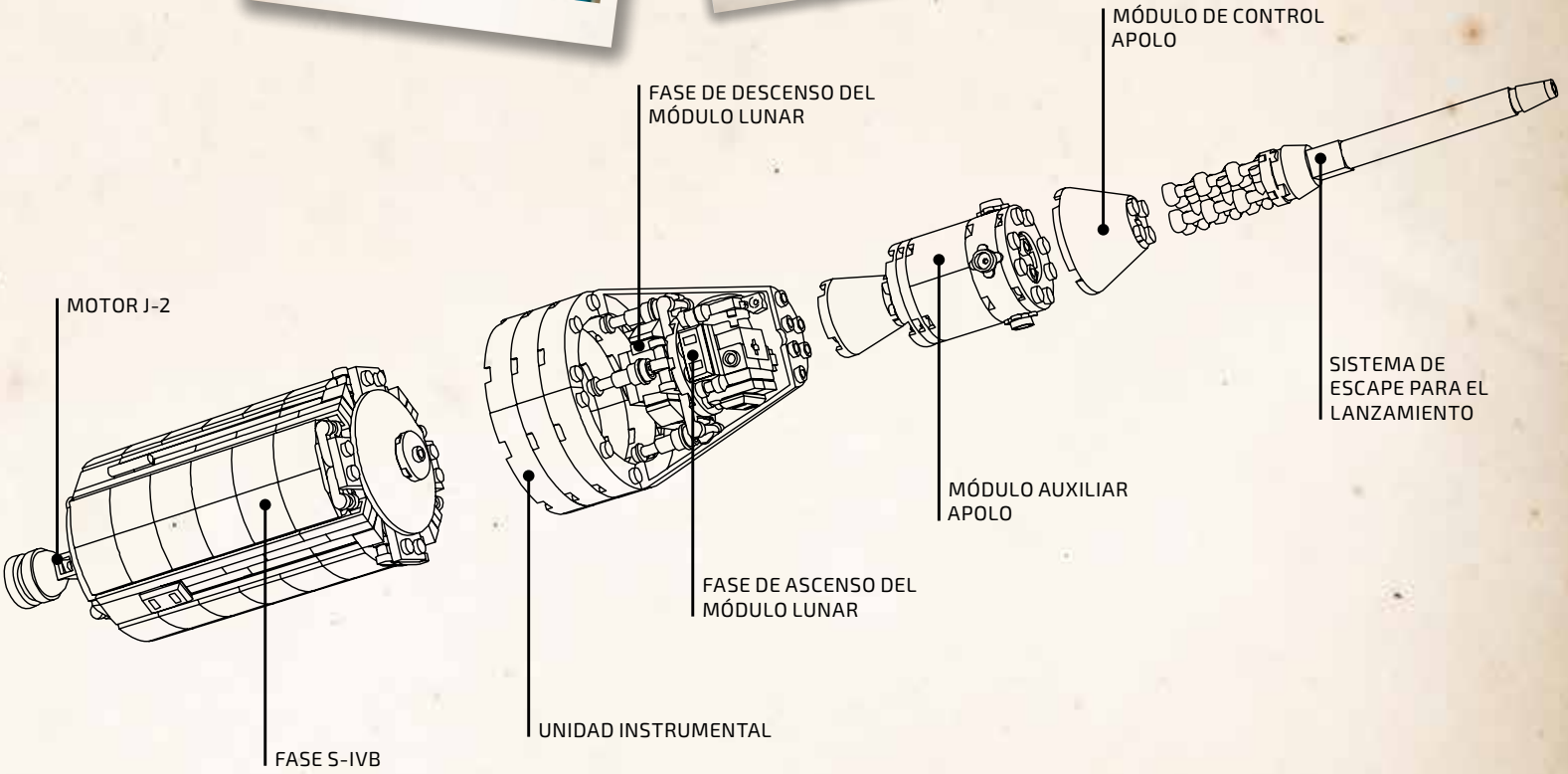
Acoplamiento de la nave espacial Apolo 11 al vehículo de lanzamiento Saturno V



El MCA Apolo 11 se transporta desde el soporte de trabajo para su acoplamiento



Fase de ascenso (5) del módulo lunar en el área de ensamblaje final, sujeta a una grúa aérea



Transposición, acoplamiento y extracción

Poco después de la maniobra de inyección translunar que situó la nave espacial Apolo en su trayectoria hacia la Luna, tendrían lugar las maniobras de transposición y acoplamiento. Para llevarlas a cabo, un astronauta debía separar el módulo de control/auxiliar (MCA) del adaptador que lo mantenía sujeto a la fase superior de su vehículo de lanzamiento, darle la vuelta y acoplar el morro al módulo lunar (ML), separando entonces la nave espacial resultante de la fase superior.

El módulo de control/ auxiliar (MCA) se separa del adaptador

El MCA se da la vuelta y se prepara para su acoplamiento al módulo lunar (ML)

Tras el acoplamiento, el MCA separa el ML de la fase superior del vehículo de lanzamiento

El viaje a la Luna

DESPEGUE

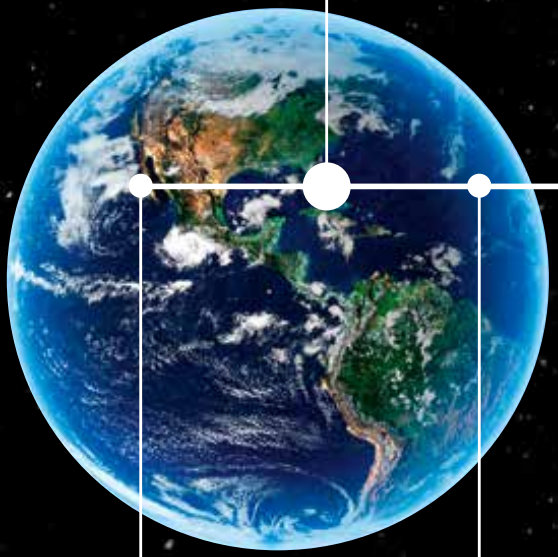
DESLASTRE DE LA TORRE DE ESCAPE PARA EL LANZAMIENTO

DESCONEXIÓN DEL MOTOR DE LA FASE S-IVB

PUESTA EN MARCHA DEL 2º MOTOR DE LA FASE S-IVB

SEPARACIÓN DEL MCA DEL ADAPTADOR DEL ML

ACOPLAMIENTO DEL MCA AL ML/ FASE S-IVB



EL SATURNO V SE PREPARA EN EL GIGANTESCO EDIFICIO DE ENSAMBLAJE DE VEHÍCULOS

LA PRIMERA FASE SE DESPRENDE AL TIEMPO QUE SE PONE EN MARCHA LA FASE S-II

SEPARACIÓN DE LAS FASES S-II/S-IVB Y PUESTA EN MARCHA DEL MOTOR DE LA FASE S-IV

INYECCIÓN TRANSLUNAR (ADELANTE)

DESCONEXIÓN DEL MOTOR DE LA FASE S-IVB

GIRO DEL MCA 180°

PUESTA EN MARCHA DEL MOTOR DEL MS

PUESTA EN MARCHA DEL MOTOR DEL MS

SEPARACIÓN DEL MCA/ML (3ª ÓRBITA)

TRANSFERENCIA DEL PILOTO AL ML

DESCONEXIÓN DEL MOTOR DE DESCENSO DEL ML

ALUNIZAJE

SEPARACIÓN DEL MCA DE LA FASE S-IVB

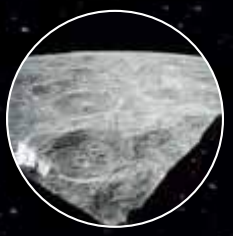
PRUEBAS DE ESTADO DE LOS SISTEMAS/ PERÍODOS DE ALIMENTACIÓN Y SUEÑO/ PERÍODOS DE TRANSMISIÓN DE DATOS

INICIO DE AVISTAMIENTOS PARA LA NAVEGACIÓN

TRANSFERENCIA DEL COMANDANTE AL ML

PUESTA EN MARCHA DEL MOTOR DE DESCENSO DEL ML

PUESTA EN MARCHA DEL MOTOR DE DESCENSO DEL ML



Los fans diseñadores

Con su pasión por la exploración espacial y la construcción con LEGO® como elemento común, Valérie Roche (alias Whatsuptoday) y Felix Stiessen (alias Saabfan) trabajaron estrechamente en la creación del impresionante modelo de la misión Apolo 11 para LEGO Ideas.

"La parte más complicada fue el módulo de alunizaje. Yo (Felix) intenté reducirlo a su mínima expresión (quería que cupiese entre las piezas de medio cono, como se aprecia en el modelo), sin perder los detalles estéticos. Fue entonces cuando comenzamos a construir el cohete a su alrededor. También queríamos que el cohete fuese lo más sólido posible, así que Valérie incluyó dentro columnas y vigas para aportar integridad estructural".

"En realidad, nos llevó bastante tiempo terminar el modelo completo. Sucedía con frecuencia que uno de nosotros abandonaba el proyecto durante un par de semanas y lo recuperaba más tarde; no obstante, al ser un proyecto de equipo, siempre había alguien que seguía avanzando y motivaba al otro para continuar. En total, diríamos que nos llevó alrededor de un año terminarlo".

"Nos sorprendió (y también nos alegró, por supuesto) saber que nuestro modelo sería el próximo en incorporarse a la colección LEGO Ideas. Lo que nos gusta de la plataforma LEGO Ideas es la comunicación con la comunidad y el apoyo que recibimos. Es fantástico contestar los comentarios, leer las sugerencias y mejorar el modelo poco a poco. Aunque, claro está, ¡la oportunidad de diseñar tu propio set LEGO también es realmente increíble!".

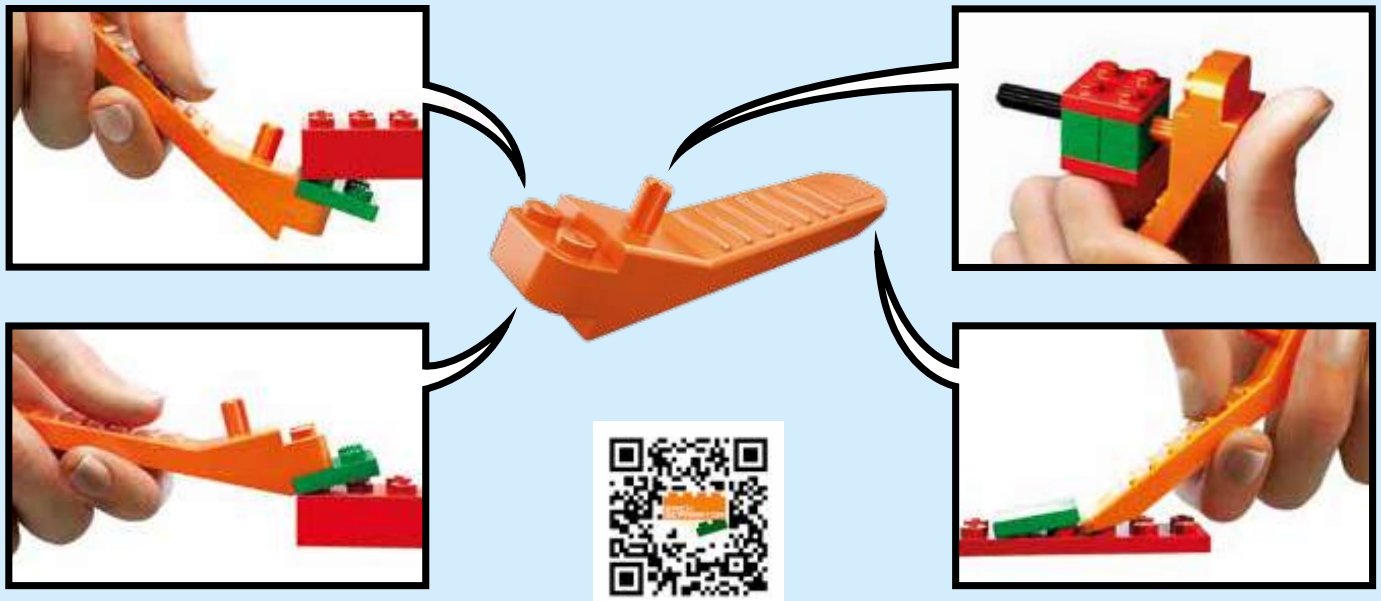
Carl Thomas Merriam (izquierda)
Michael Psiaki (centro)
Austin William Carlson (derecha)

Los diseñadores de LEGO®

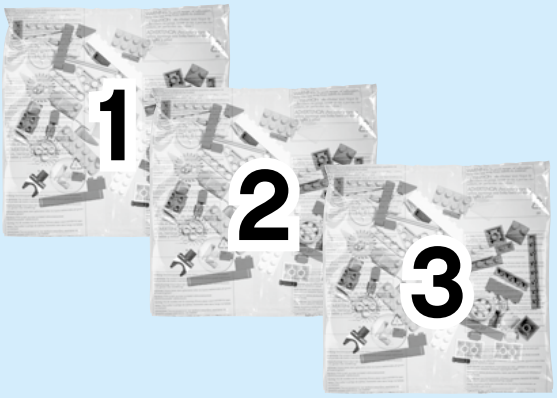
Michael Psiaki, Carl Thomas Merriam y Austin William Carlson son diseñadores oficiales de LEGO® y grandes entusiastas de los temas espaciales, así que todos estaban muy interesados en formar parte de este proyecto. En palabras de Michael:

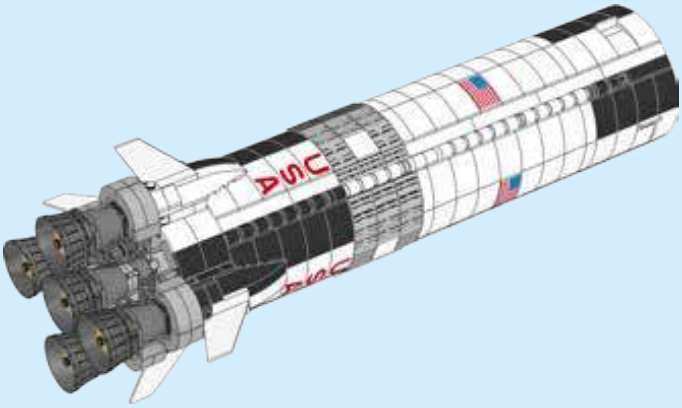
"En realidad, no nos lo pidieron. Me emocioné cuando escuché que el proyecto podía hacerse realidad y enseguida se lo dije a Carl, porque sabía que también es un fanático del espacio. Decidimos que sería fantástico trabajar juntos al ser un modelo tan grande, así que nos pusimos en contacto con el equipo de Ideas acerca de la posibilidad de contribuir al desarrollo del proyecto".

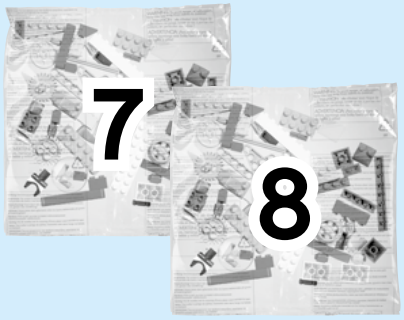
"Nos asombró lo grande que era el modelo real y cómo podía separarse en todas las fases y componentes. Este último aspecto fue muy difícil de integrar en nuestro diseño final, porque teníamos que asegurarnos de que el cohete fuese lo suficientemente sólido cuando todo estaba conectado, pero también fácil de separar".

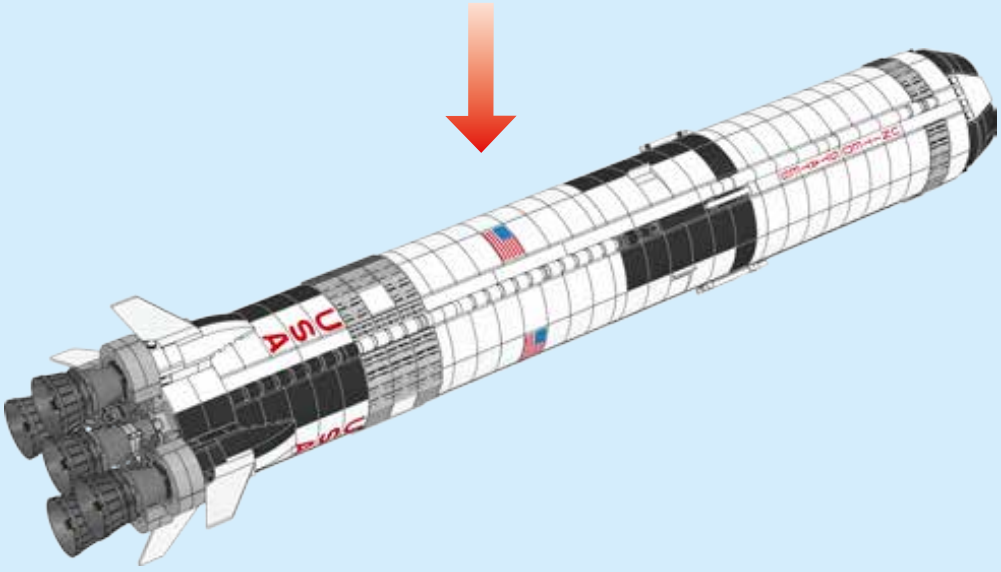


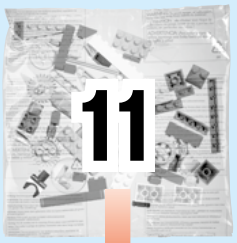
LEGO.com/brickseparator

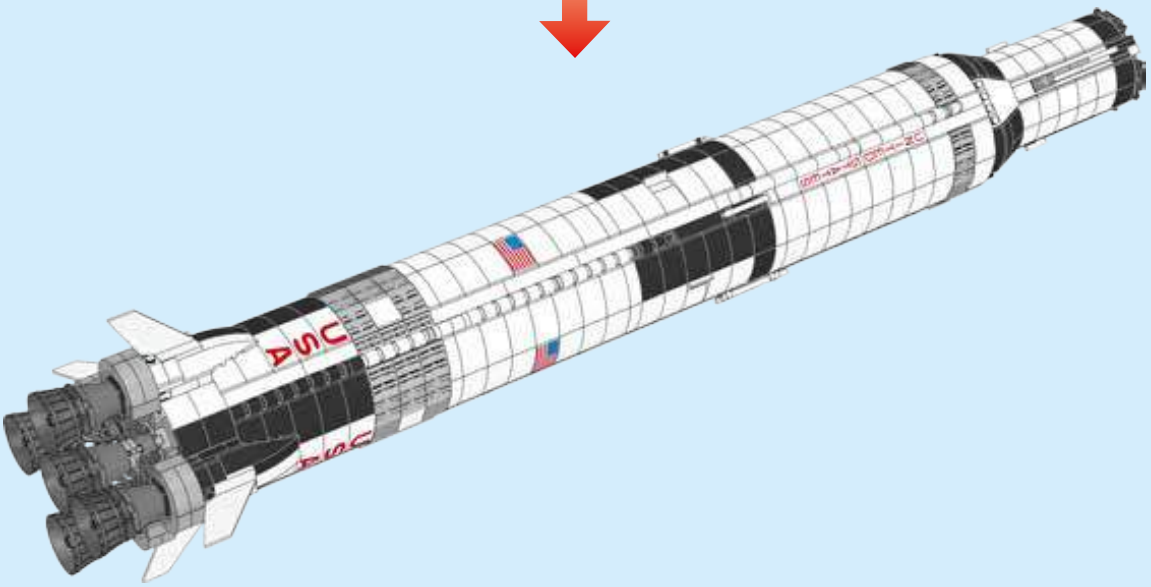


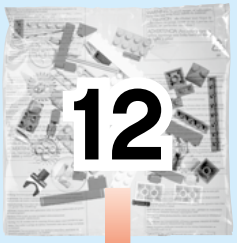


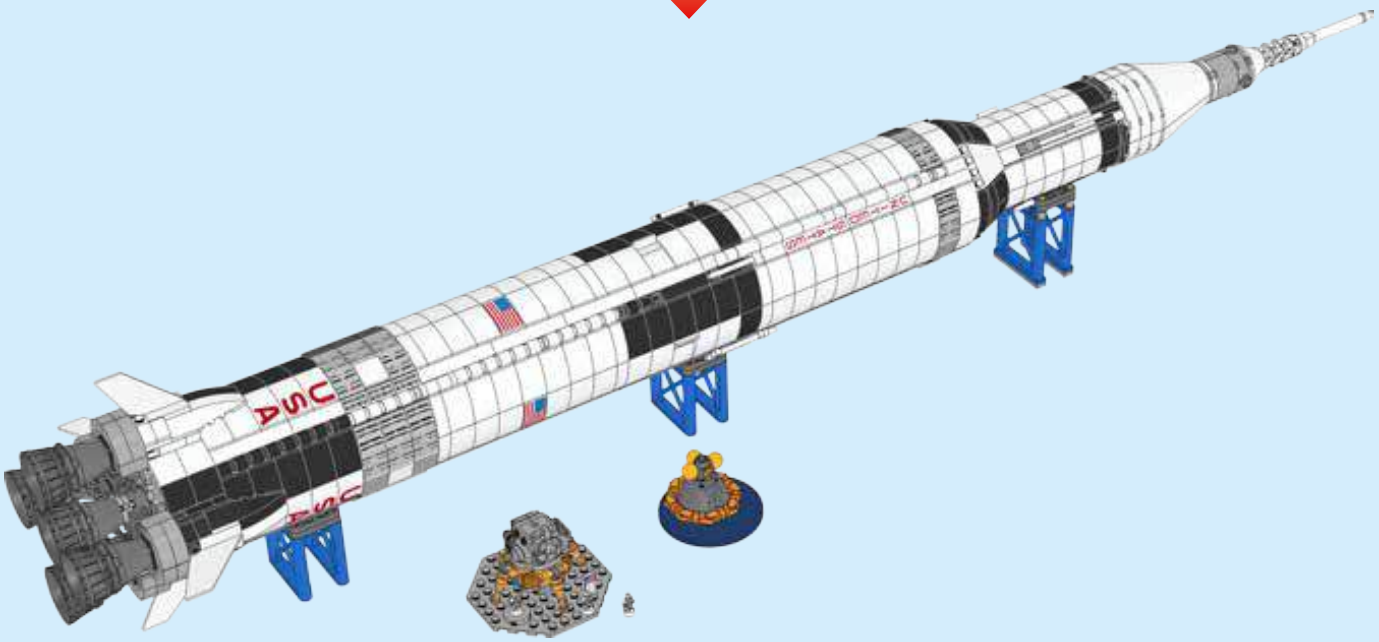


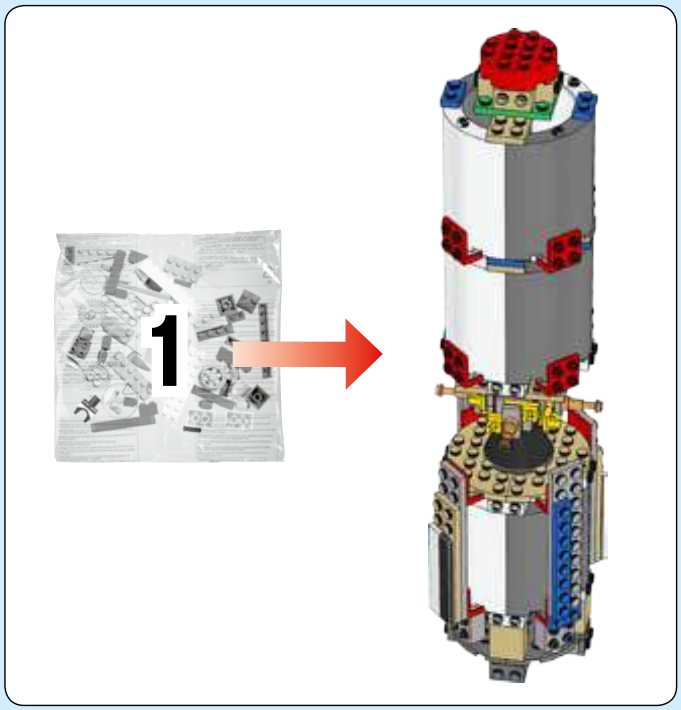


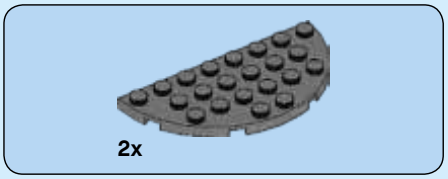












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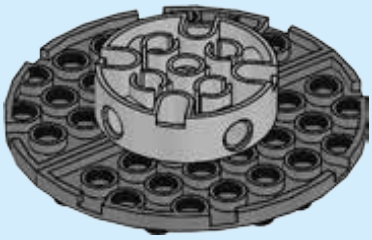

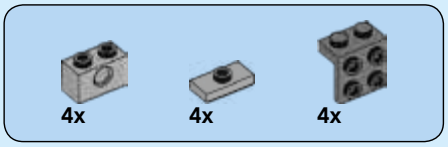

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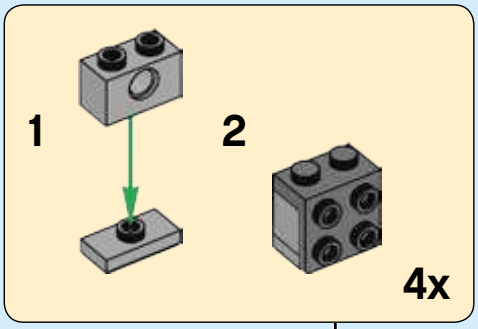

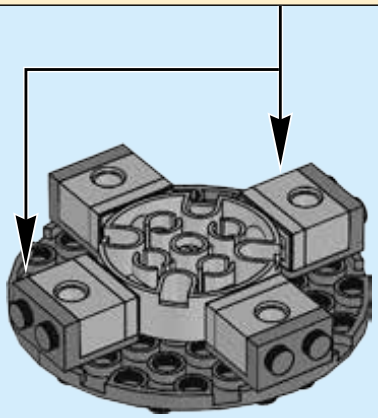

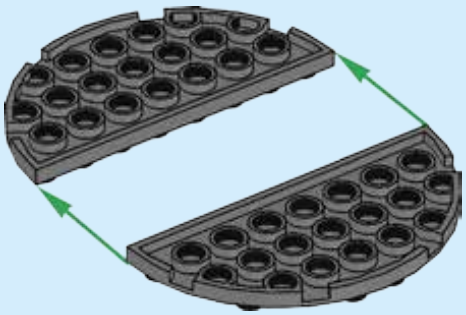

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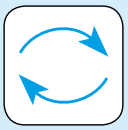

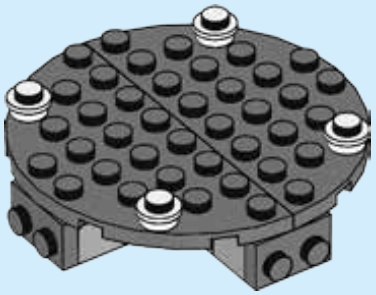

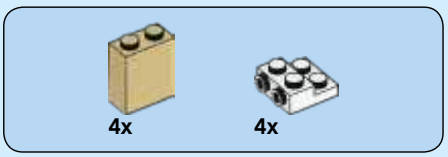

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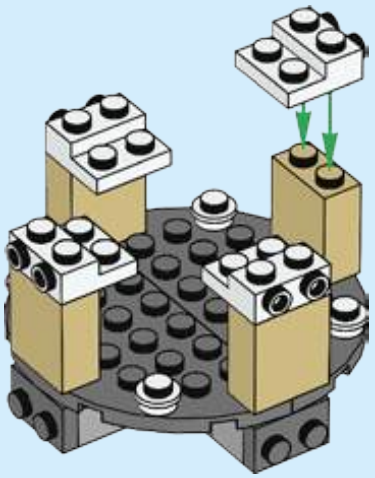

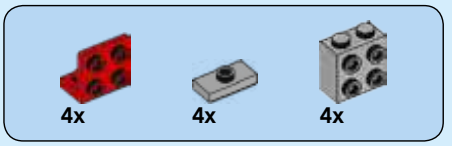

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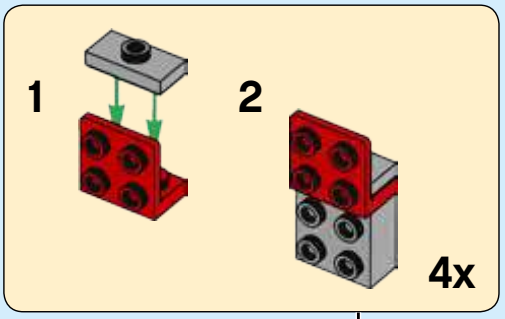

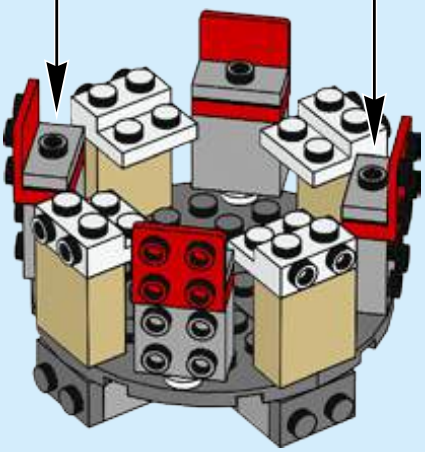

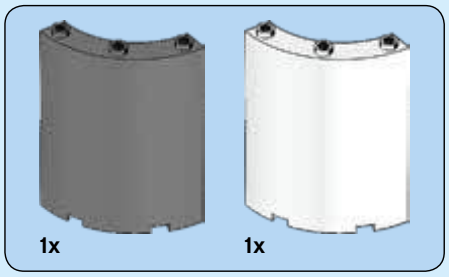

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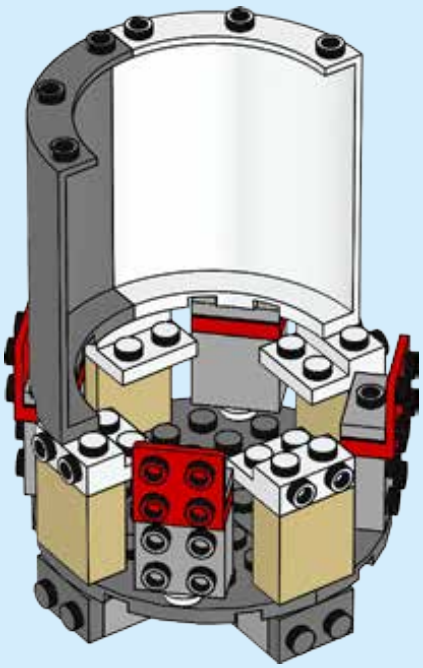

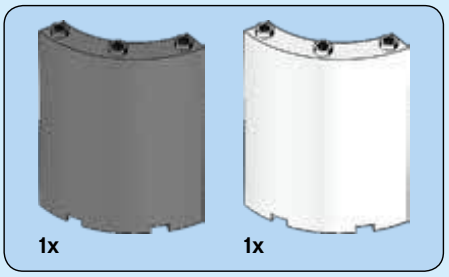

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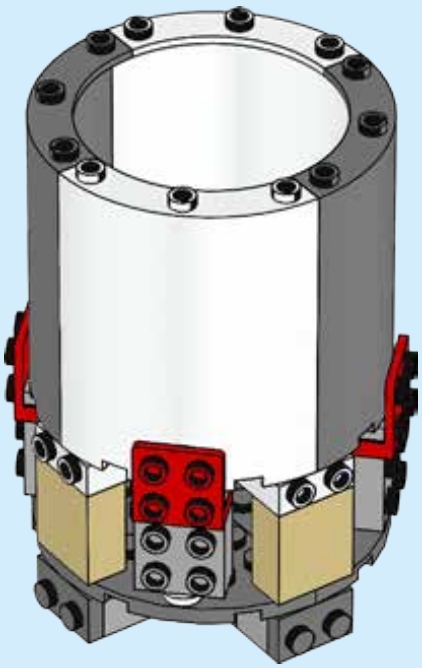

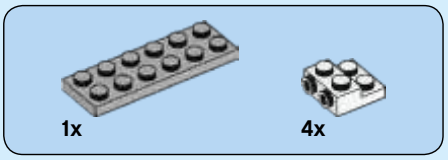

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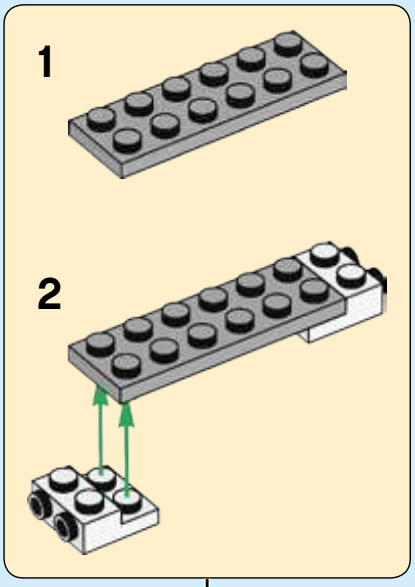

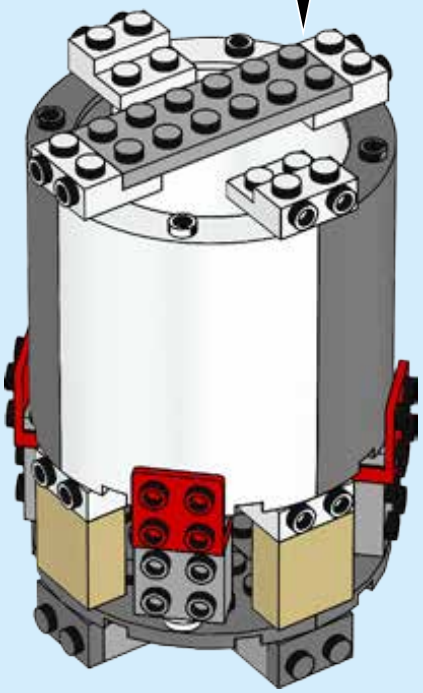

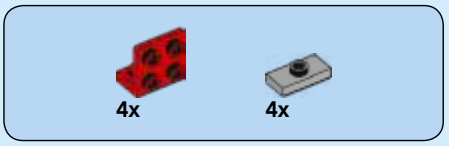

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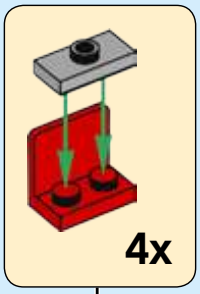

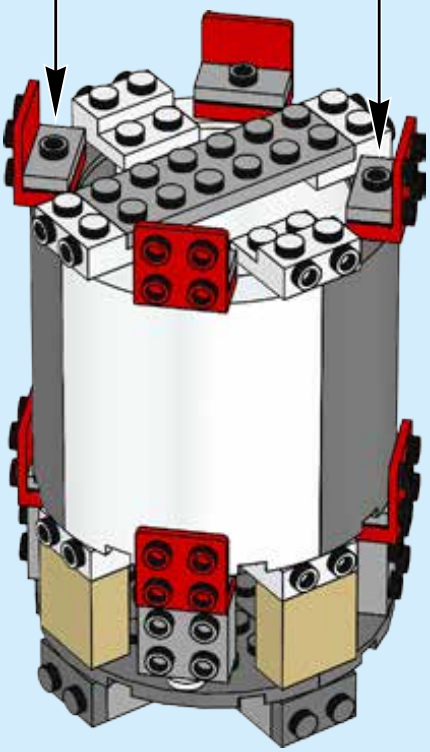

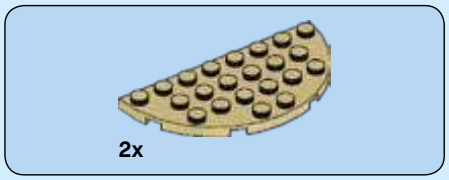

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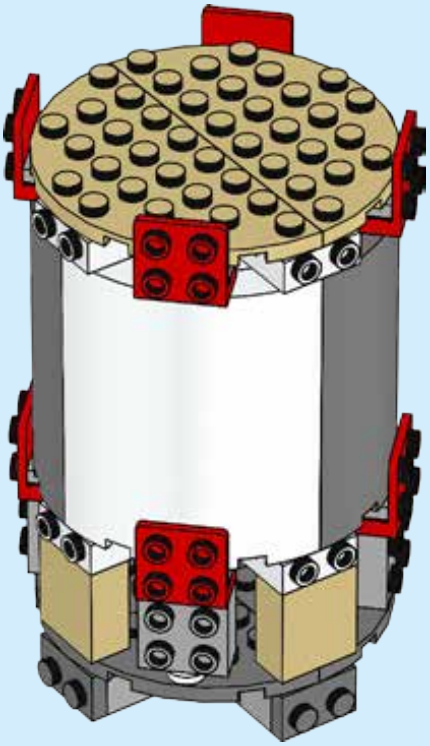

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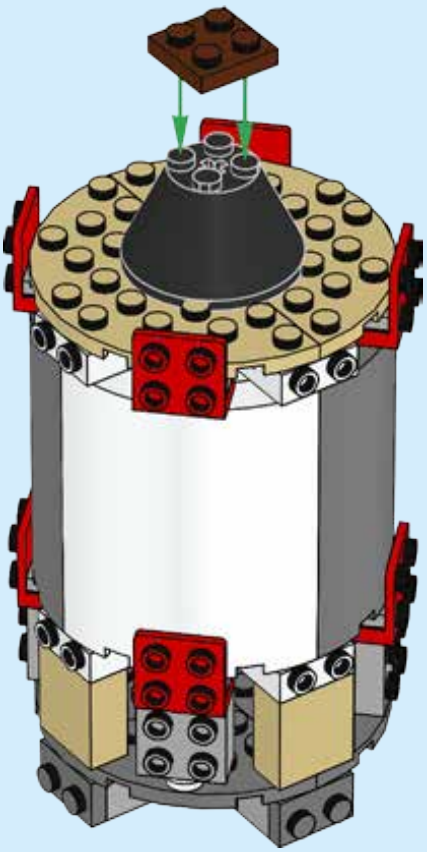

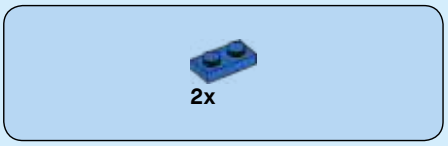

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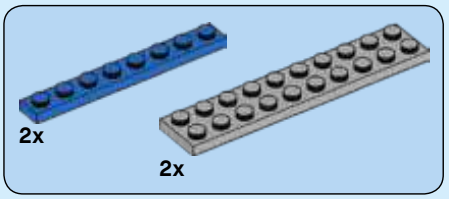

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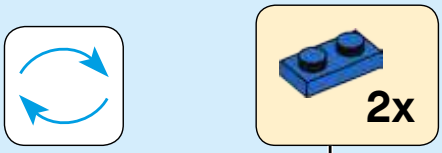

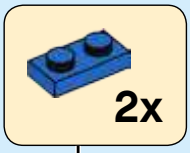

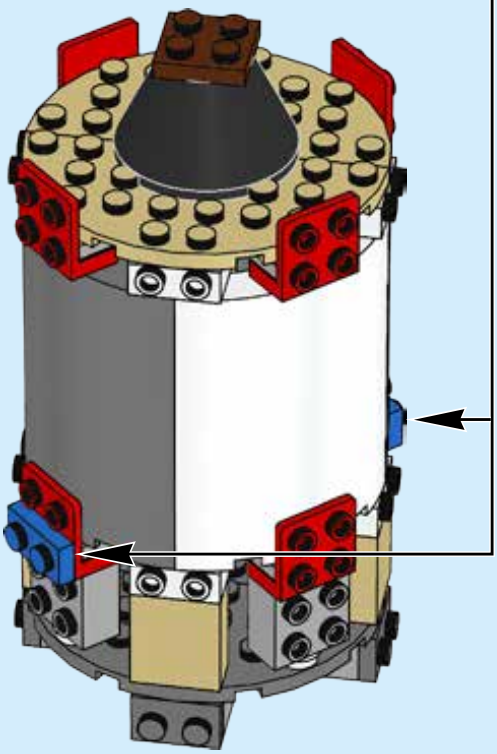

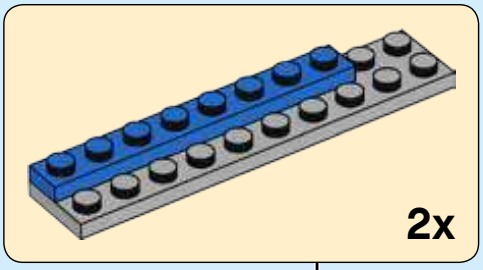

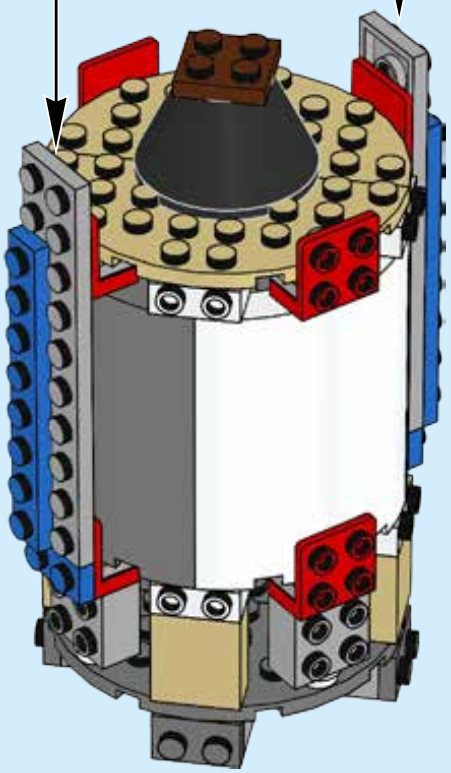

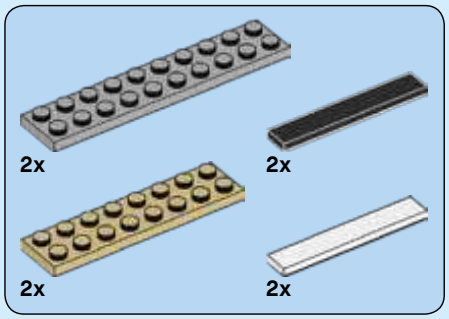

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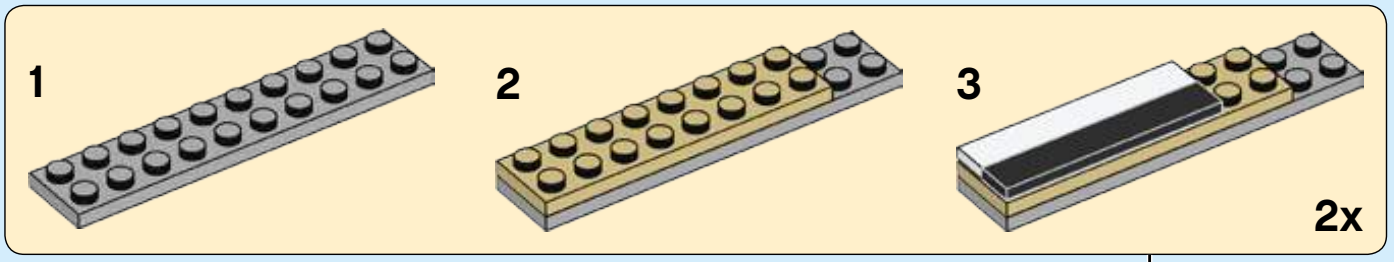

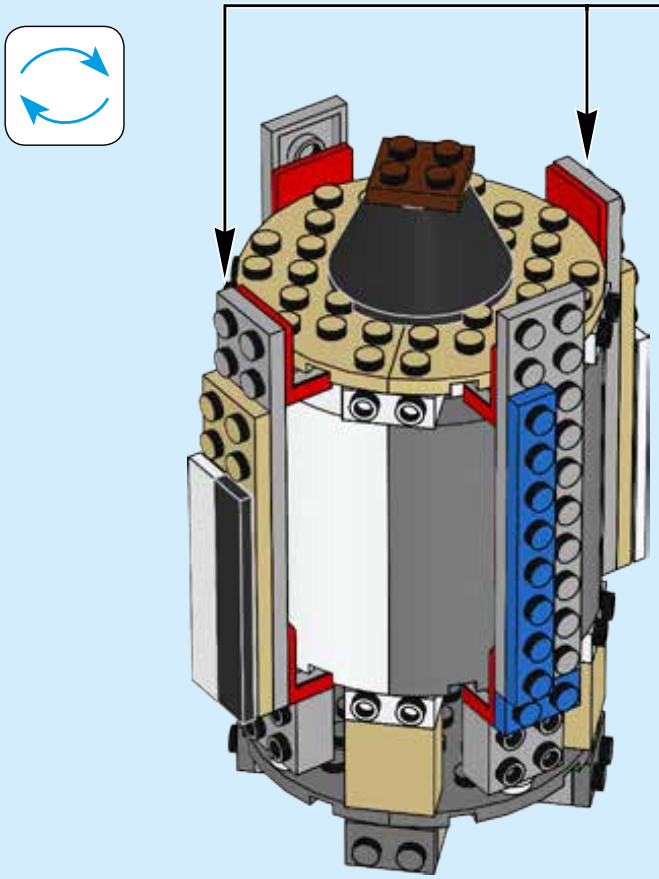

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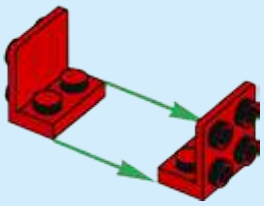

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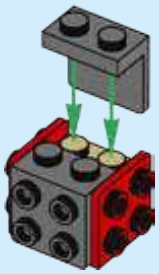

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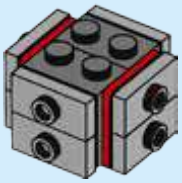

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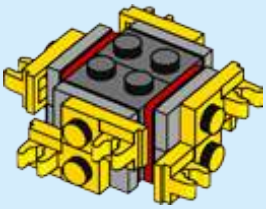

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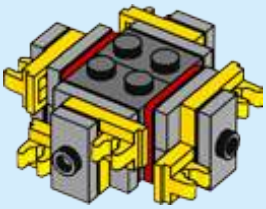

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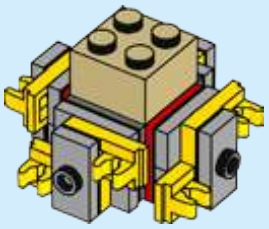

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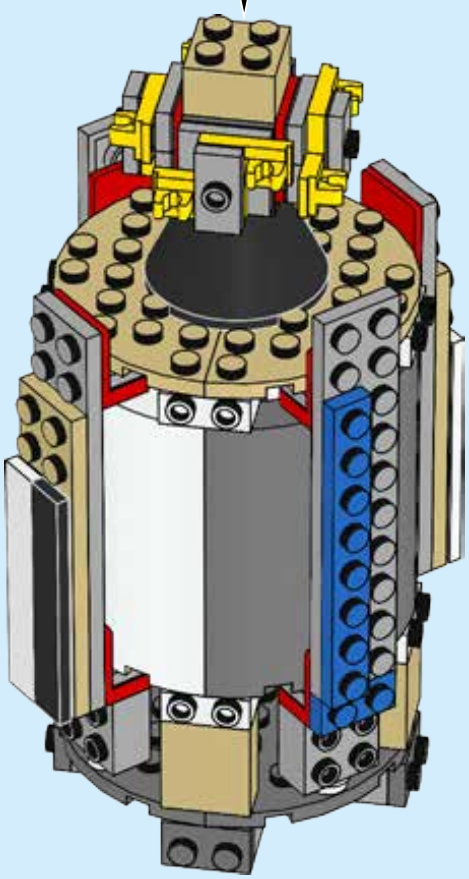

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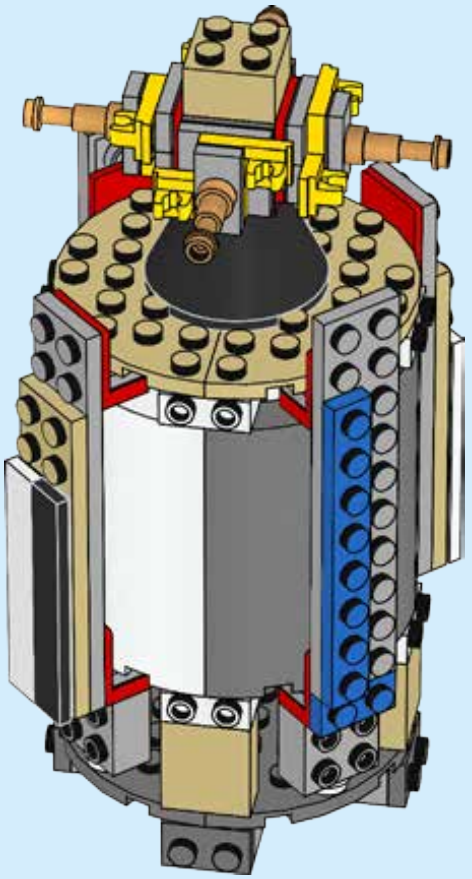

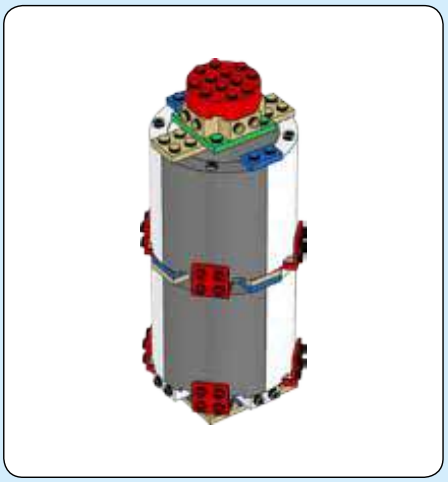

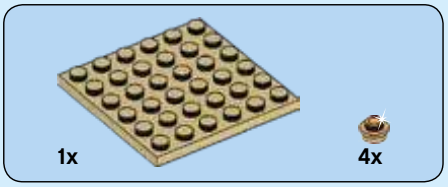

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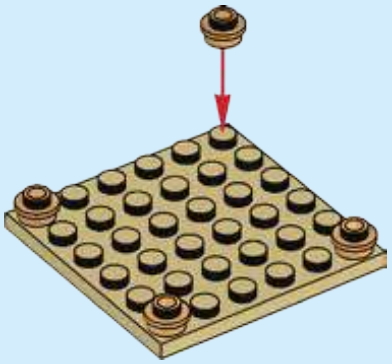

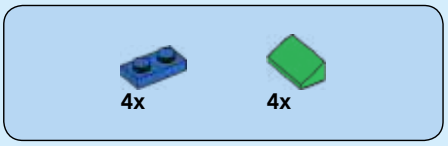

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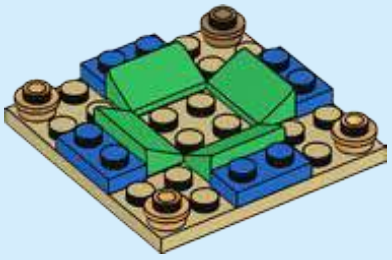

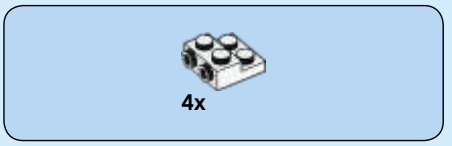

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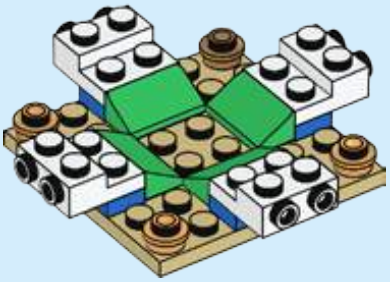

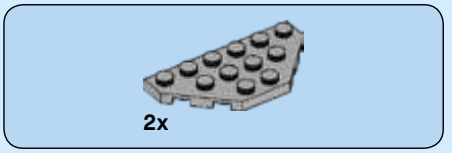

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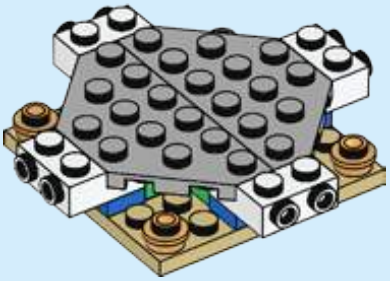

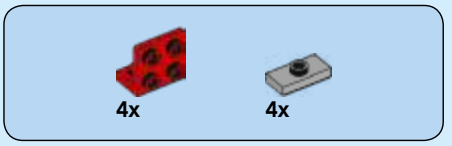

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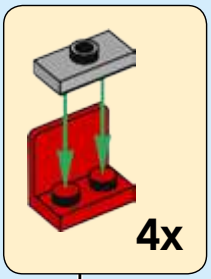

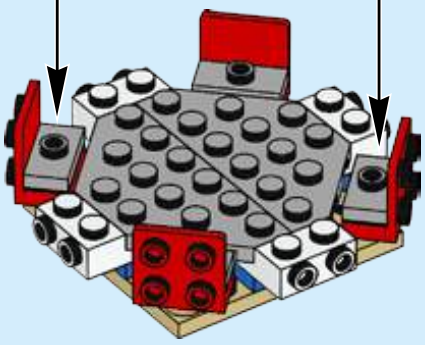

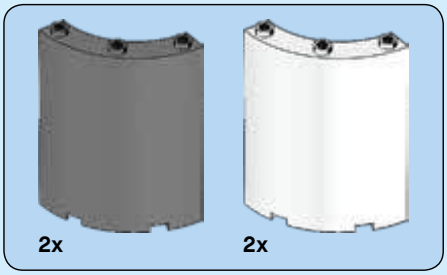

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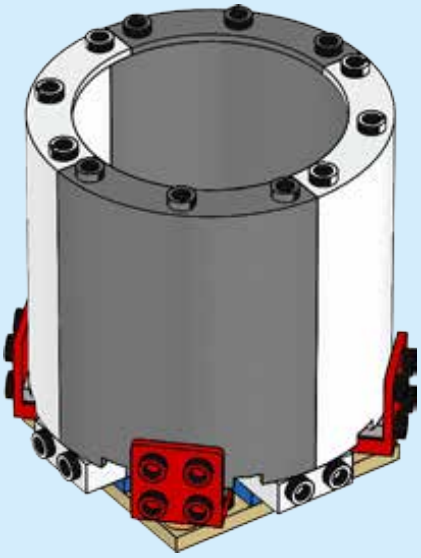

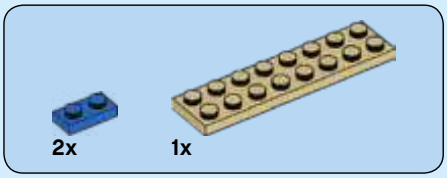

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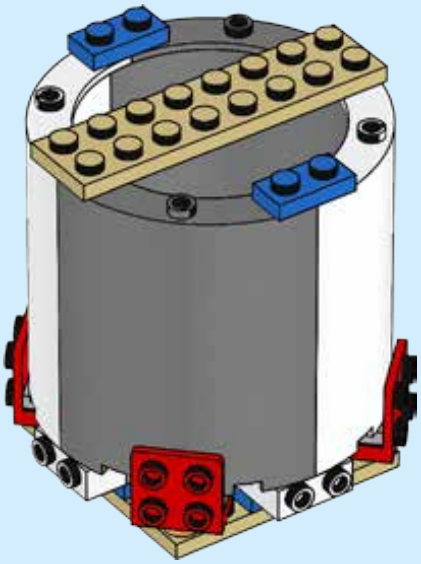

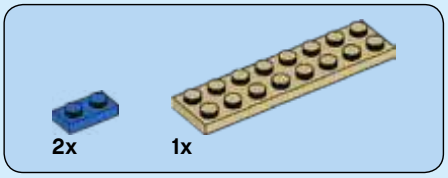

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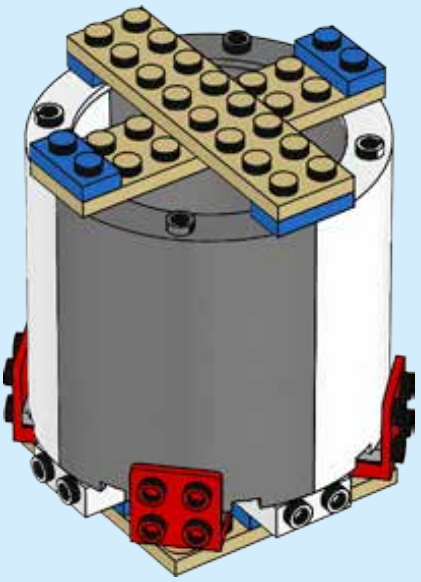

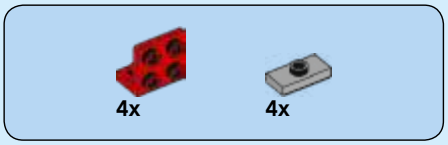

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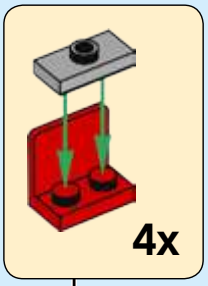

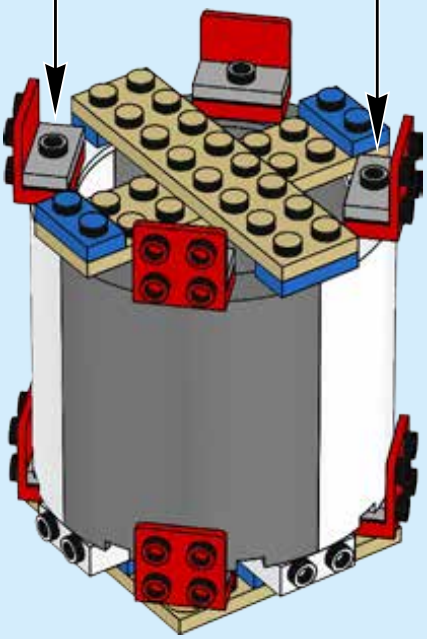

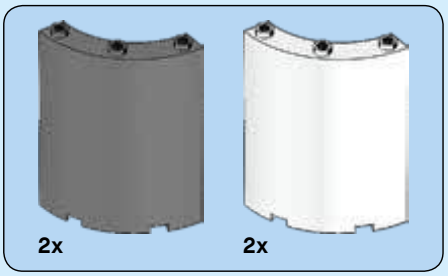

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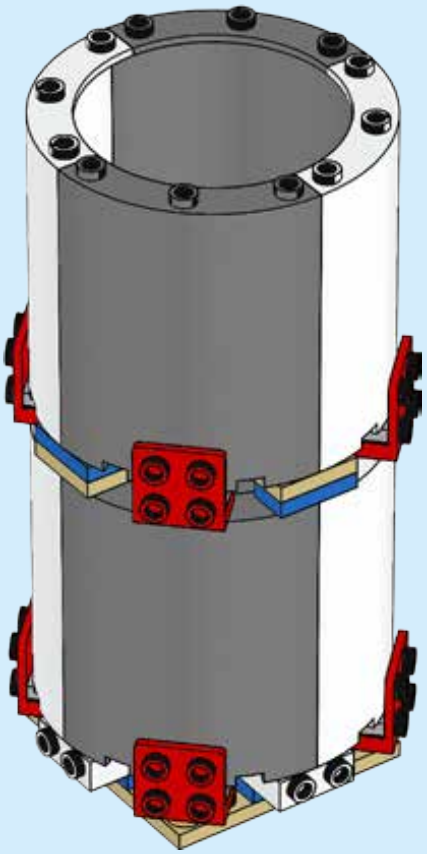

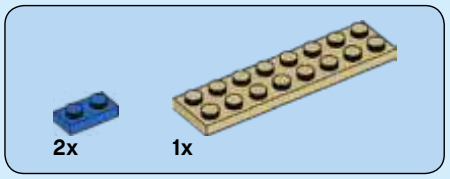

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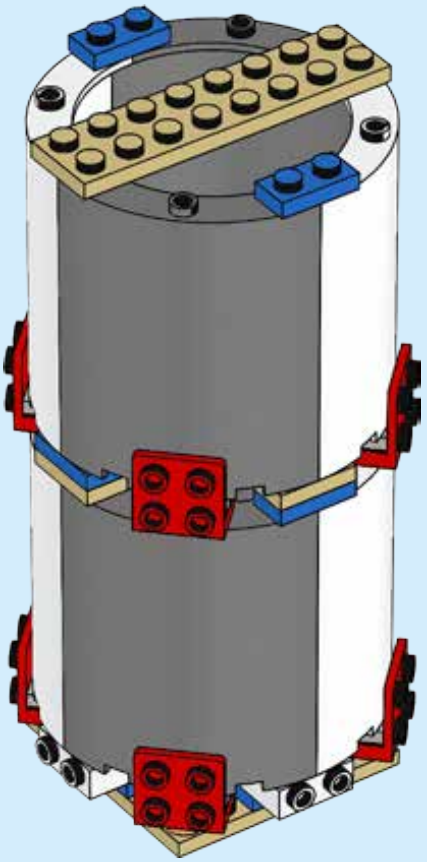

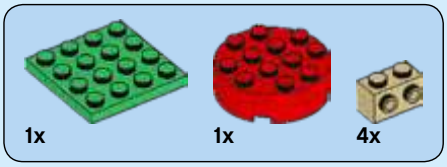

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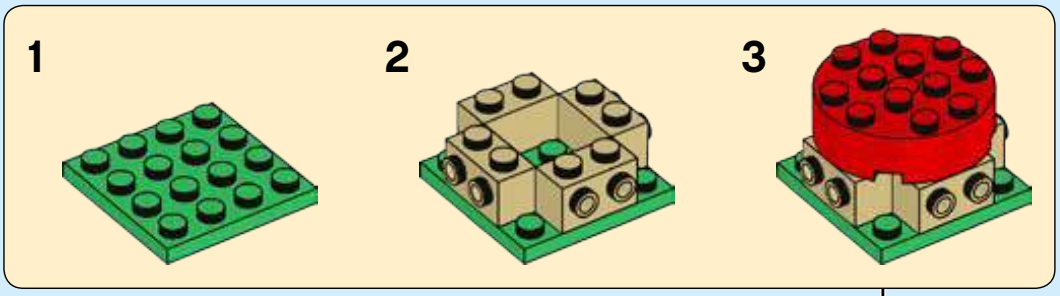

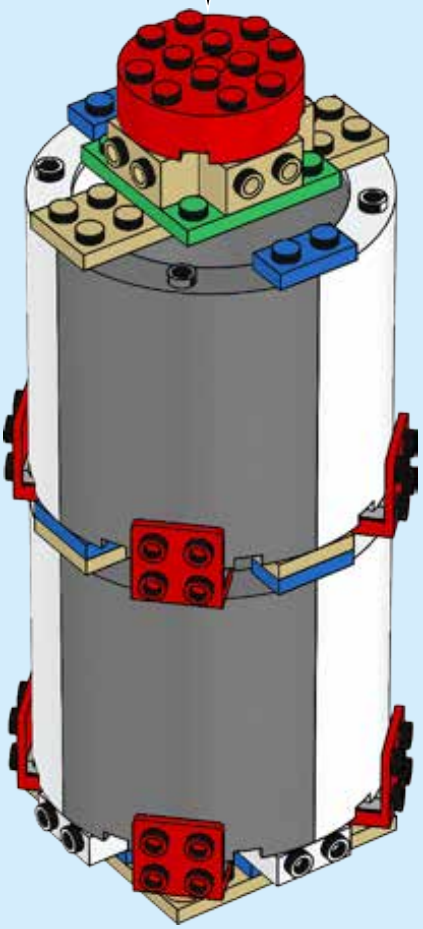

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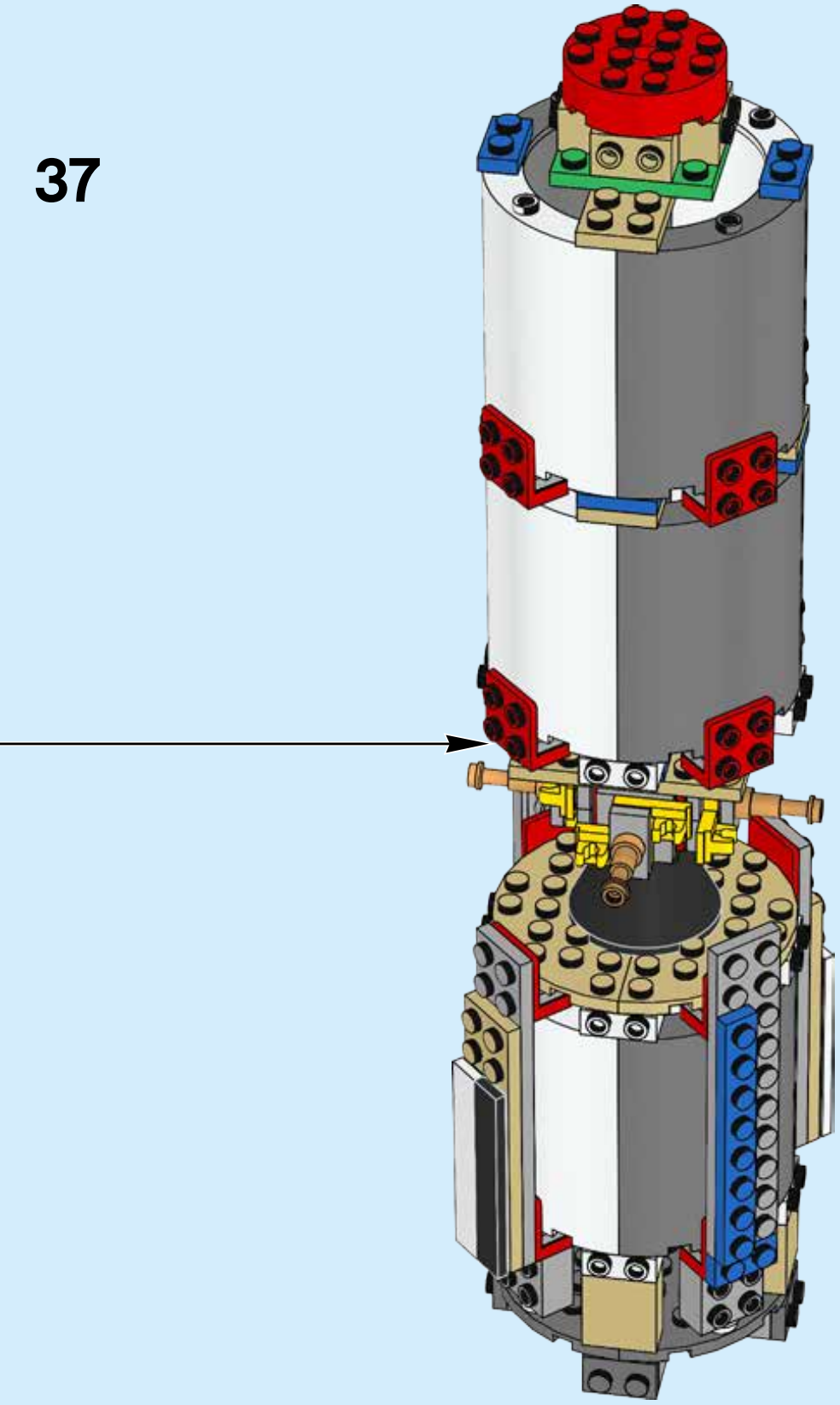

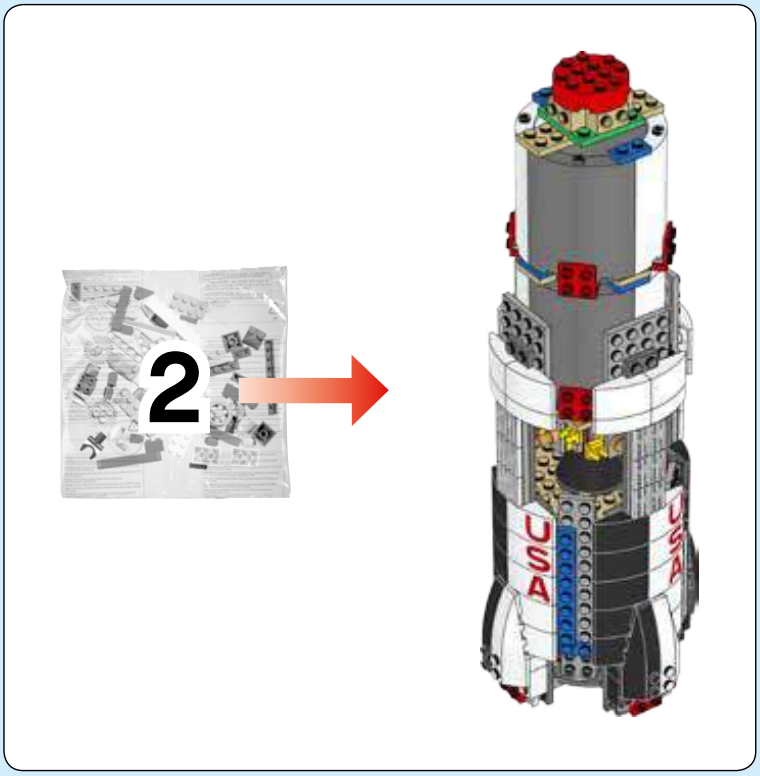

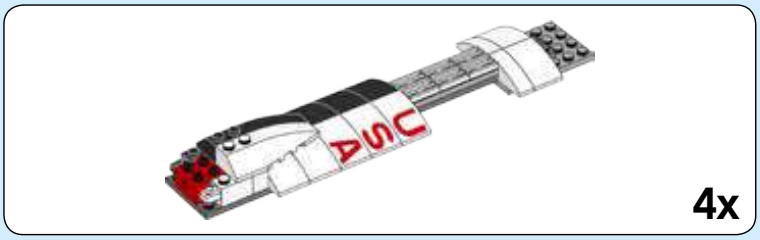

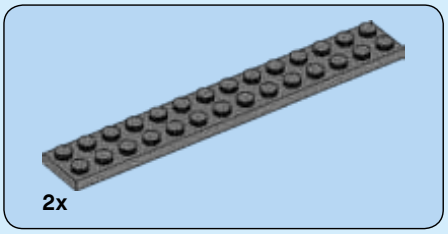

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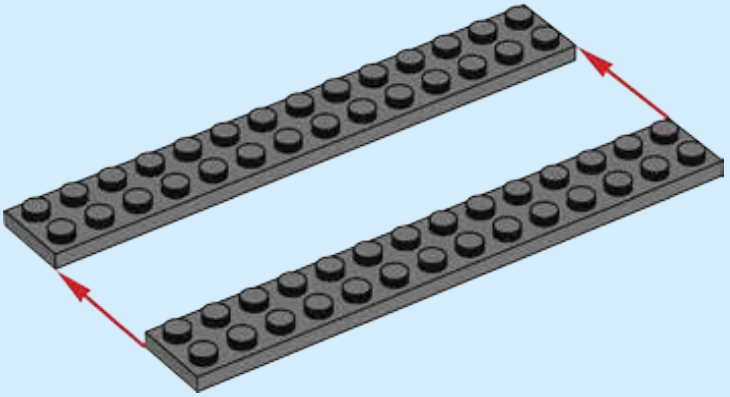

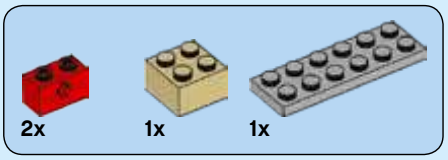

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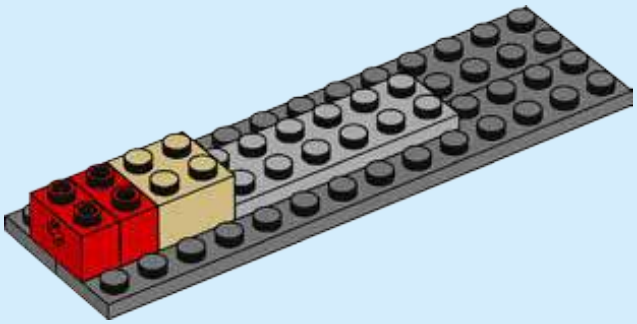

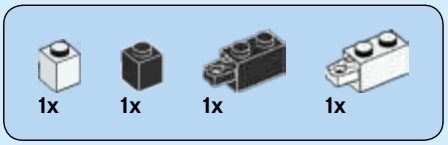

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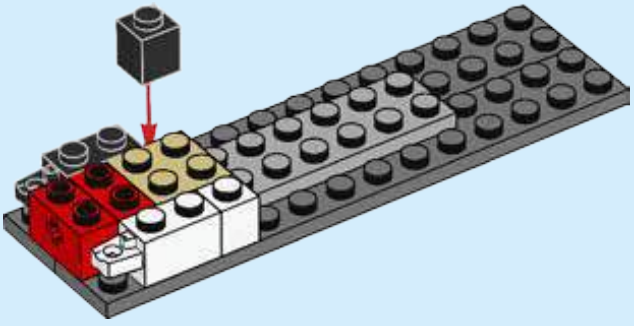

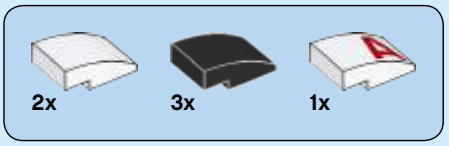

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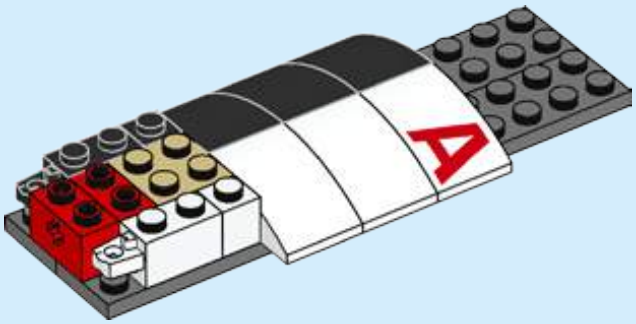

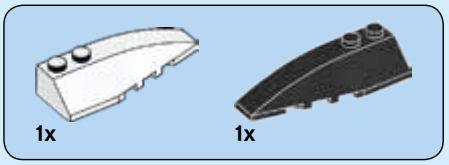

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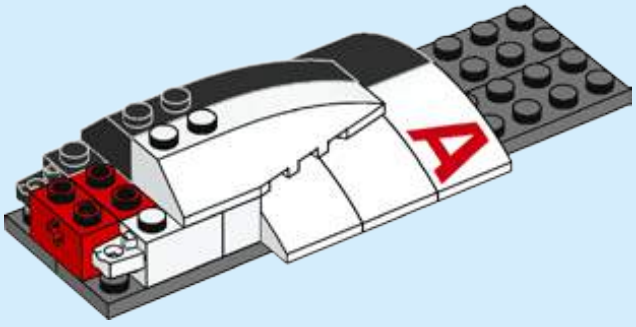

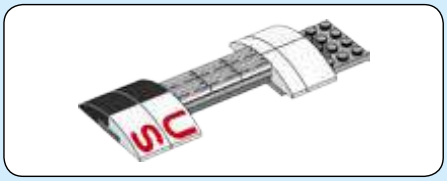

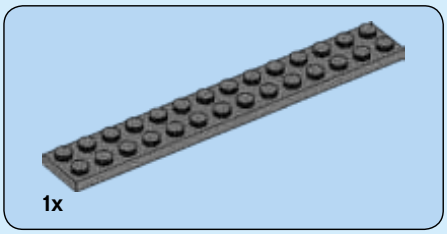

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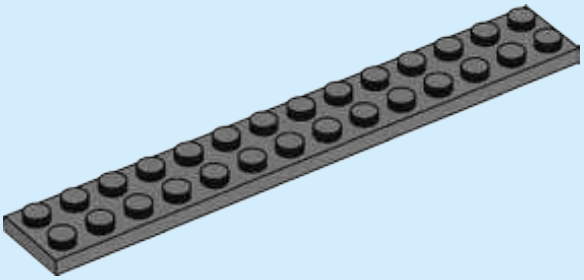

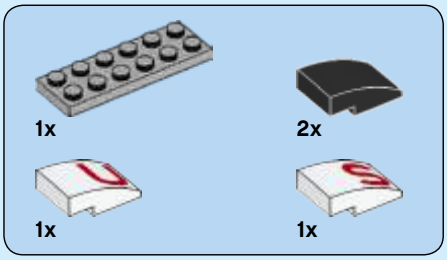

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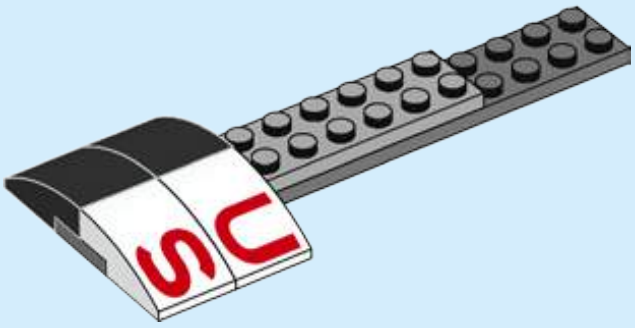

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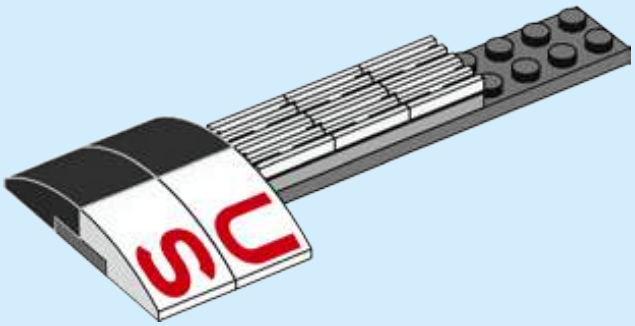

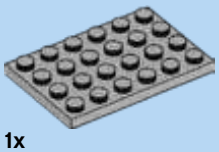

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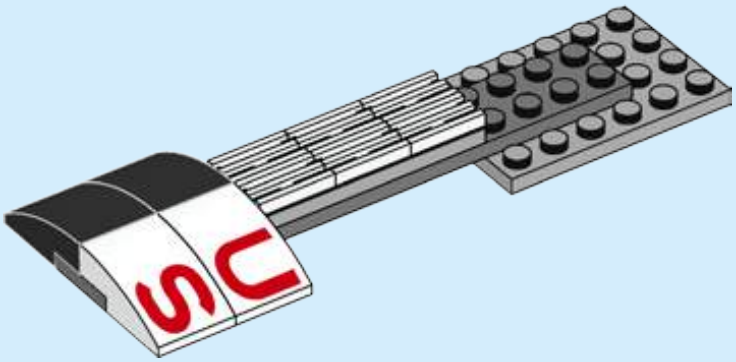

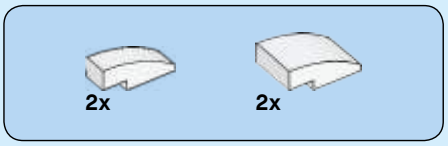

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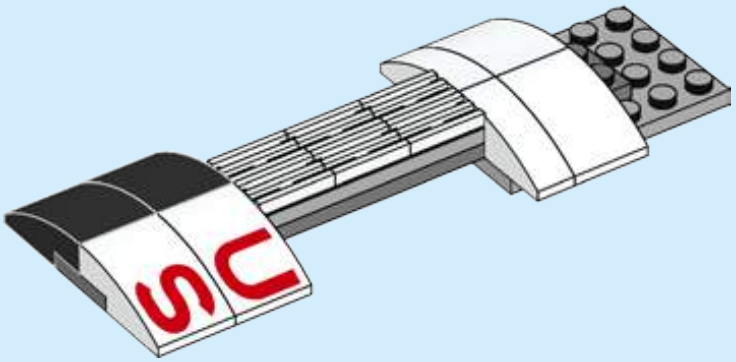

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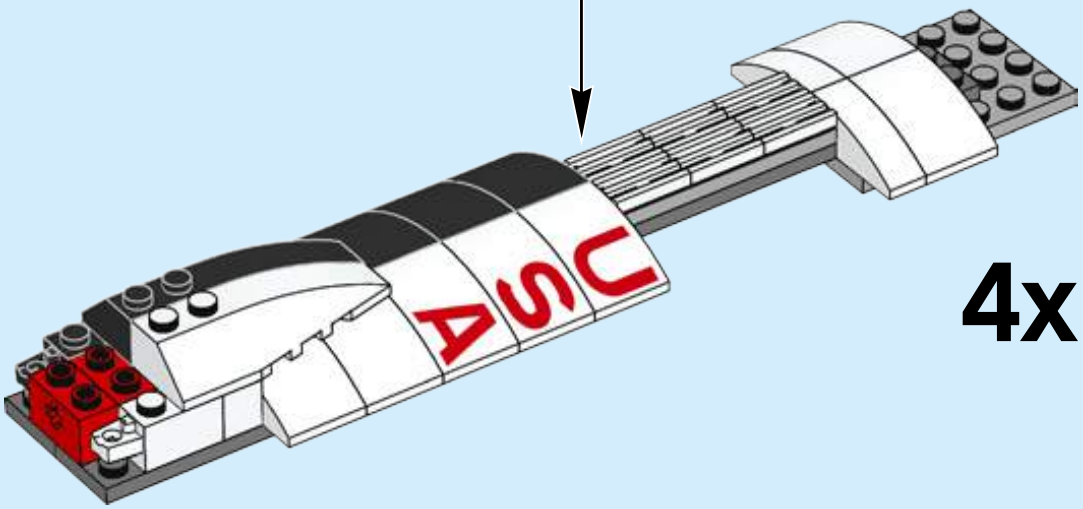

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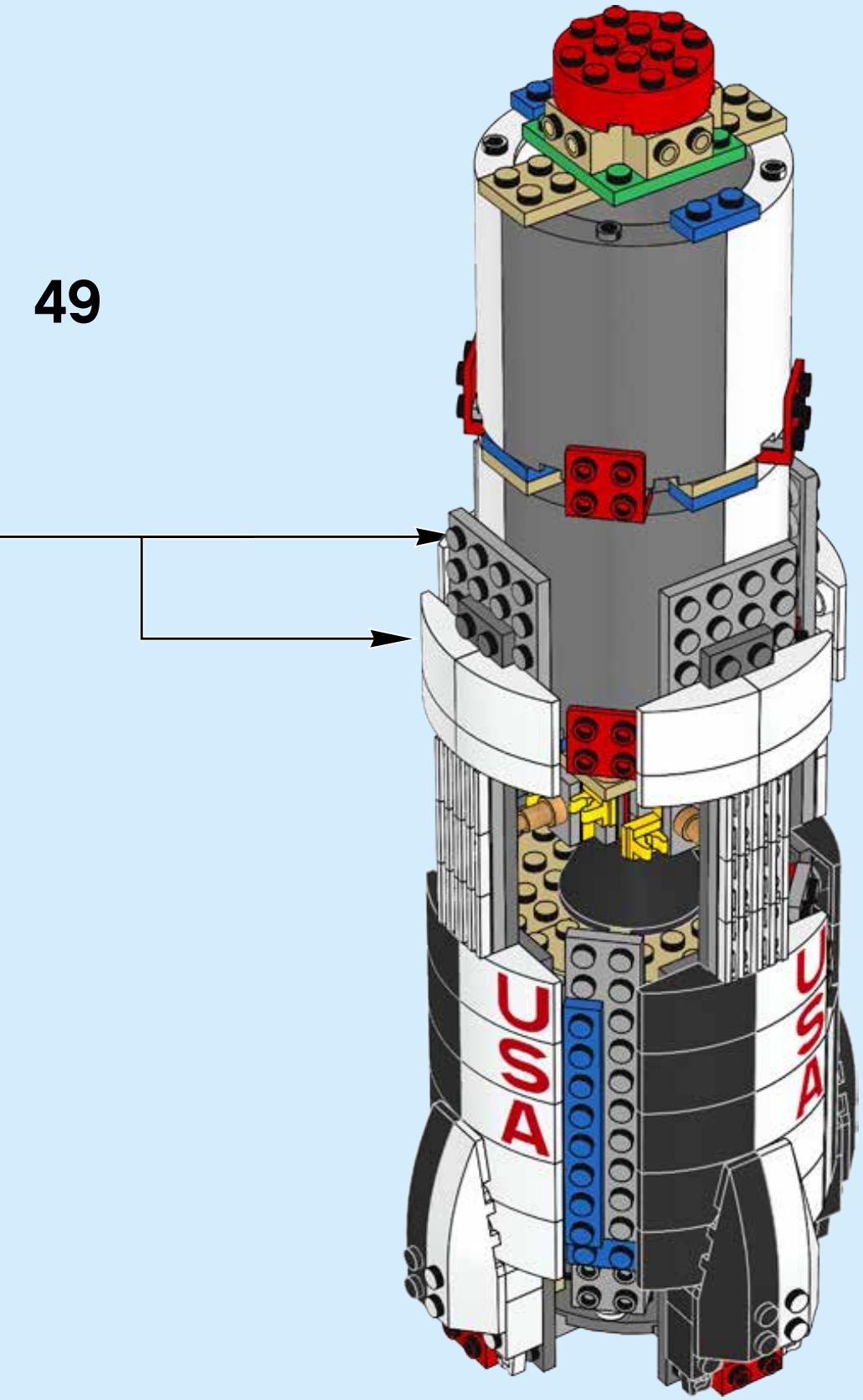

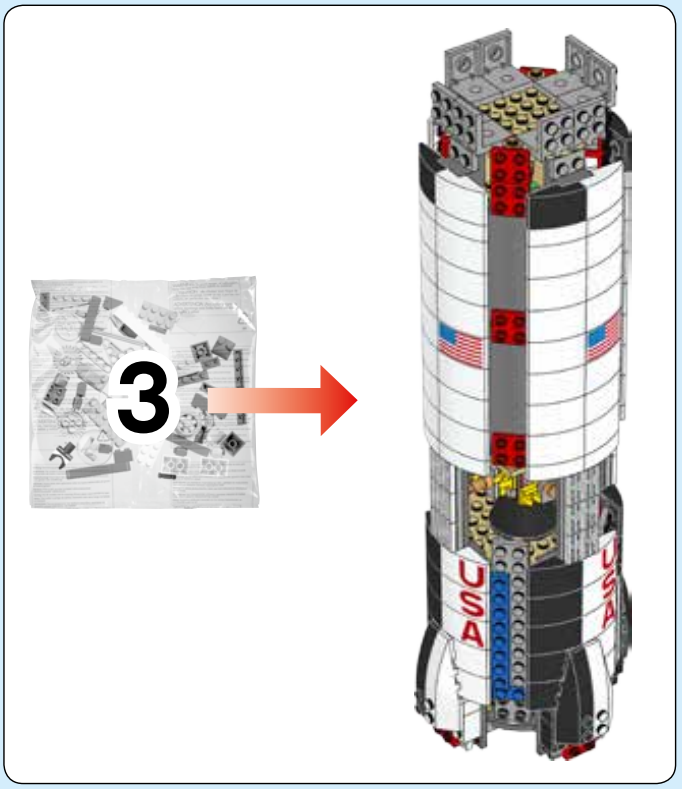

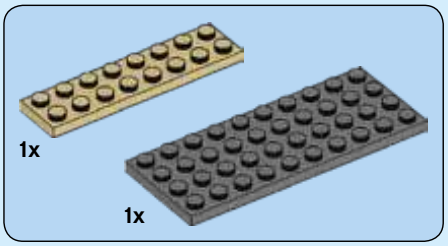

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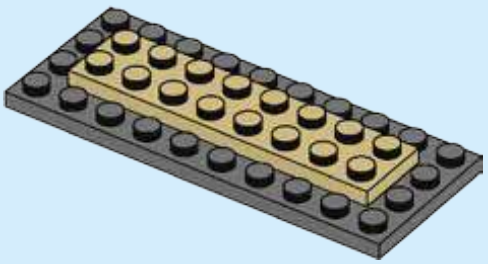

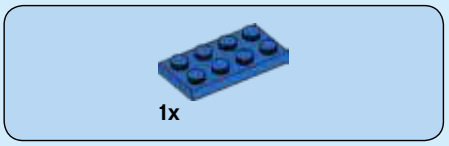

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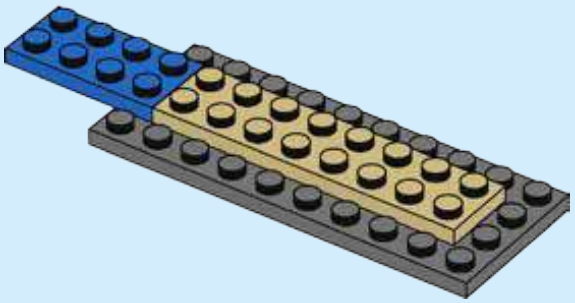

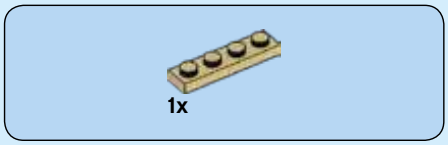

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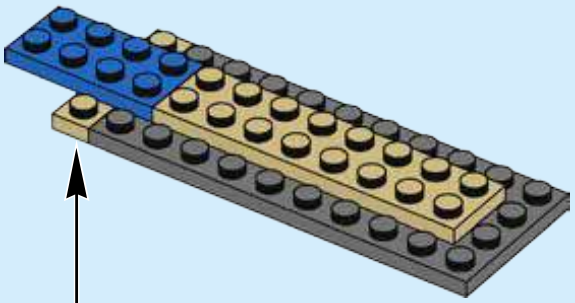

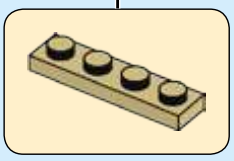

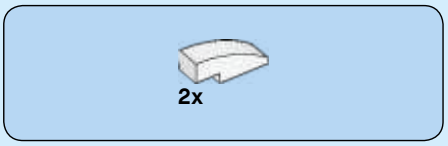

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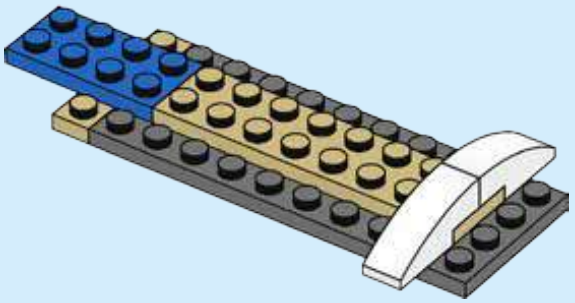

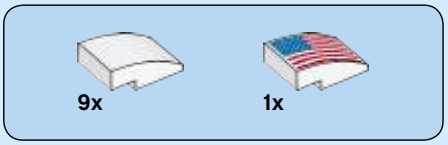

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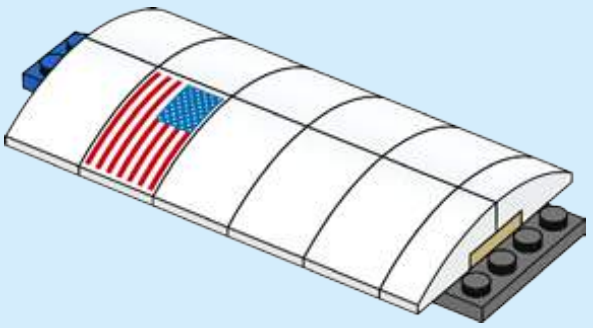

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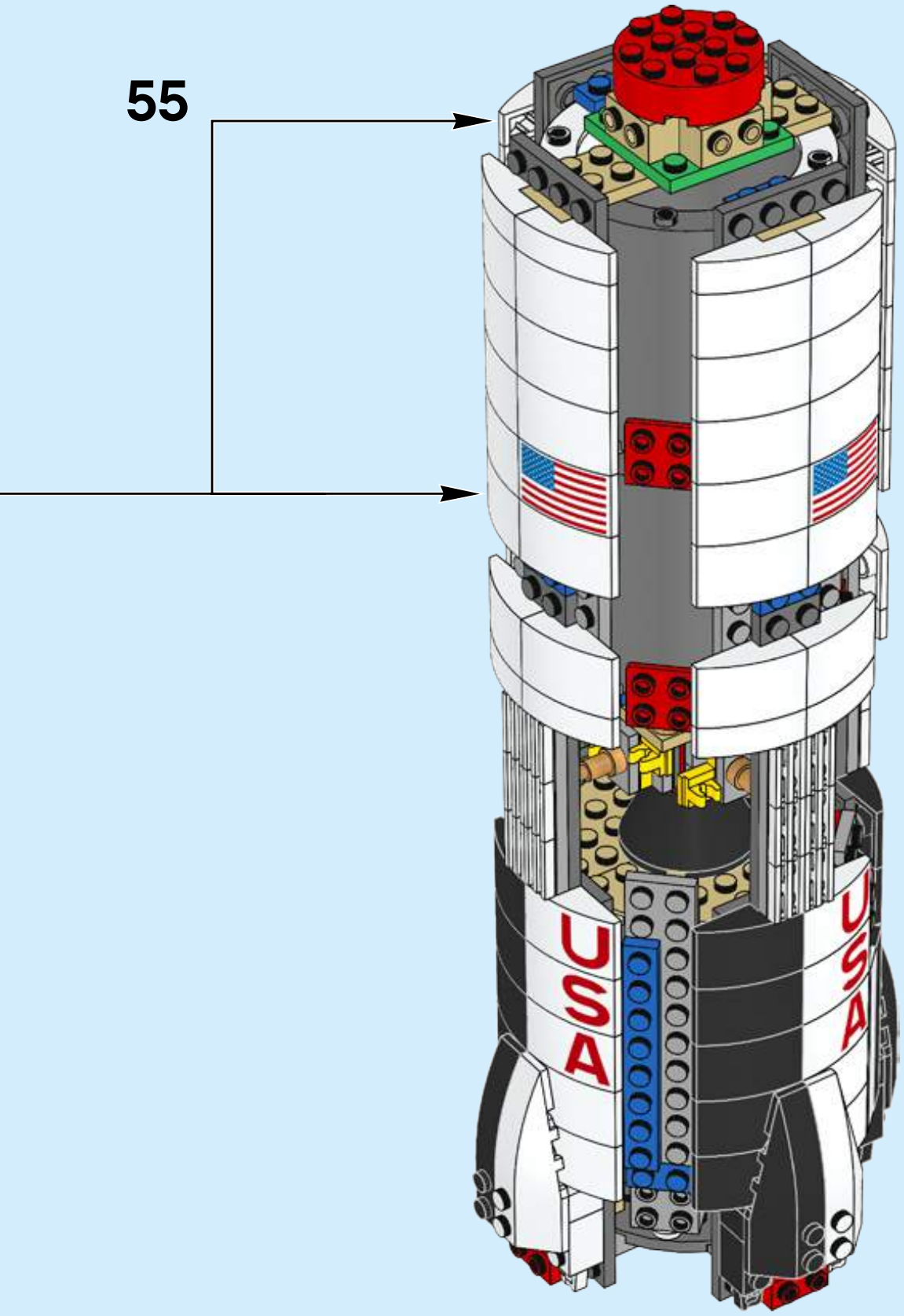

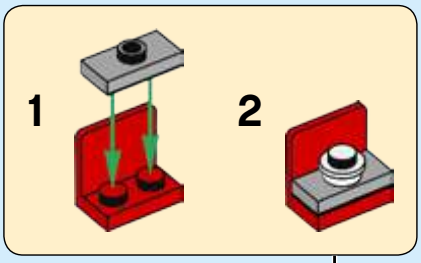

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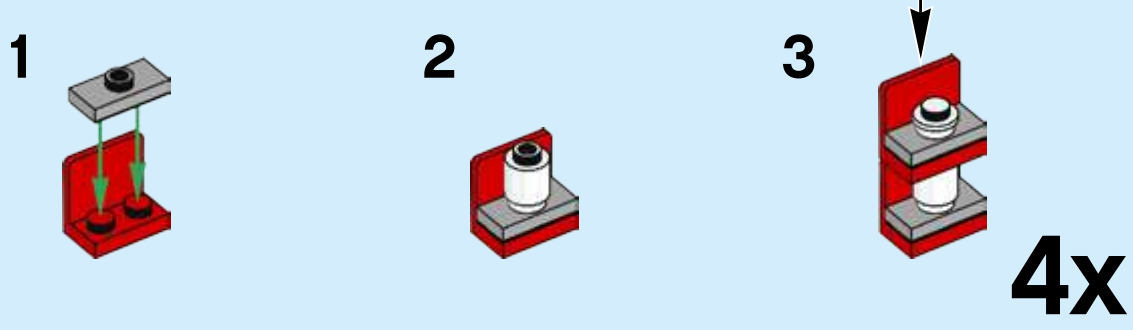

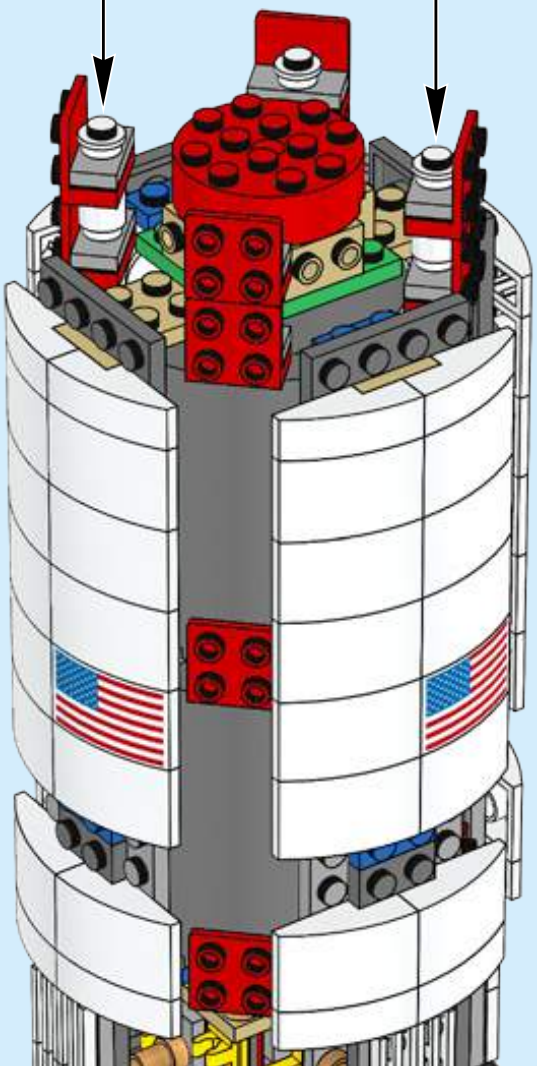

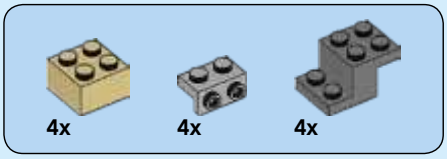

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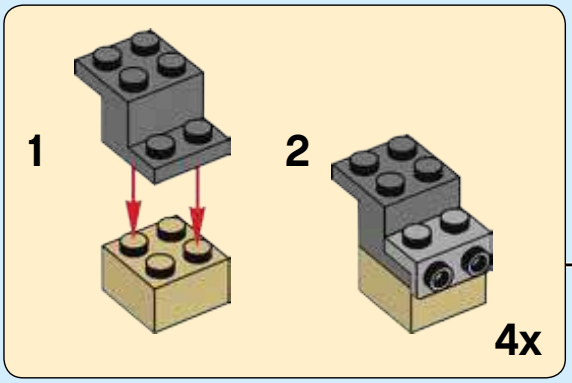

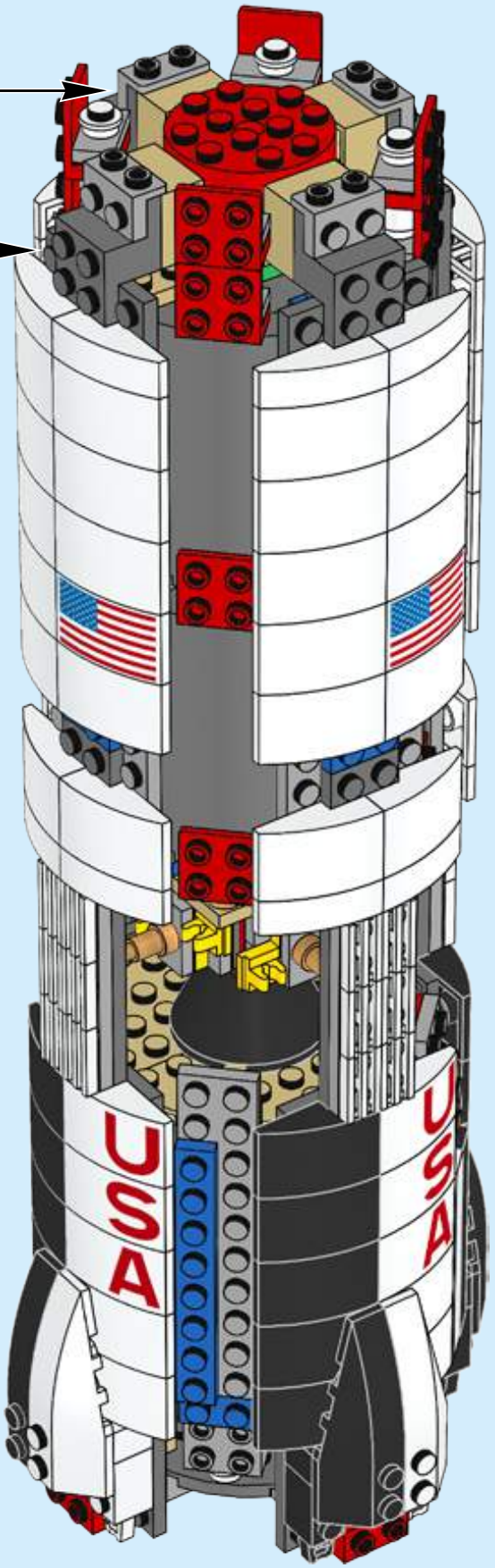

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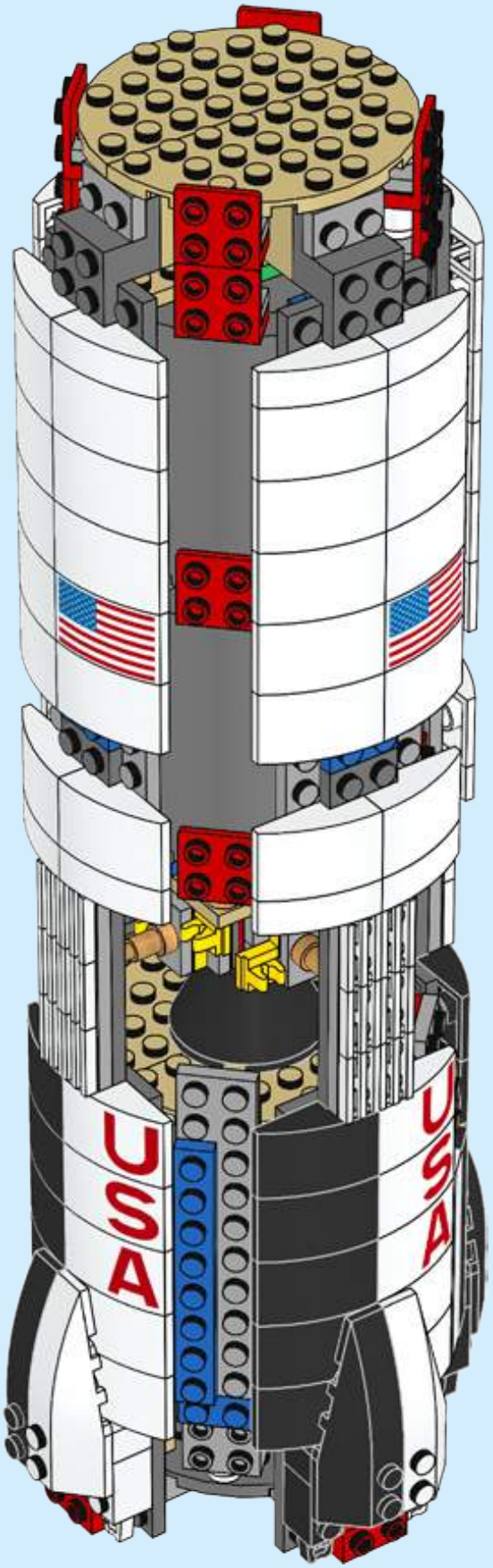

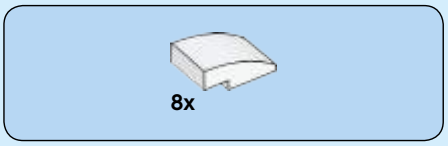

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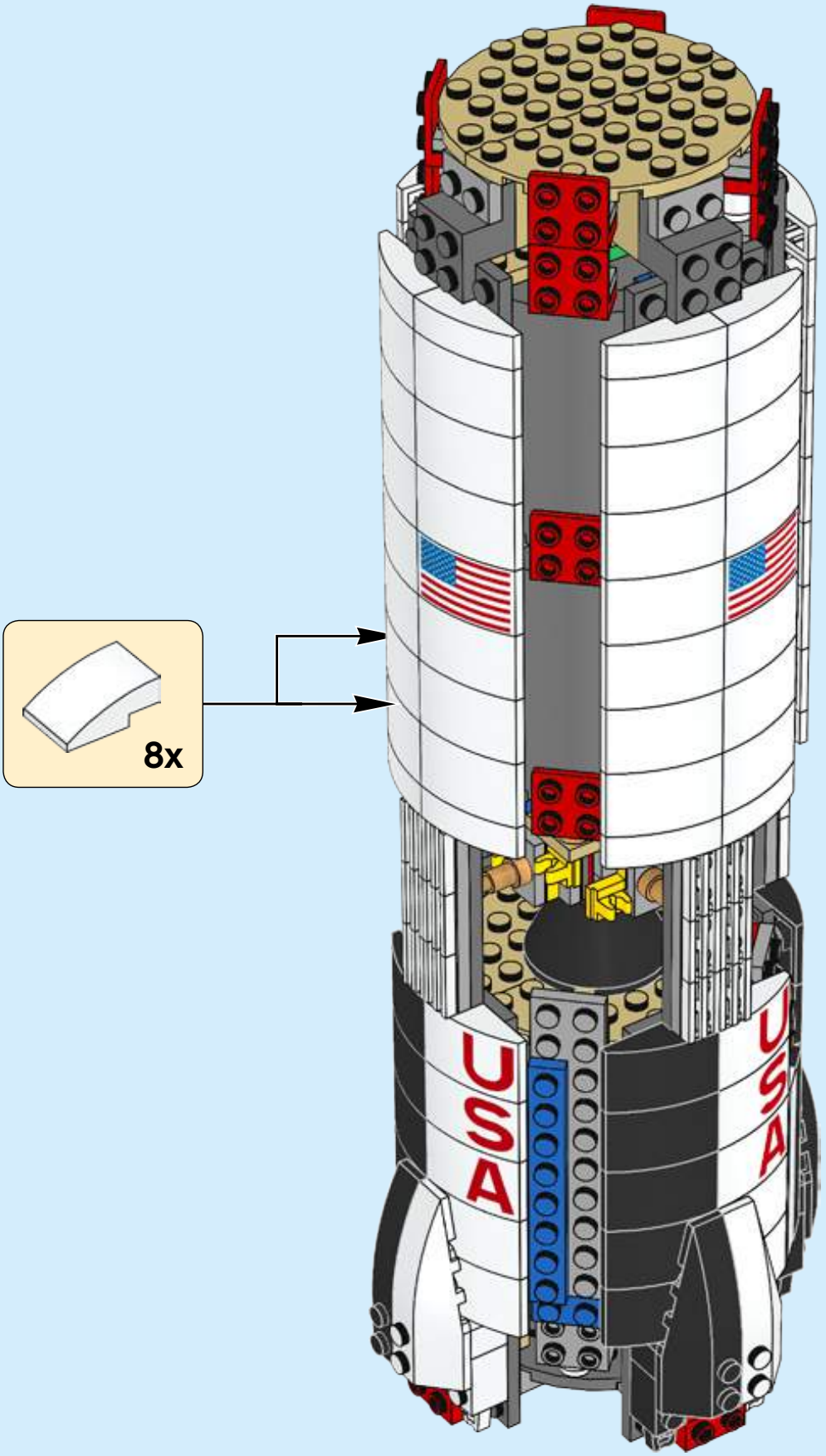

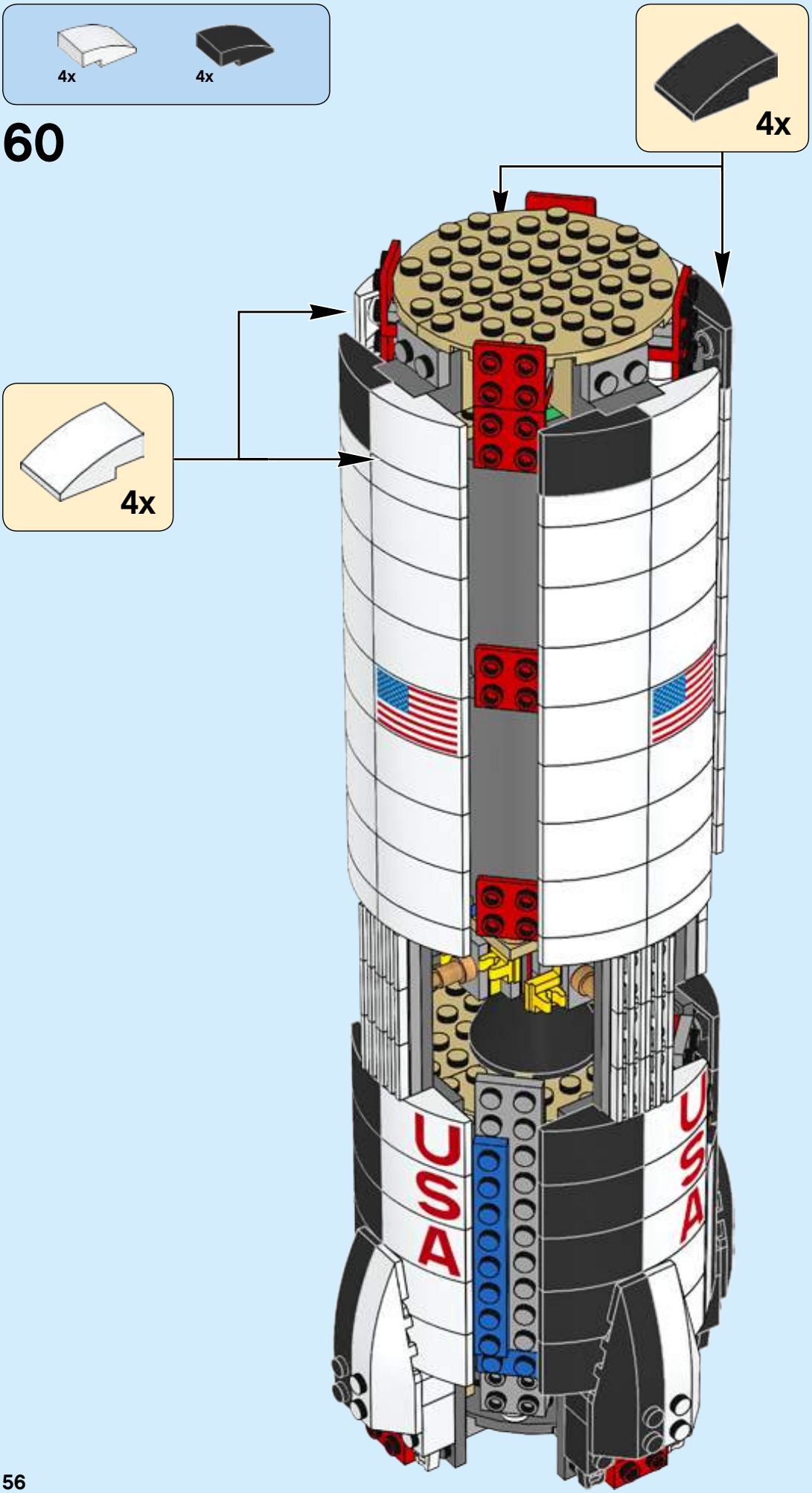

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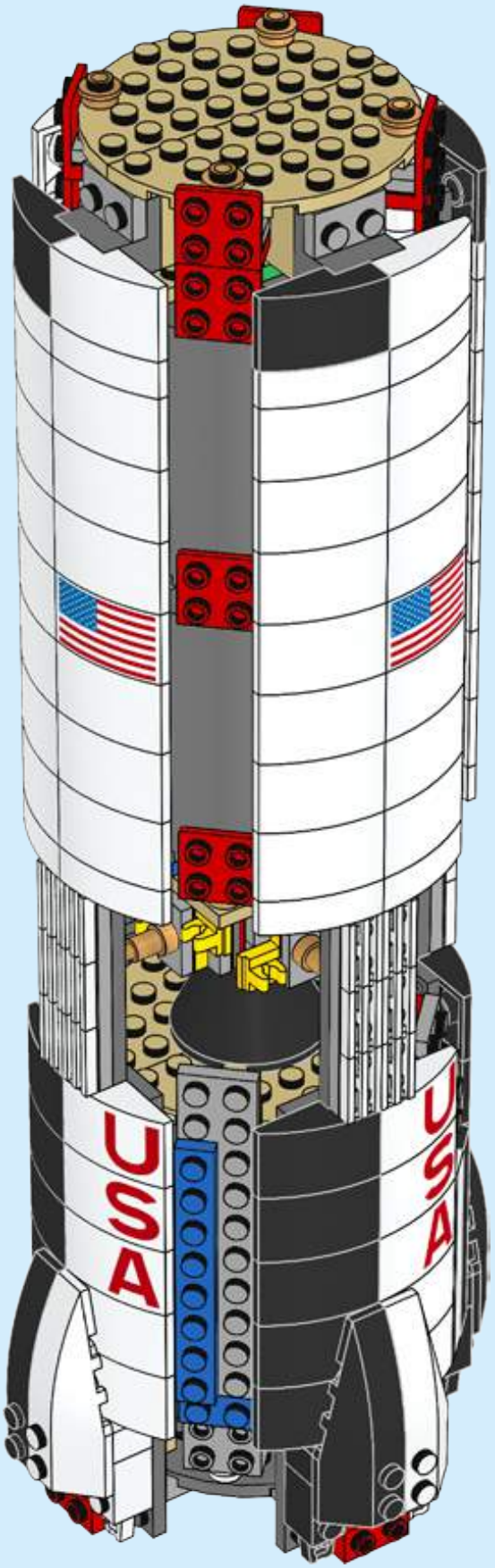

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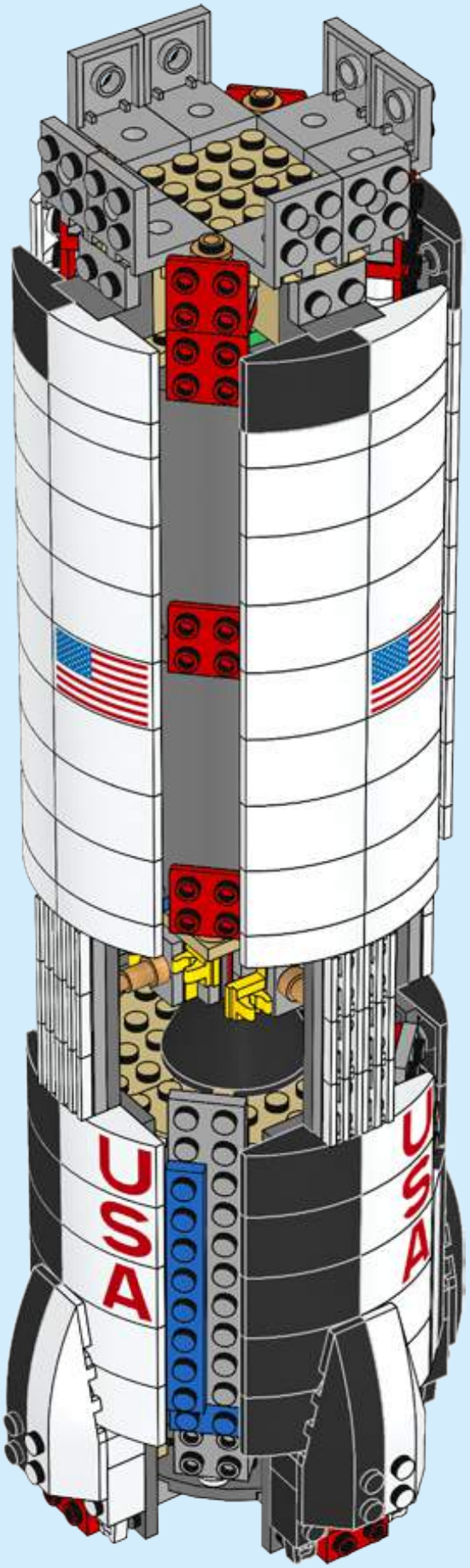

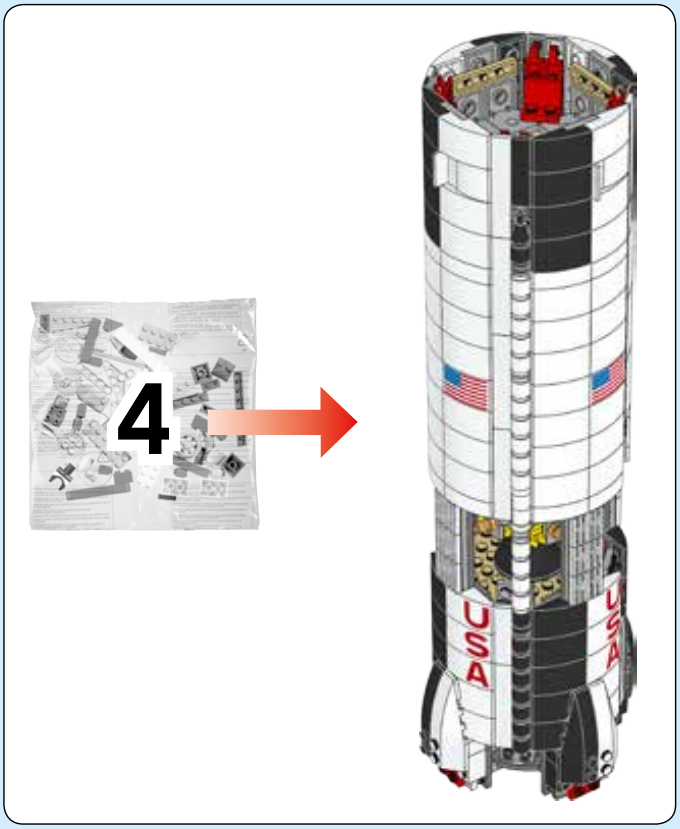

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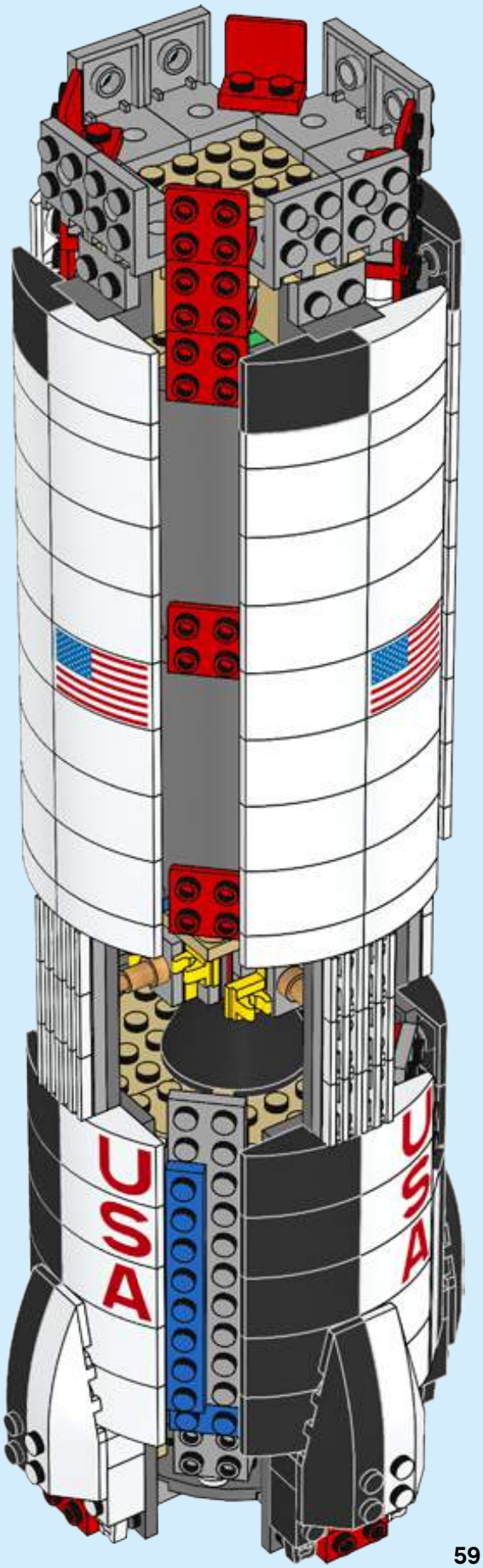

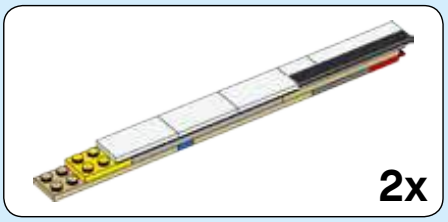

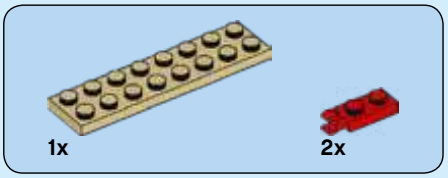

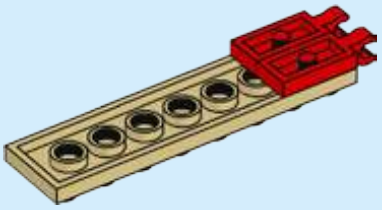

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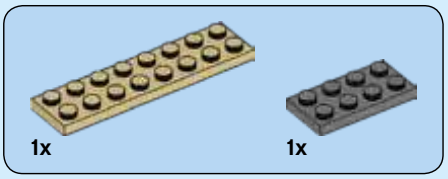

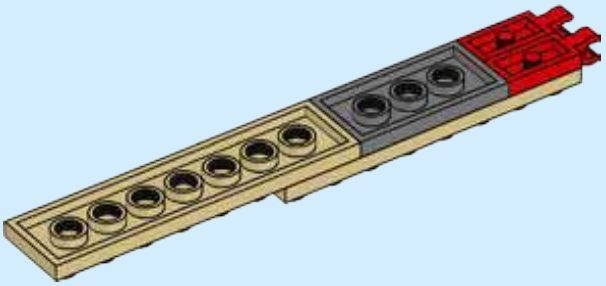

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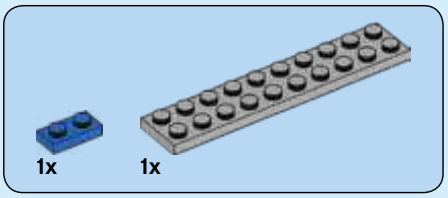

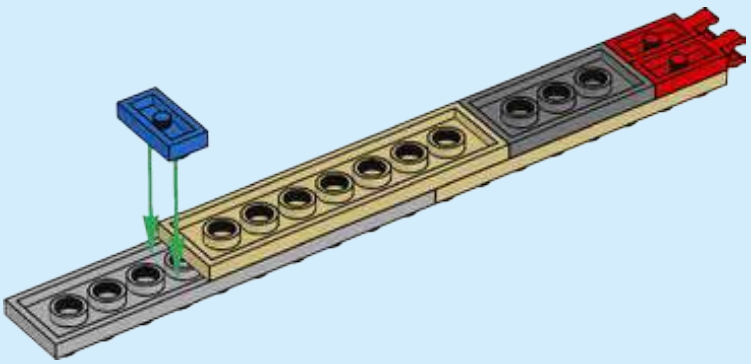

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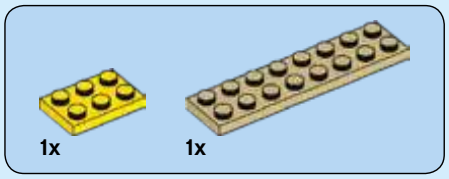

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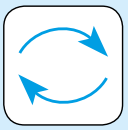

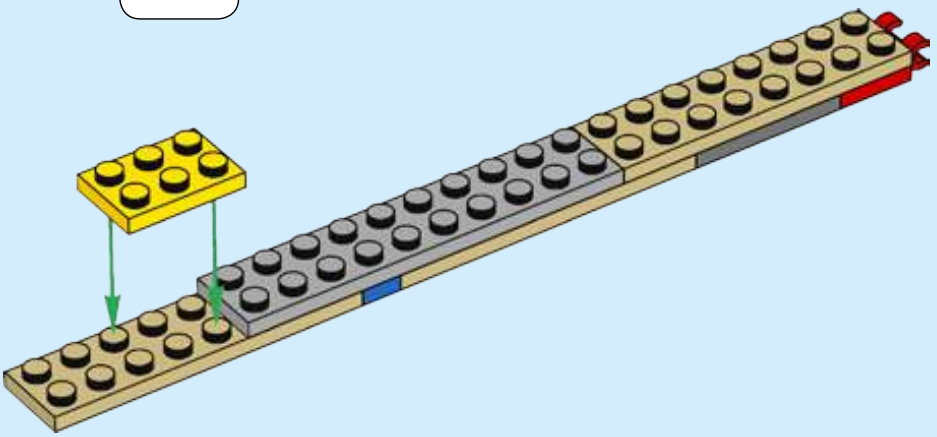

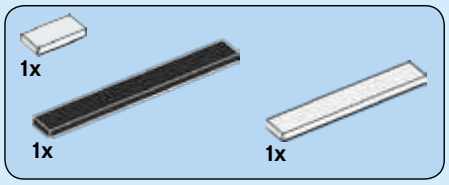

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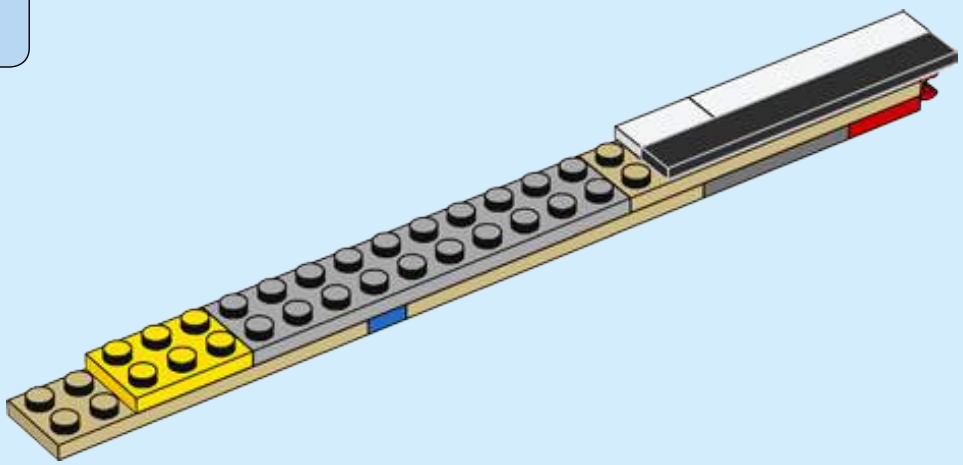

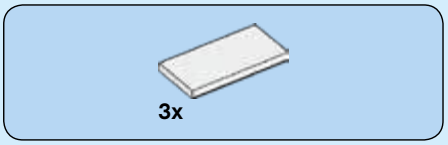

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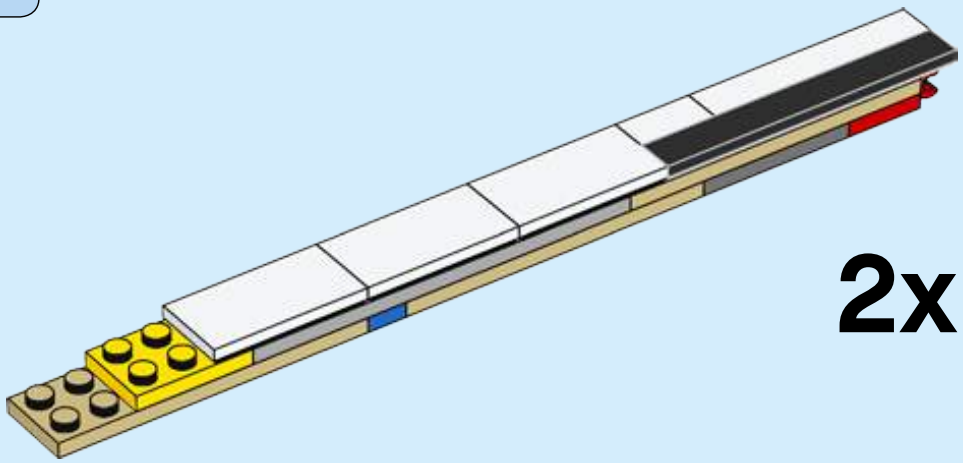

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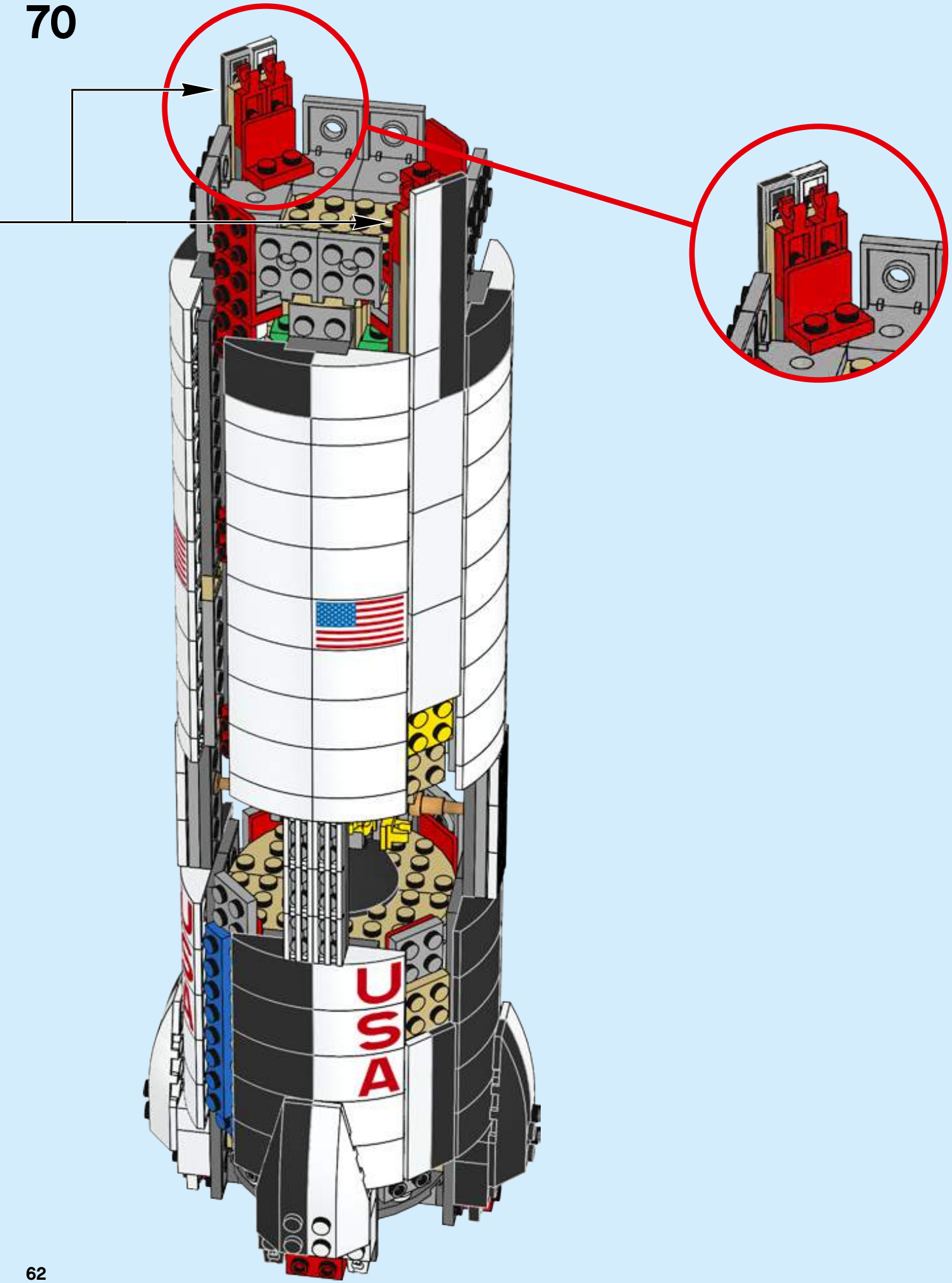

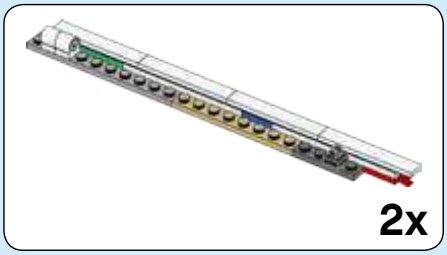

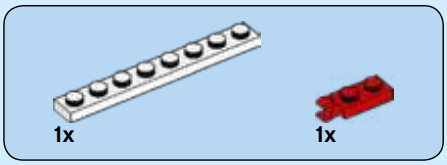

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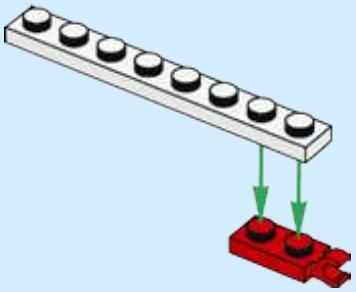

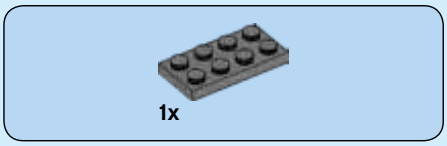

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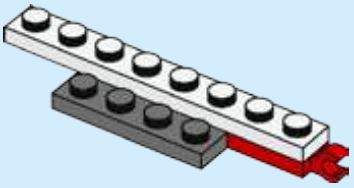

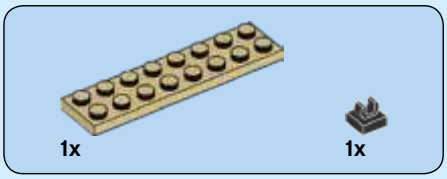

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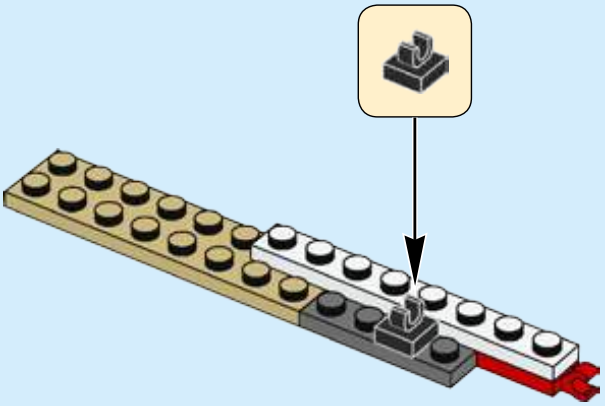

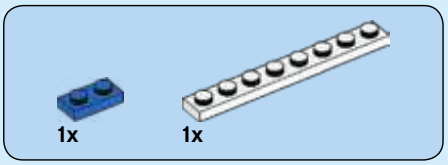

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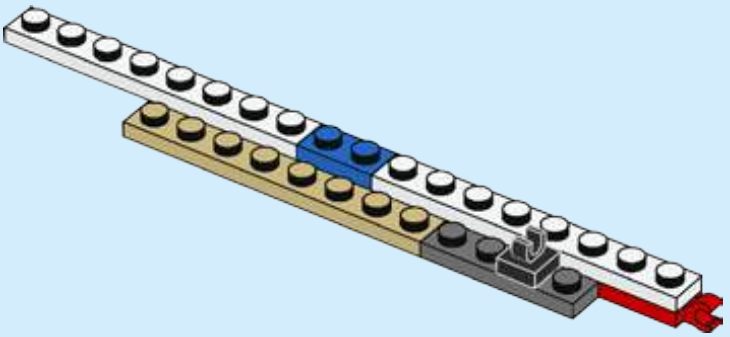

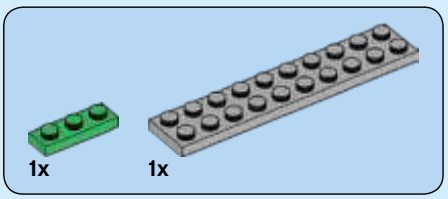

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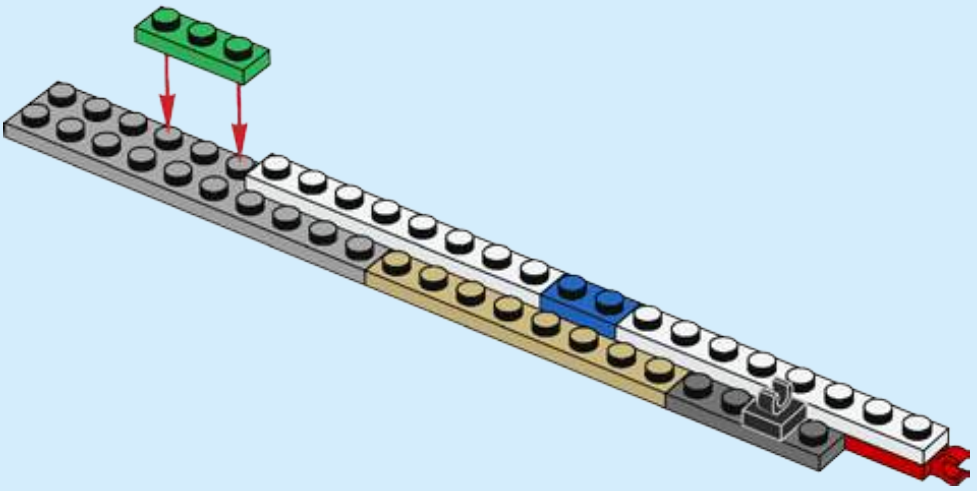

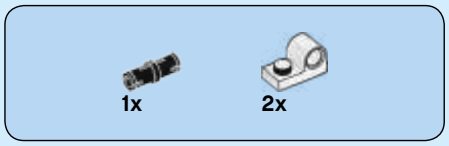

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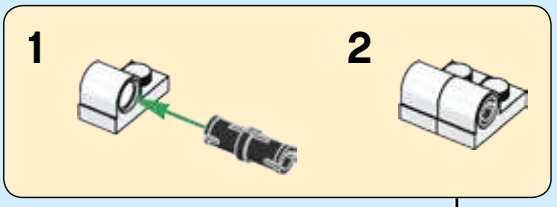

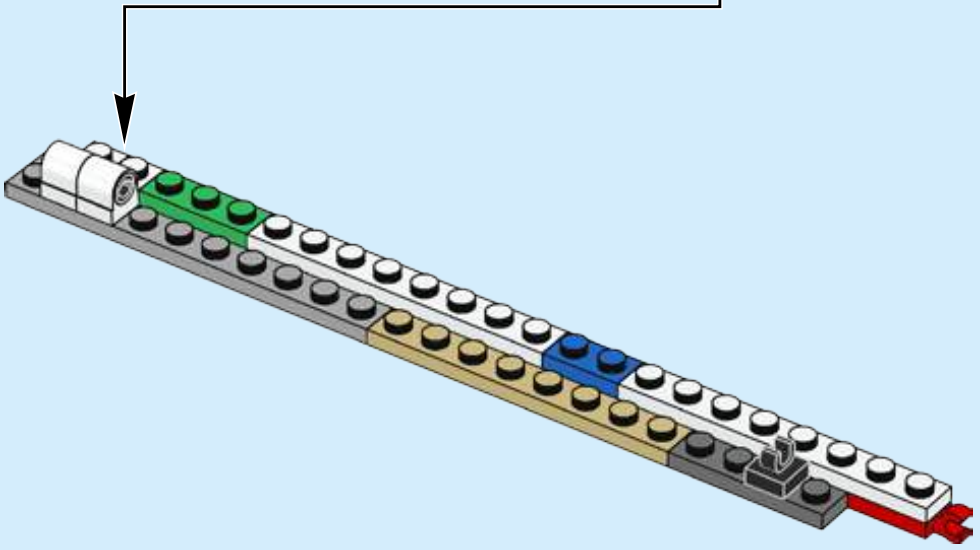

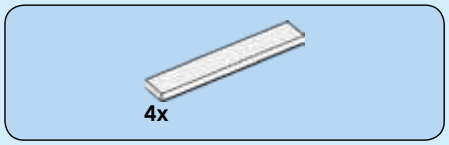

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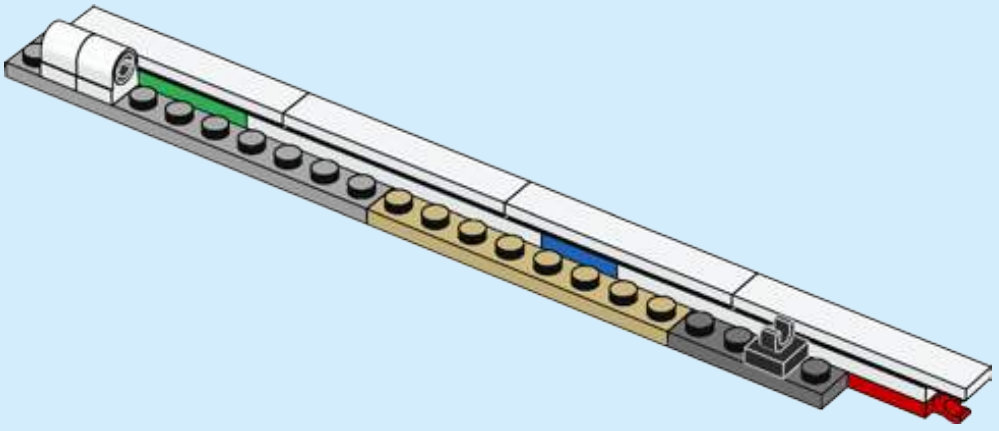

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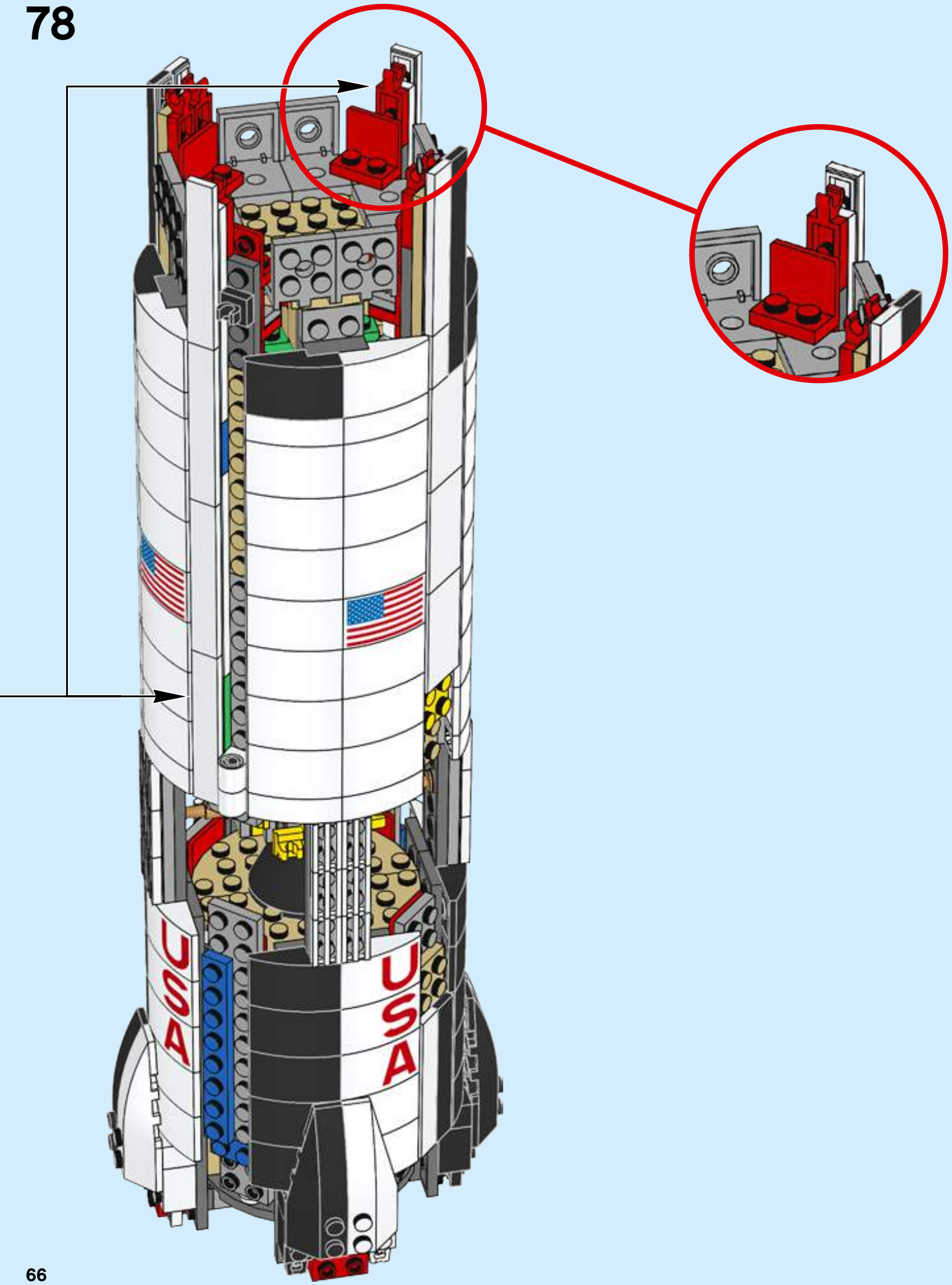

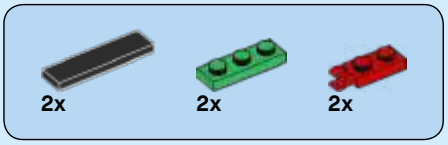

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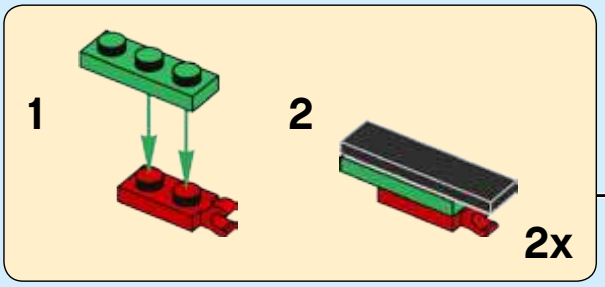

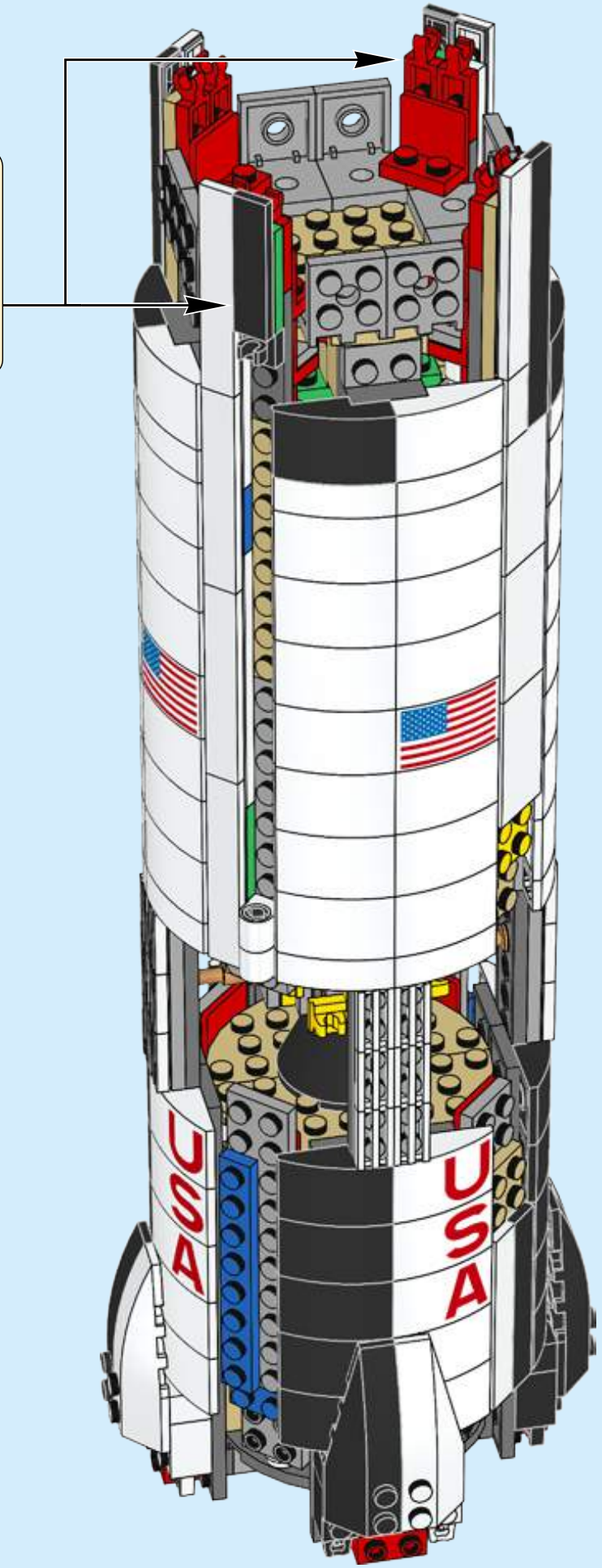

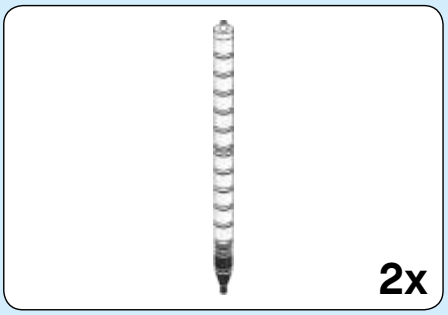

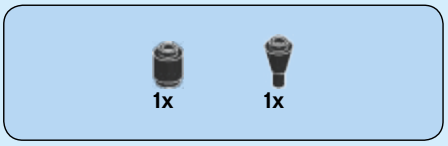

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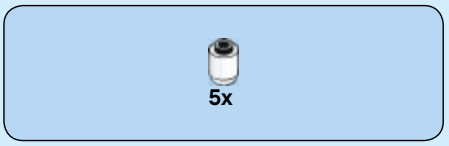

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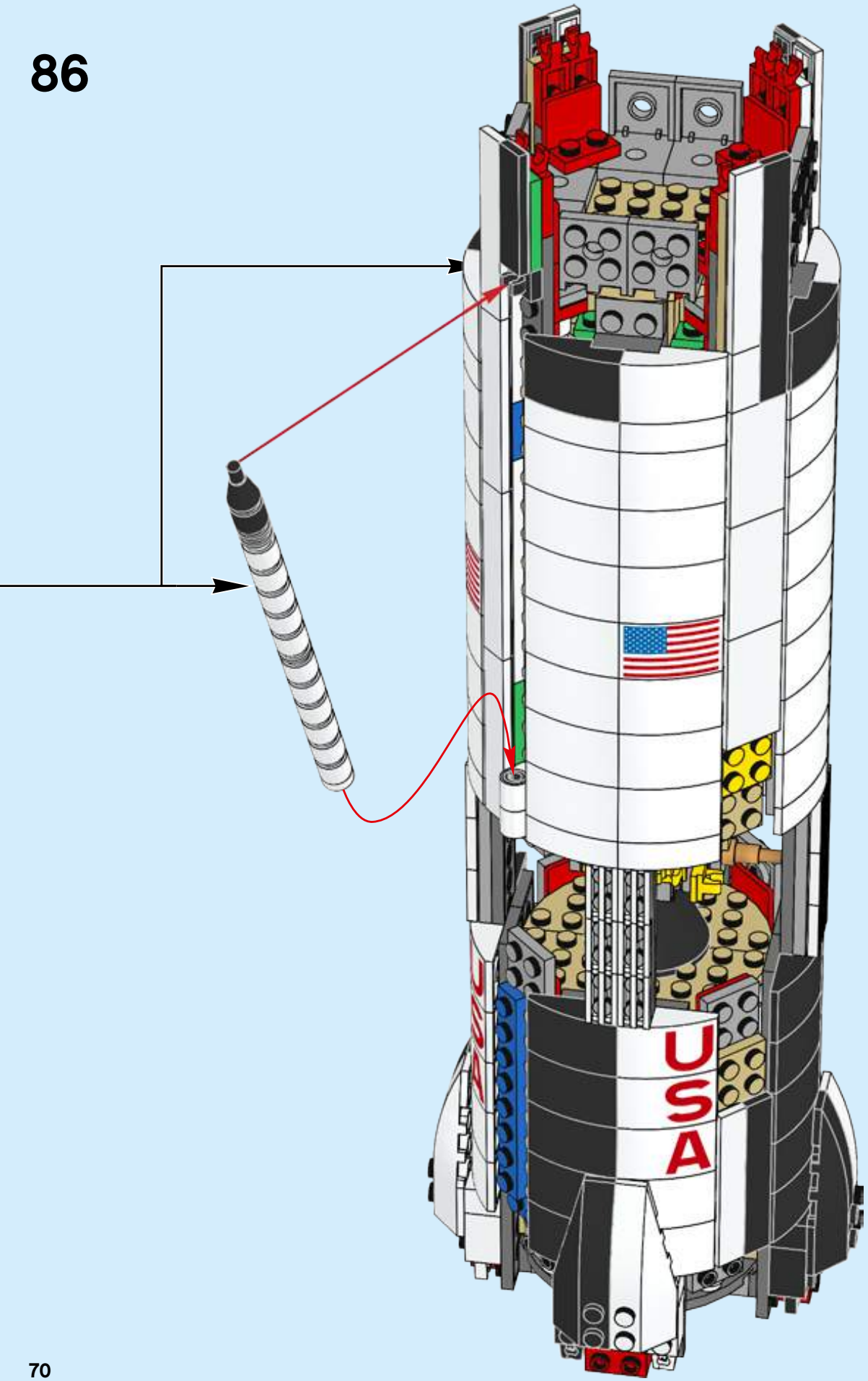


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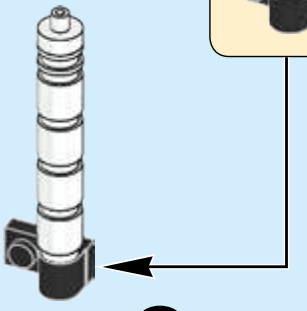

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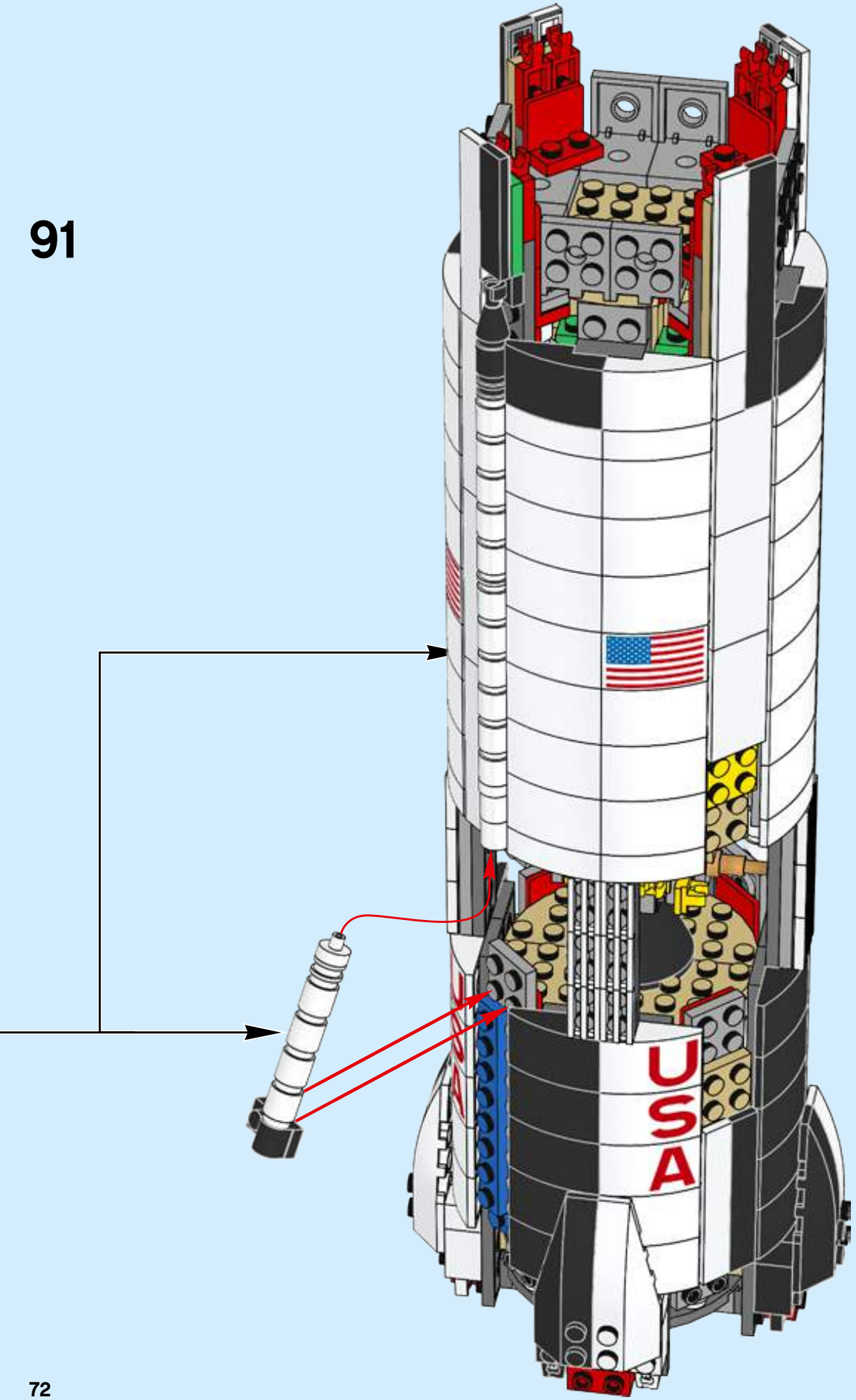

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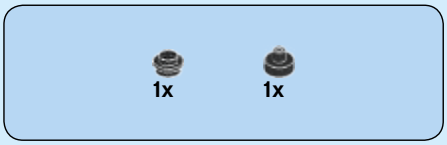

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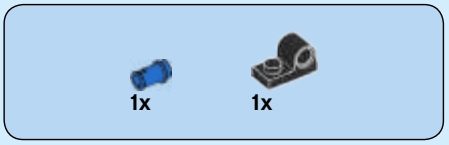

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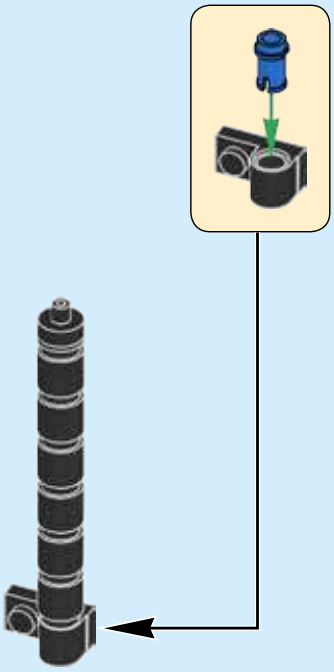

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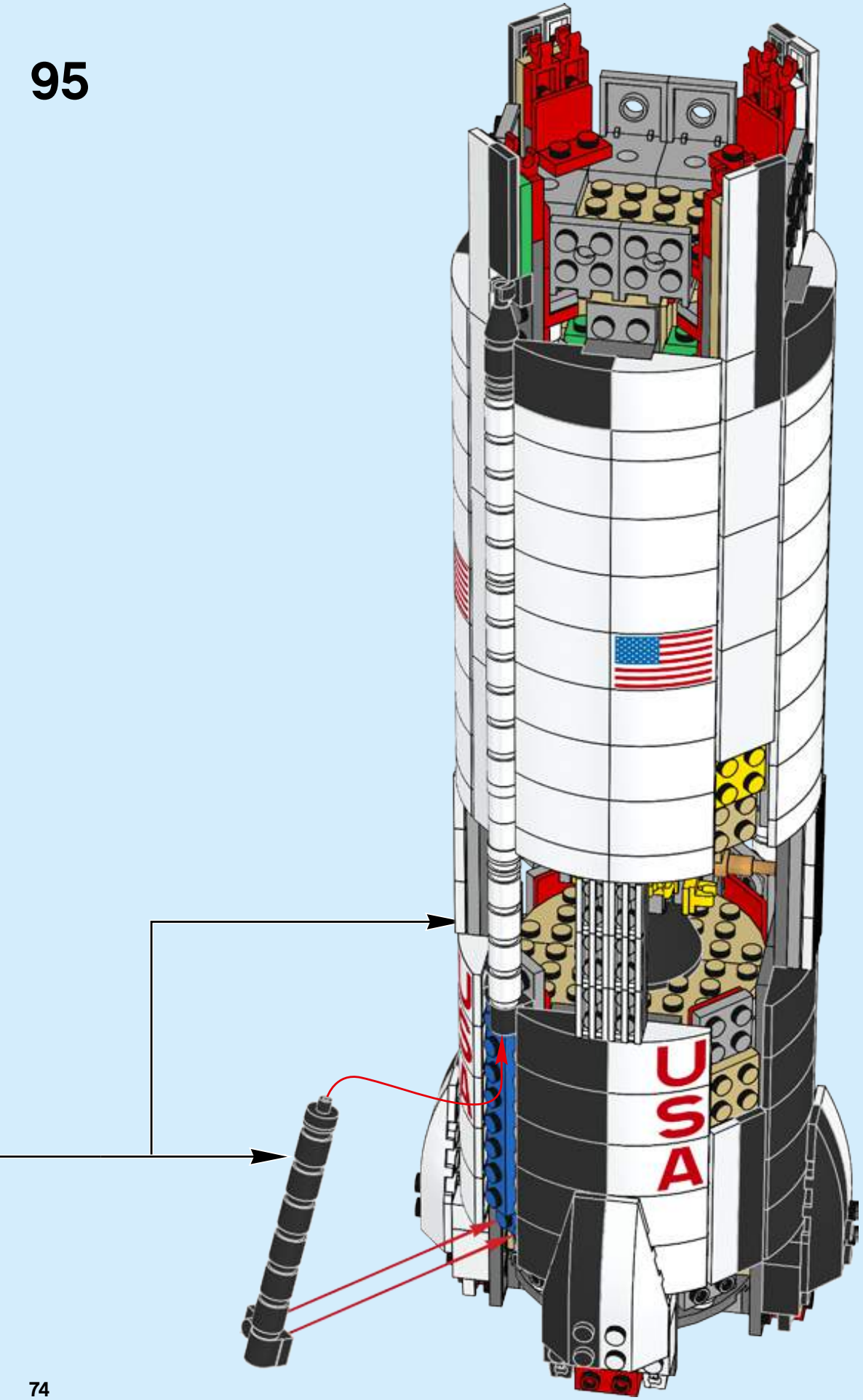

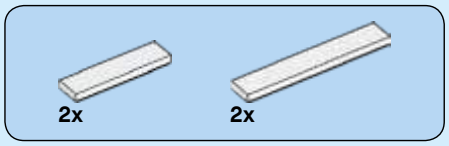

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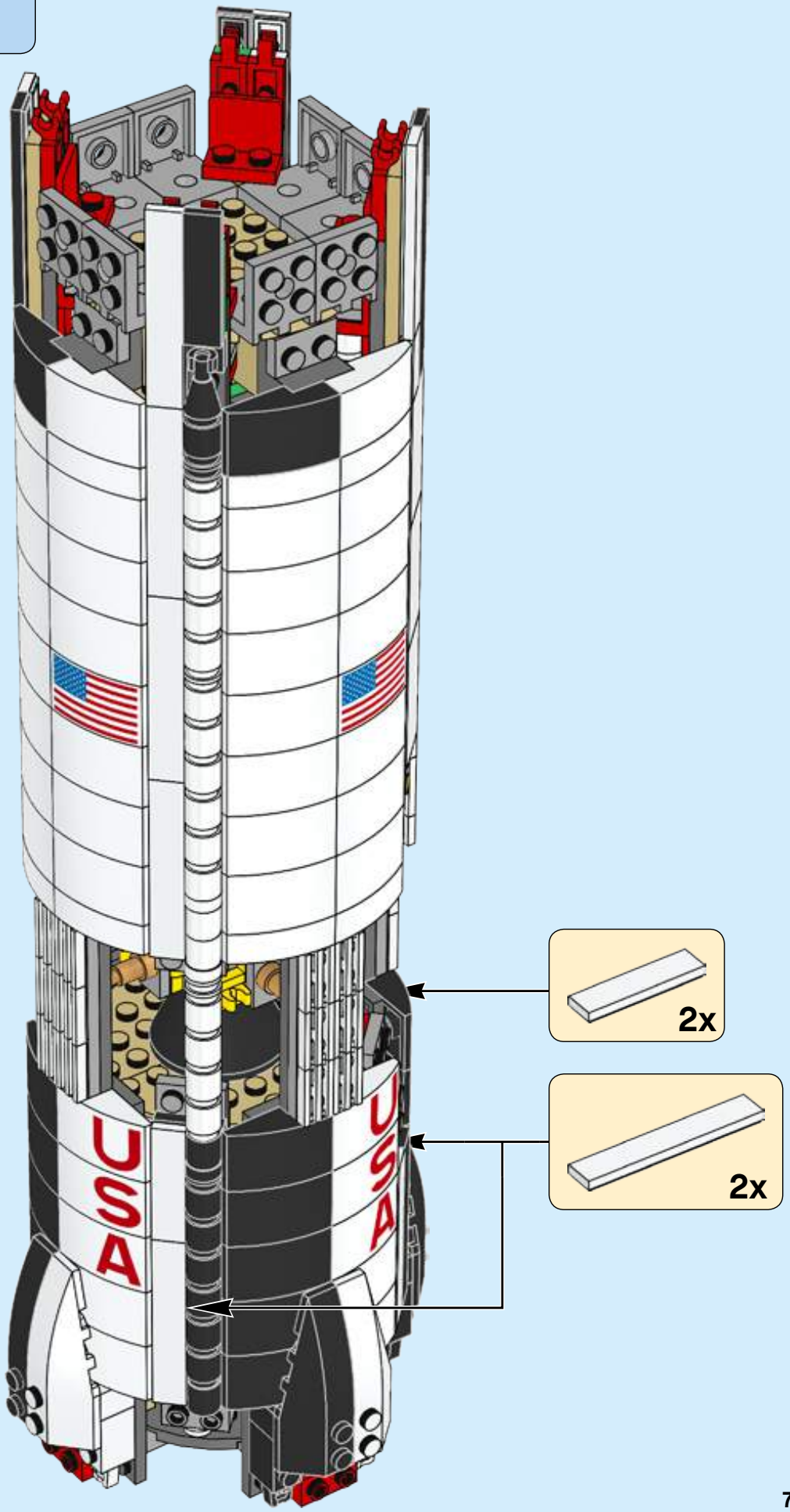

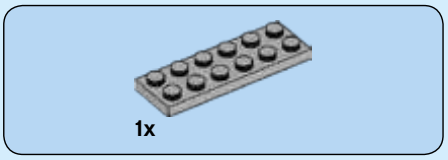

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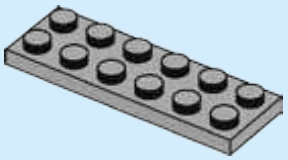

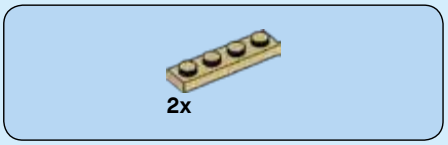

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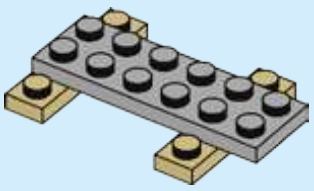

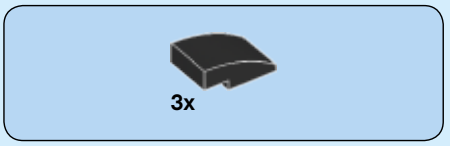

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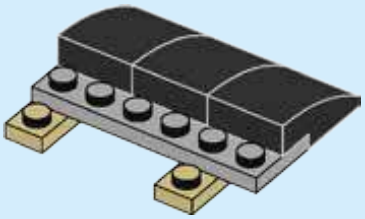

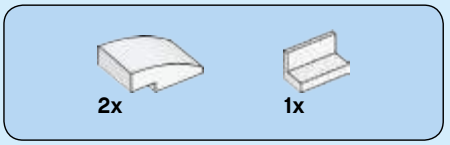

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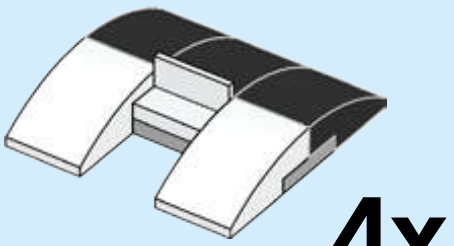

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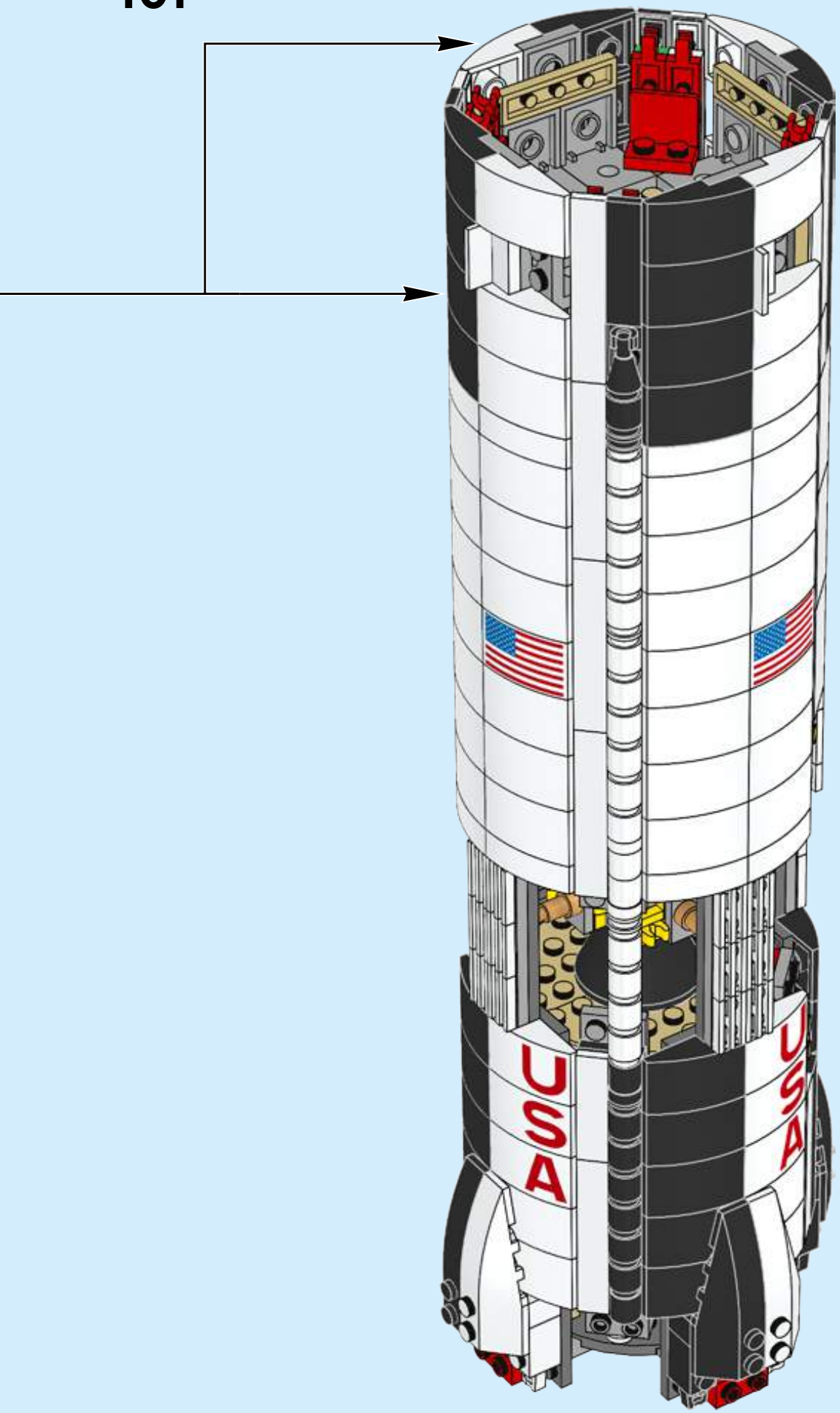

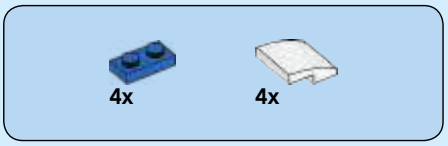

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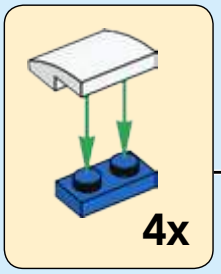

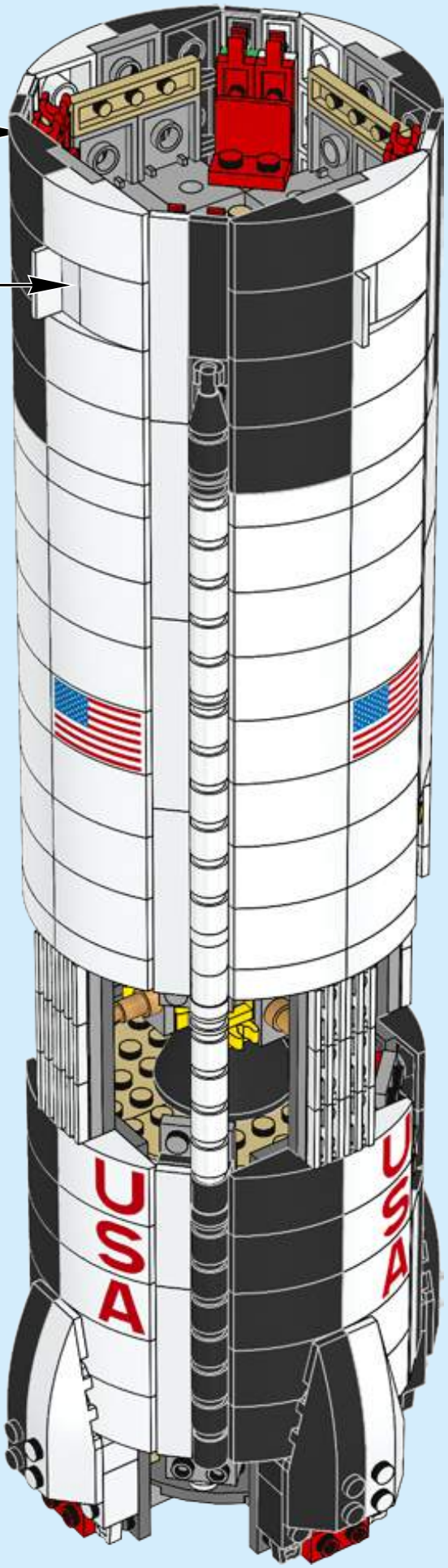

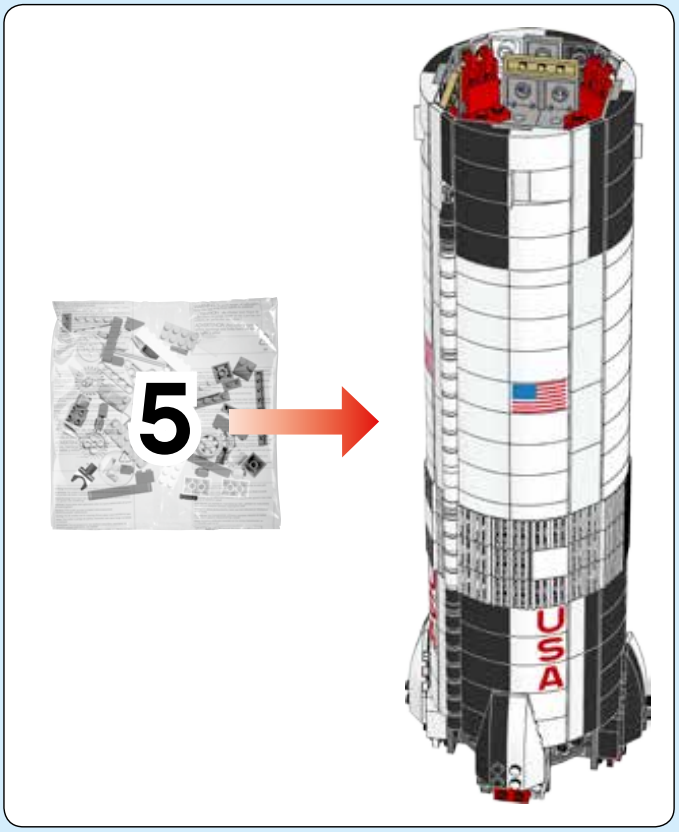

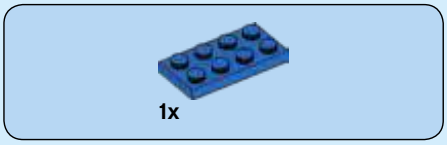

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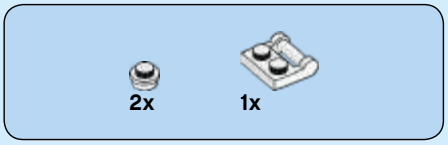

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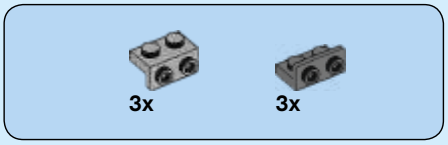

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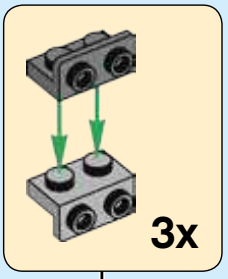

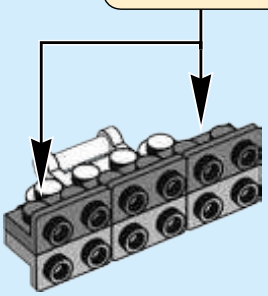

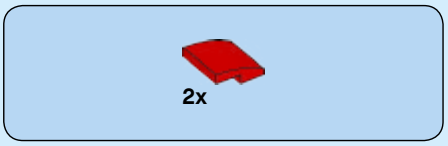

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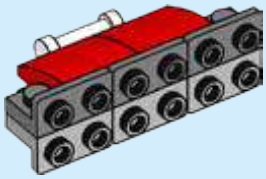

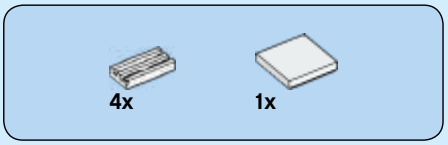

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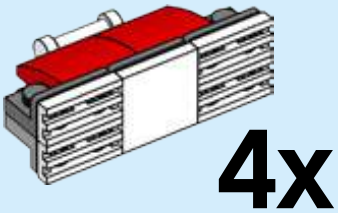

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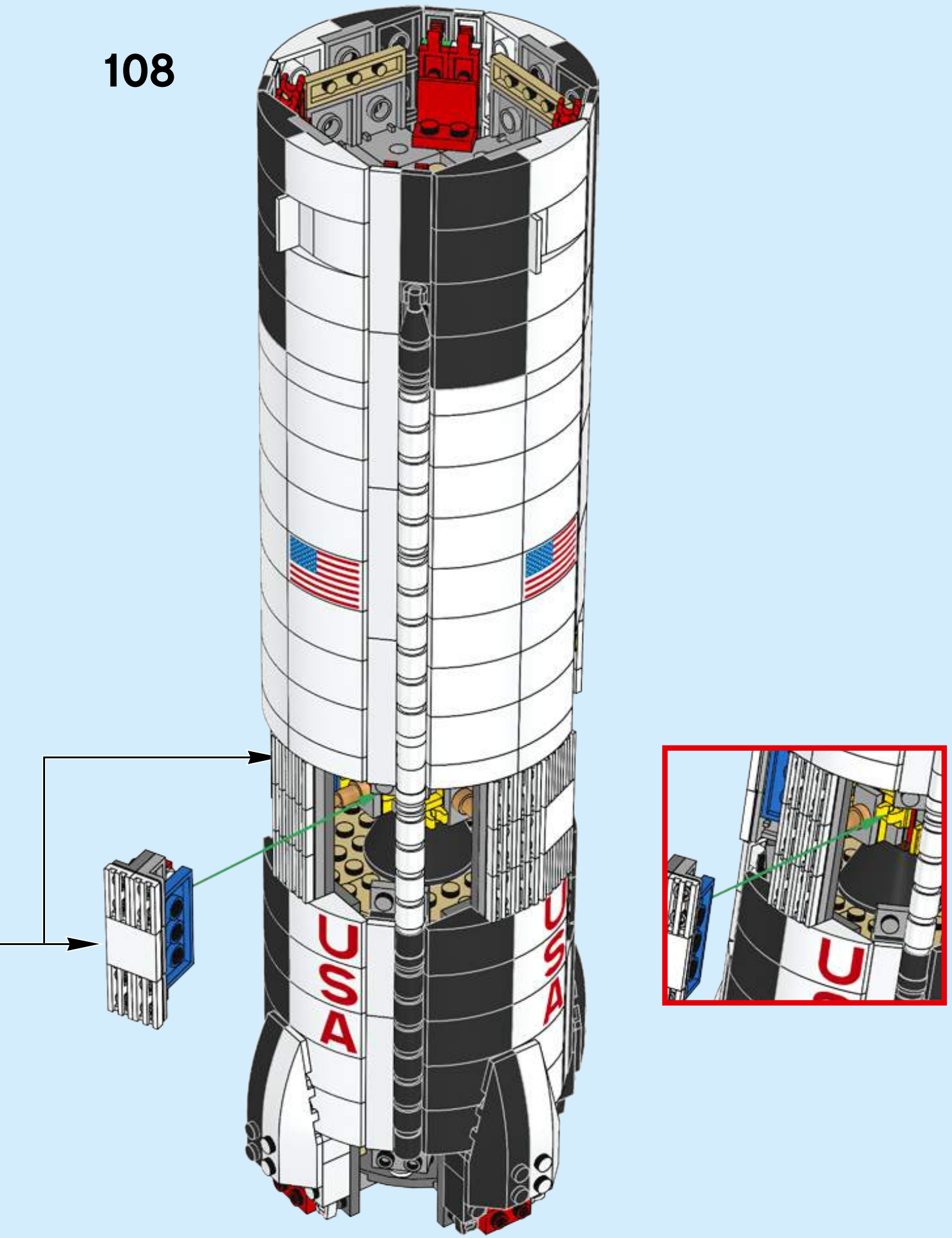


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109


2x


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110


3x


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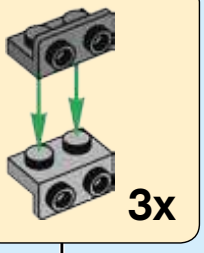
111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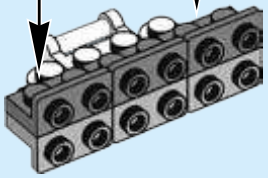


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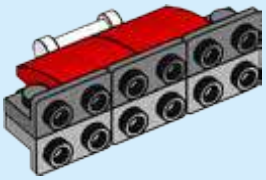


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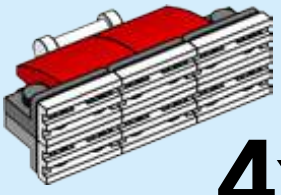
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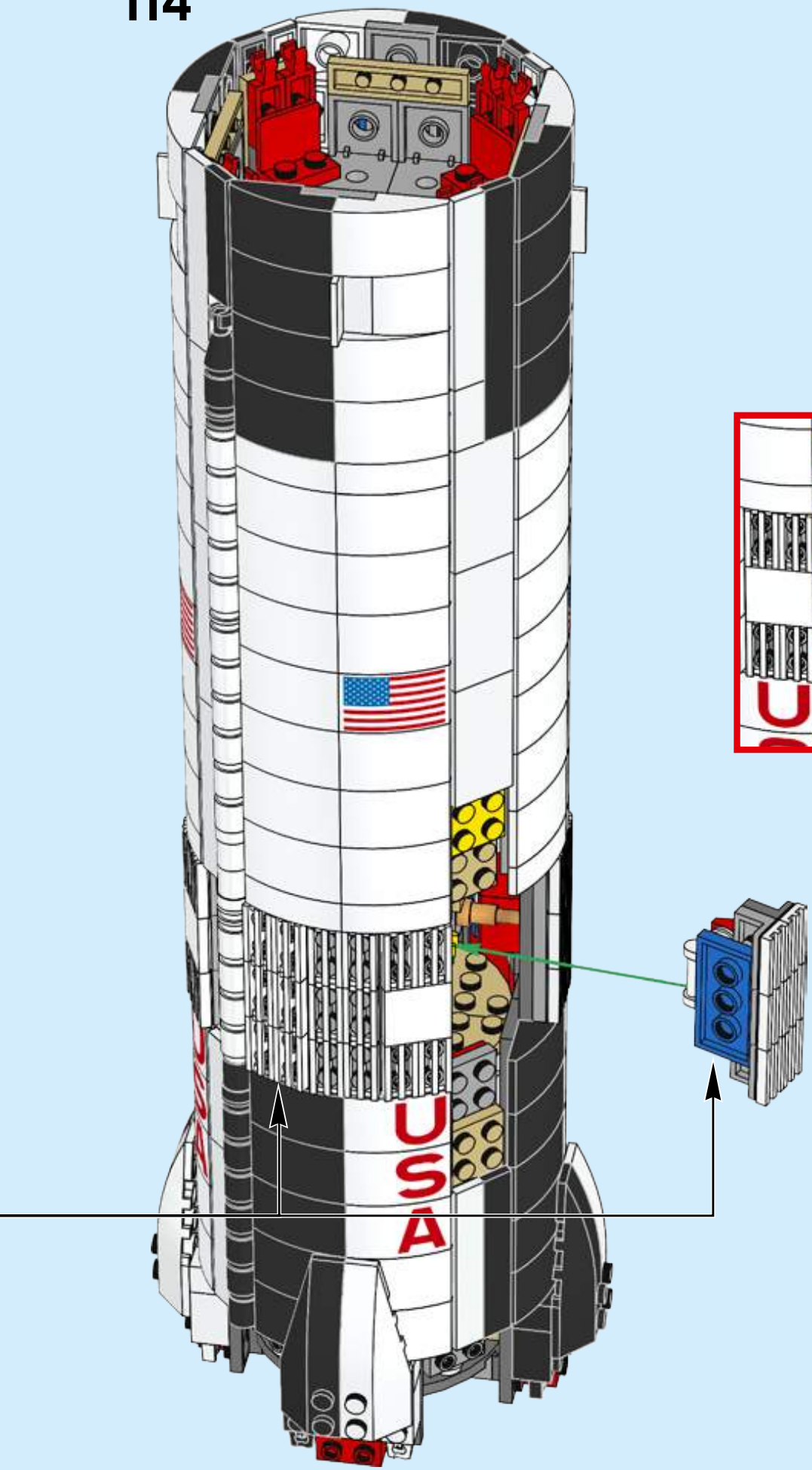

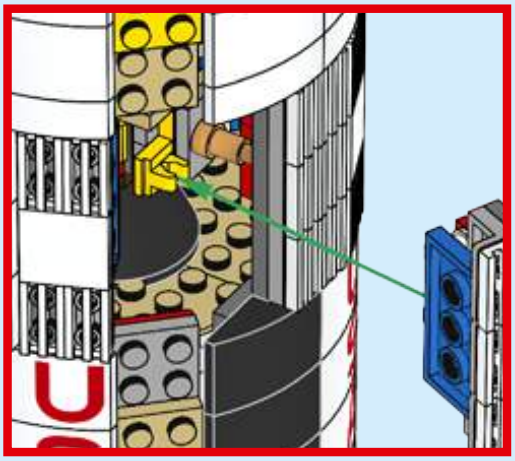

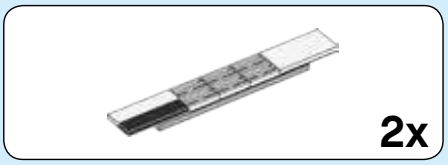

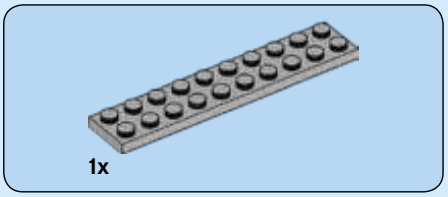

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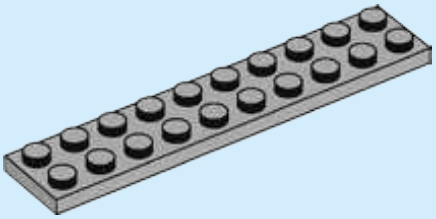

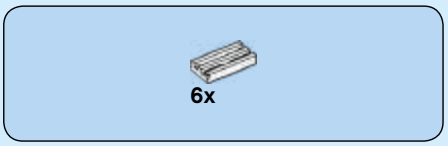

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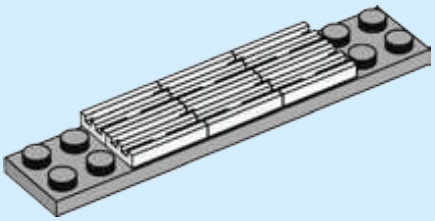

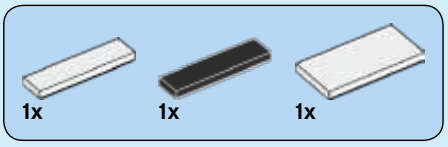

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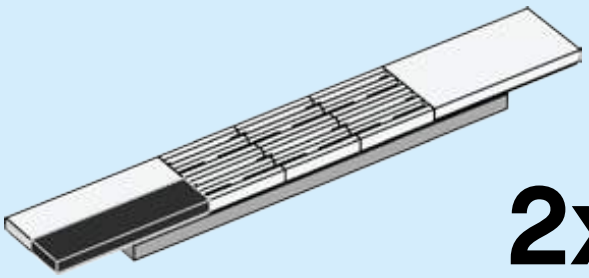

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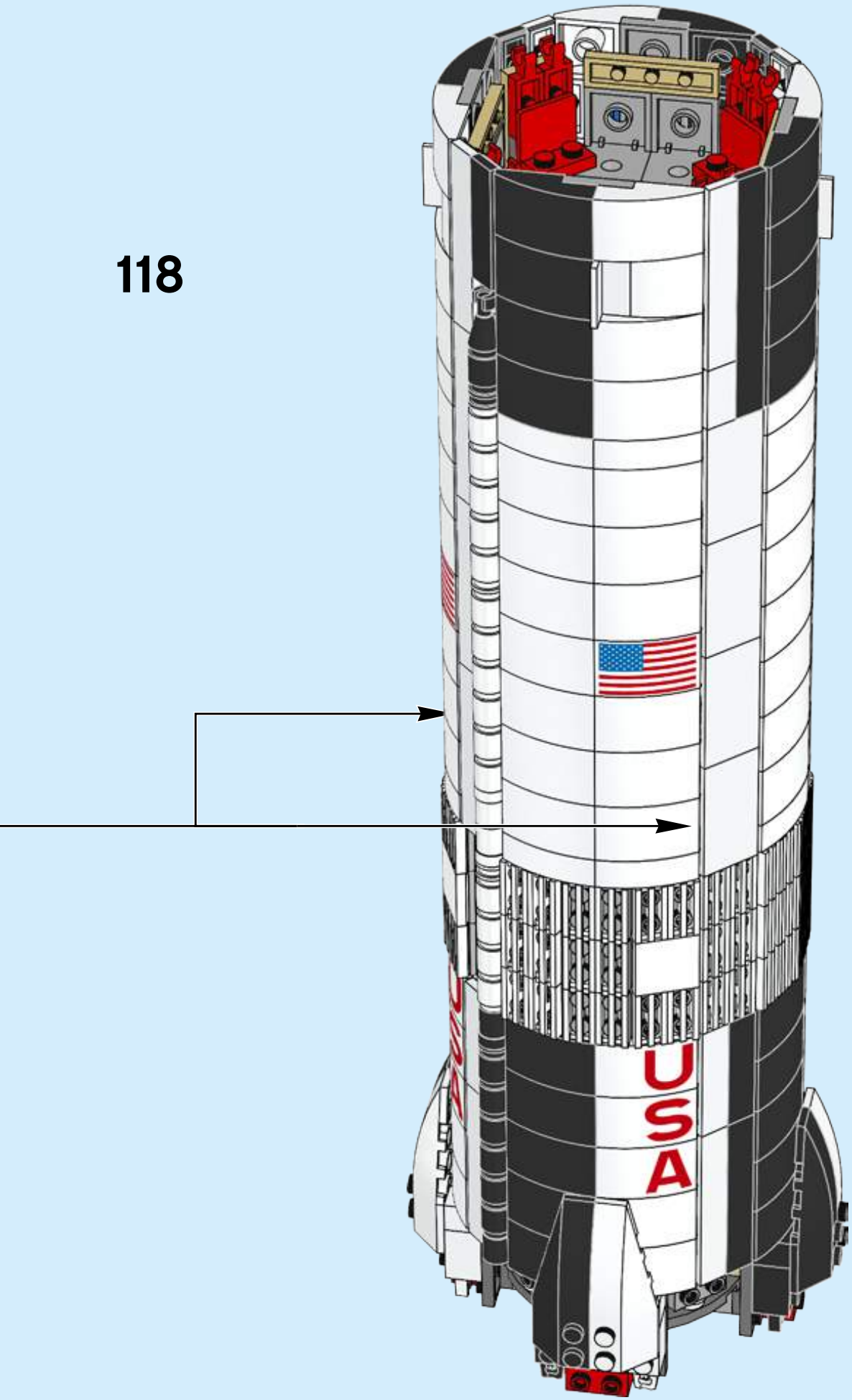

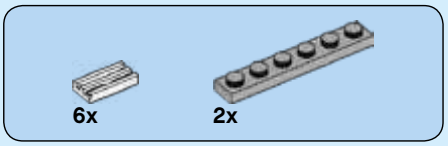

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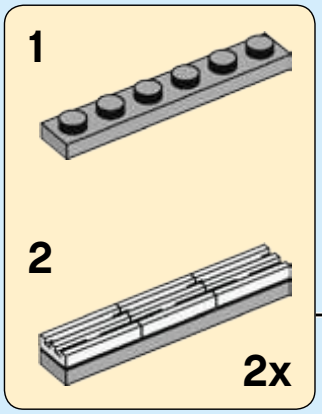

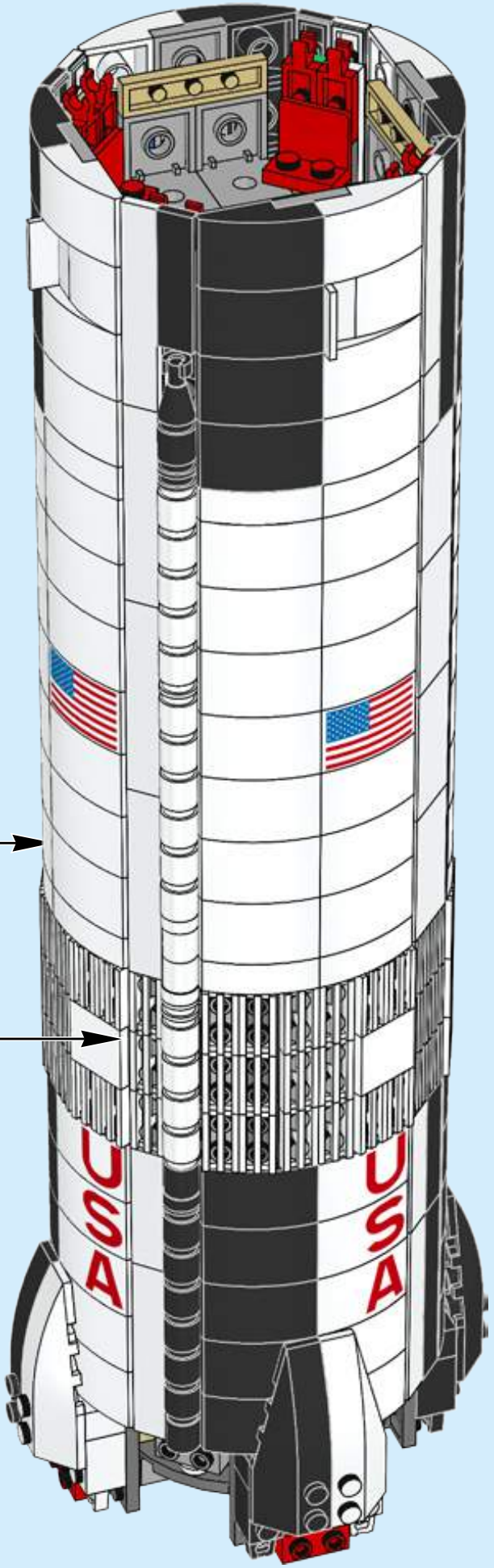

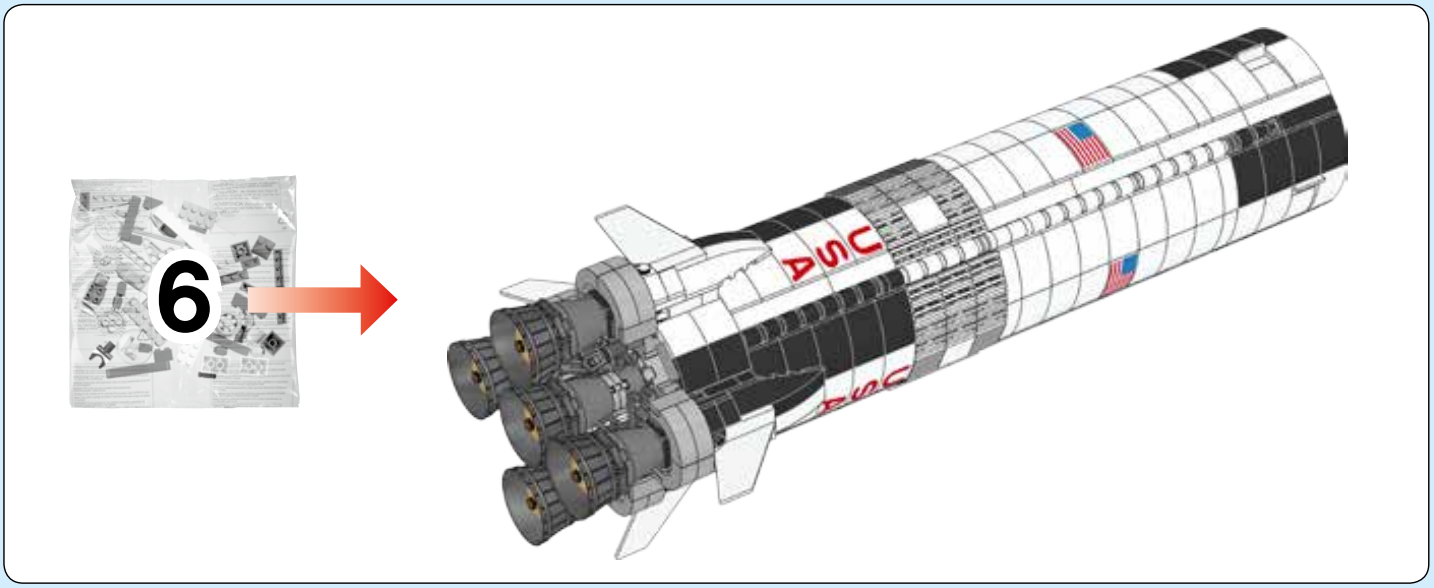

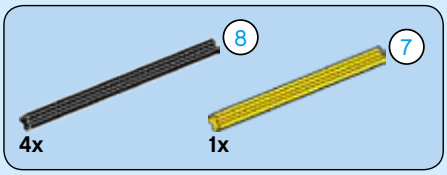

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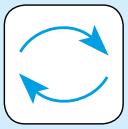

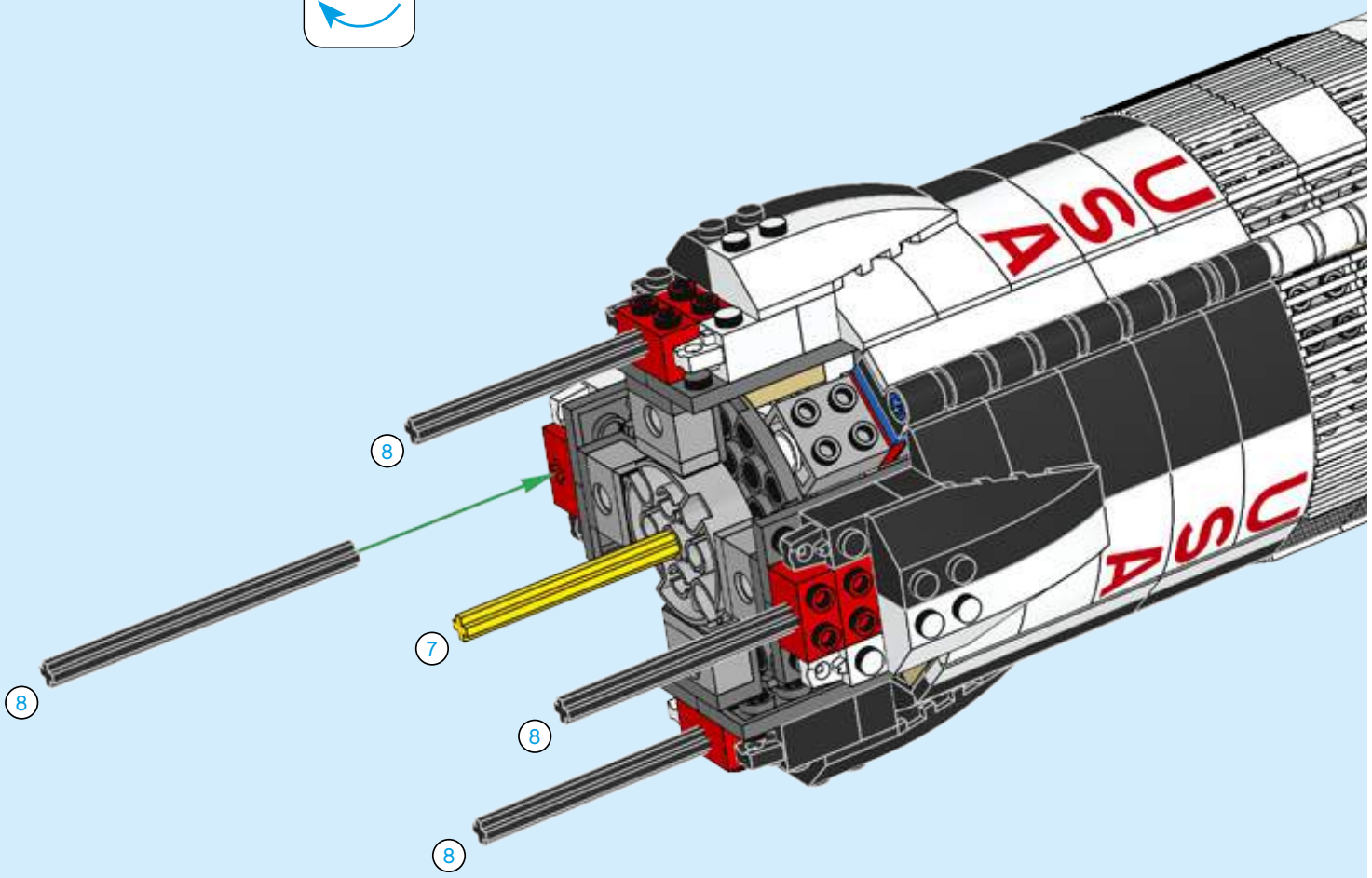

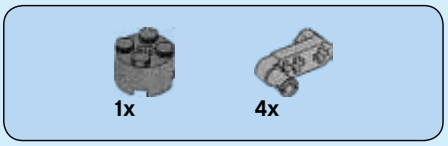

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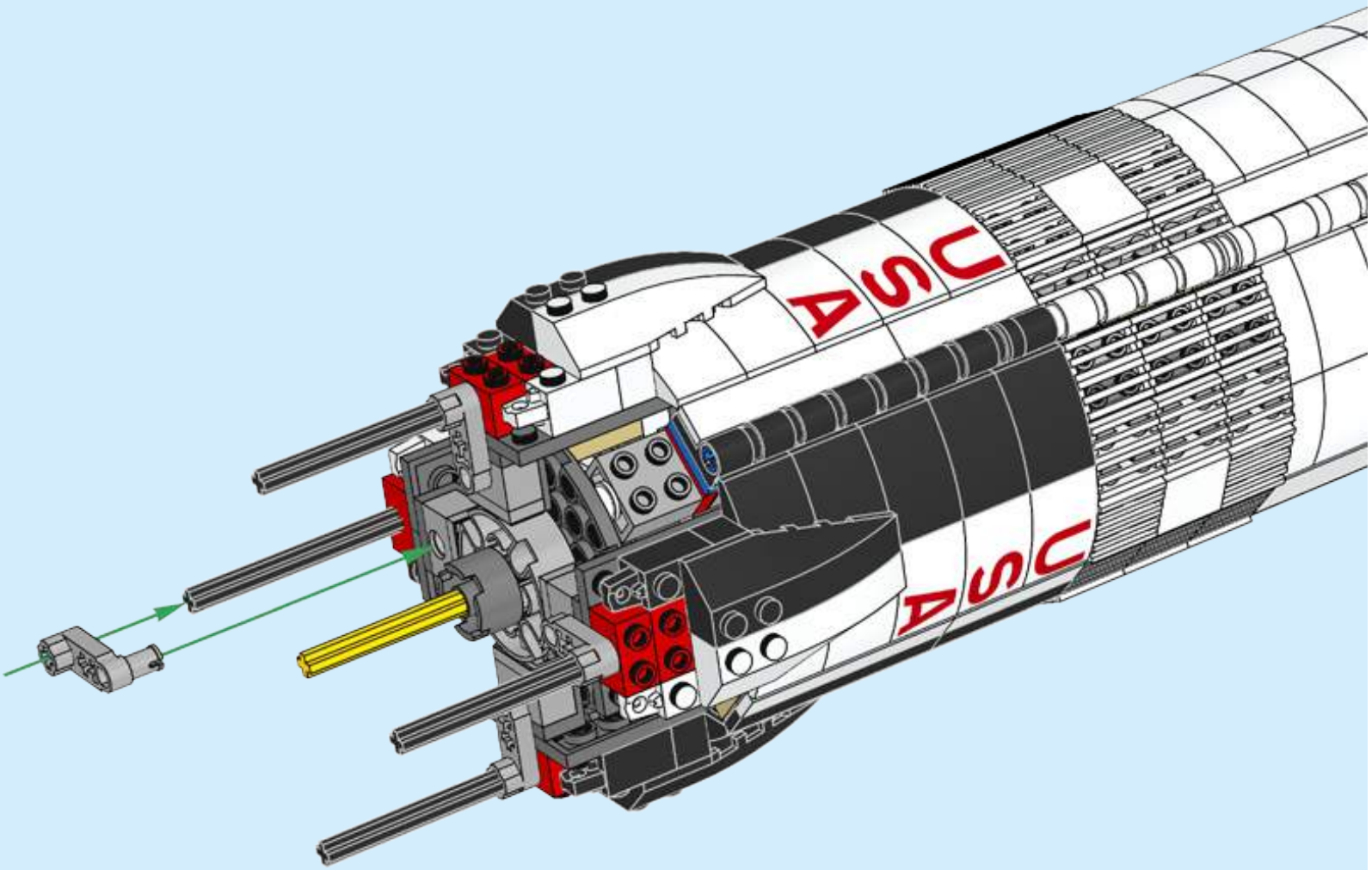

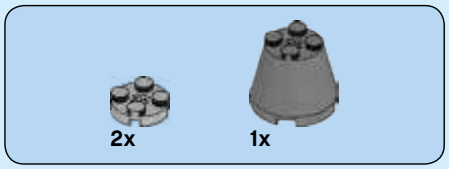

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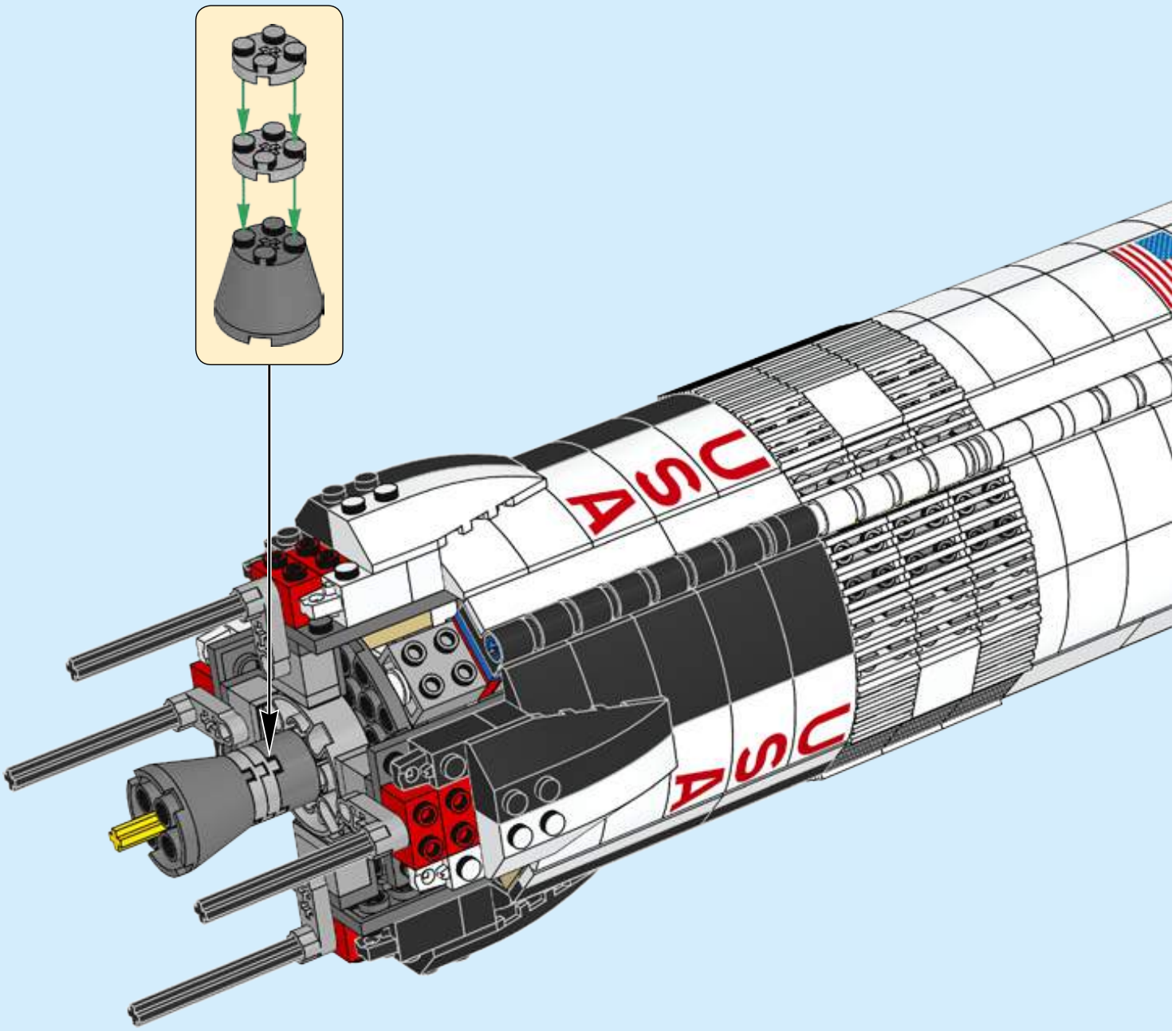

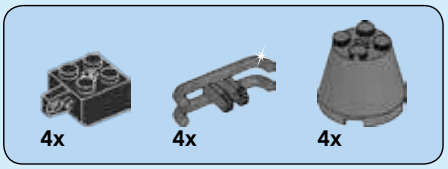

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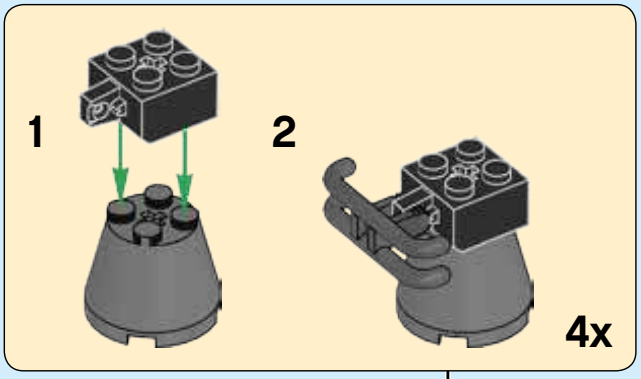

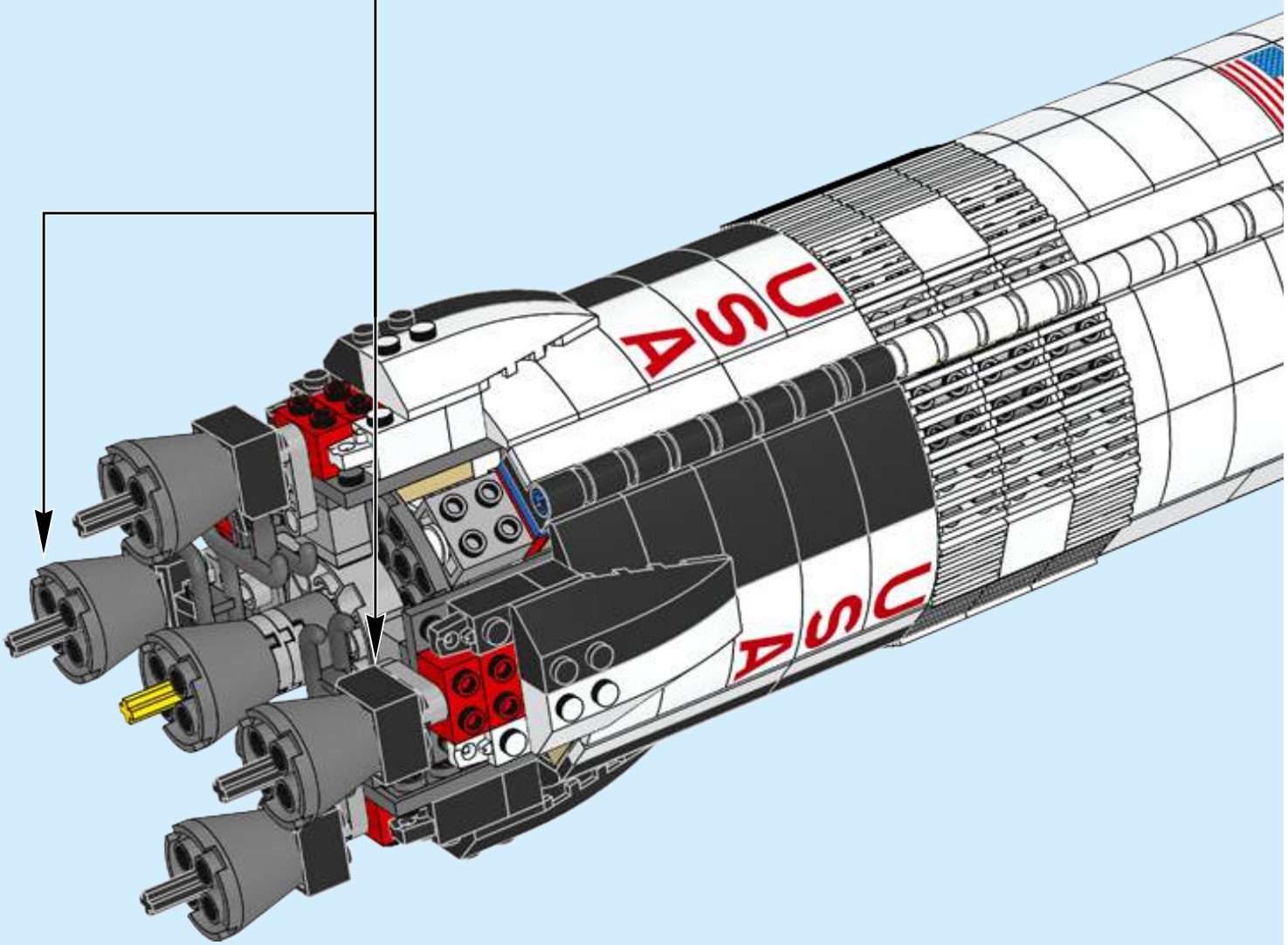

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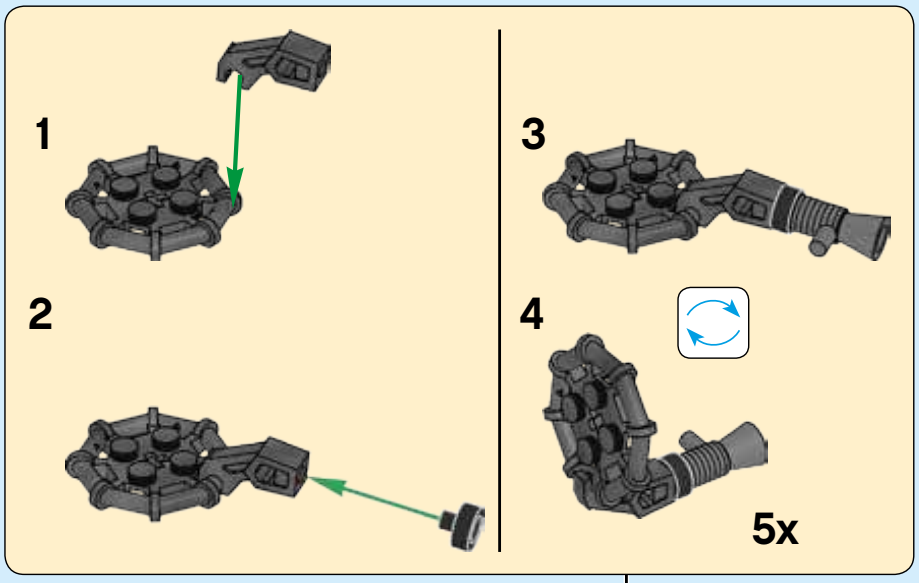

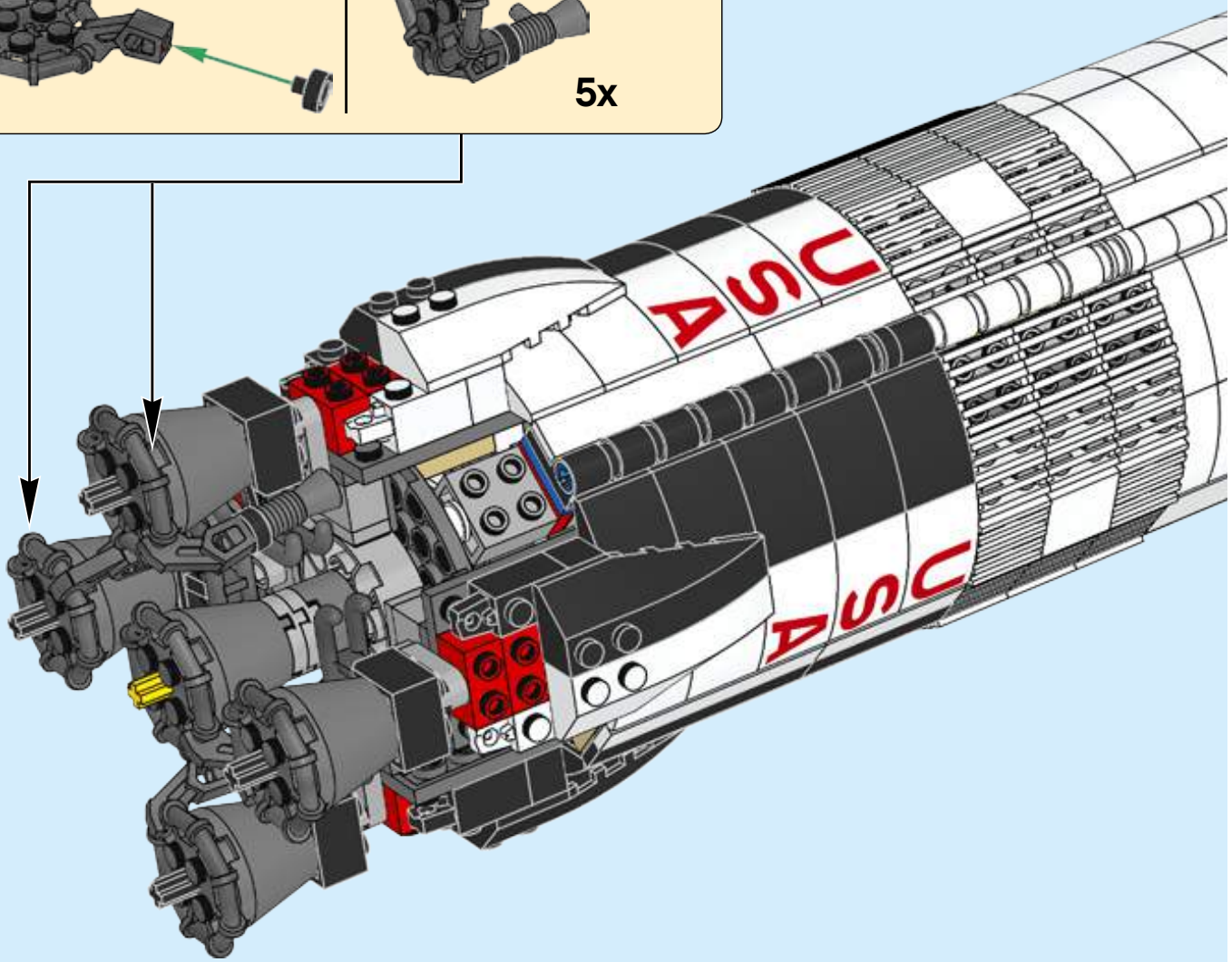

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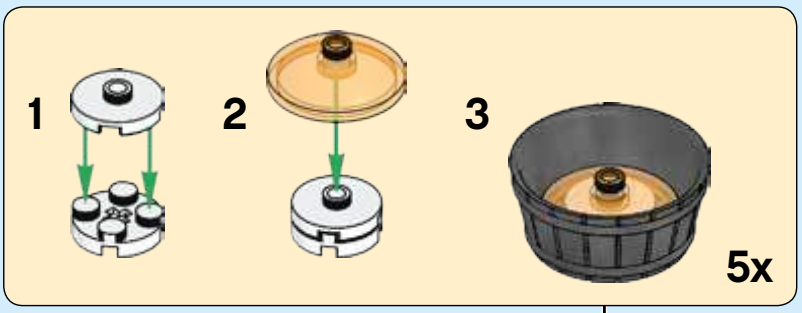

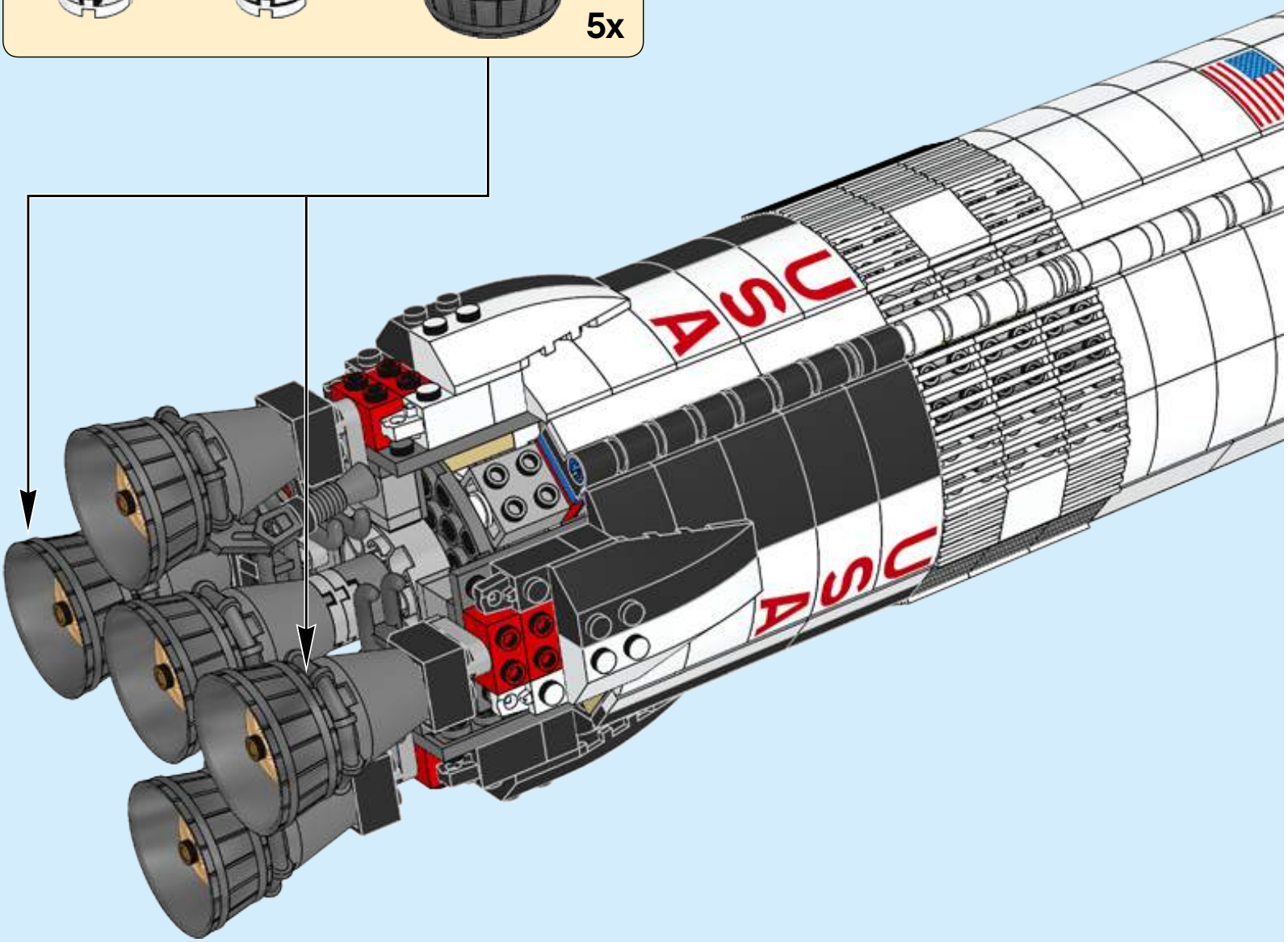

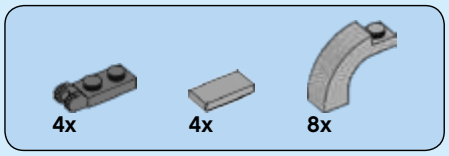

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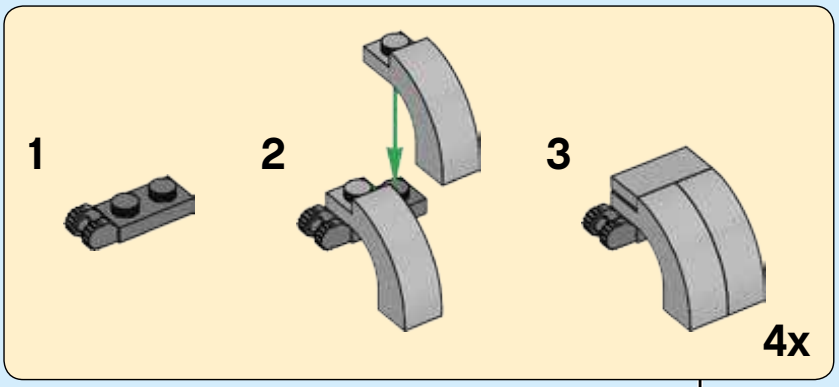

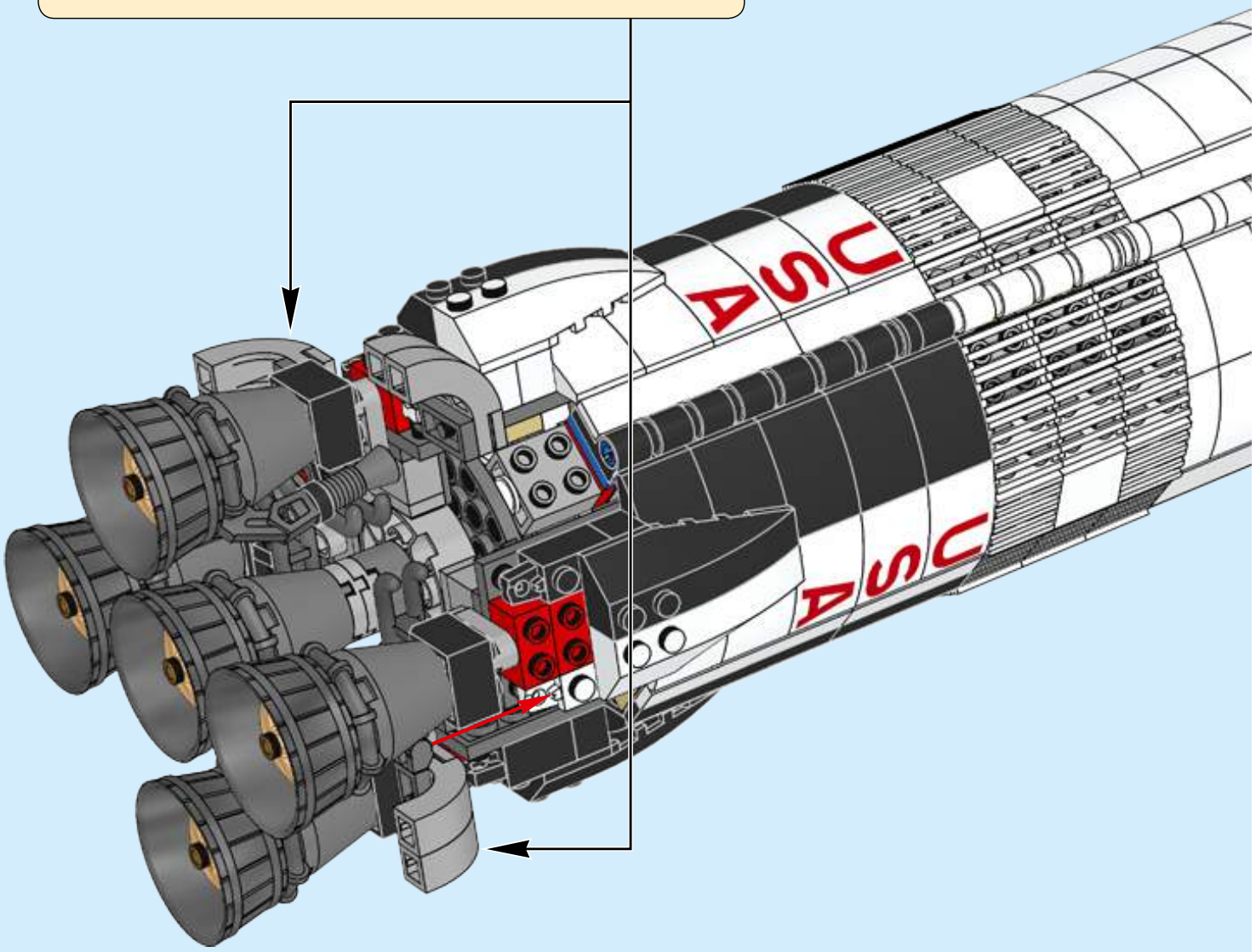

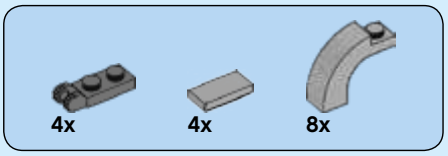

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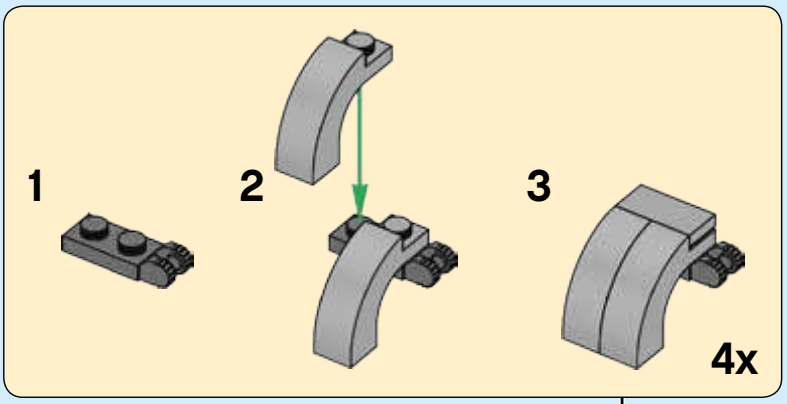

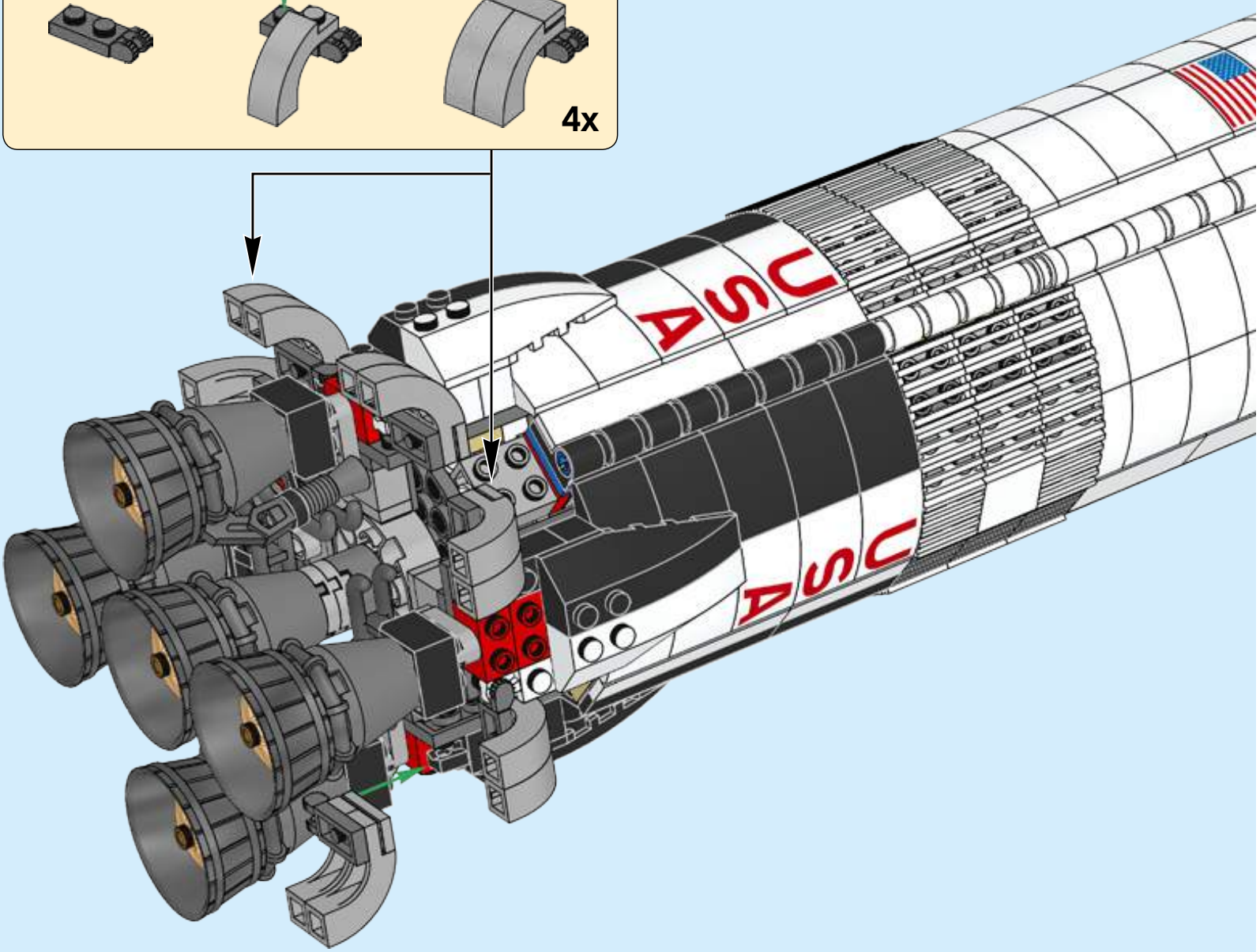

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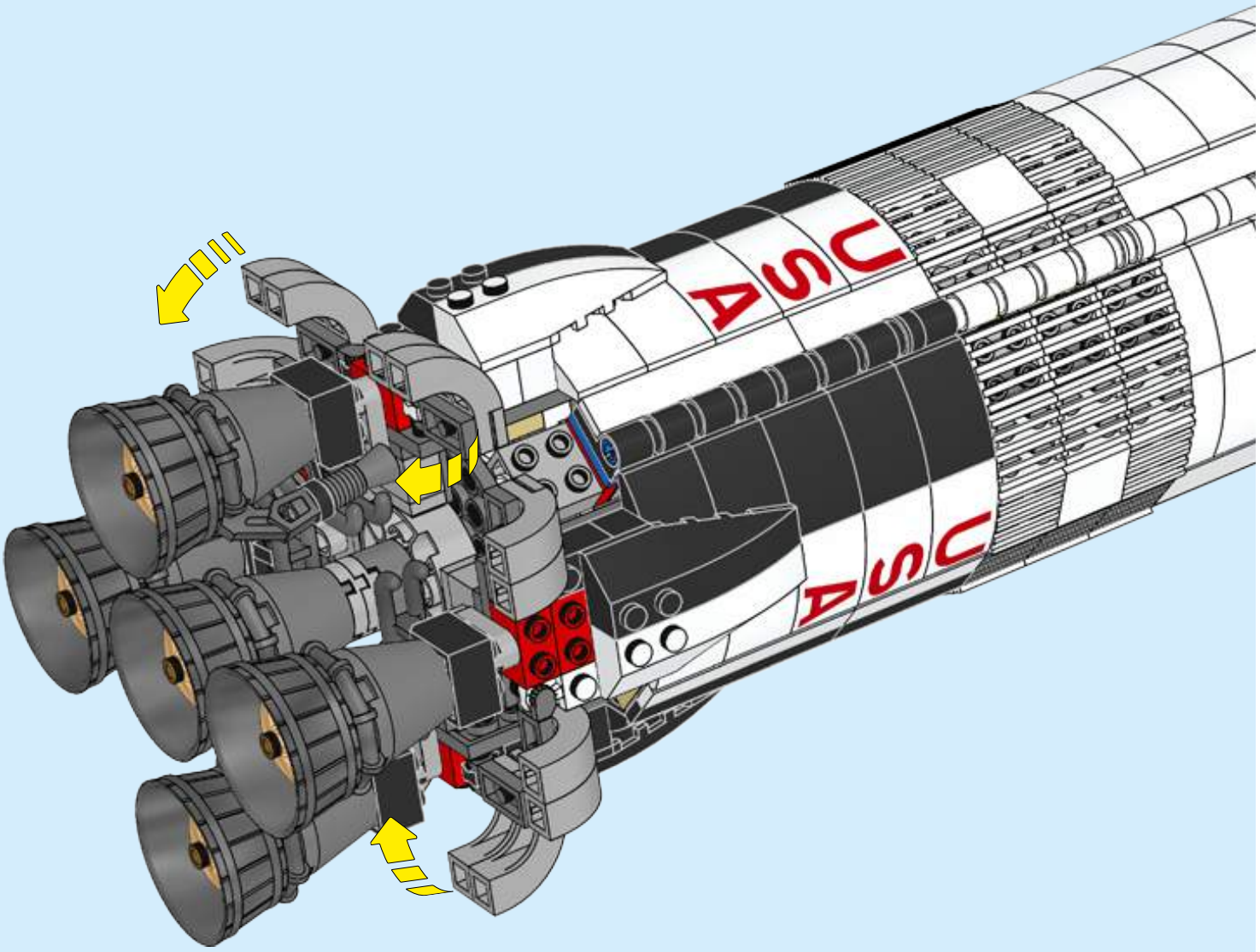

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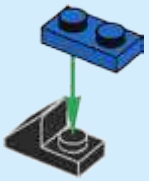

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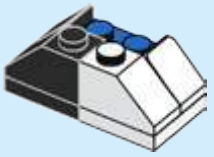

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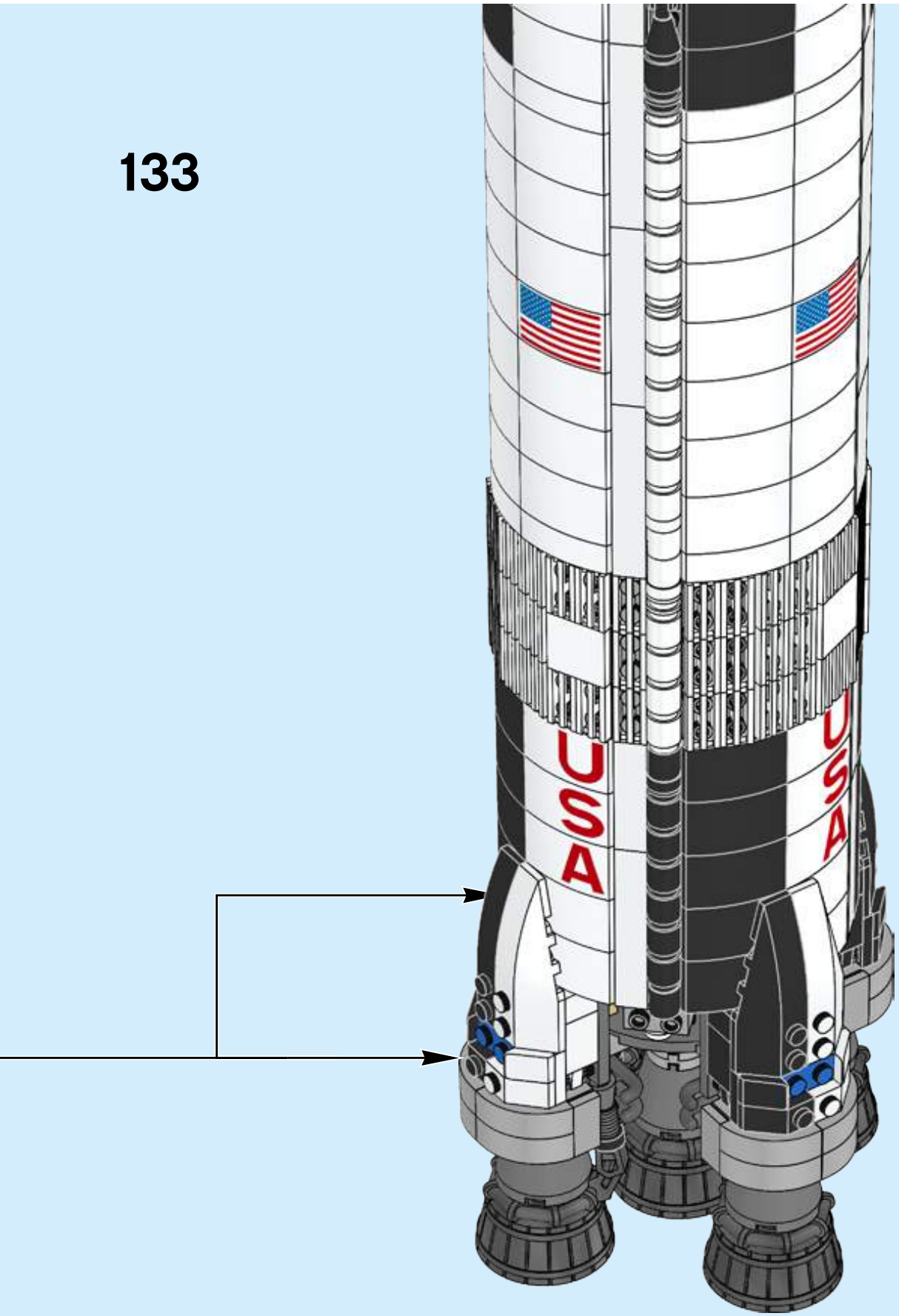

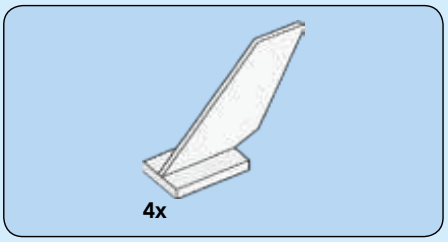

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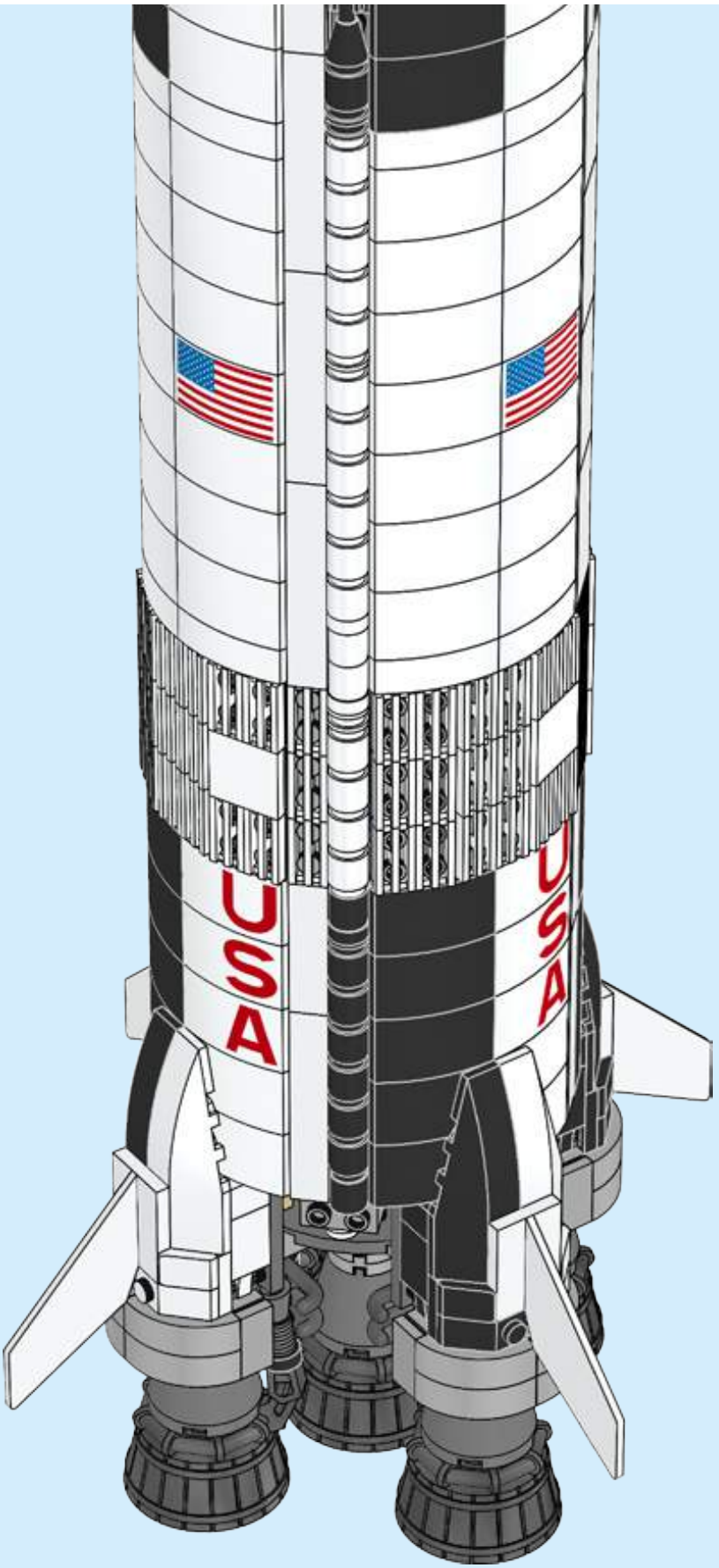

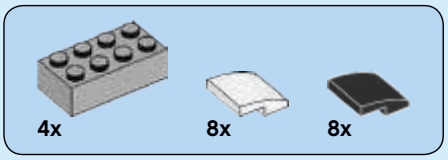

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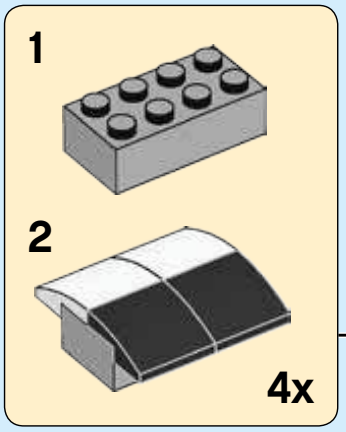

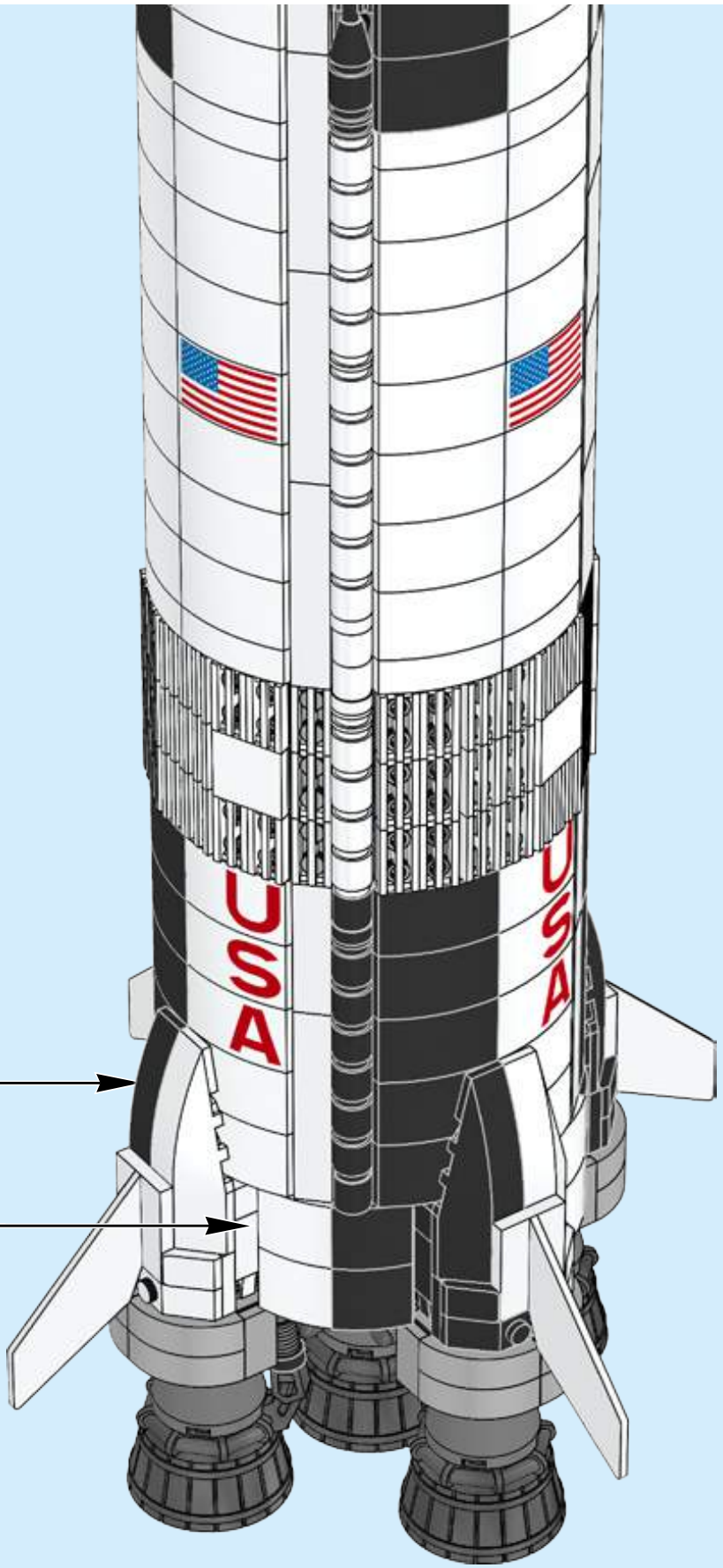

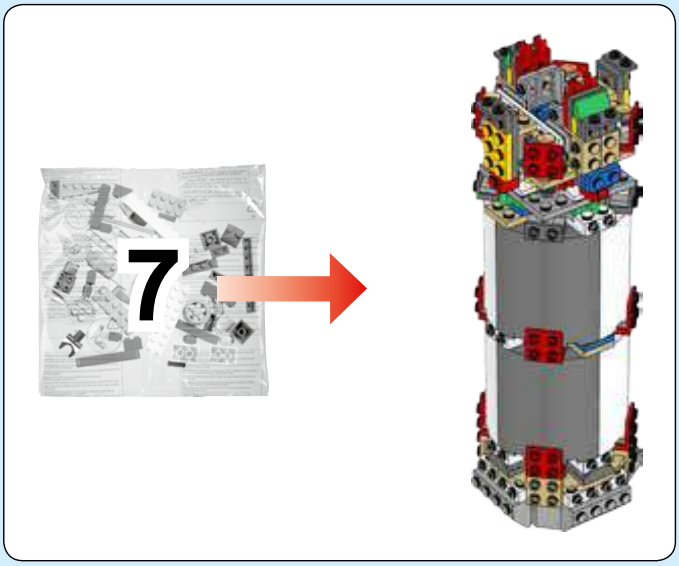

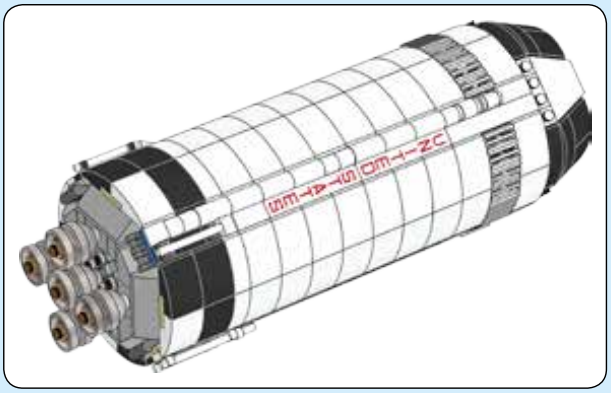

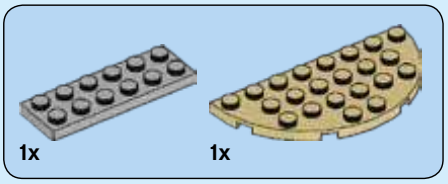

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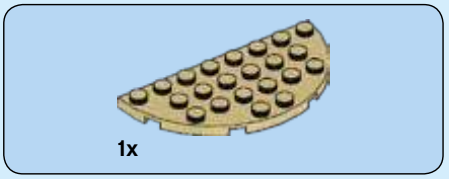

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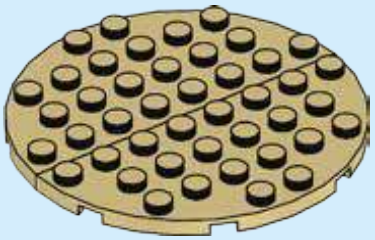

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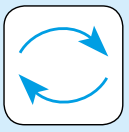

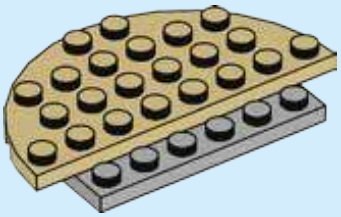

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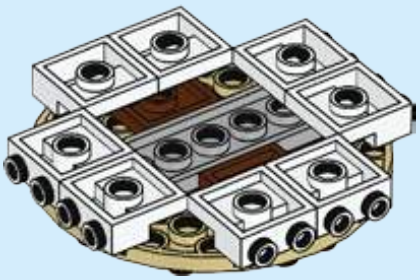

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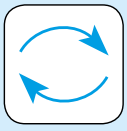

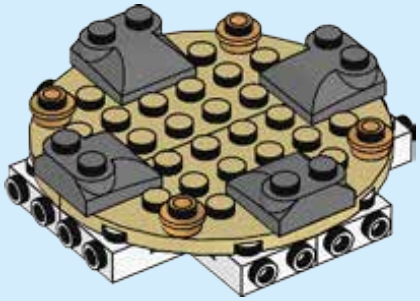

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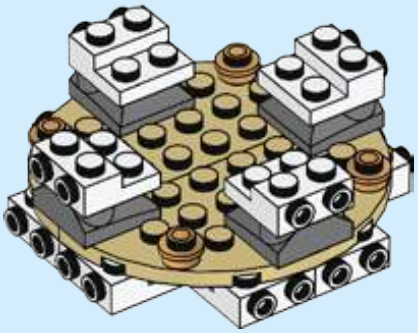

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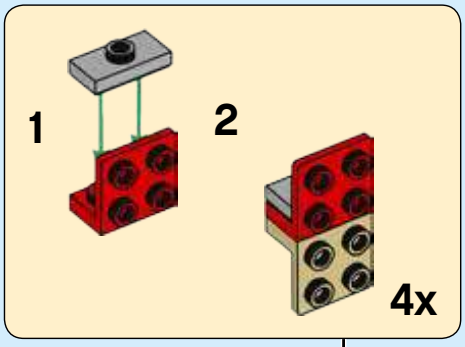

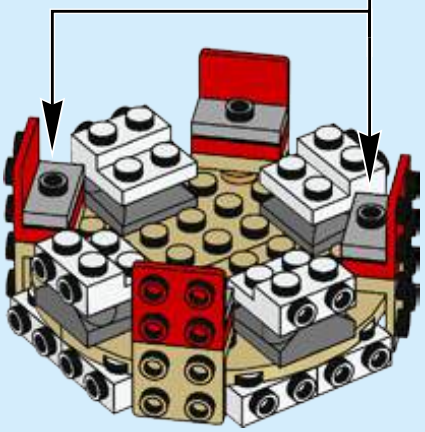

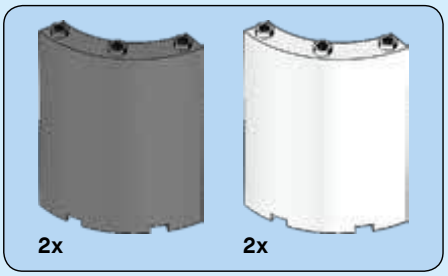

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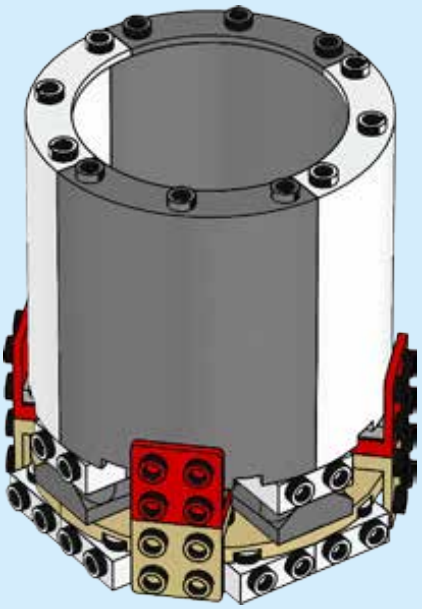

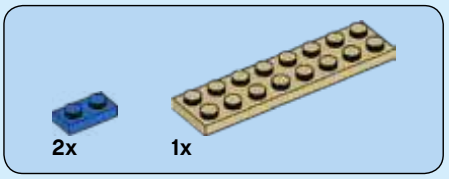

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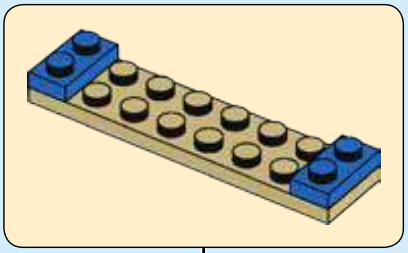

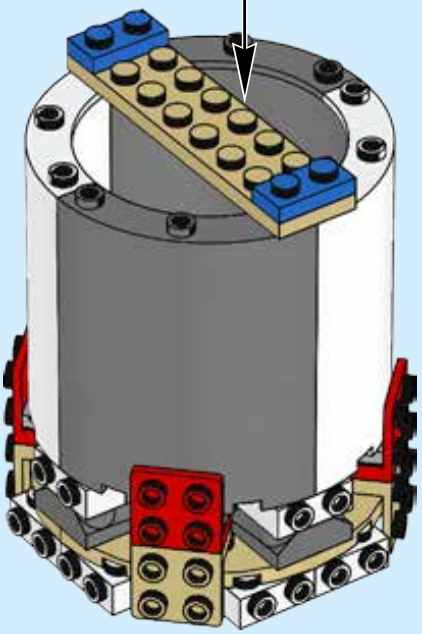

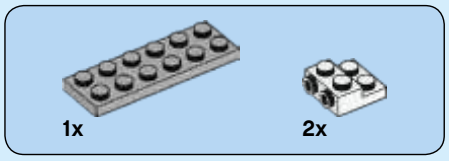

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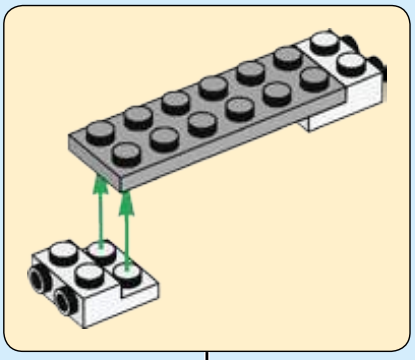

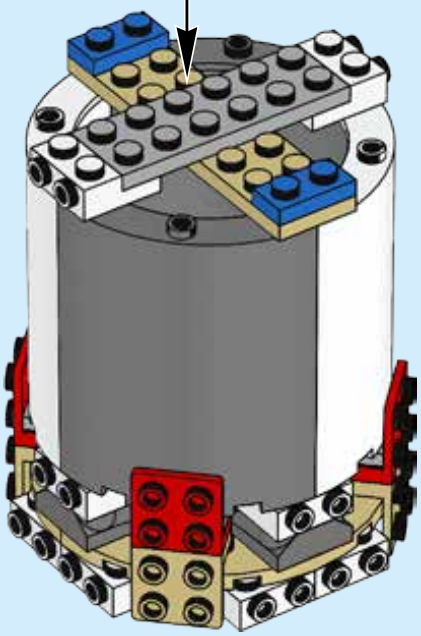

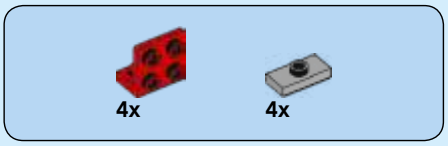

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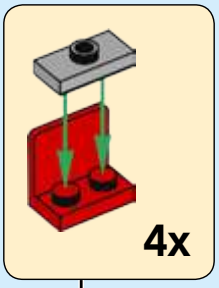

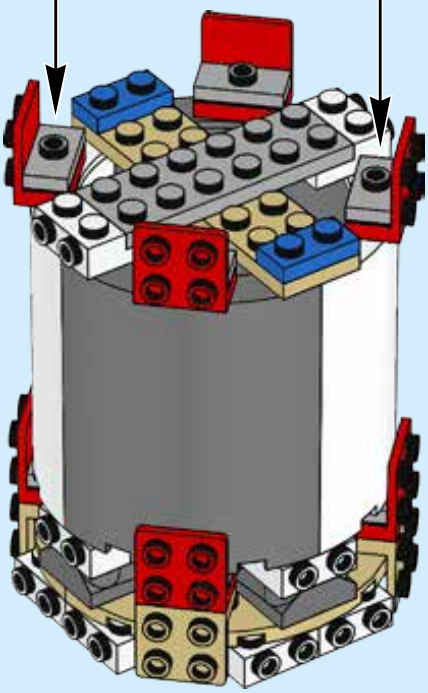

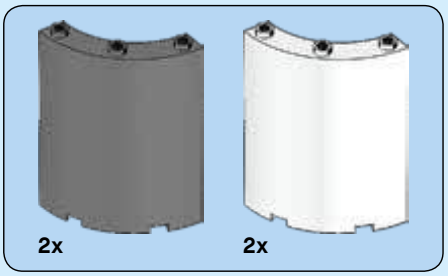

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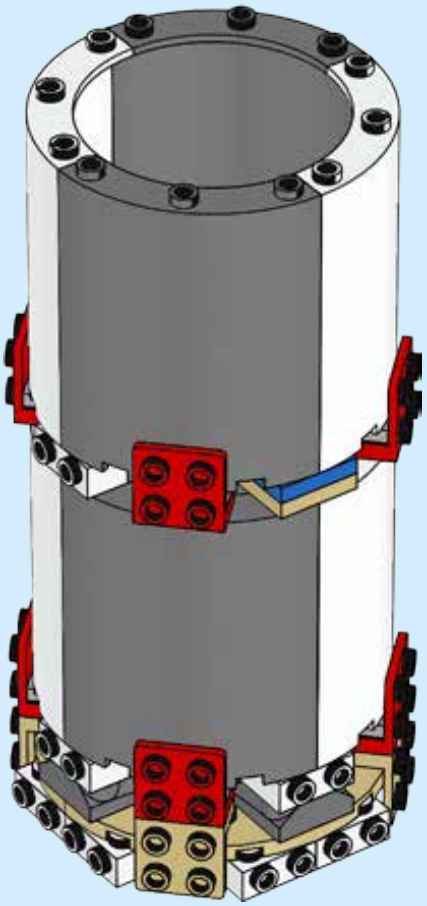

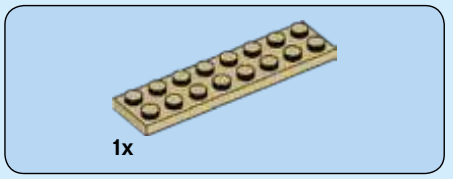

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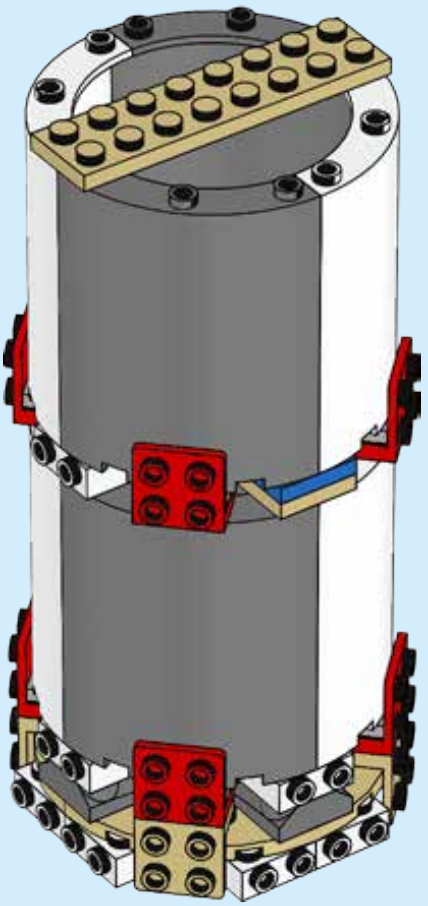

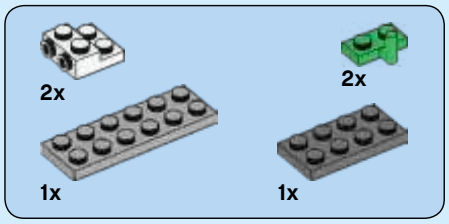

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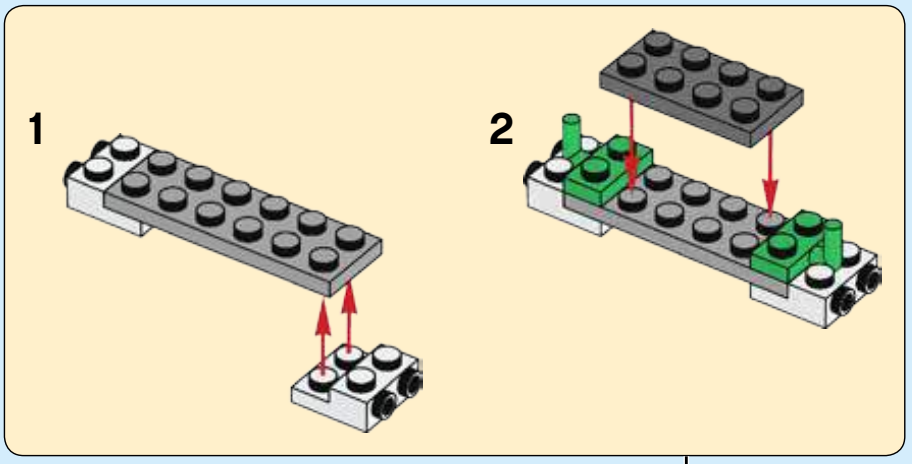

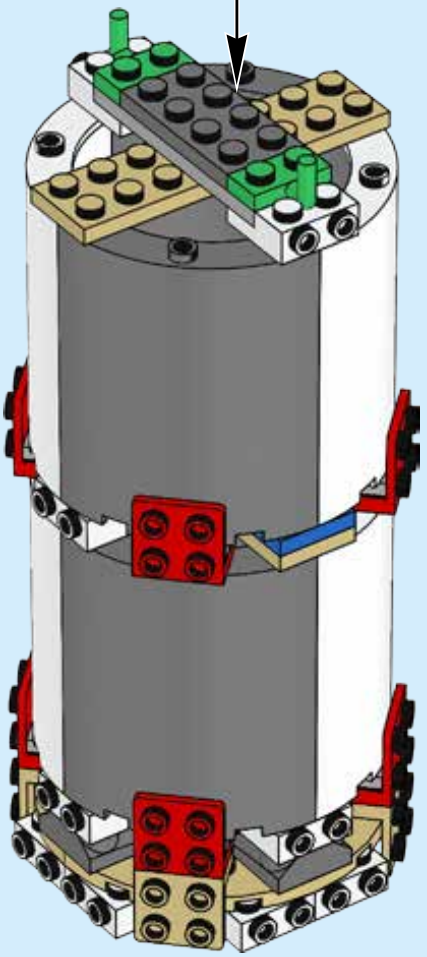

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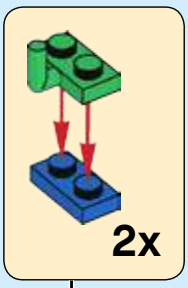

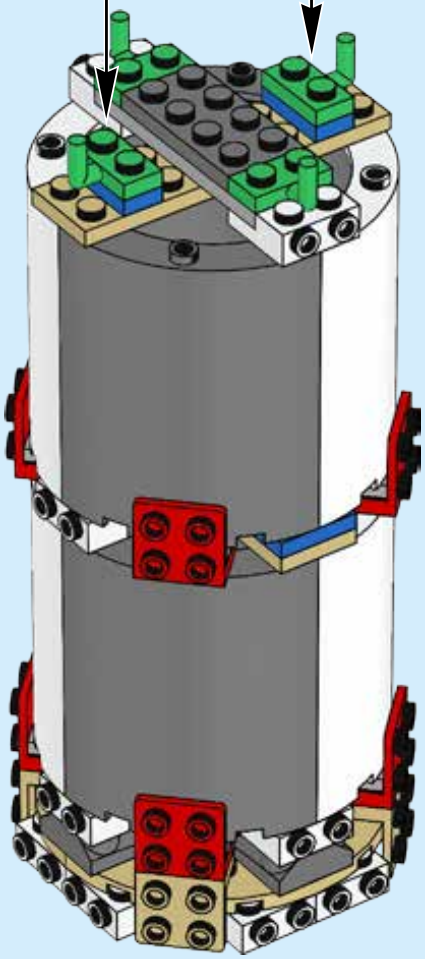

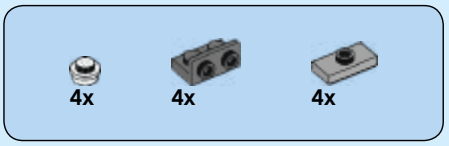

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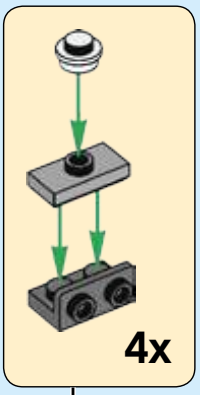

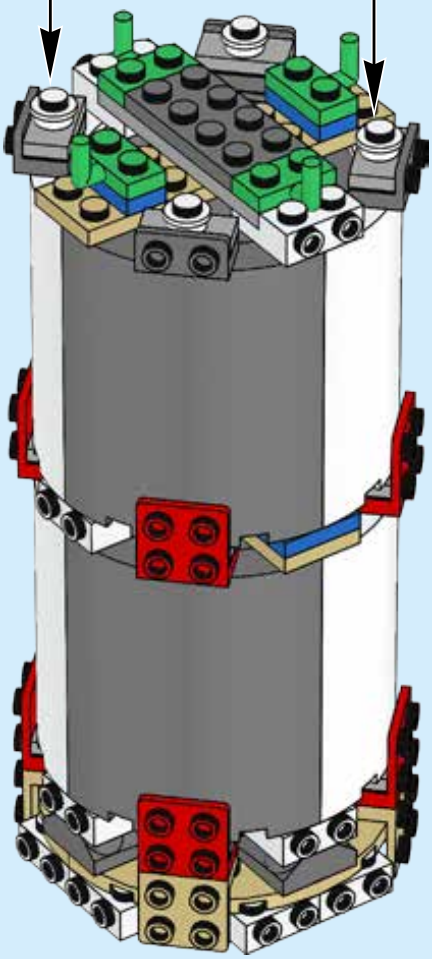

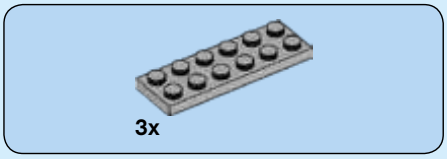

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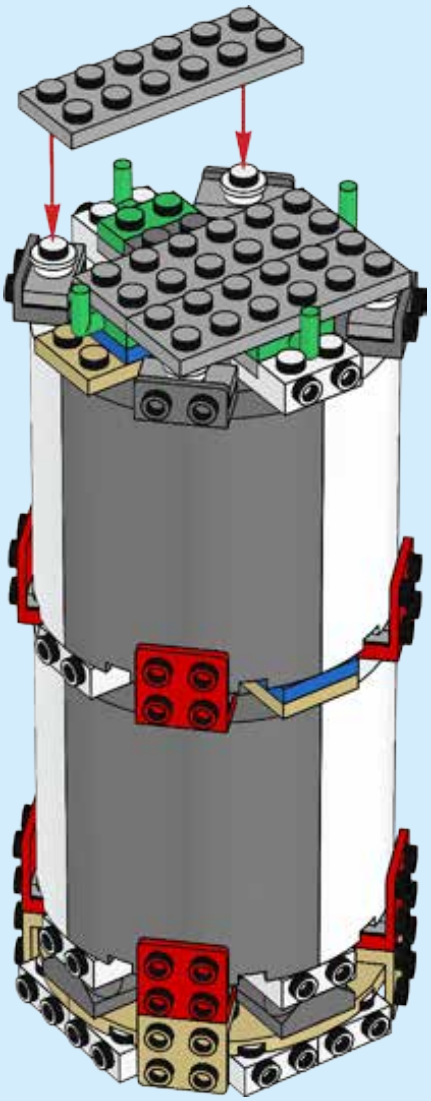

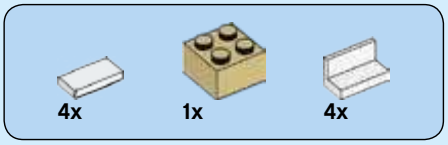

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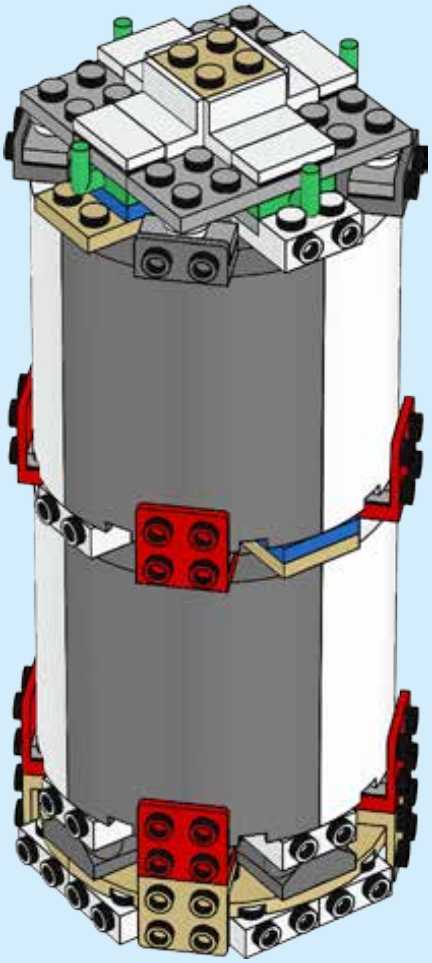

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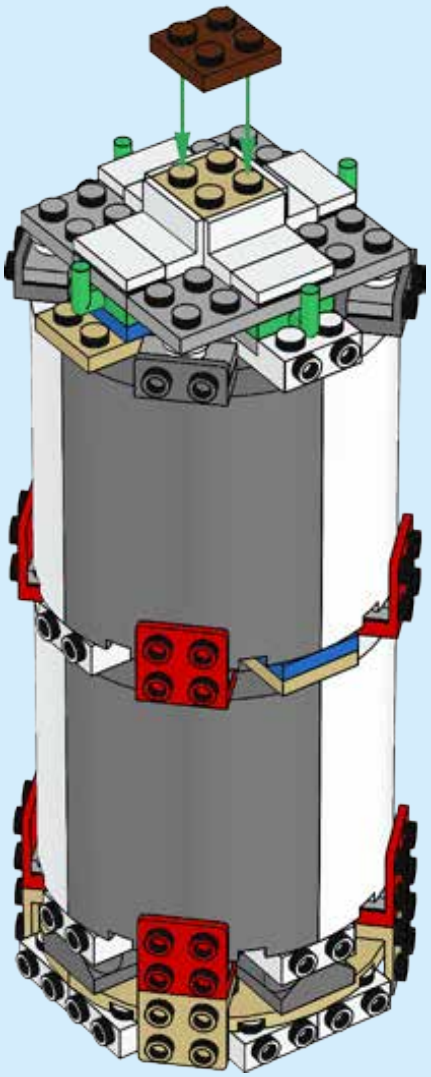

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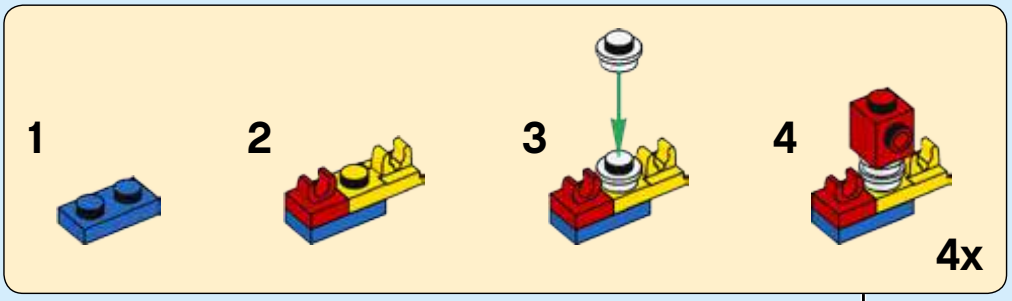

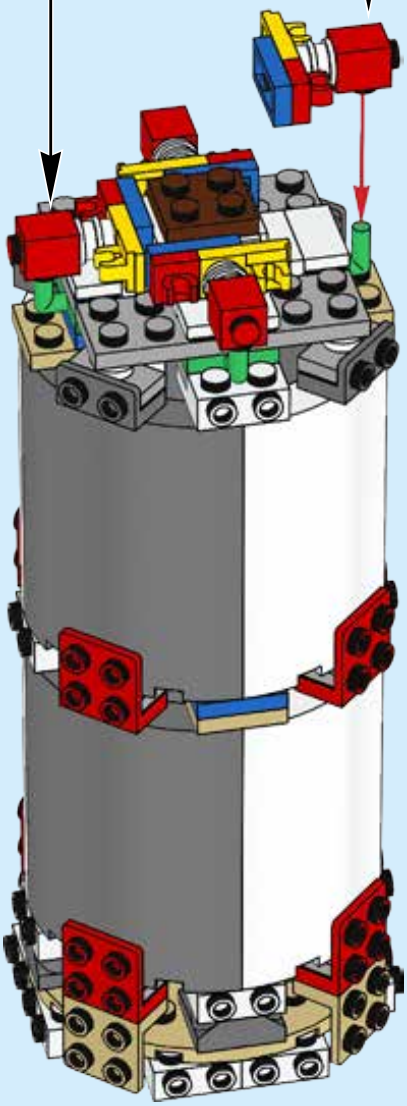

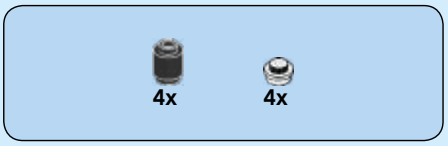

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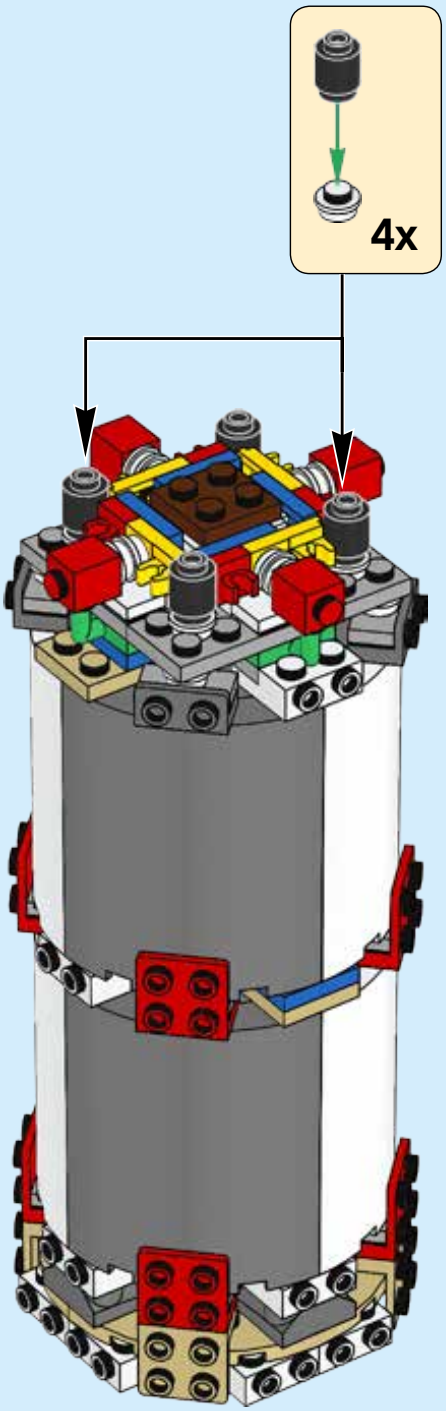

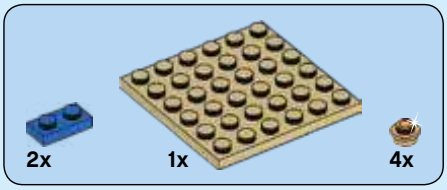

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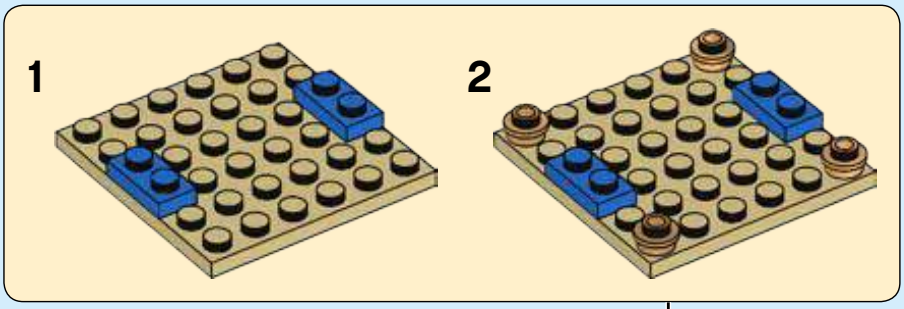

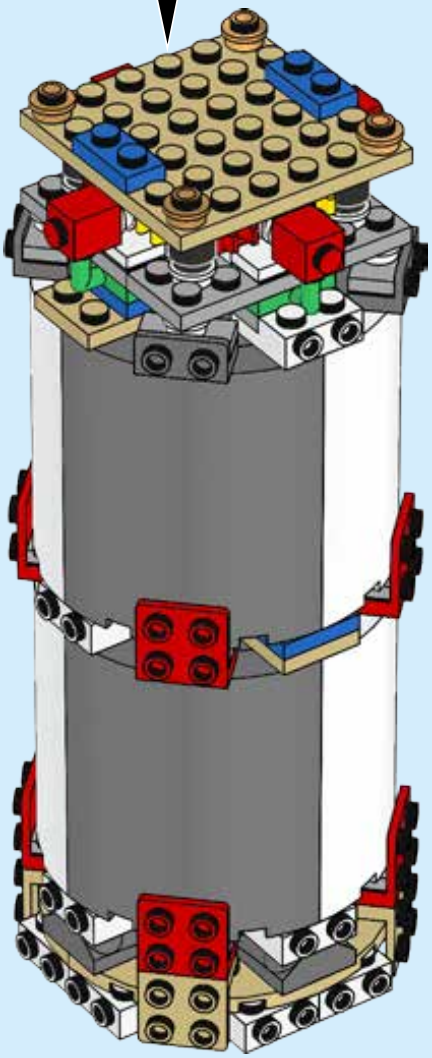


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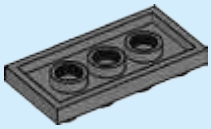


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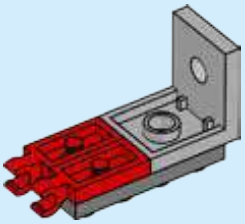


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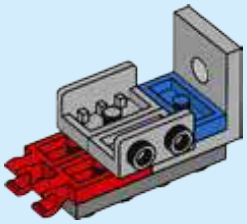

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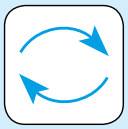

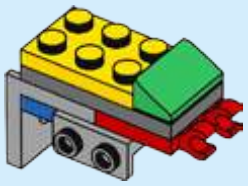

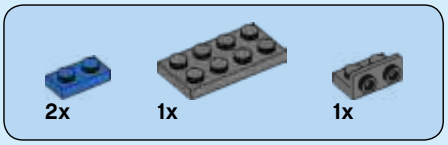

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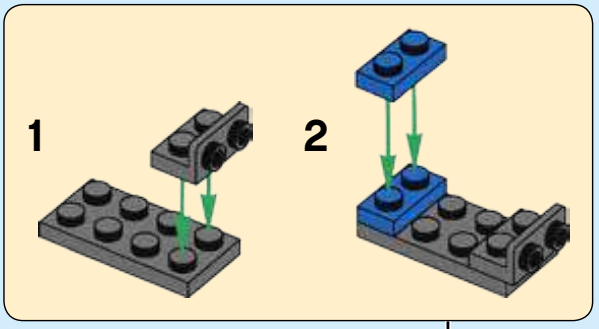

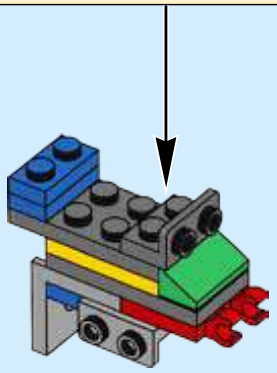

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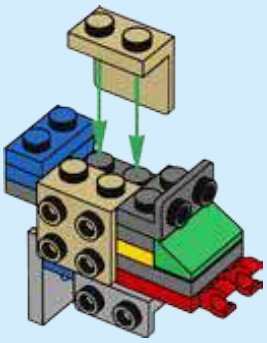

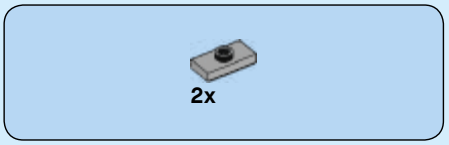

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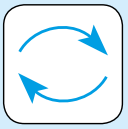

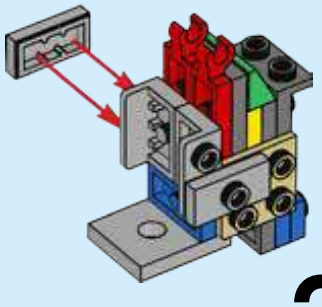

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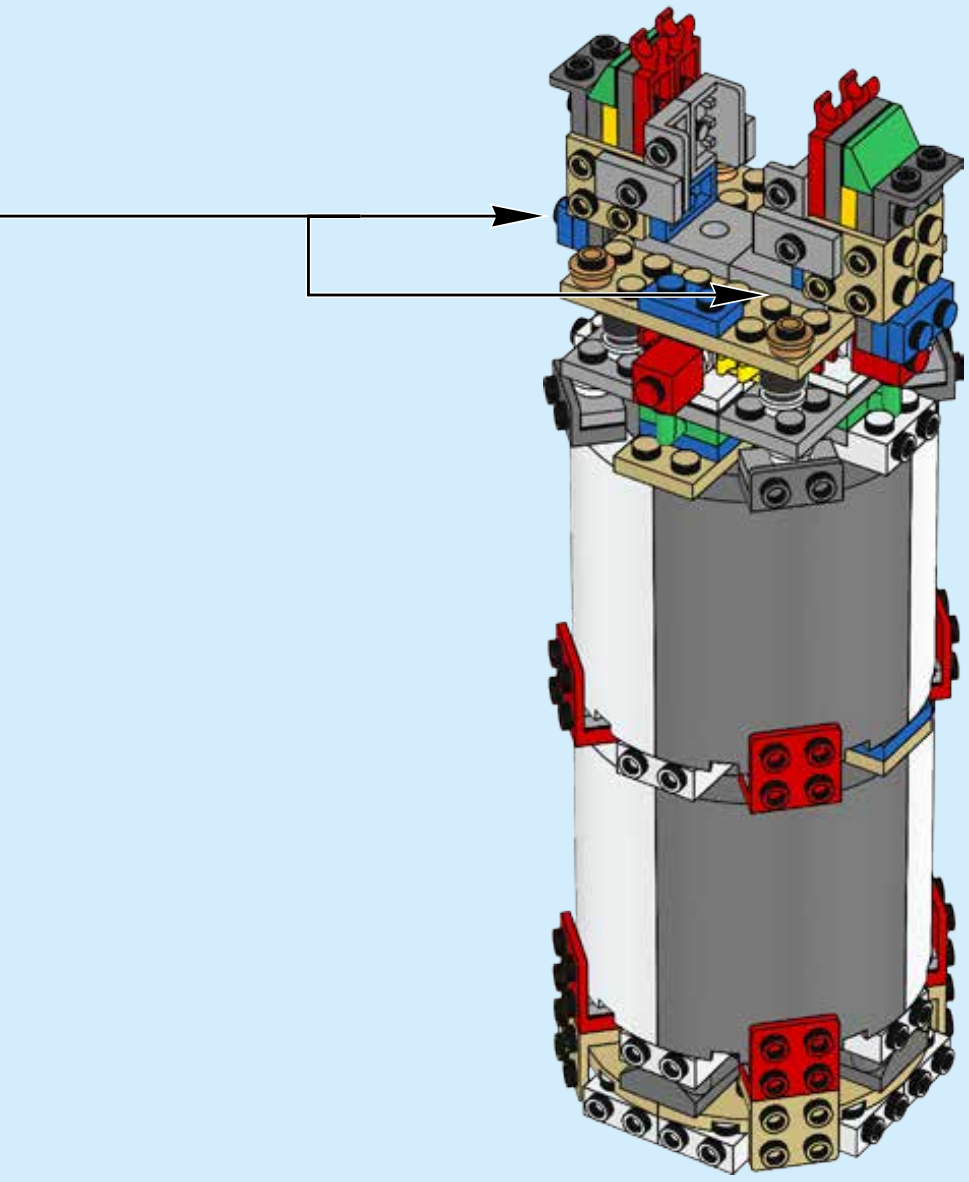

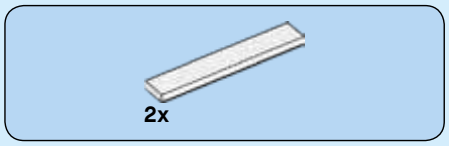

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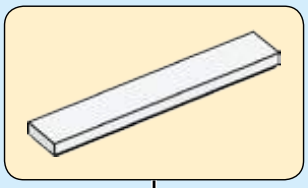

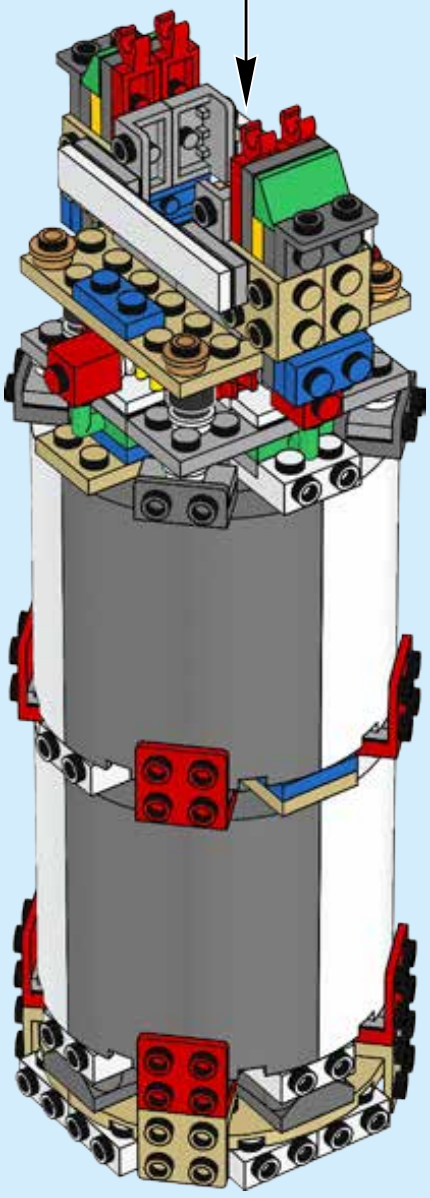

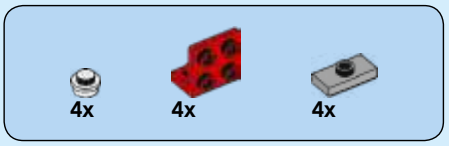

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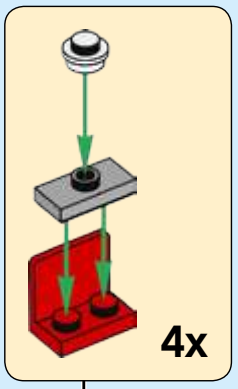

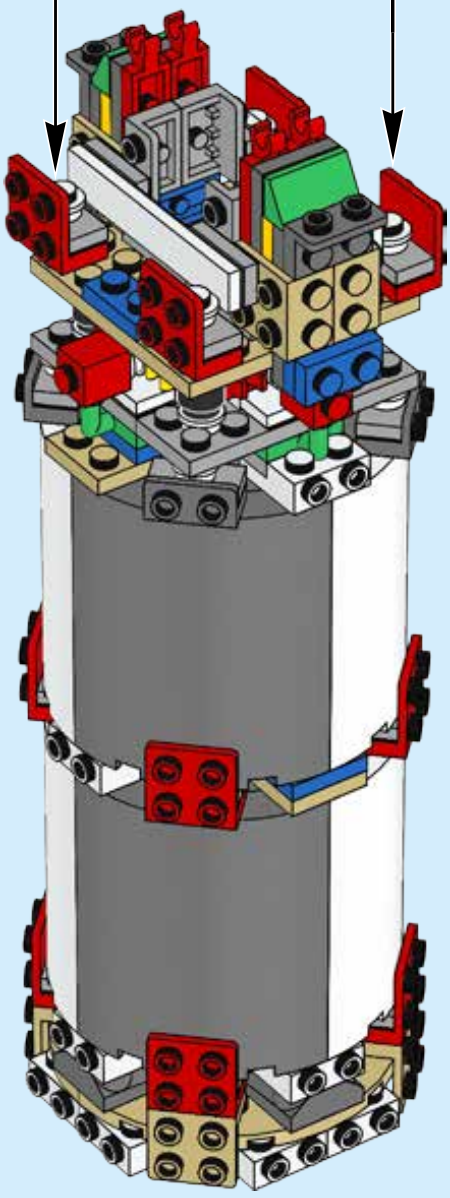

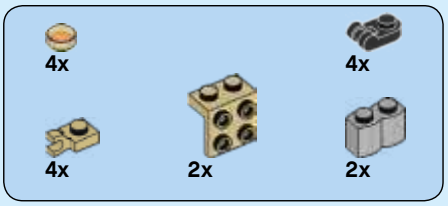

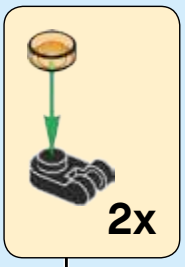

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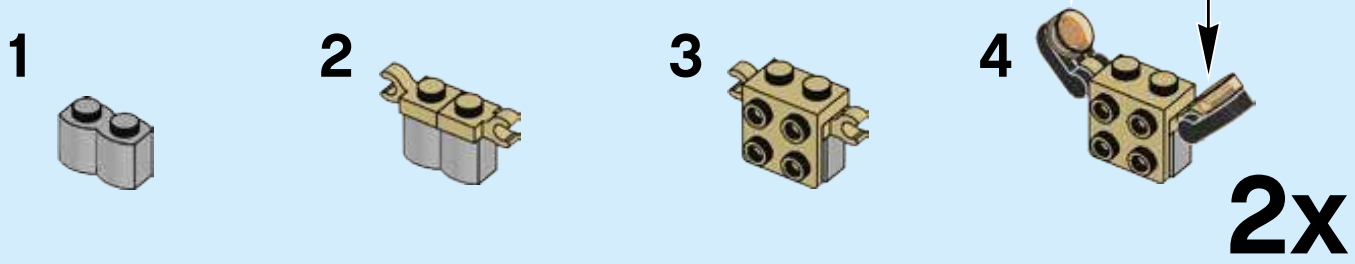

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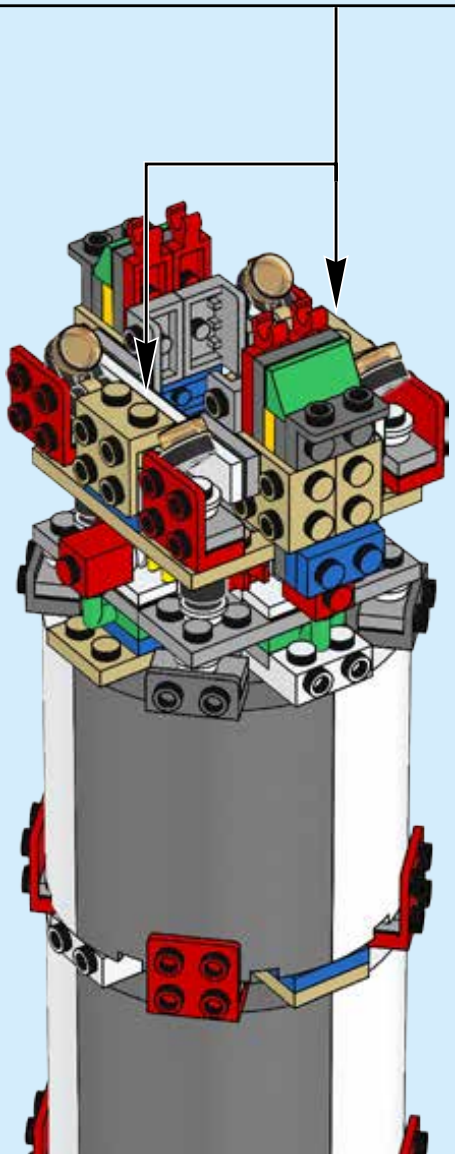

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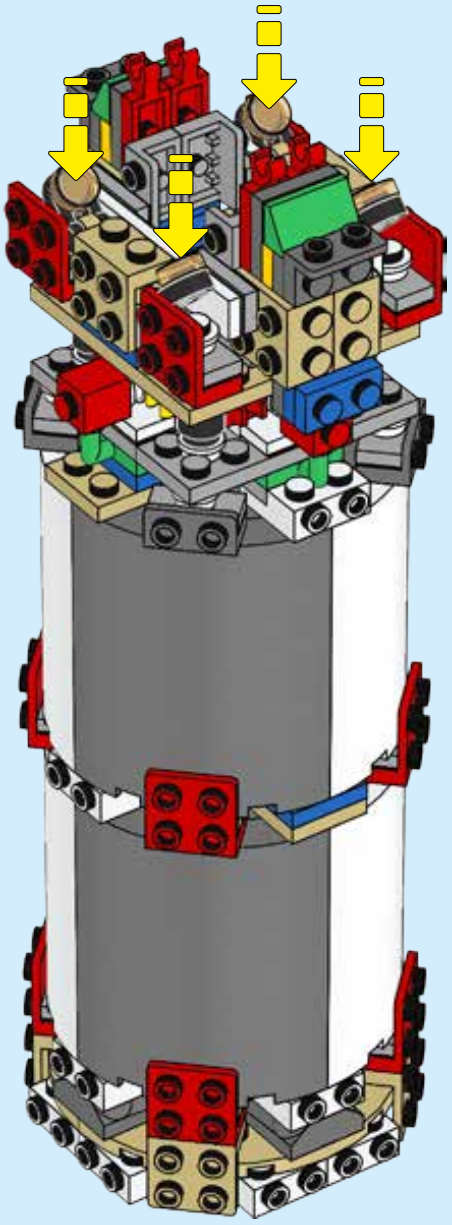

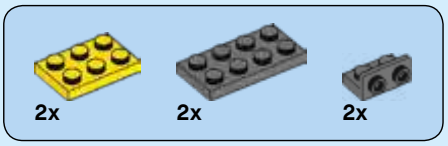

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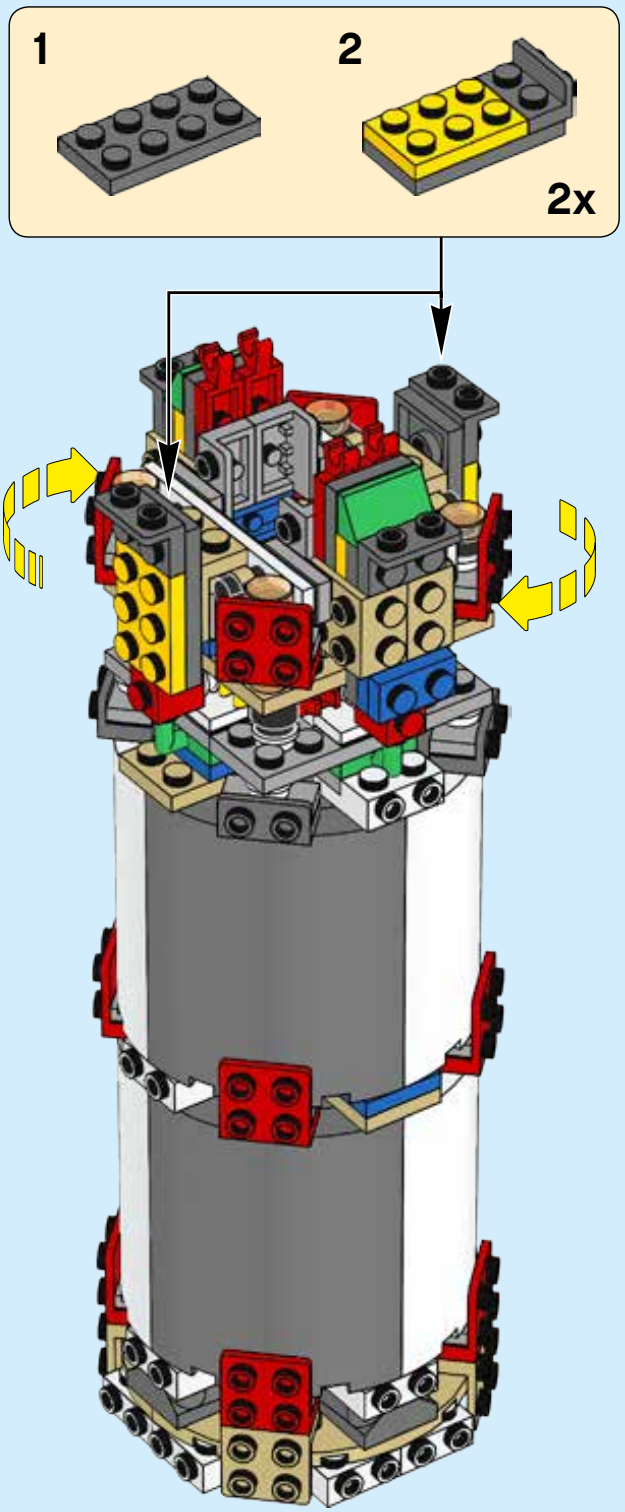

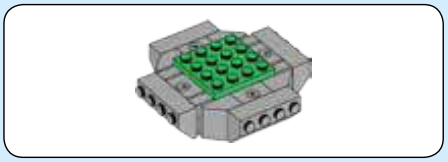

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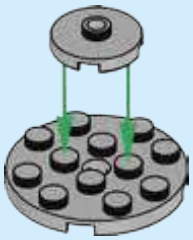

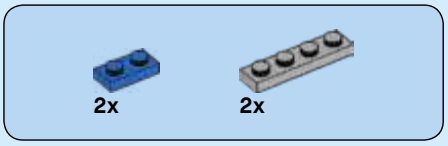

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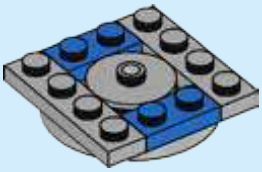

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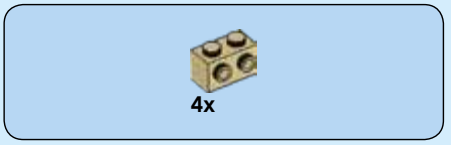

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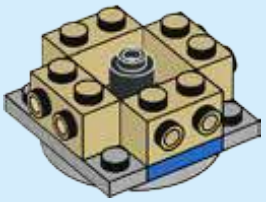

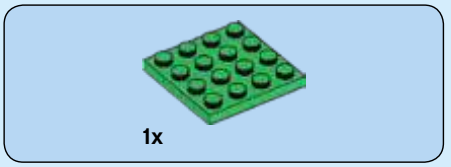

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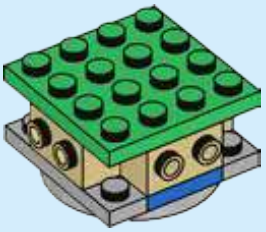

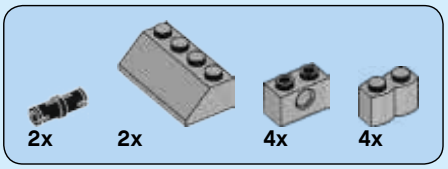

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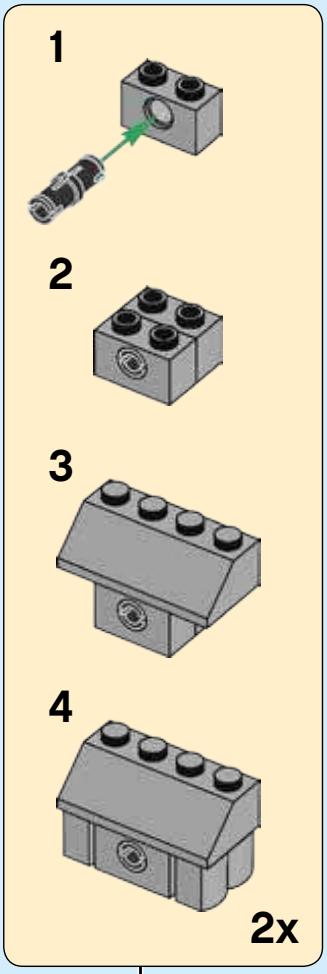

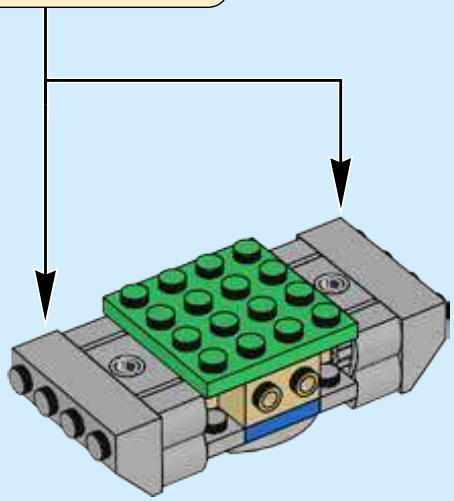

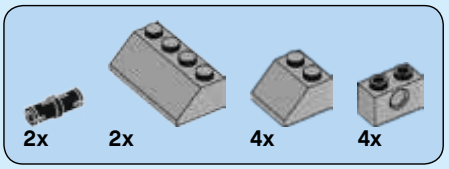

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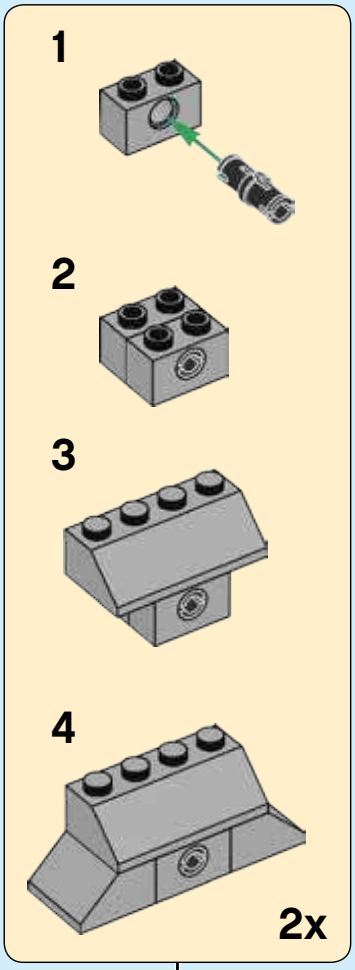

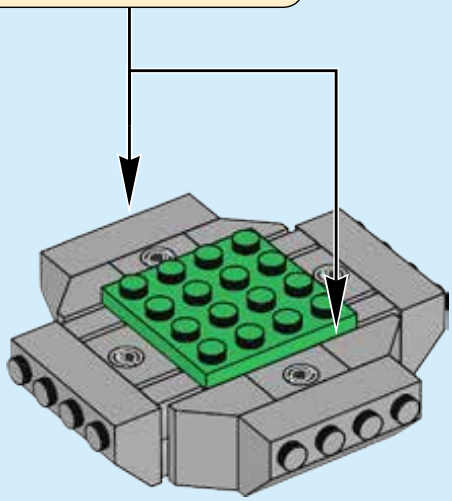

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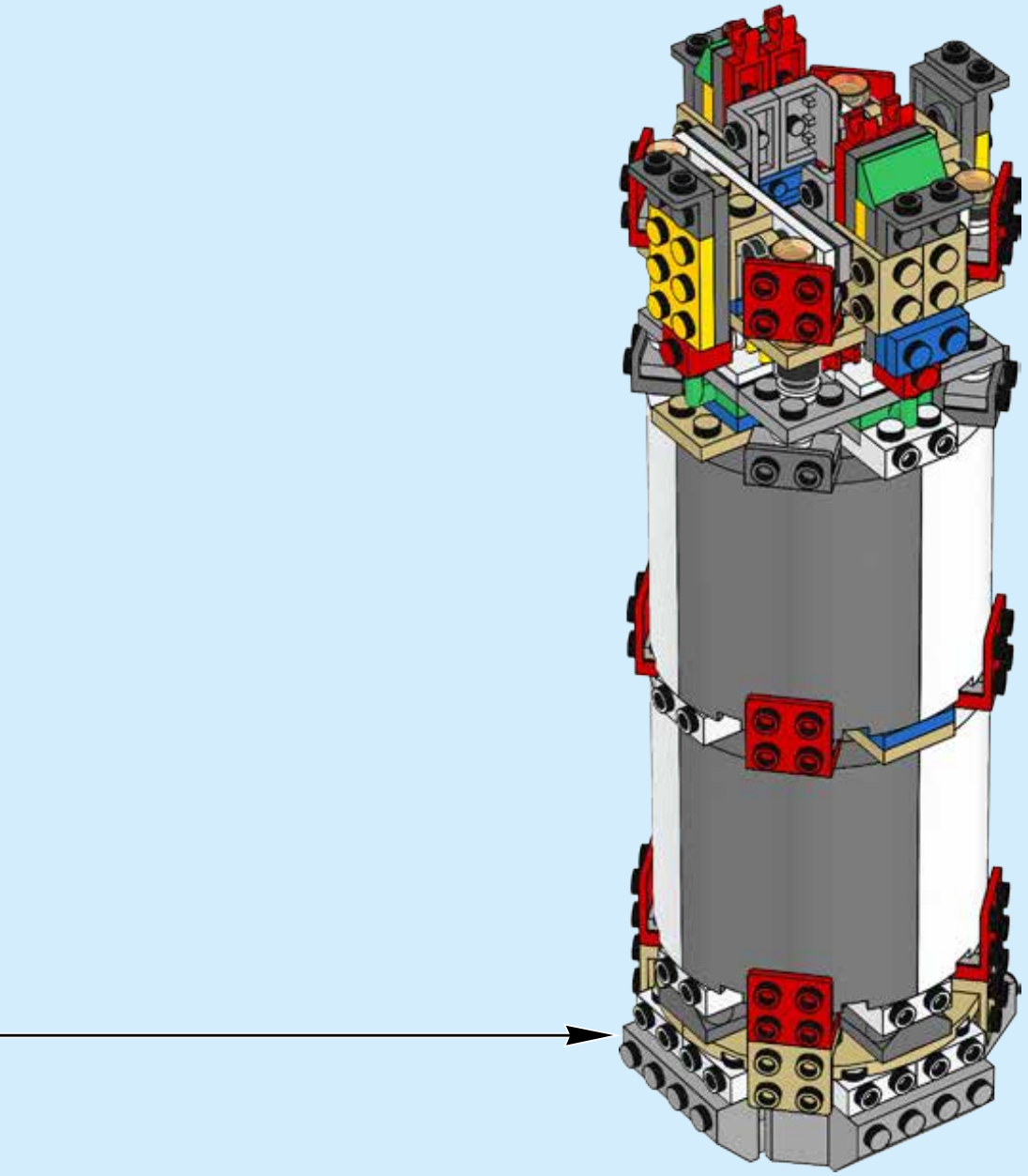

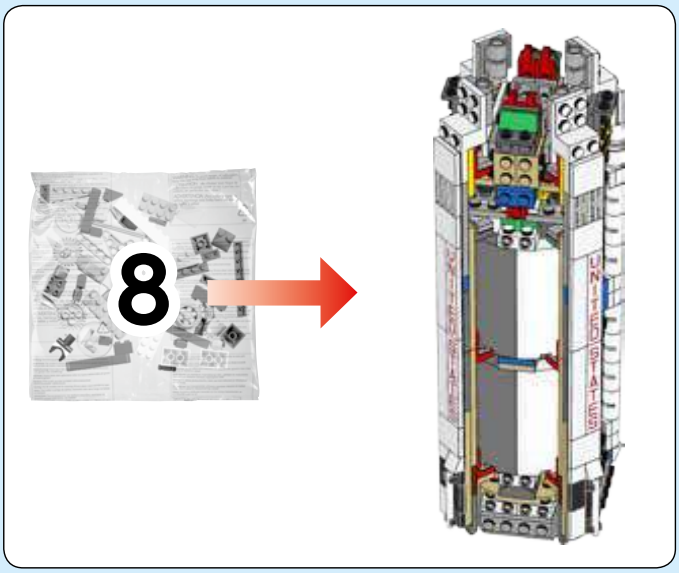

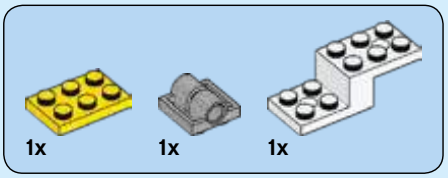

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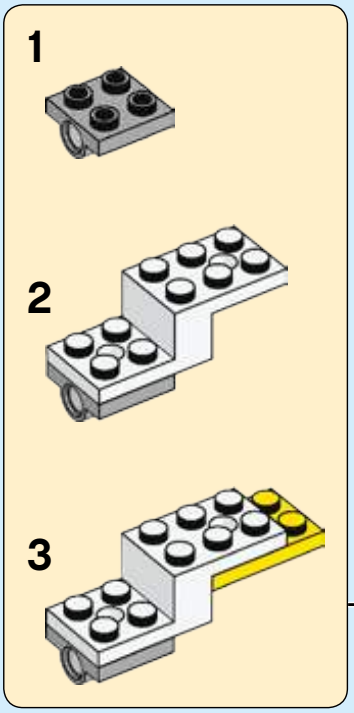

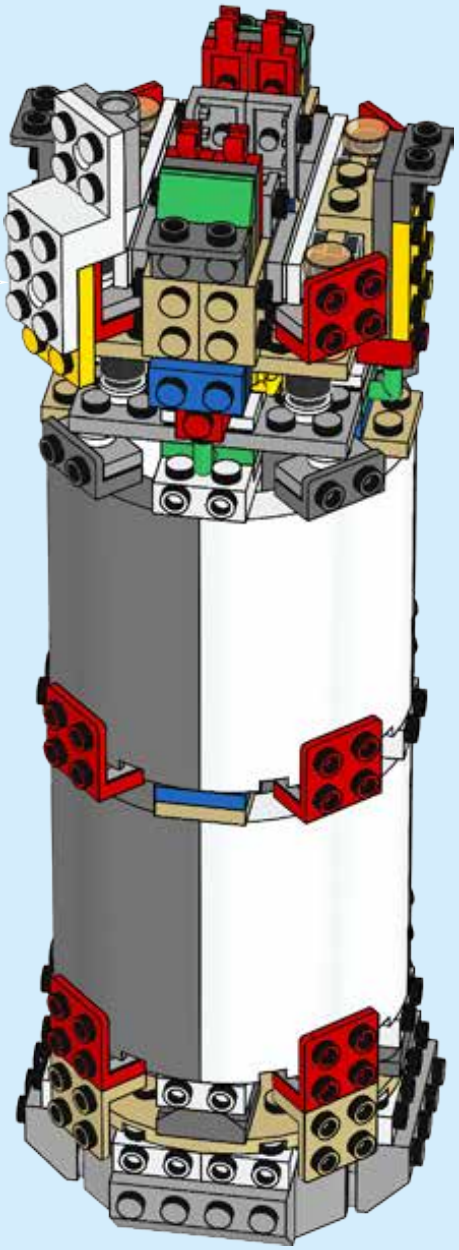

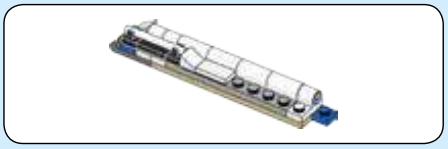

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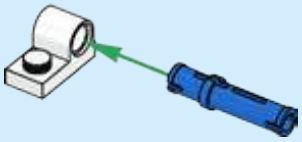

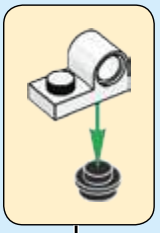

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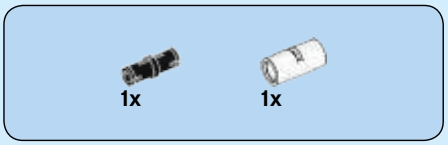

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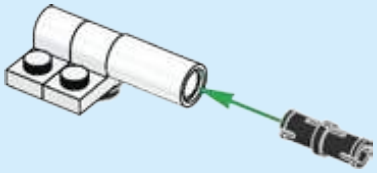

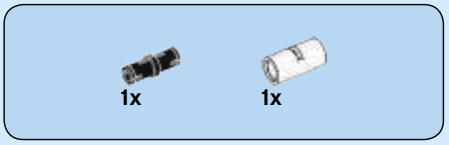

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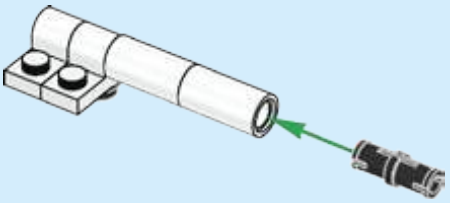

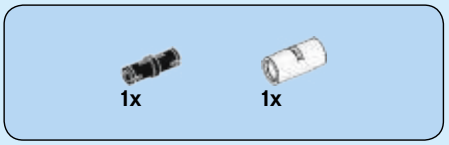

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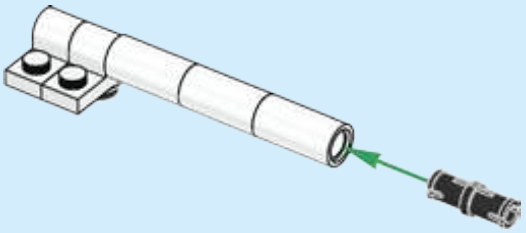

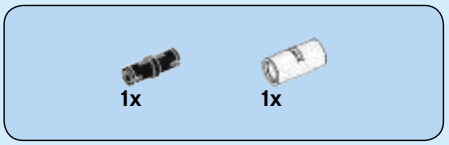

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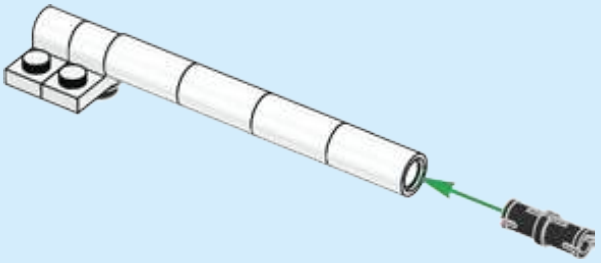

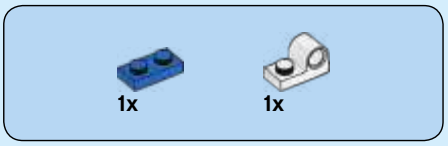

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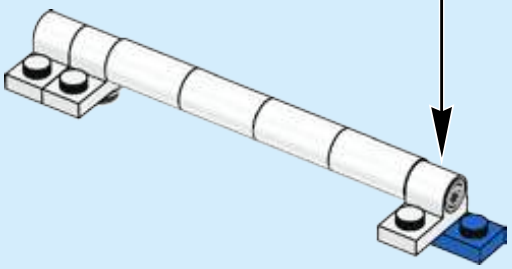

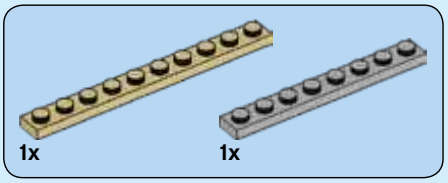

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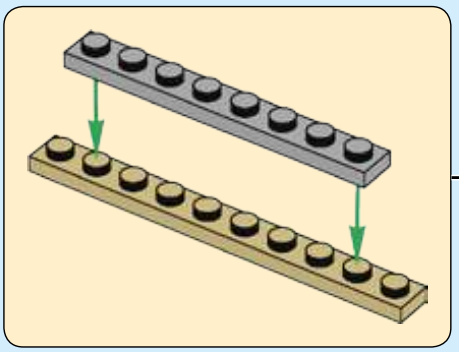

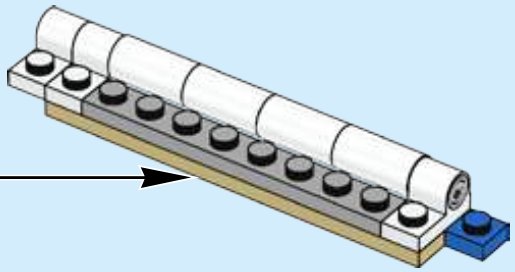

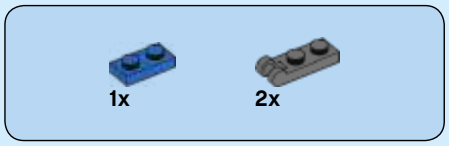

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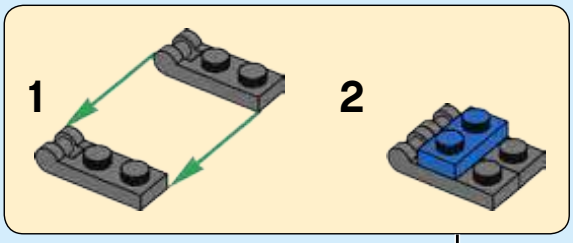

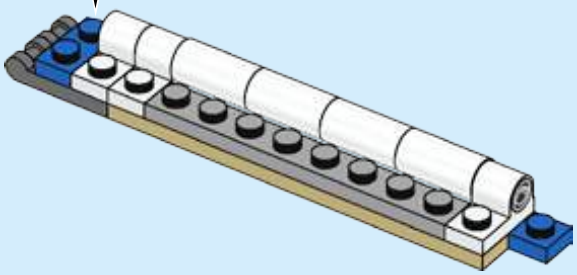

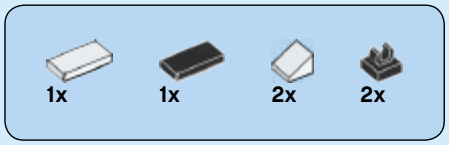

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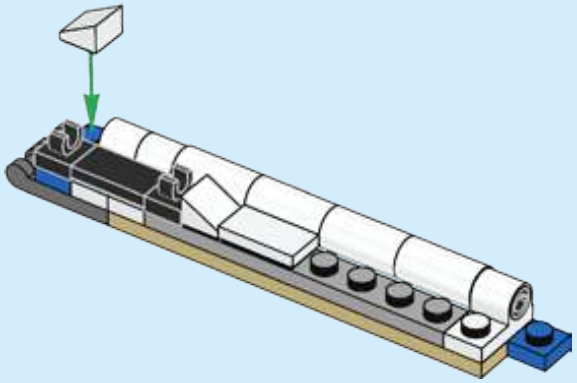

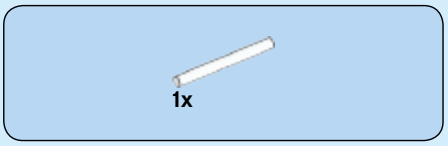

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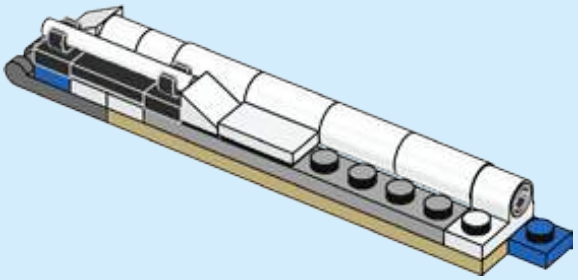

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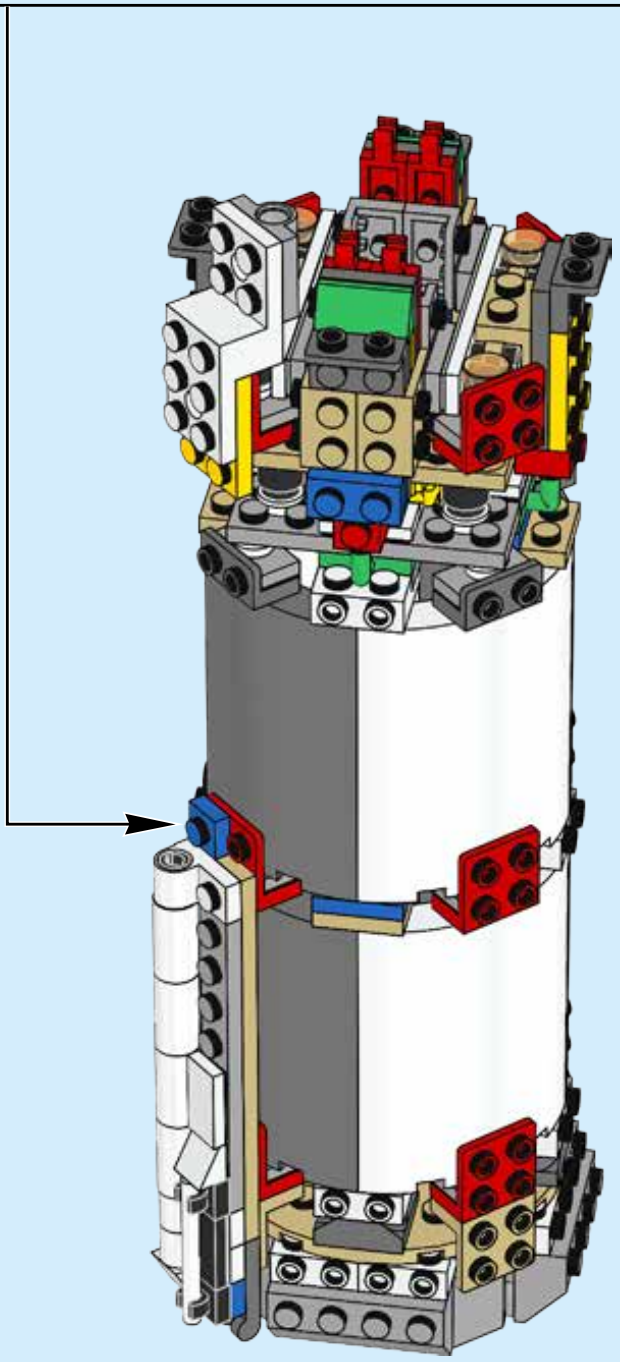

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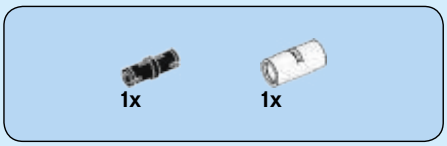

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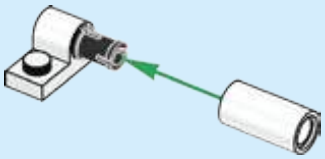

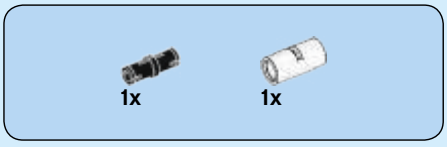

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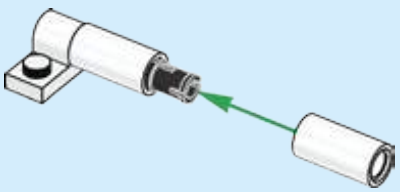

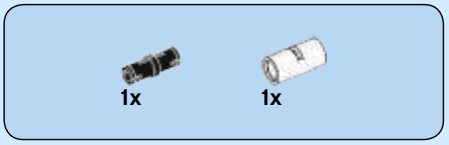

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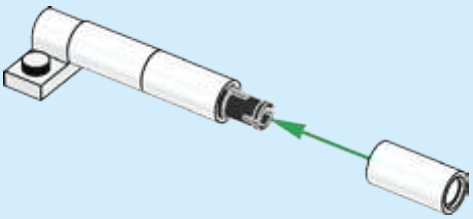

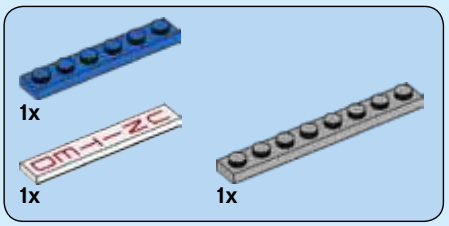

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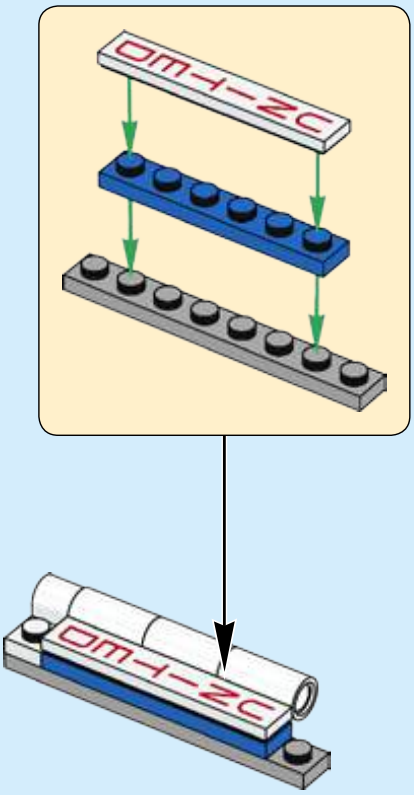

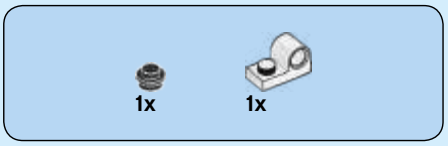

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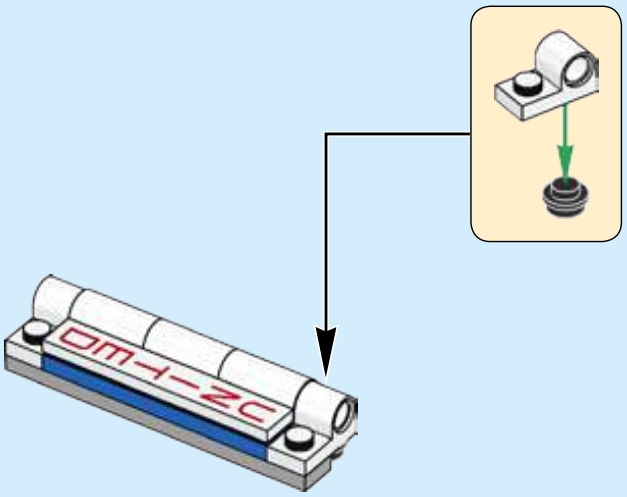

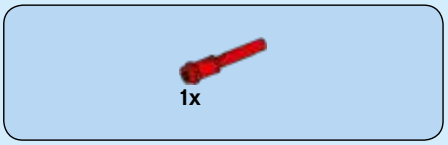

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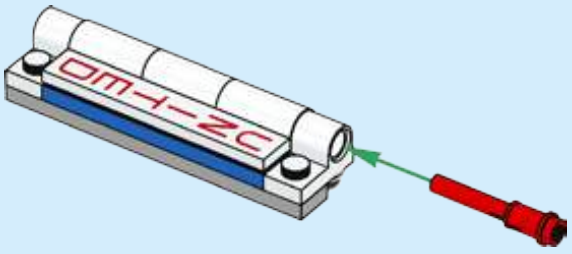

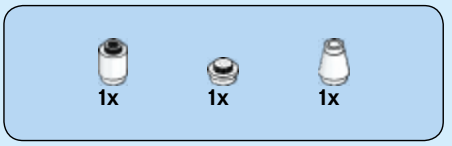

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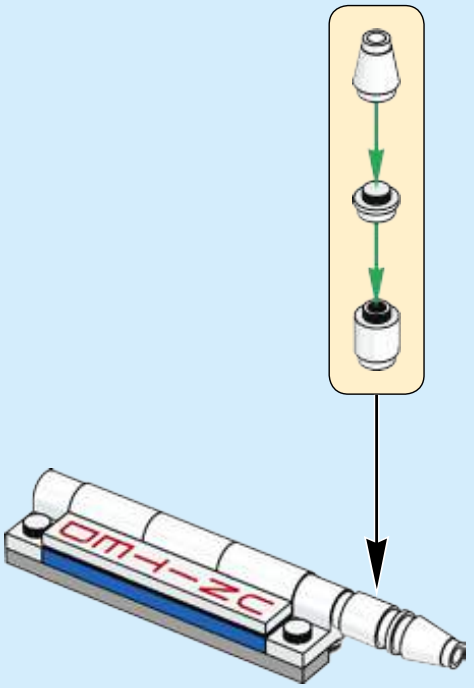

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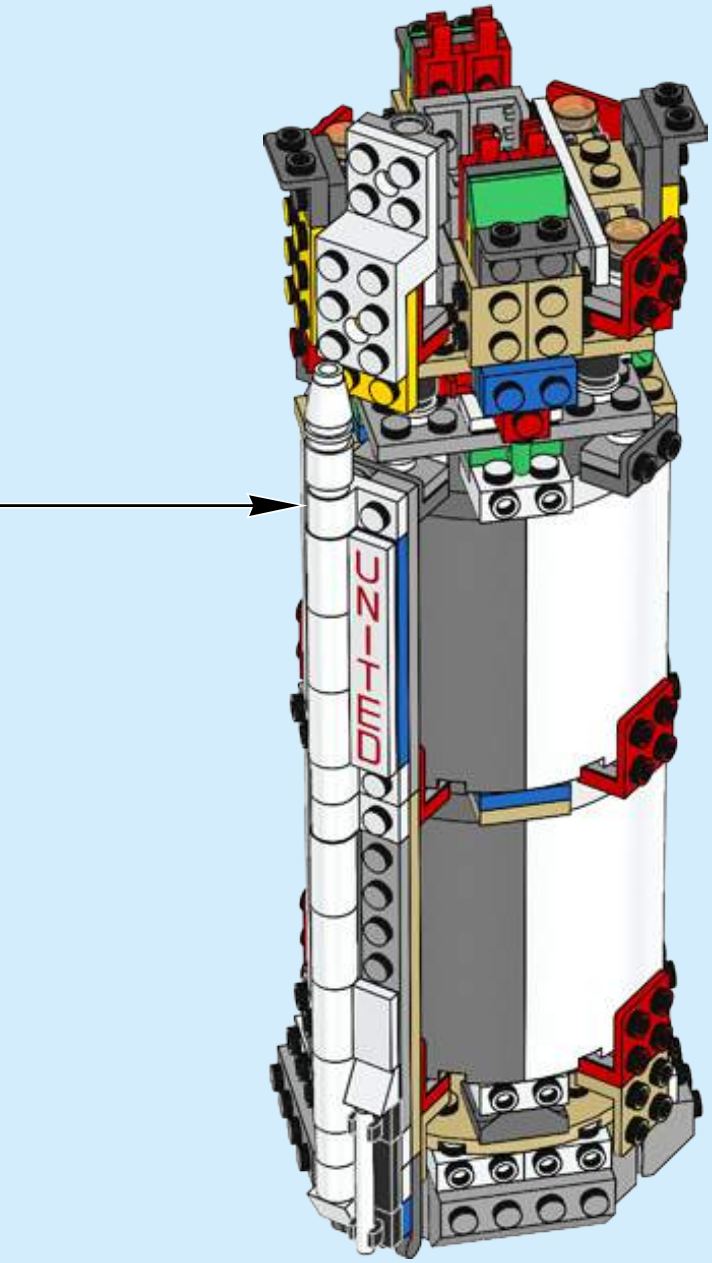

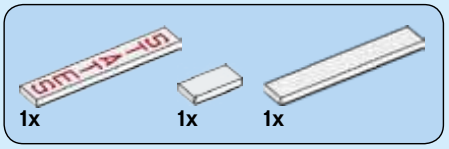

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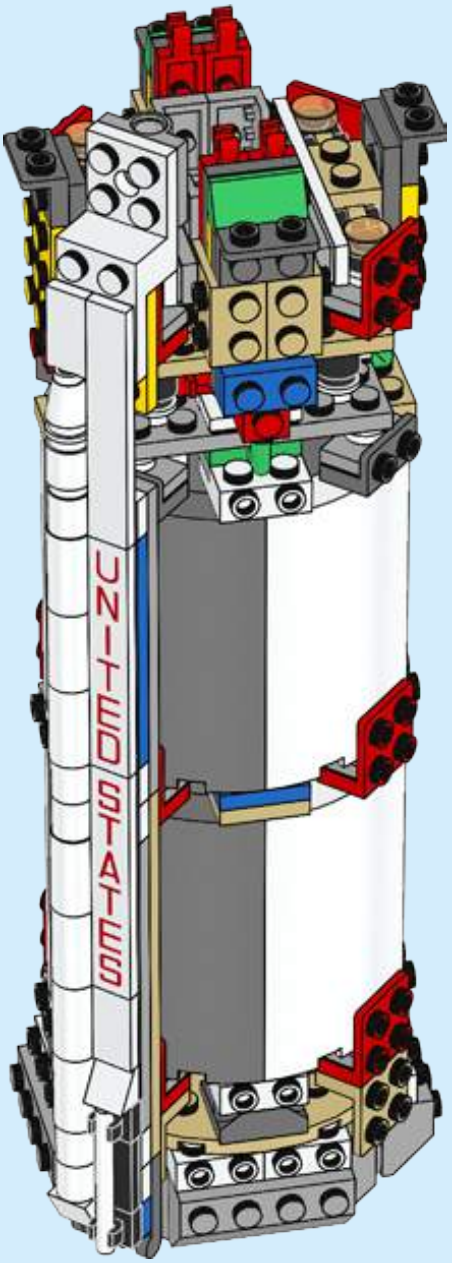

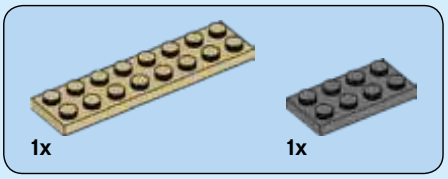

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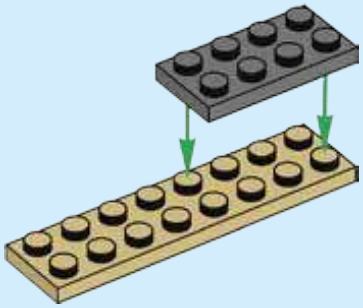

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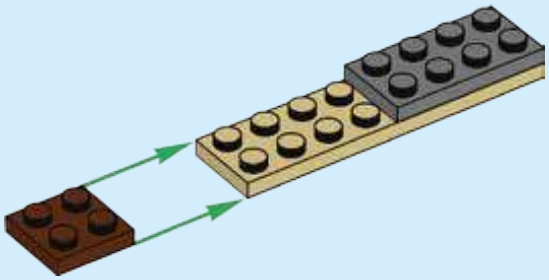

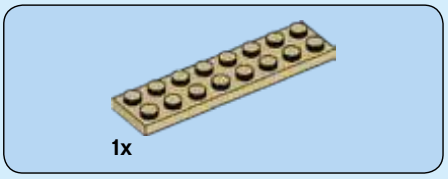

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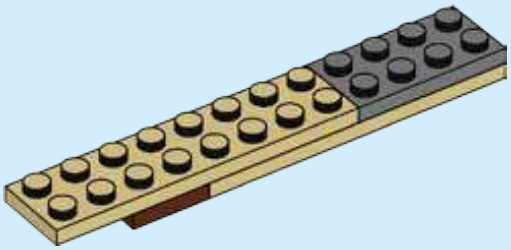

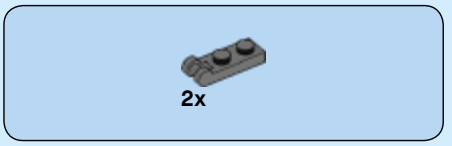

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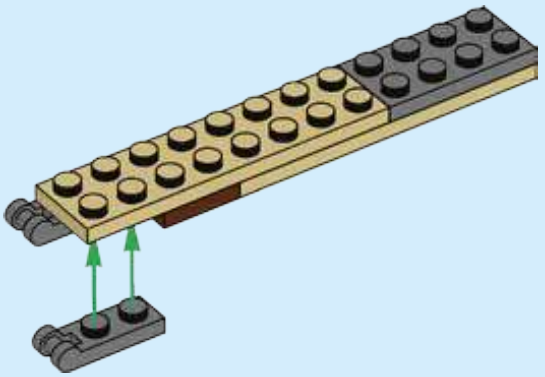

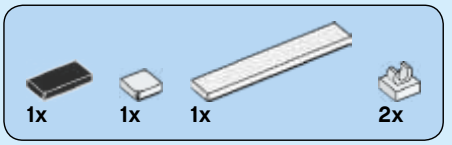

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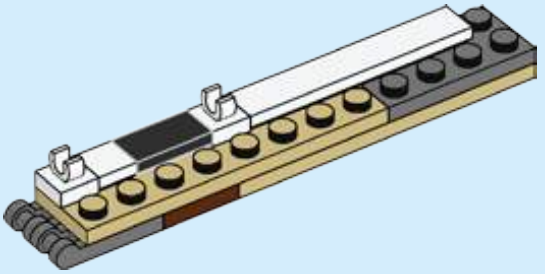

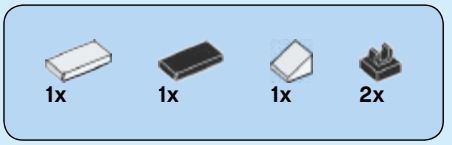

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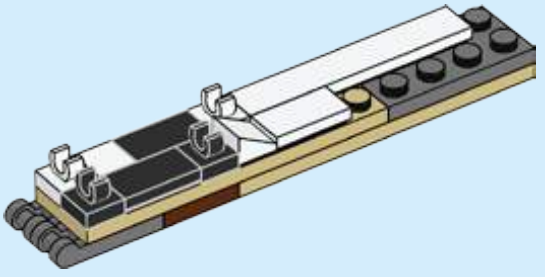

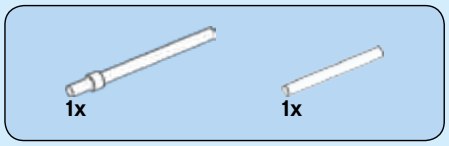

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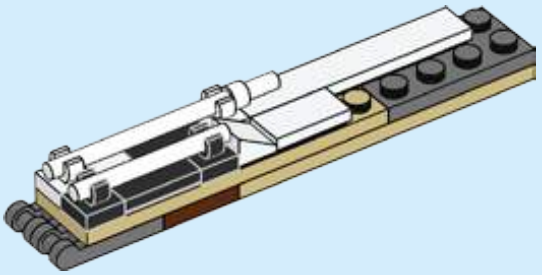

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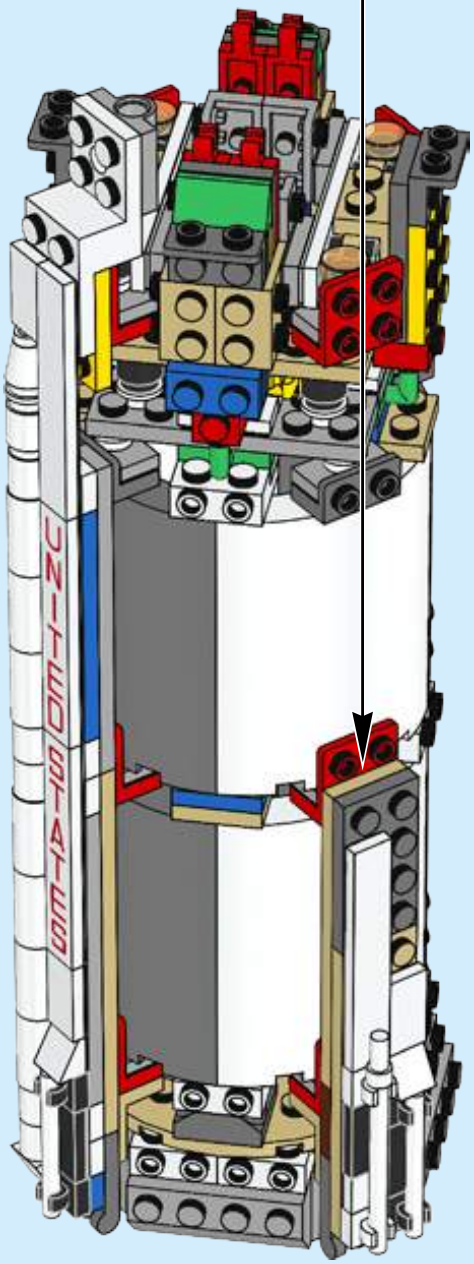

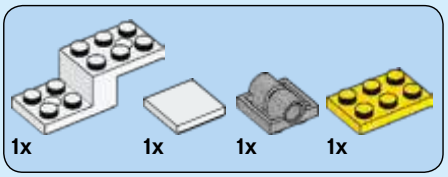

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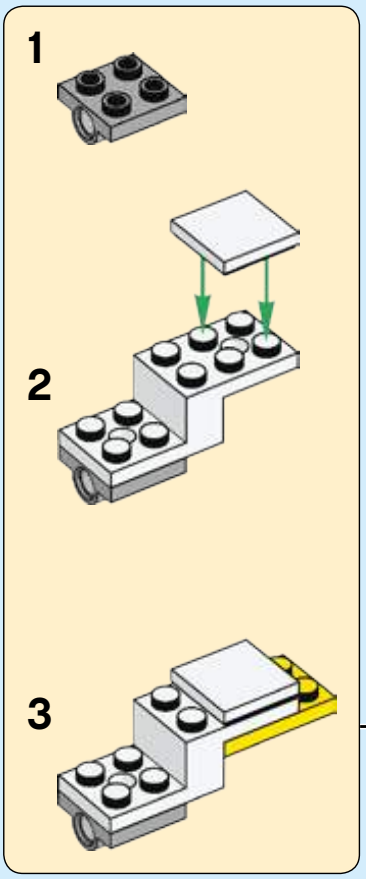

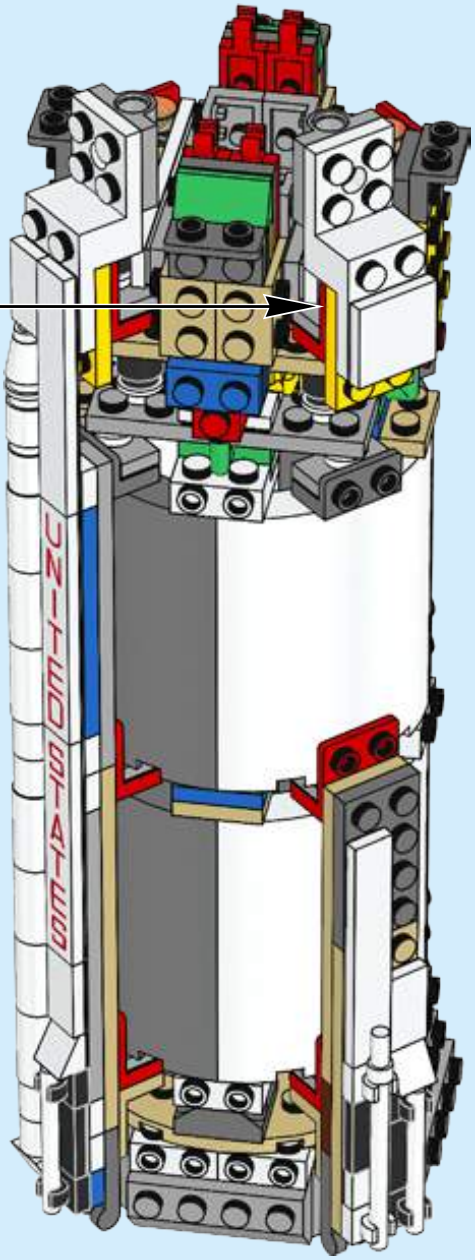

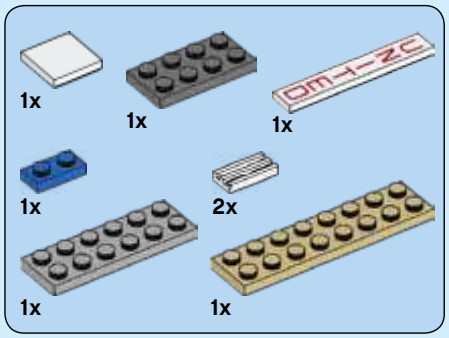

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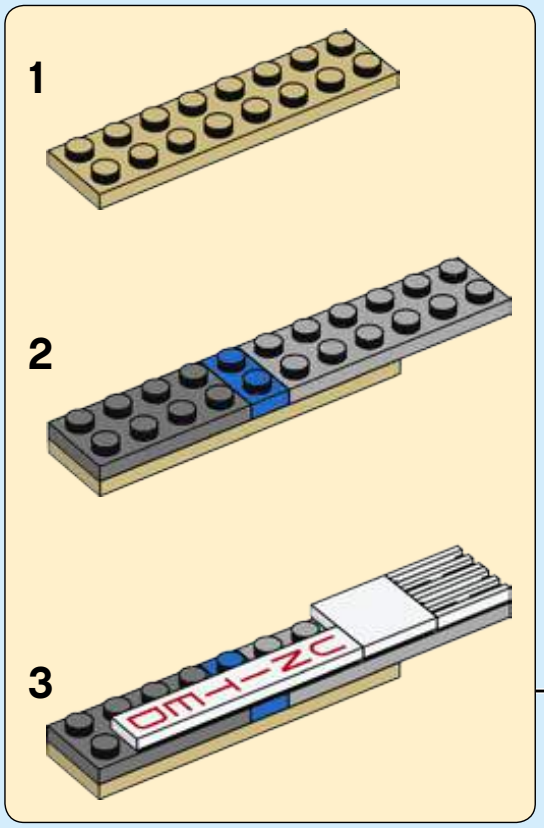

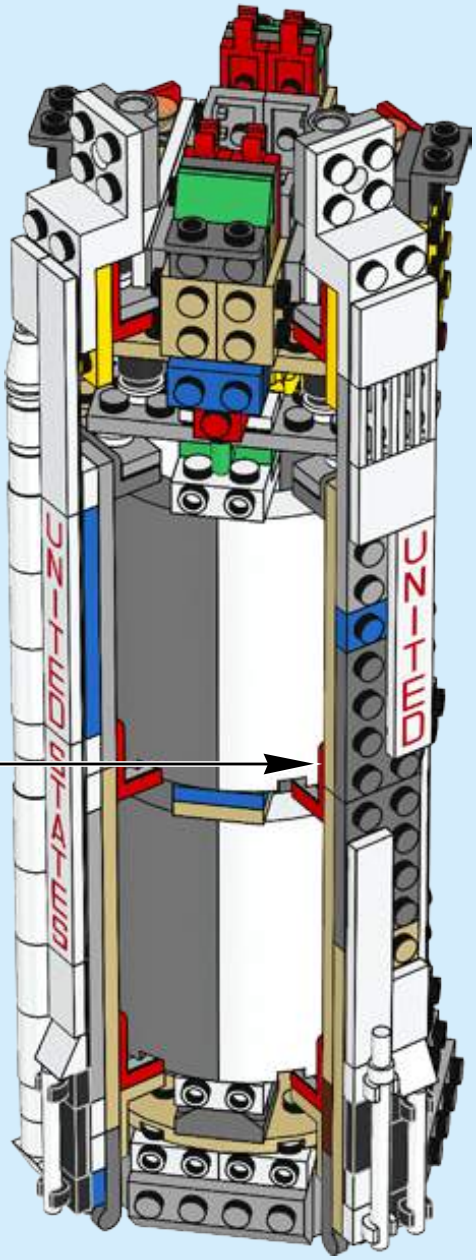

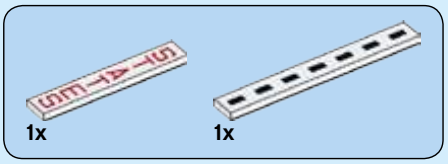

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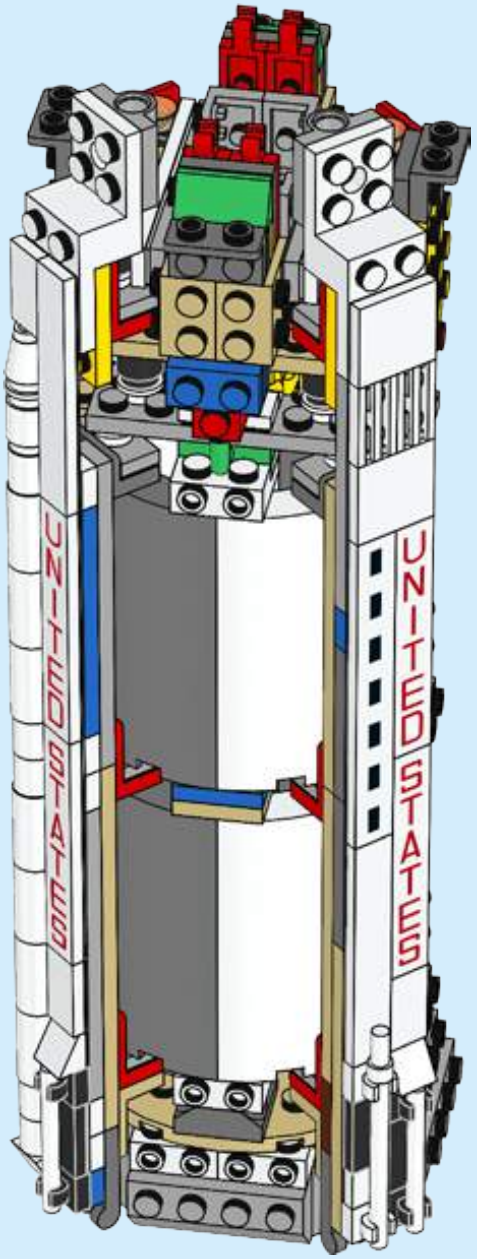

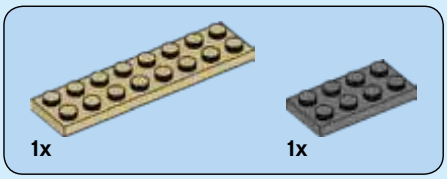

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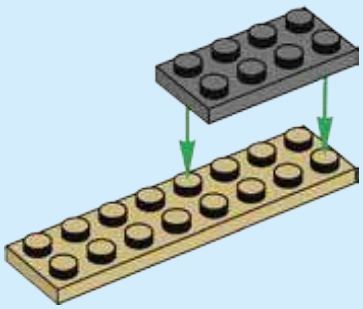

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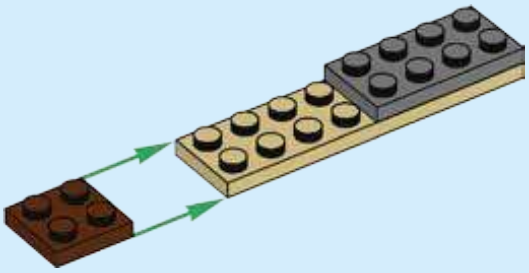

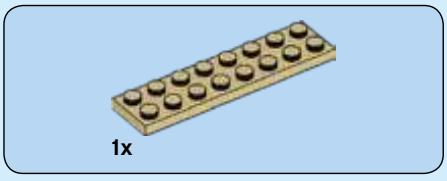

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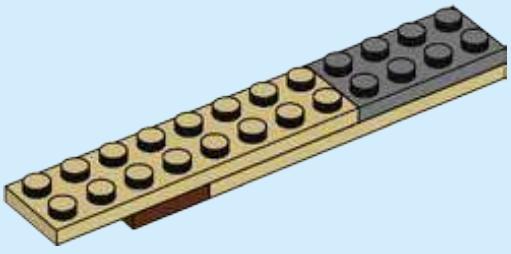

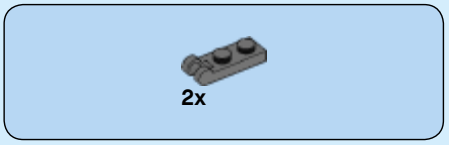

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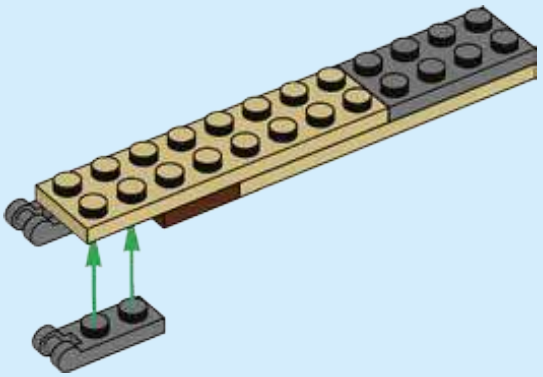

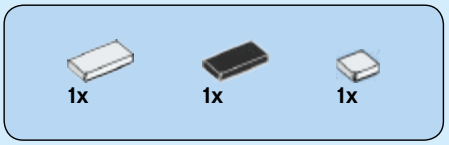

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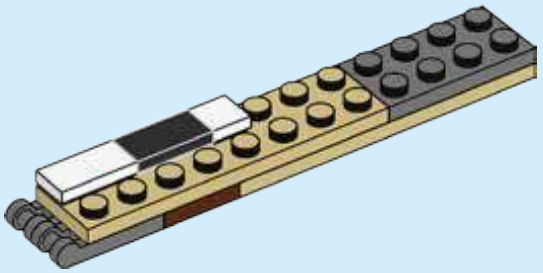

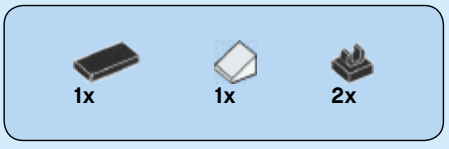

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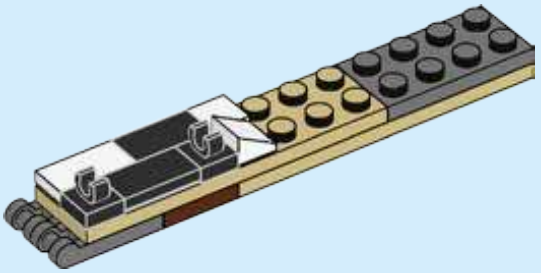

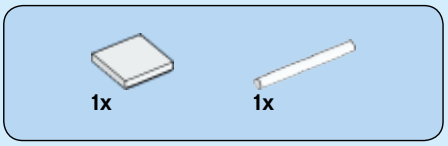

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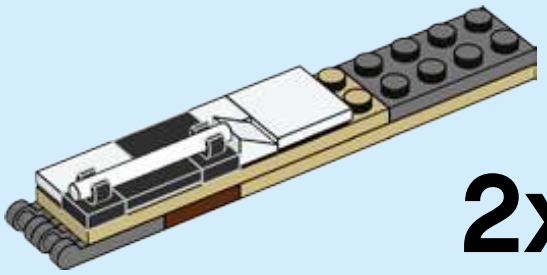

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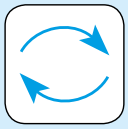

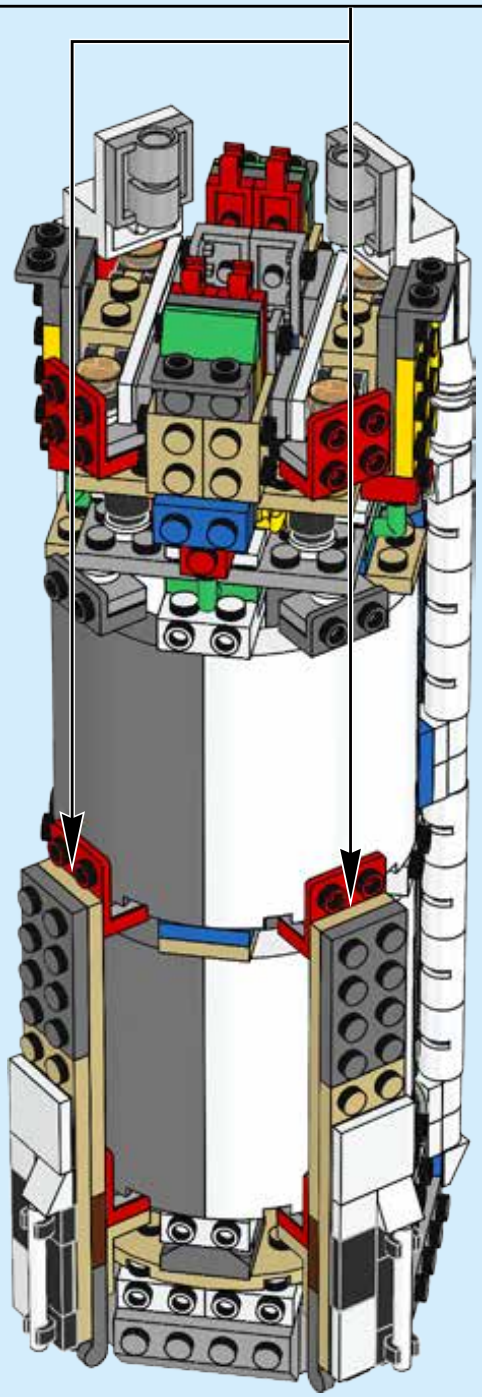

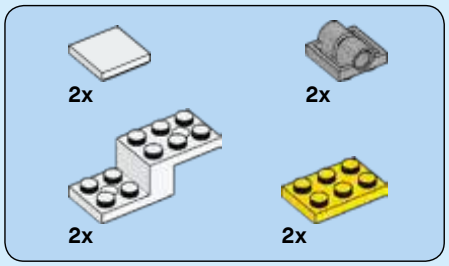

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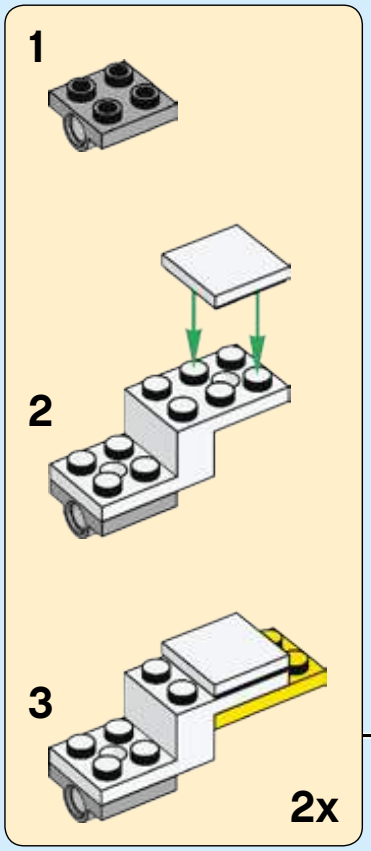

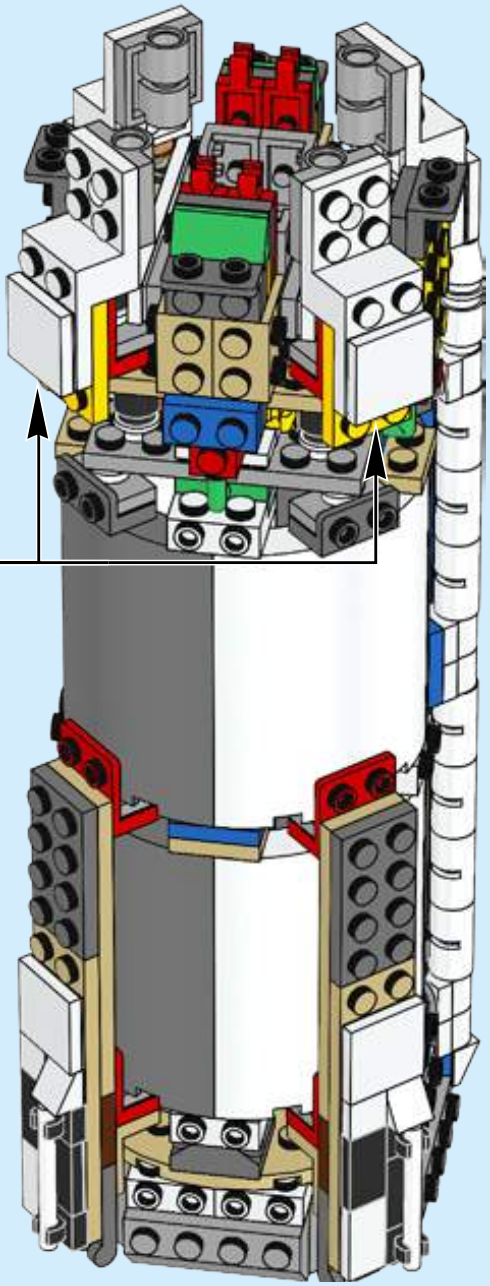

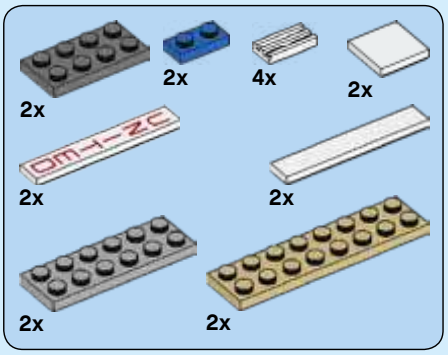

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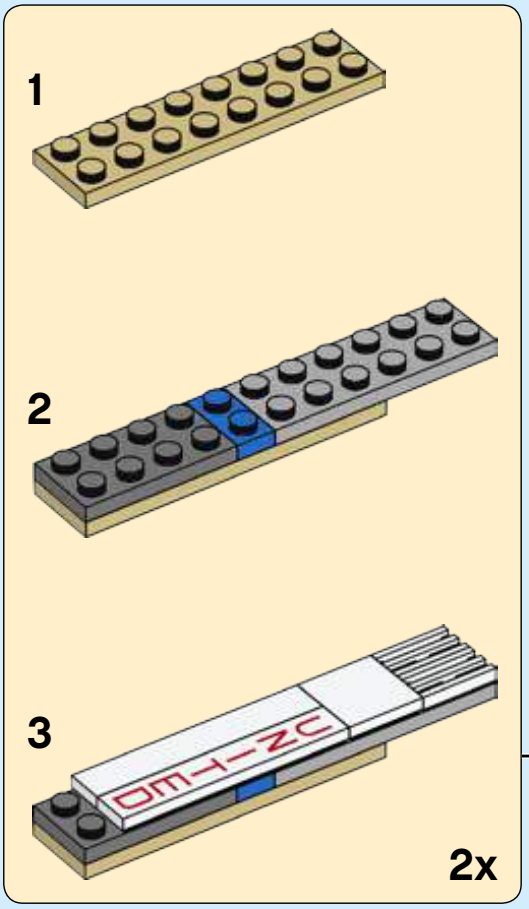

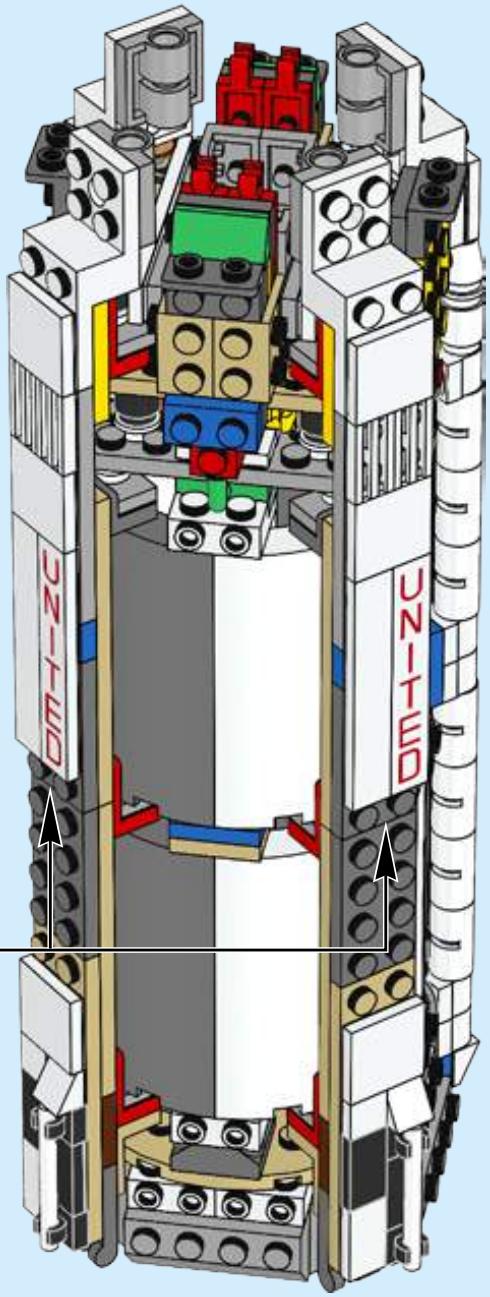

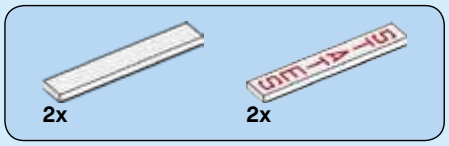

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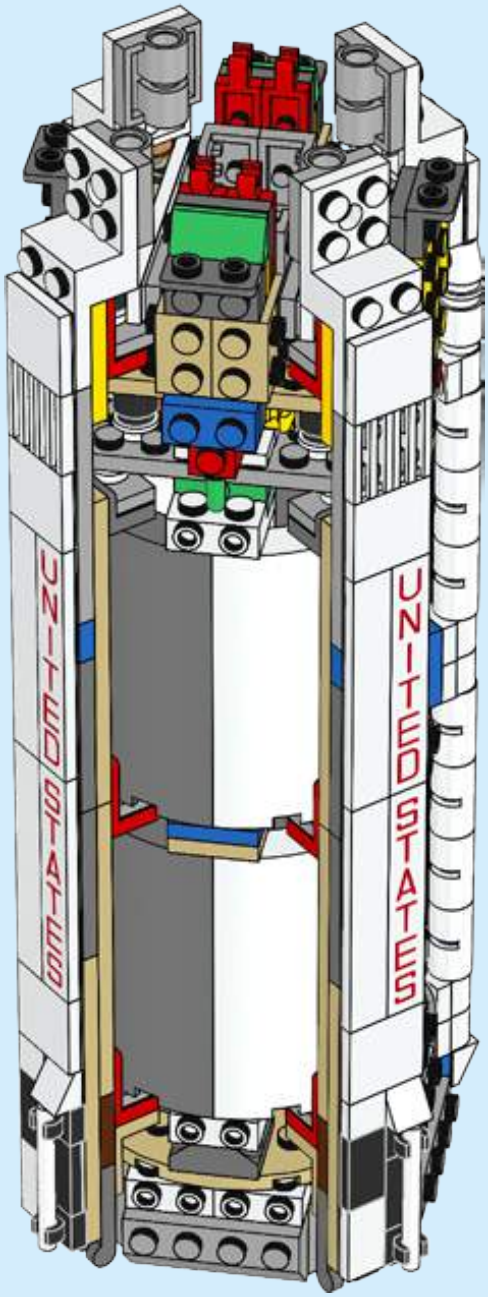

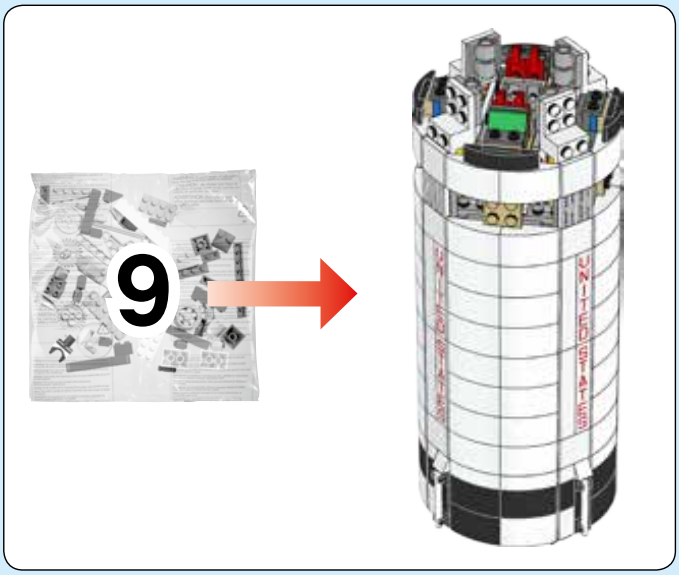

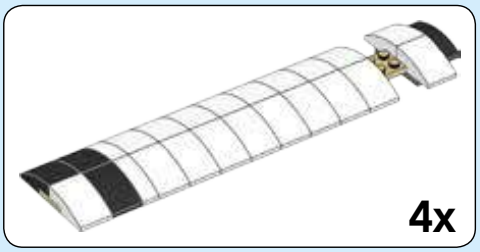

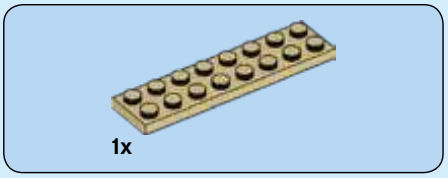

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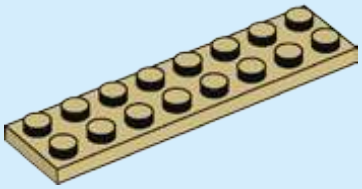

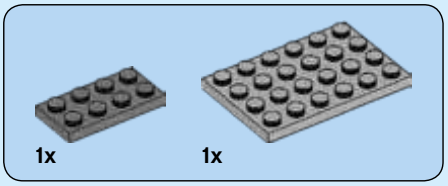

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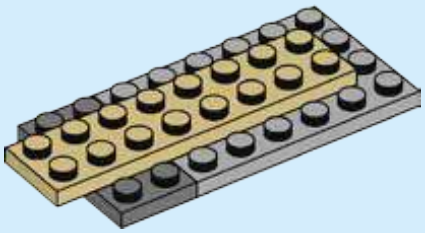

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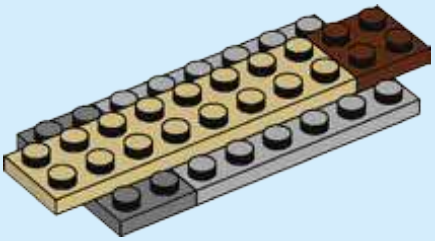

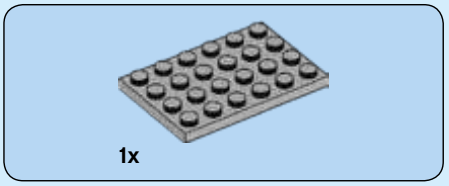

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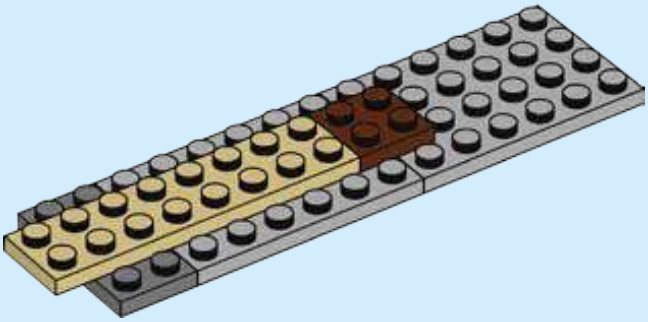

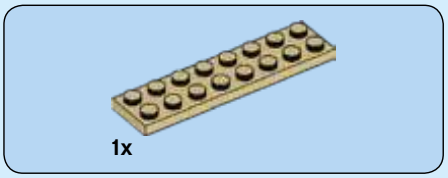

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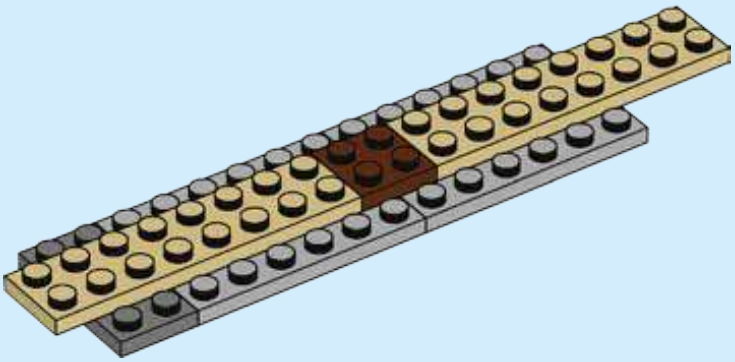

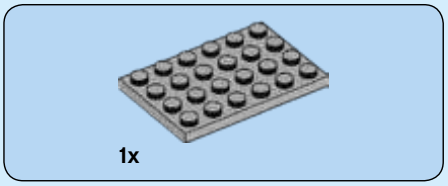

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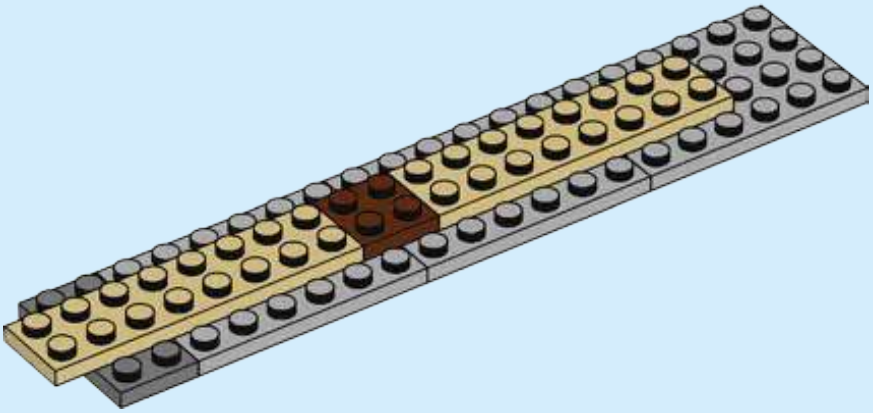

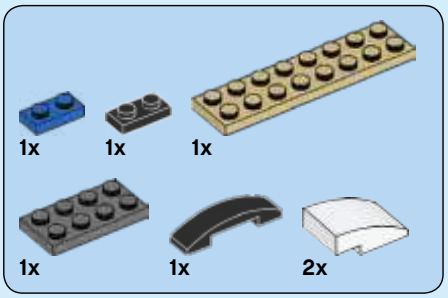

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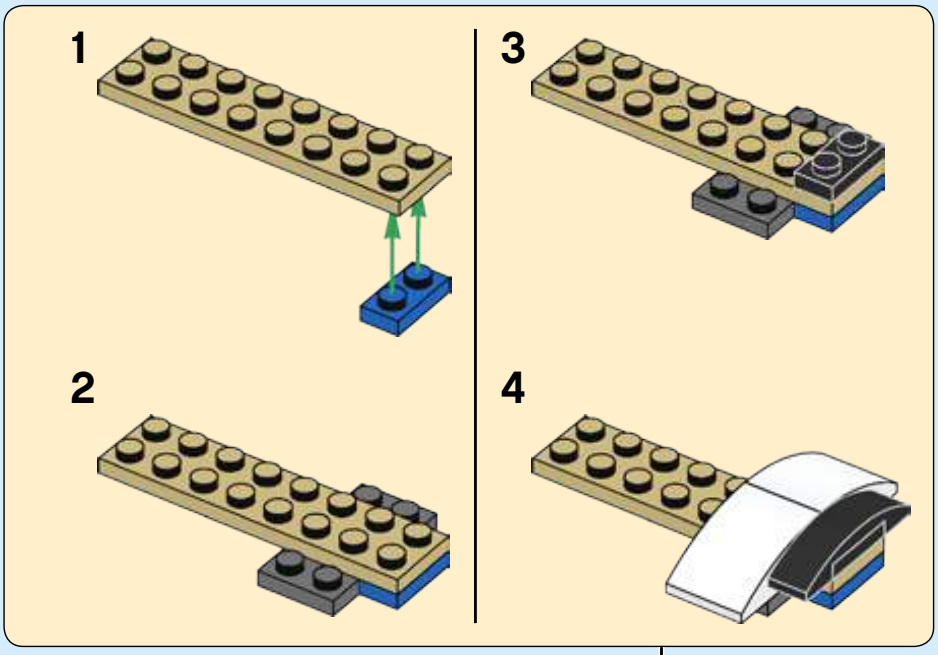

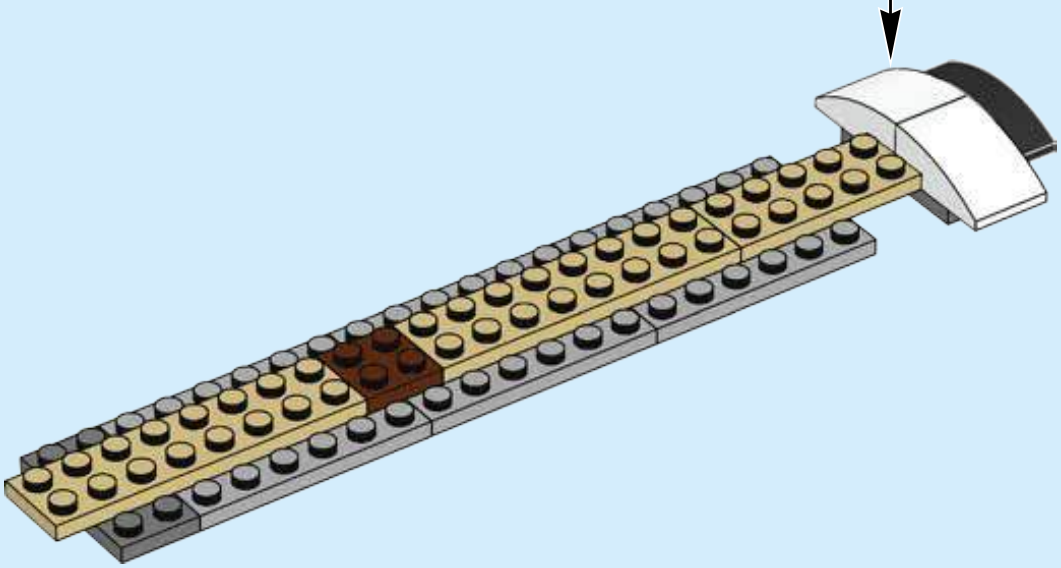

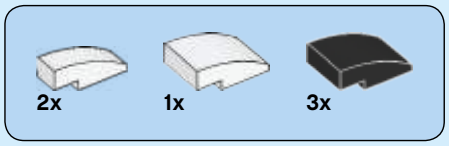

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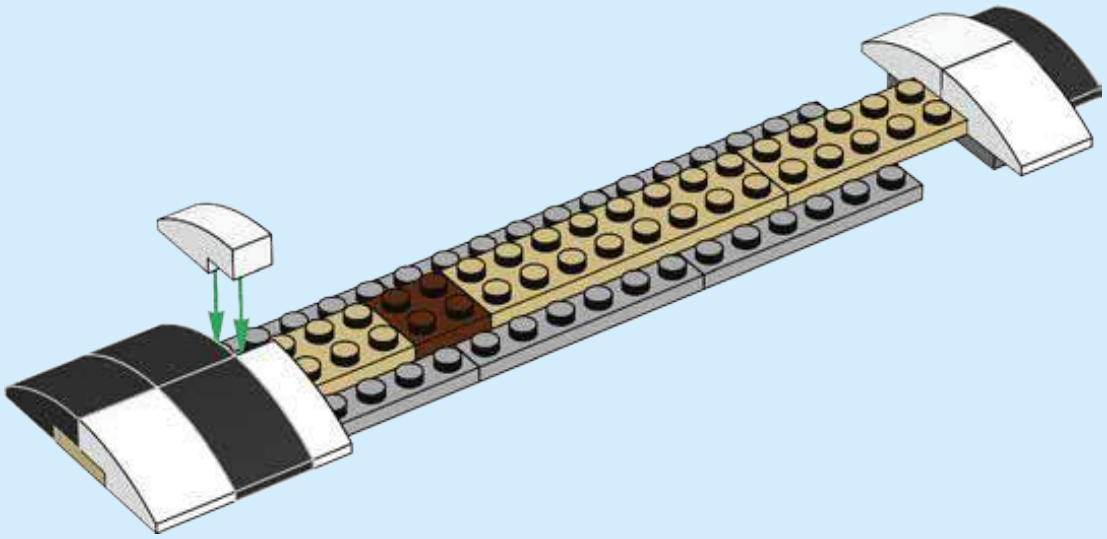

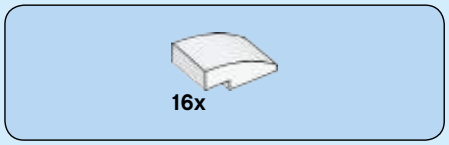

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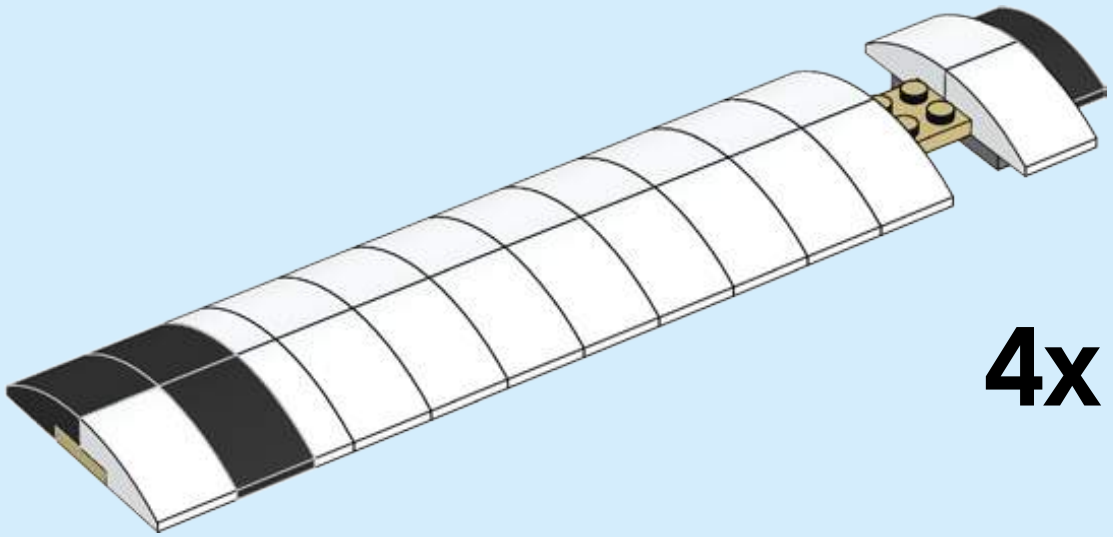

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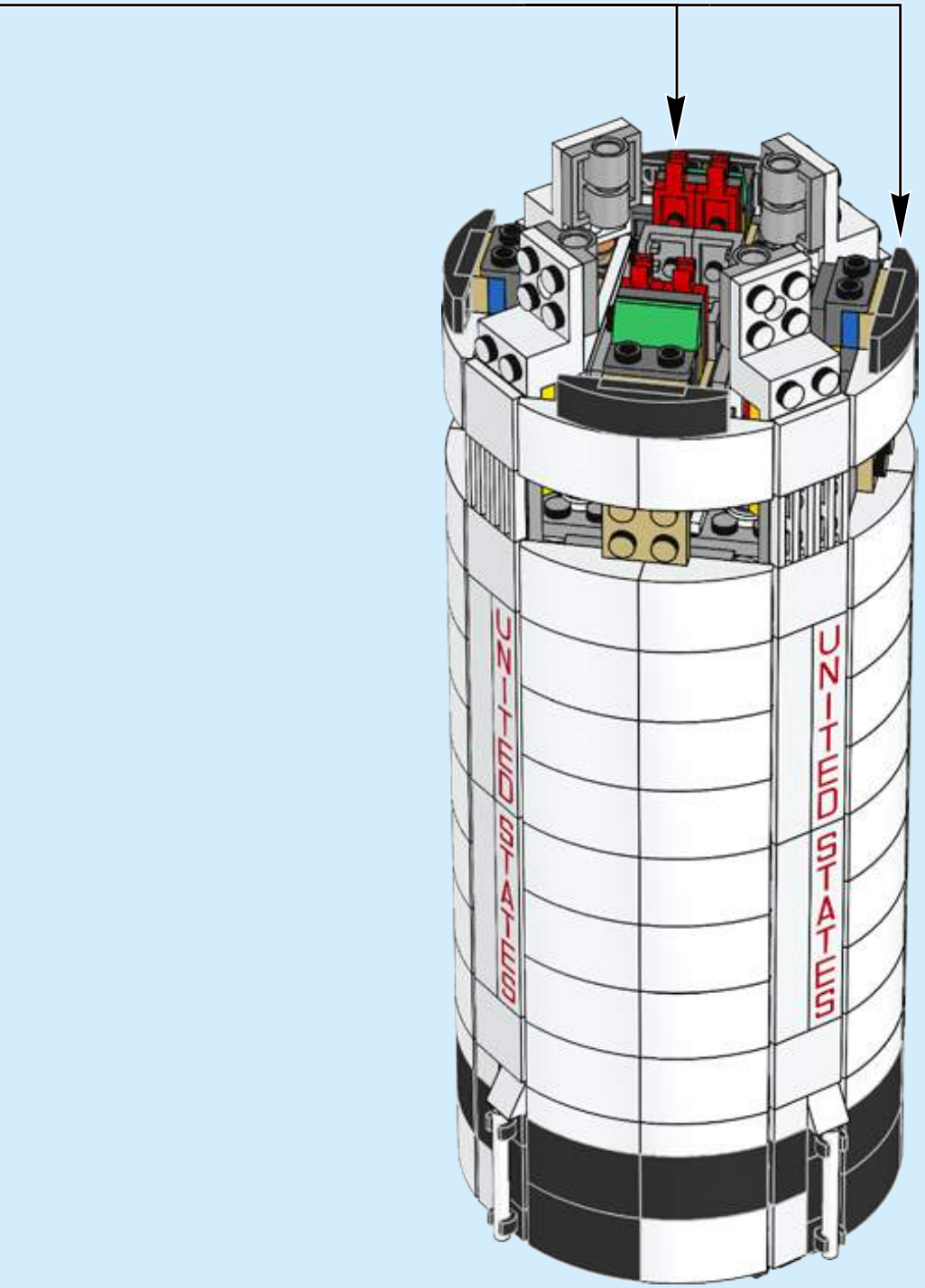

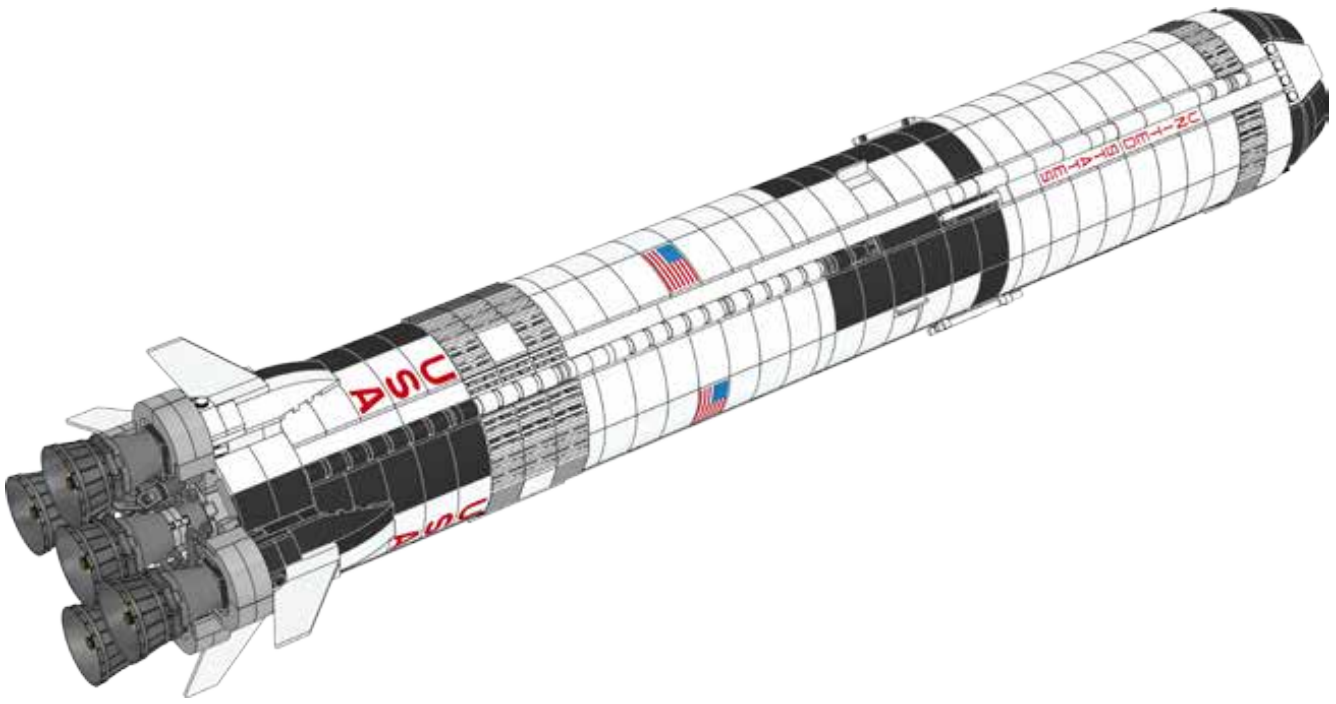

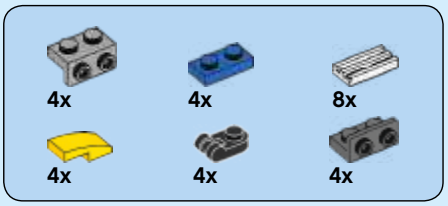

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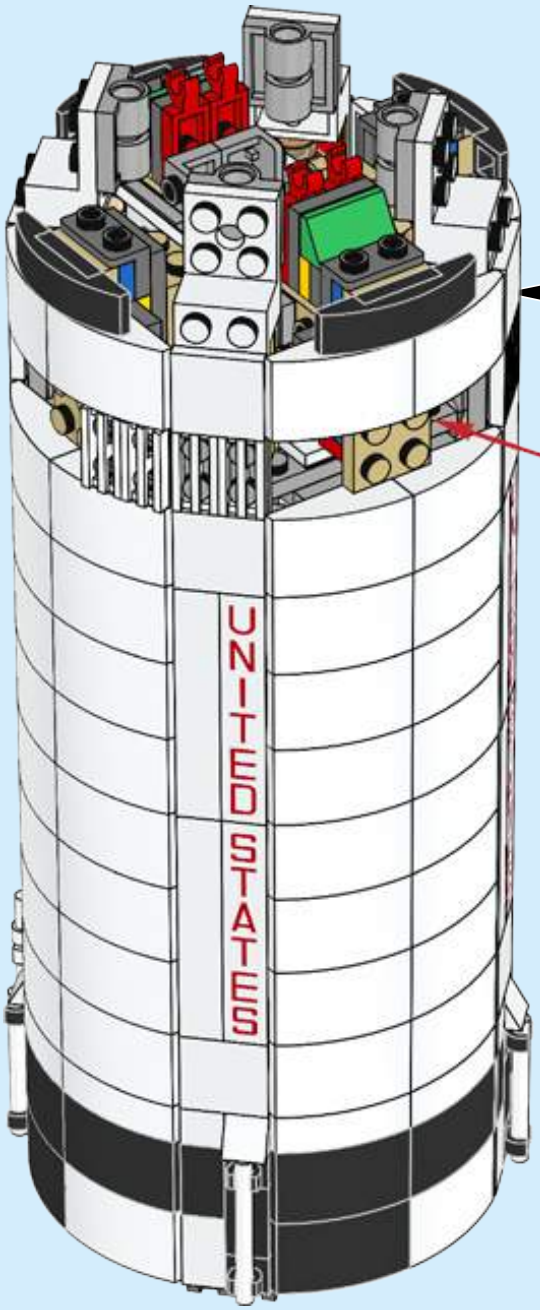

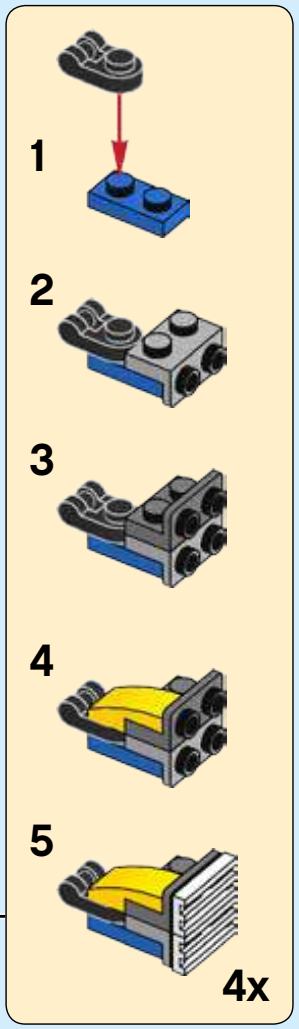

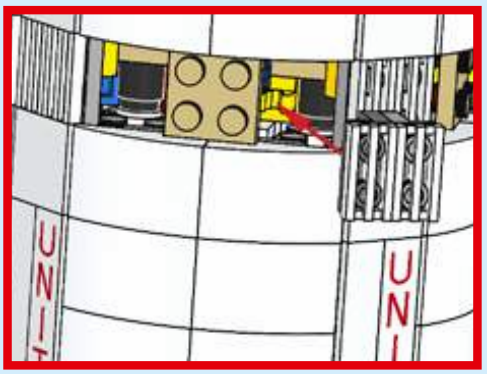

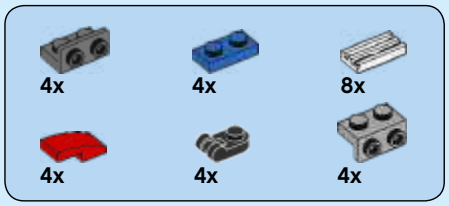

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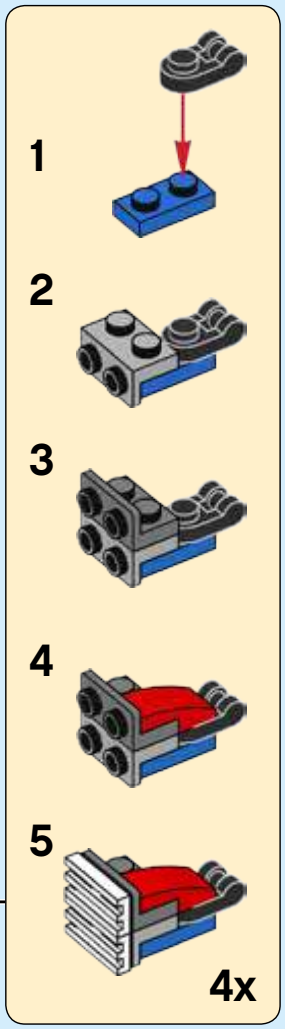

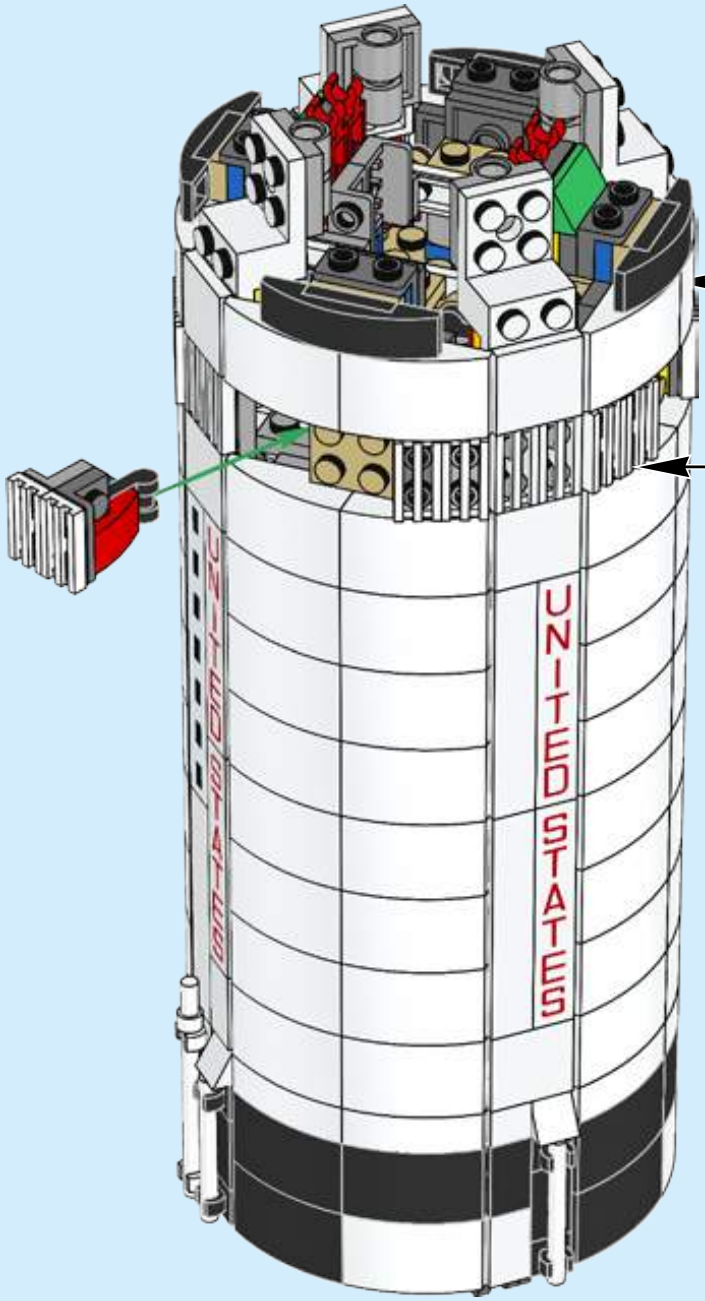

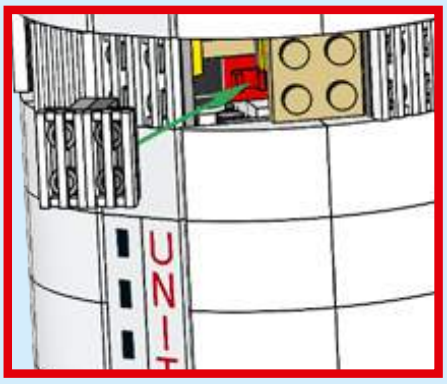

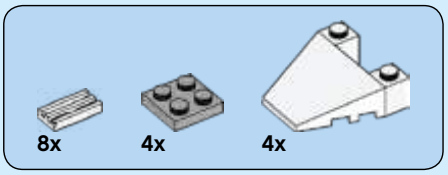

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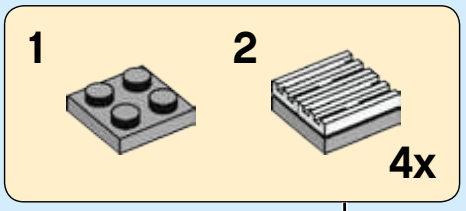

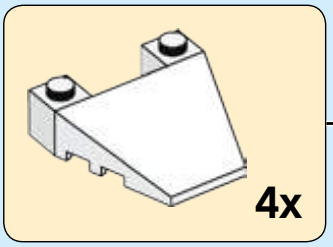

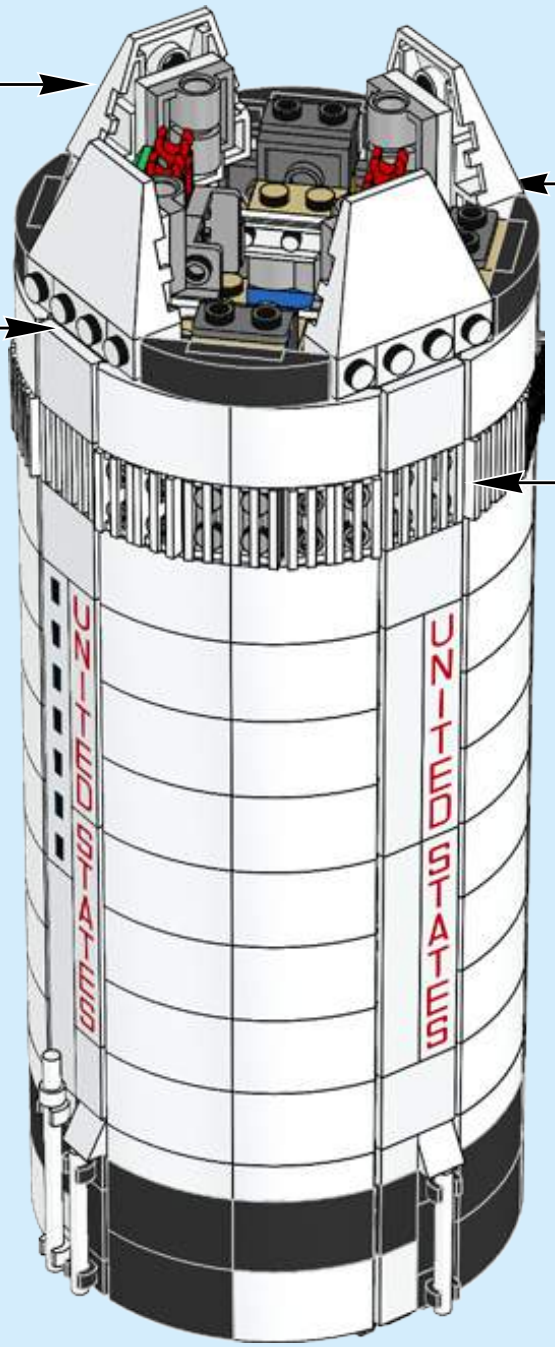

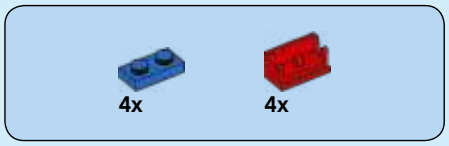

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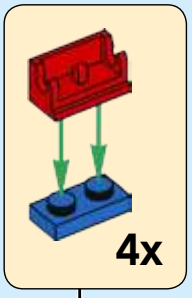

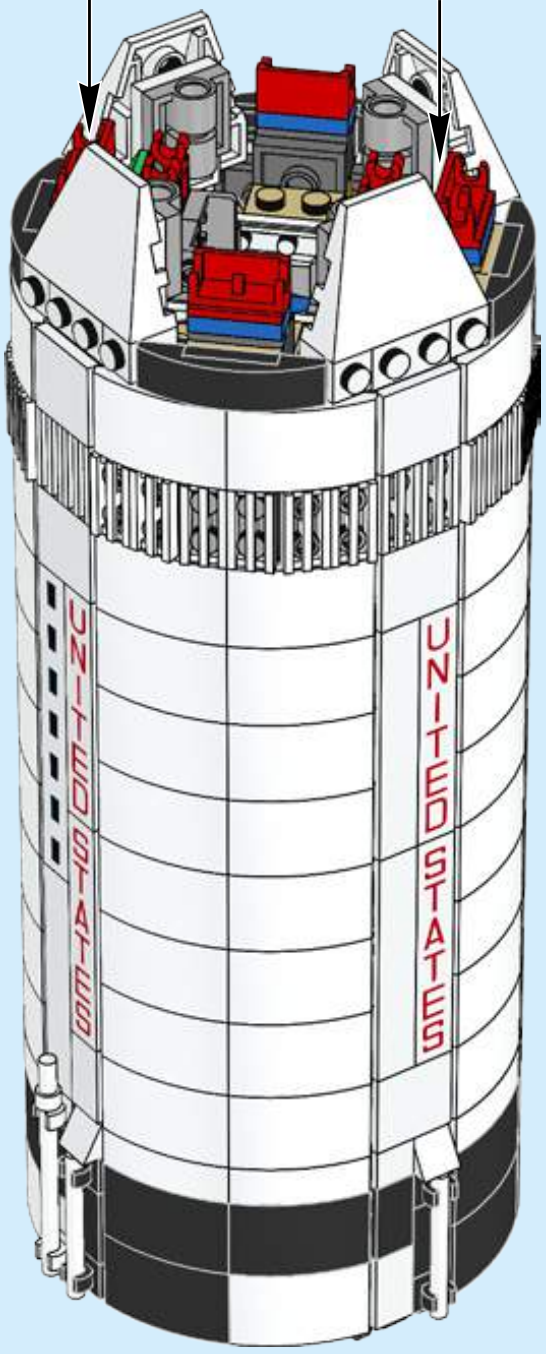

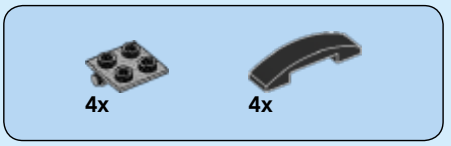

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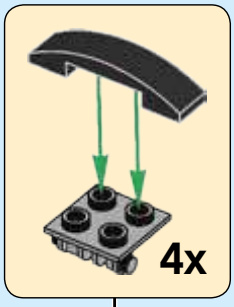

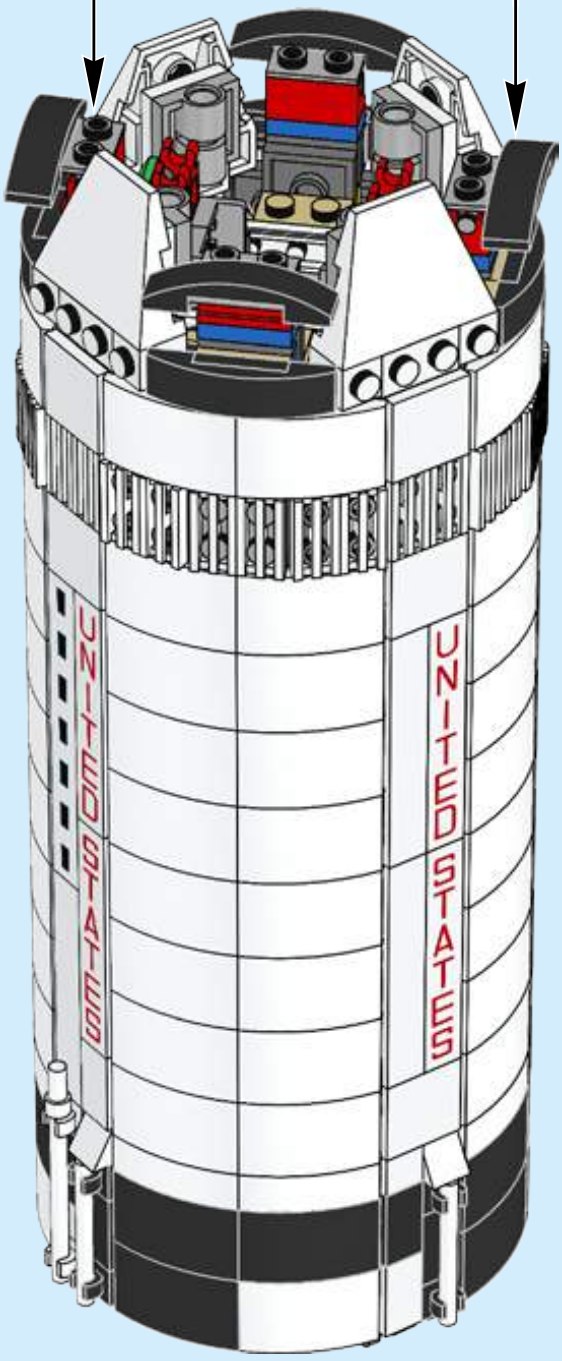

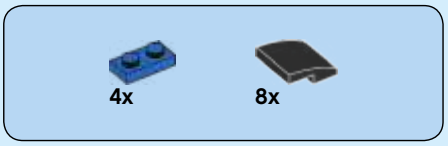

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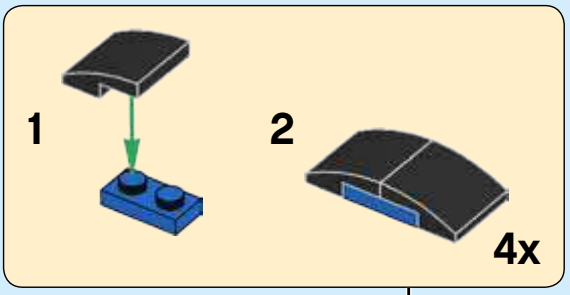

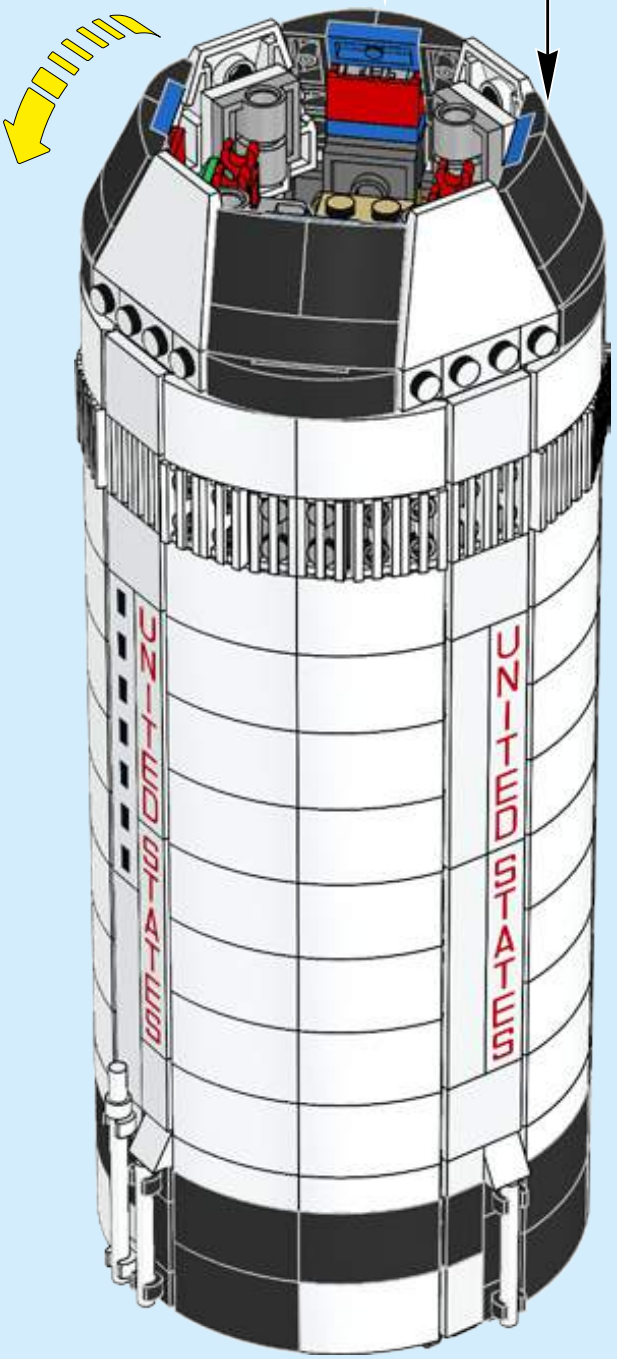

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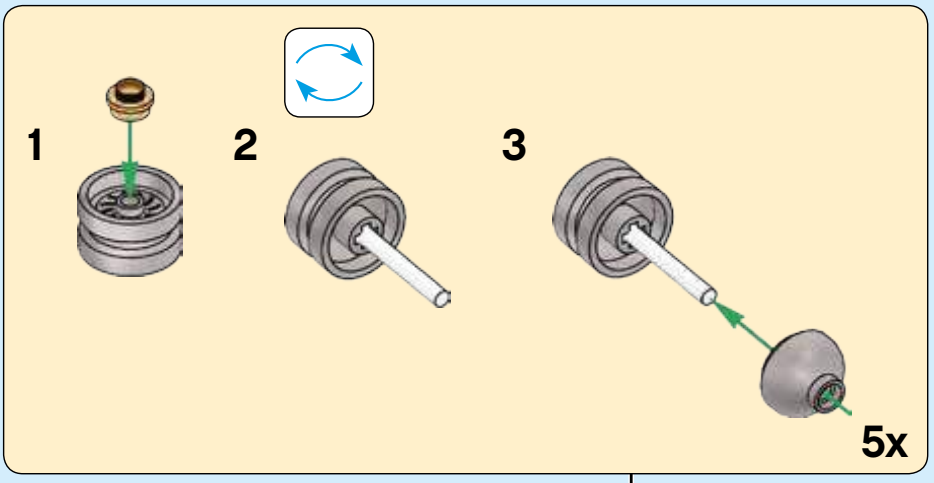

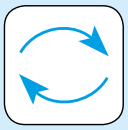

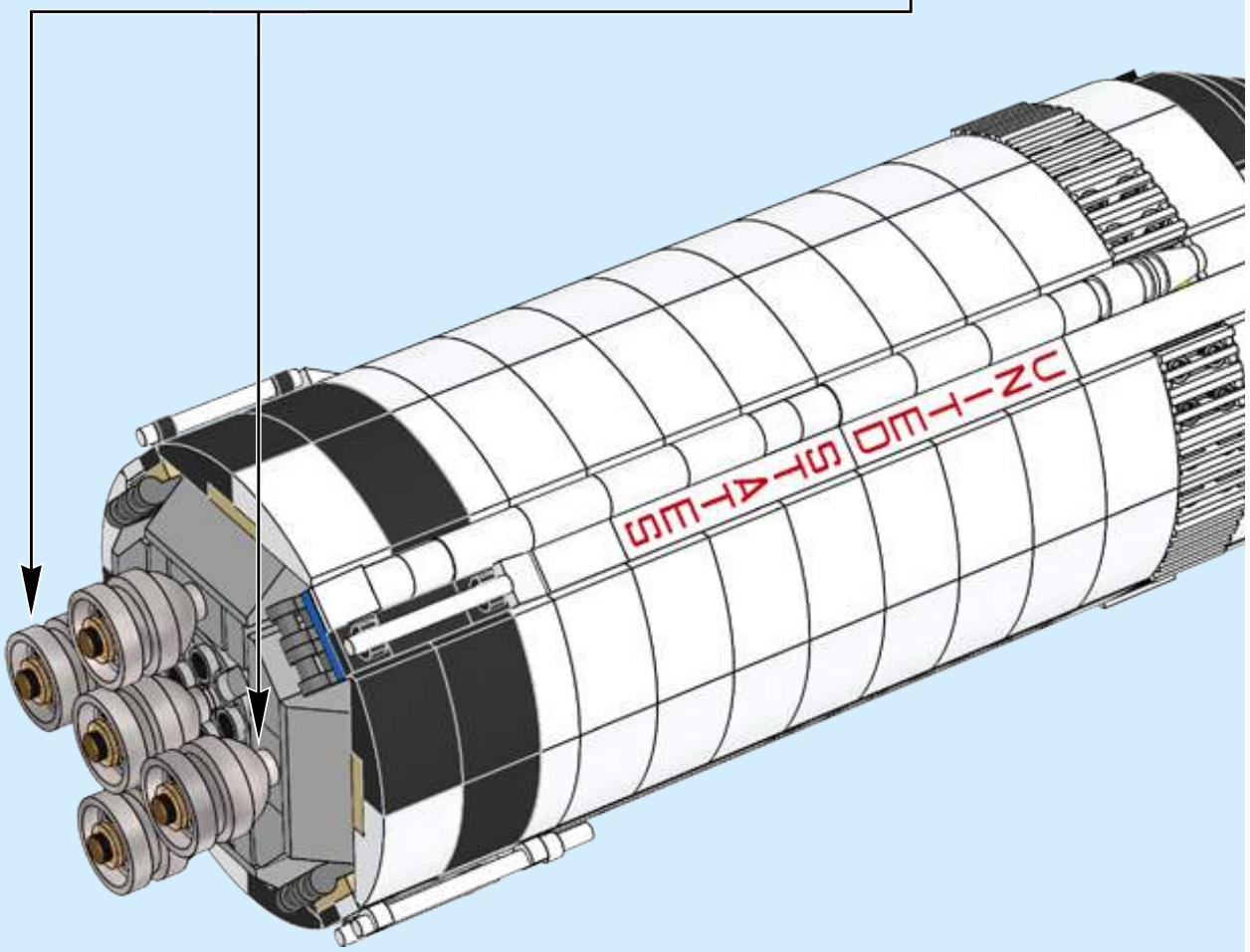

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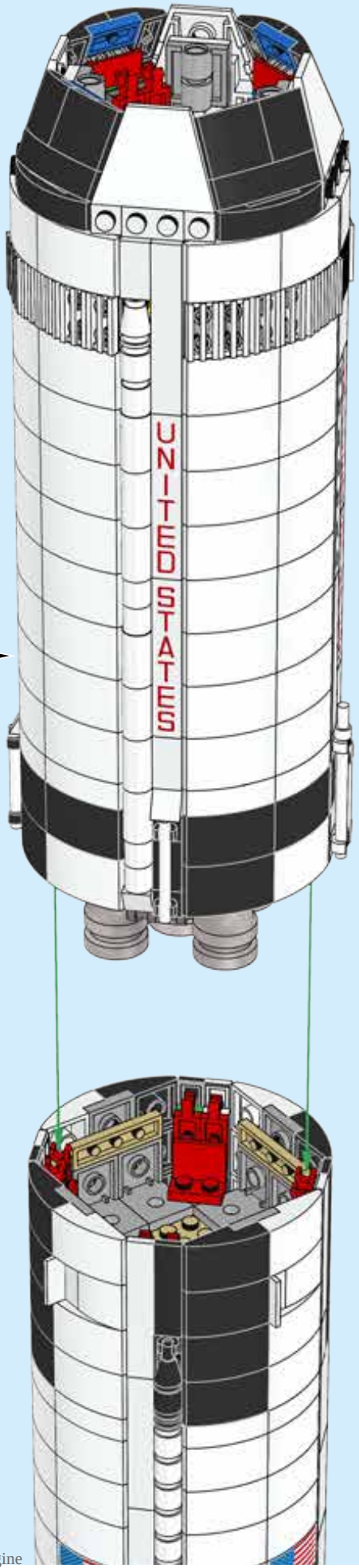

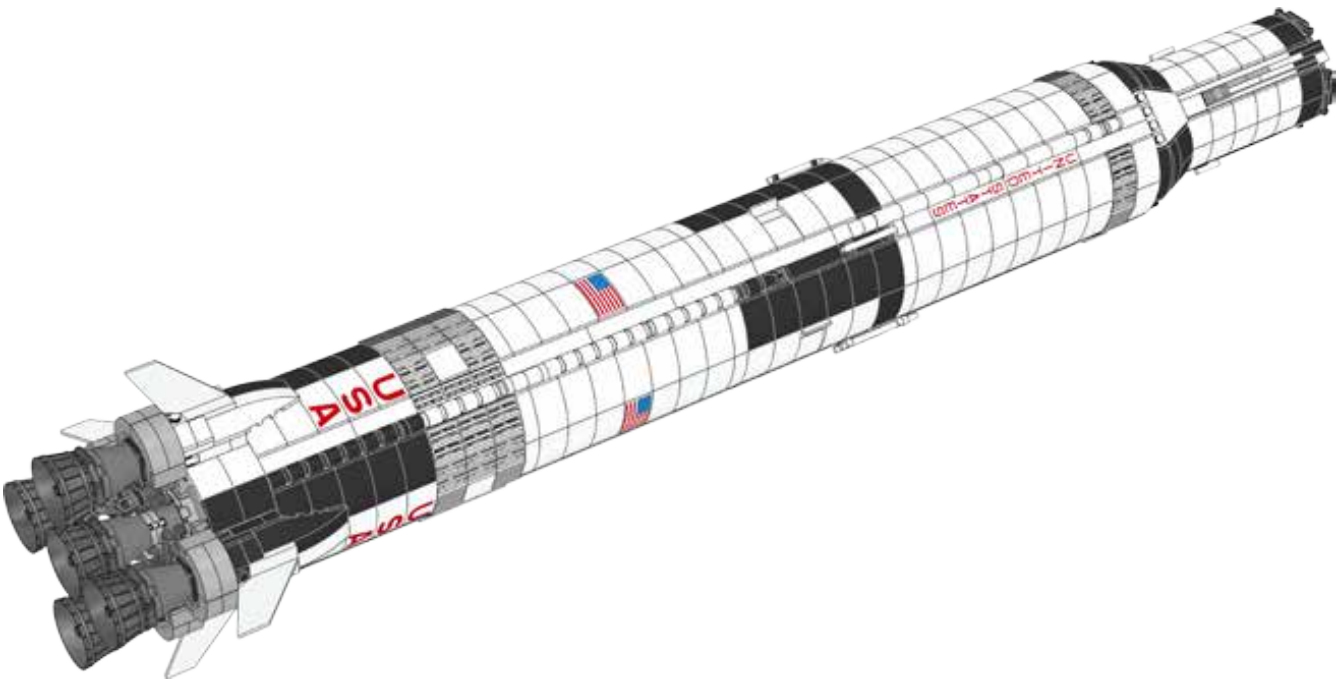

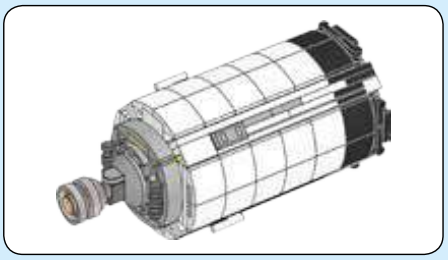

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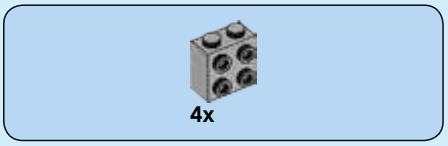

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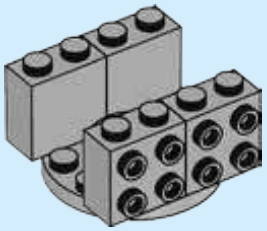

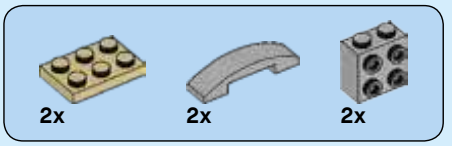

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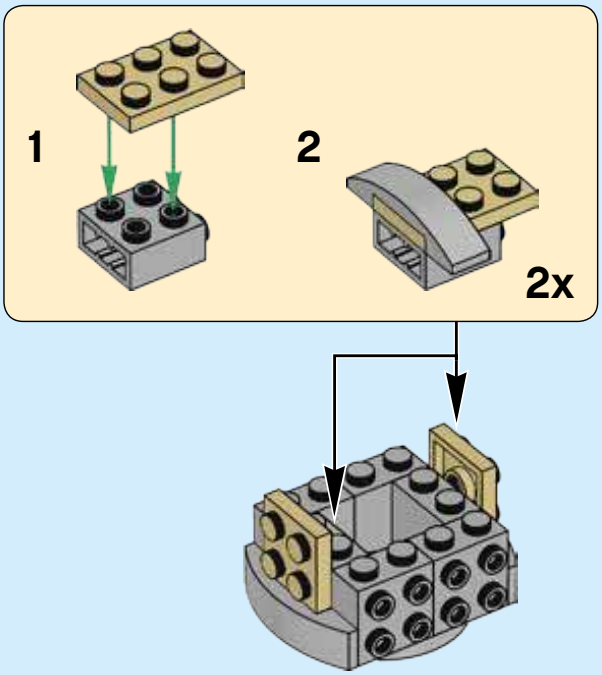

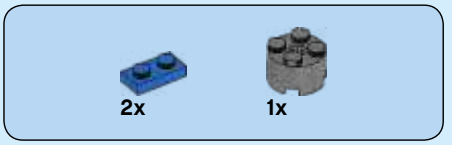

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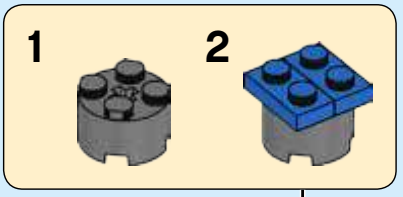

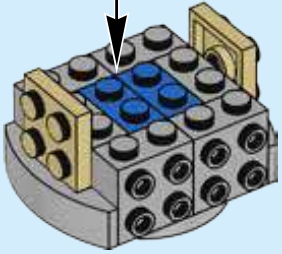

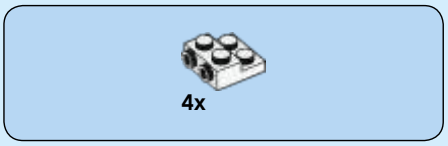

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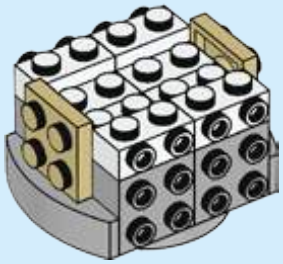

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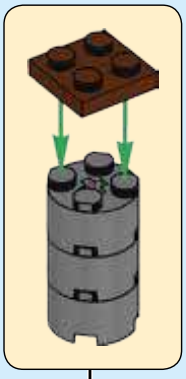

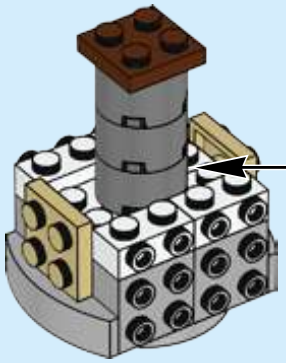

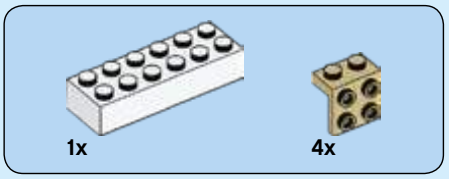

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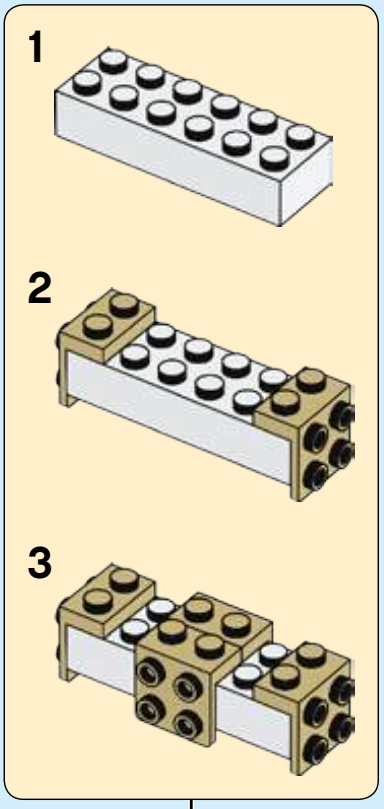

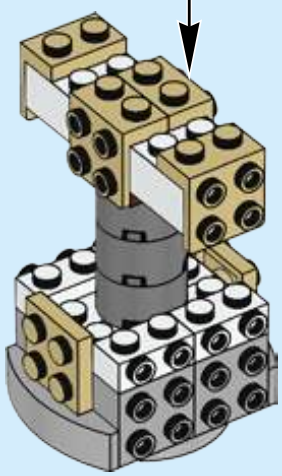

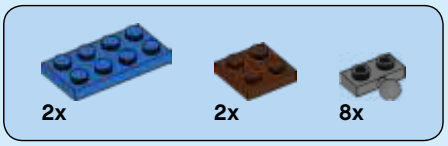

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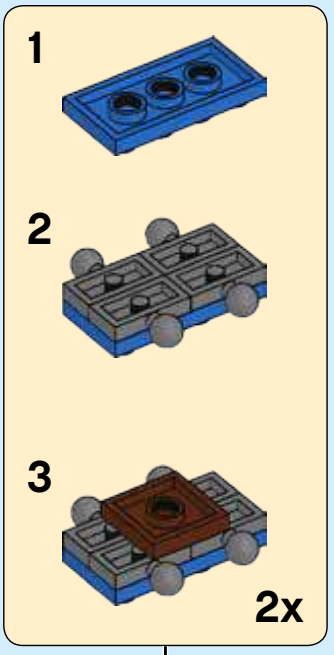

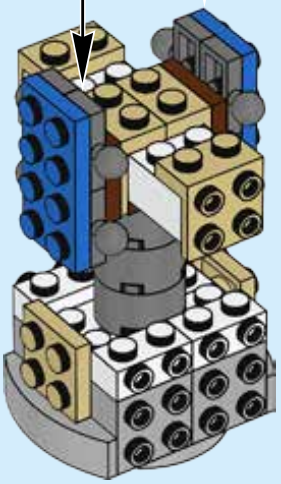

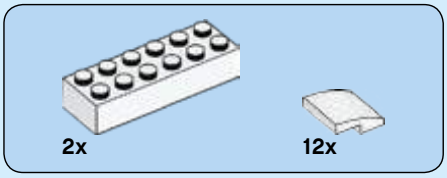

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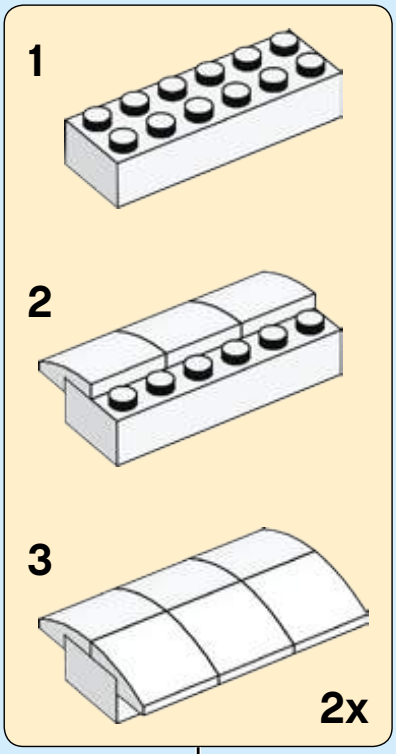

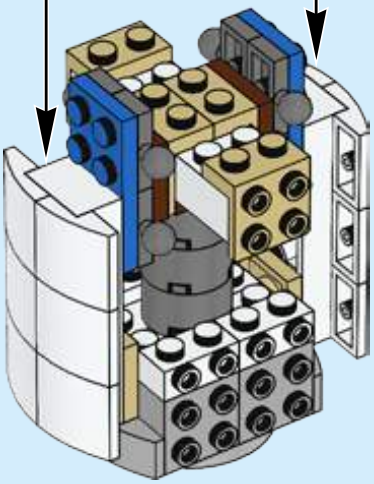

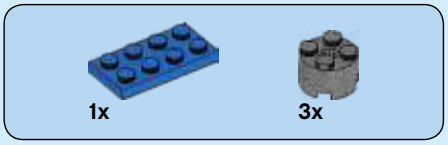

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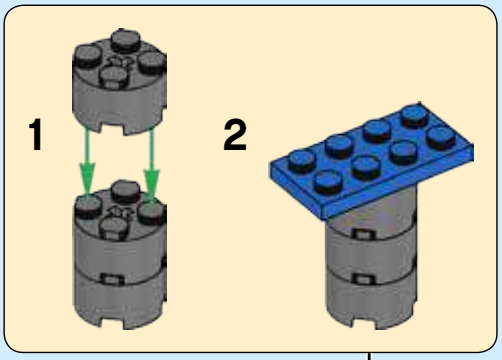

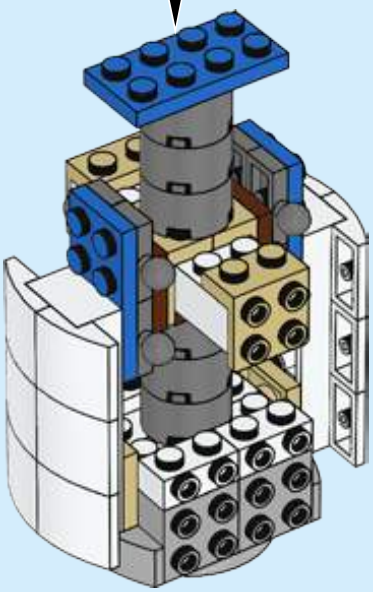

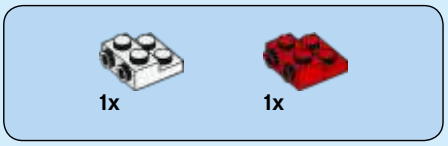

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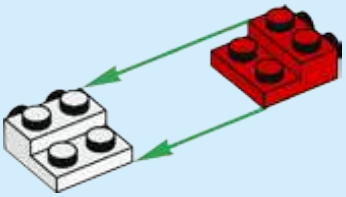

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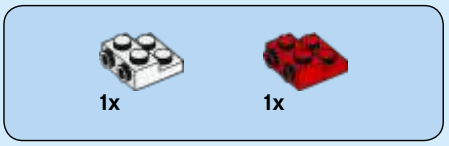

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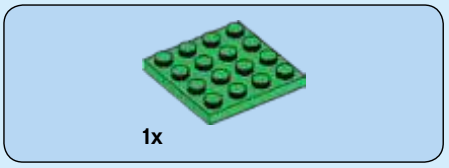

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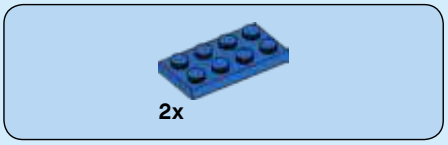

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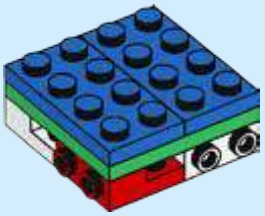

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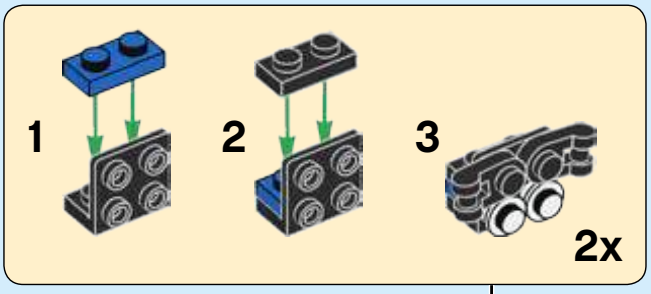

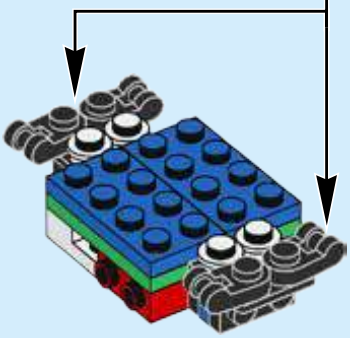

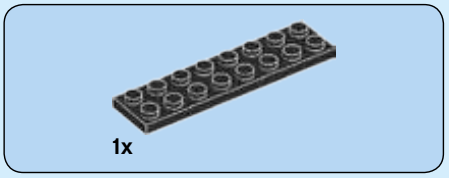

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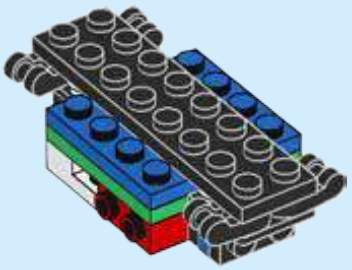

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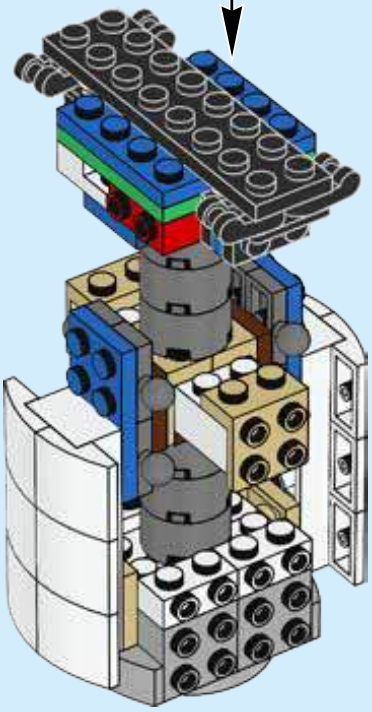

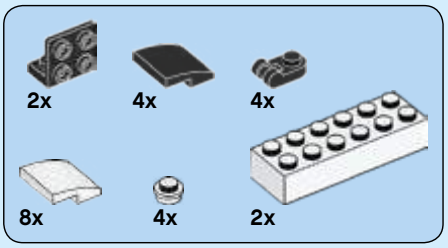

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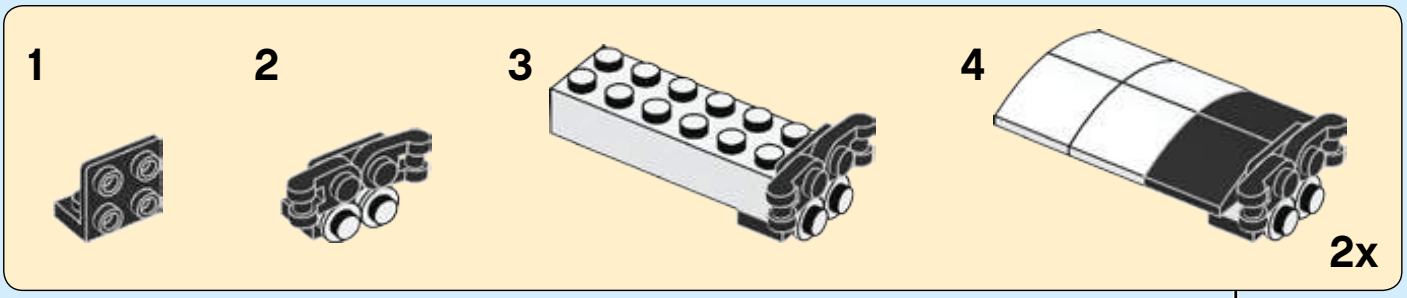

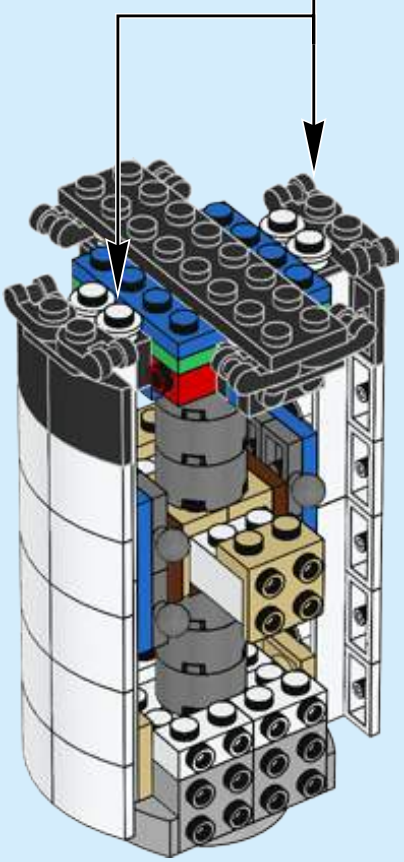

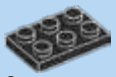

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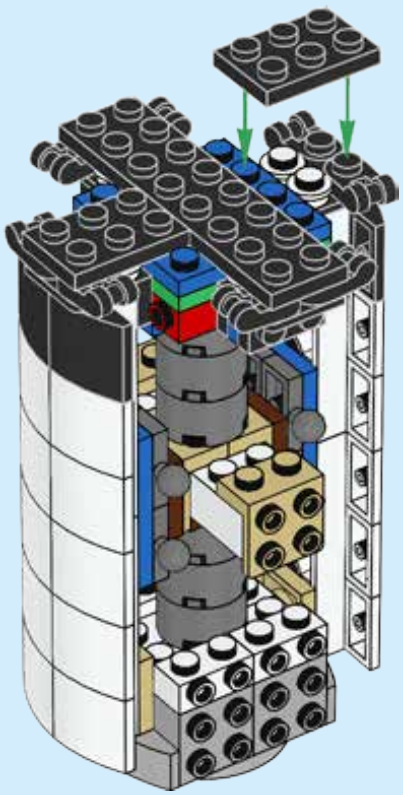

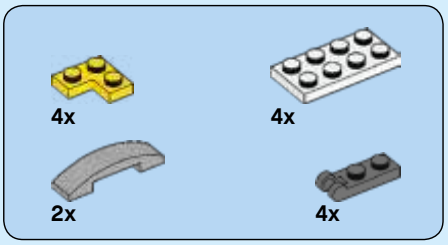

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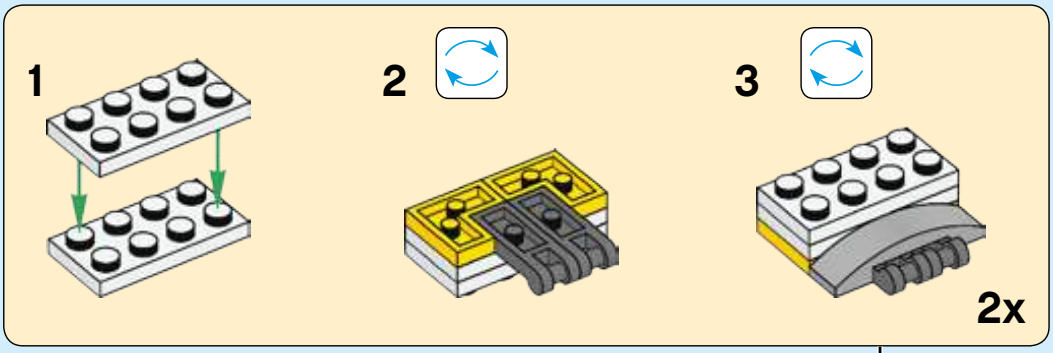

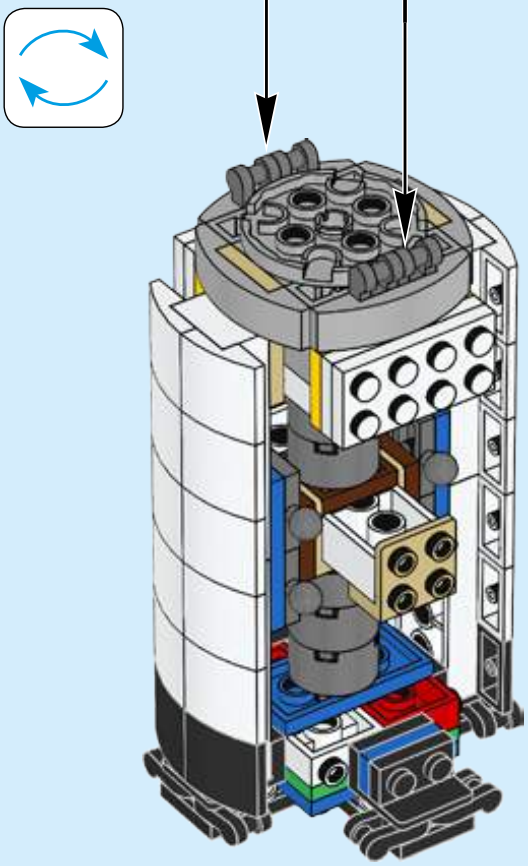

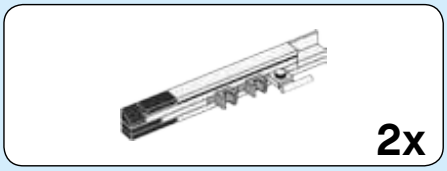

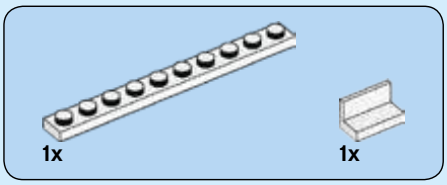

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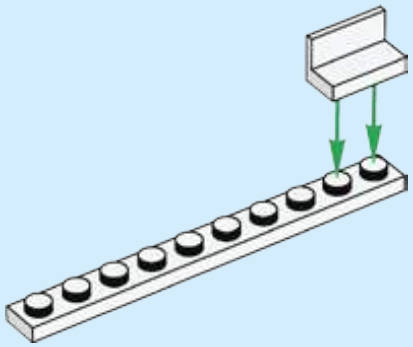

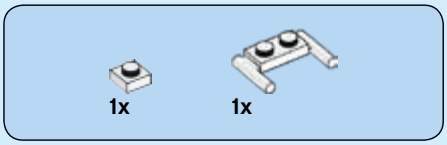

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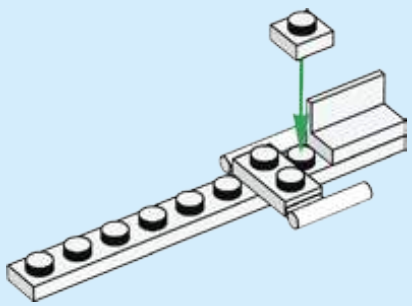

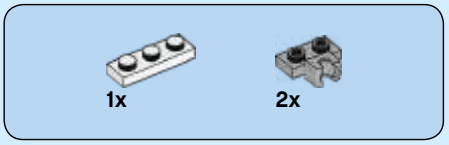

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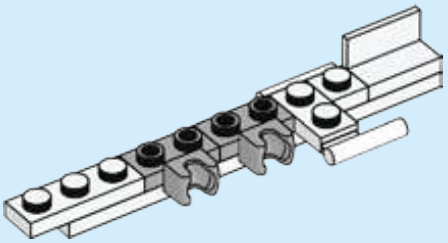

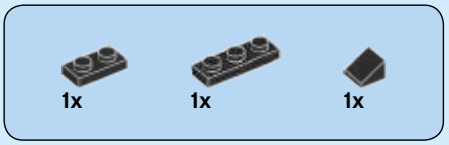

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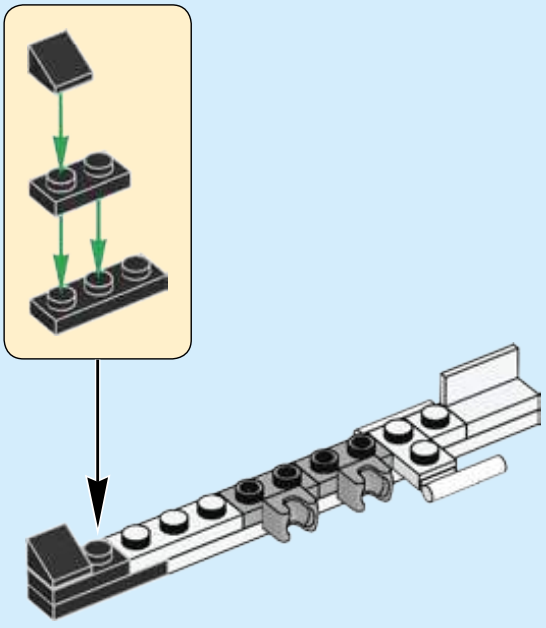

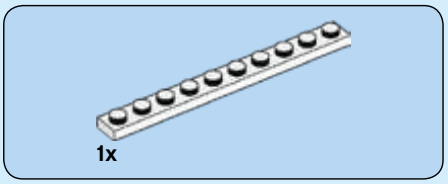

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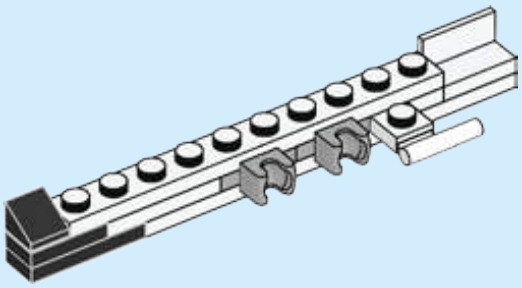

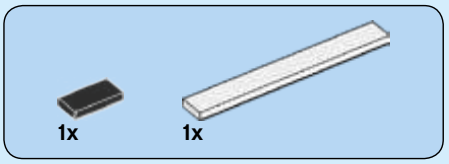

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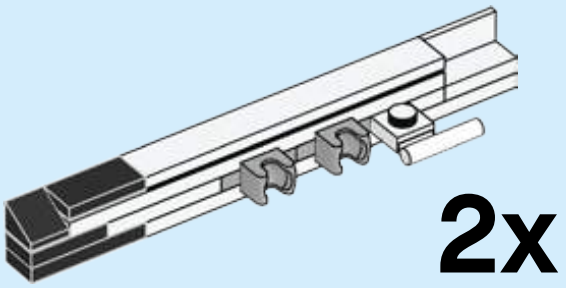

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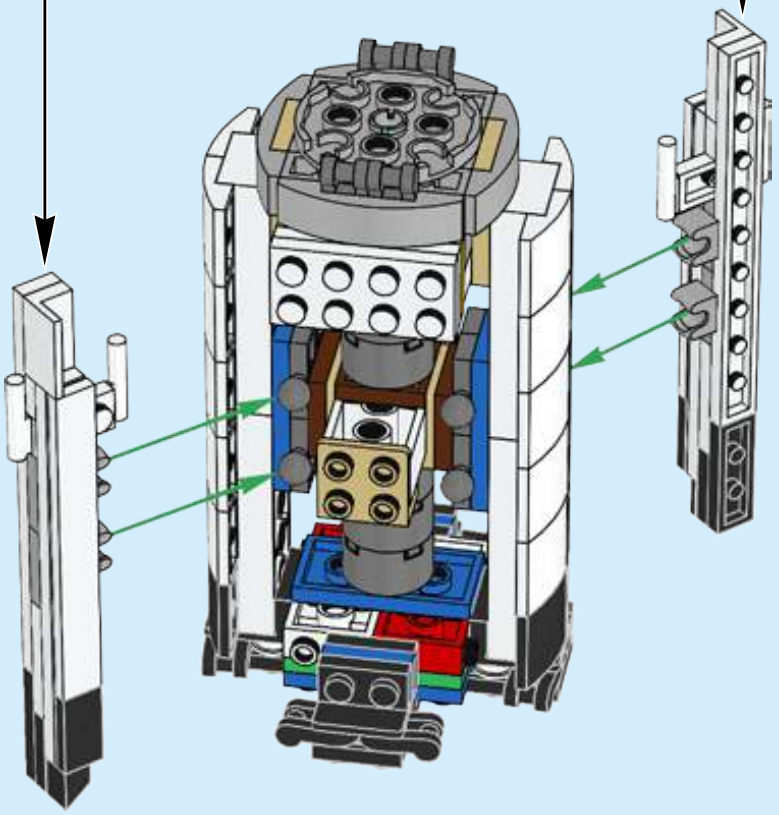

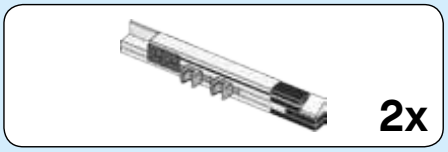

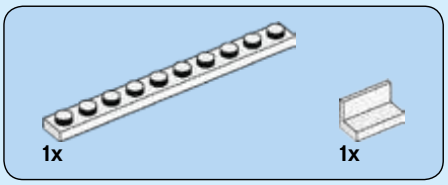

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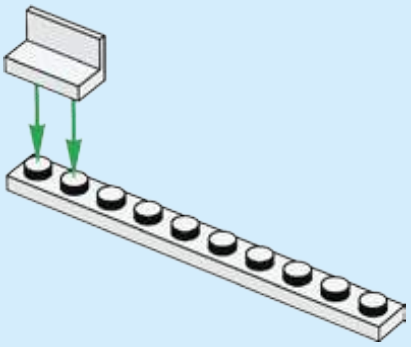

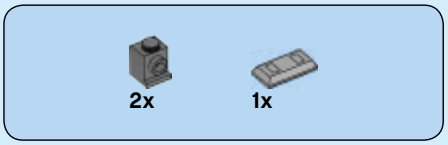

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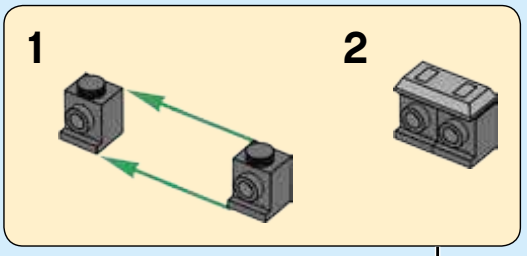

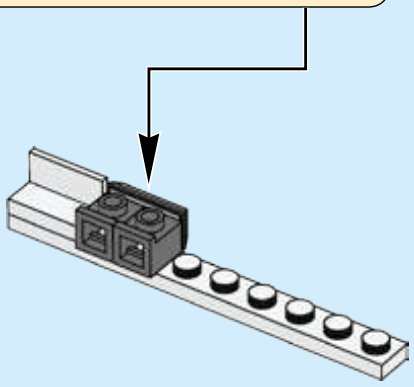

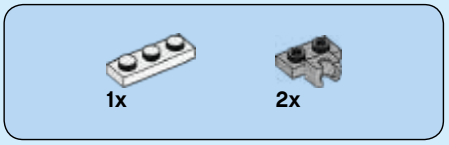

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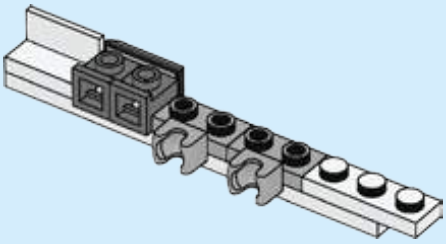

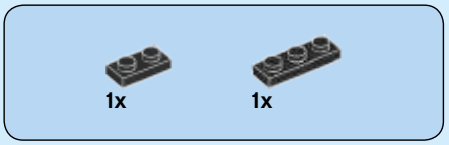

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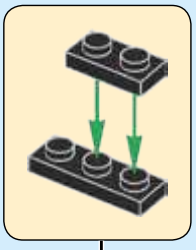

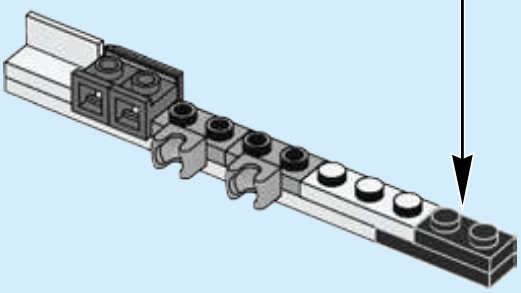

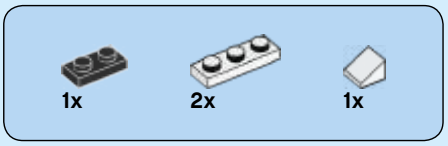

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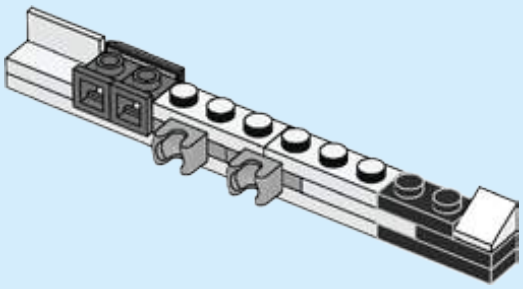

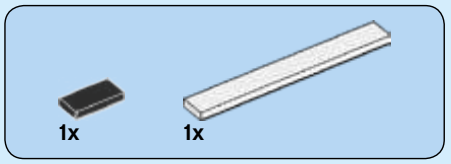

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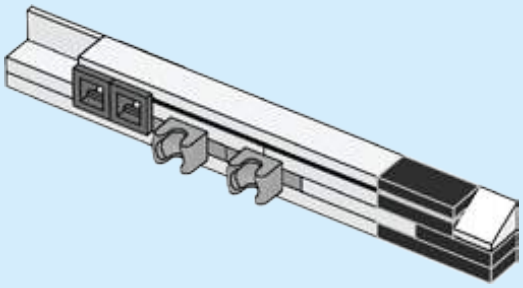

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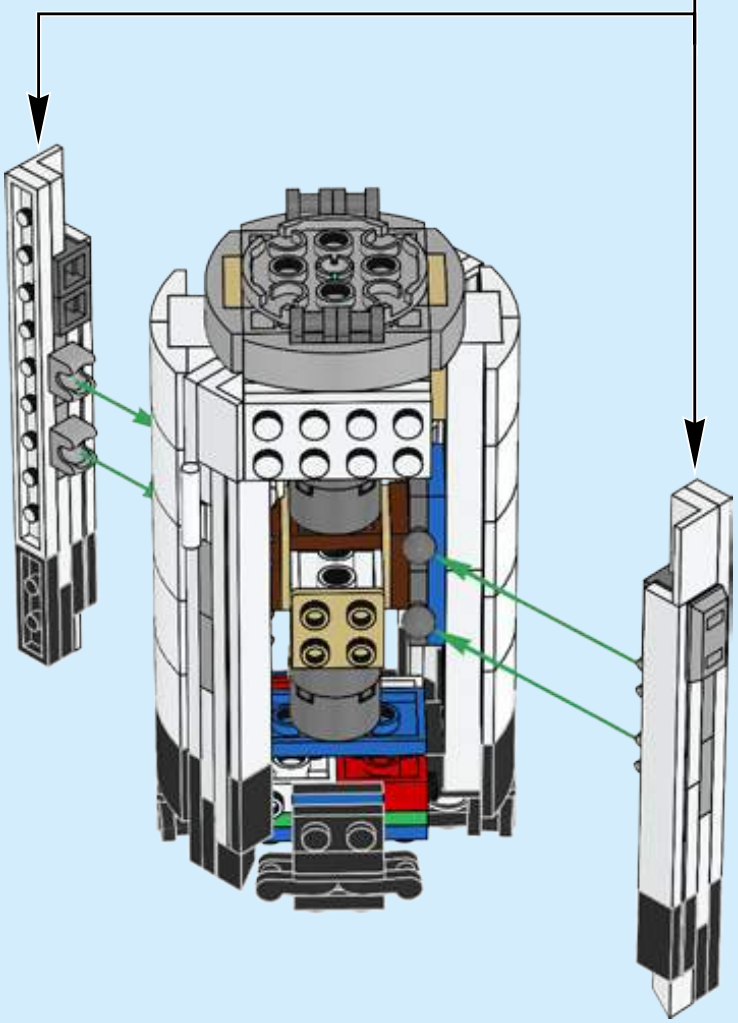

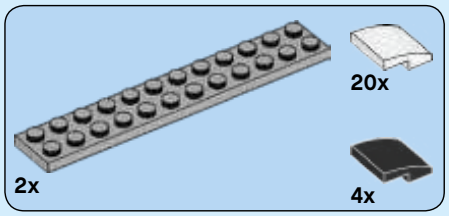

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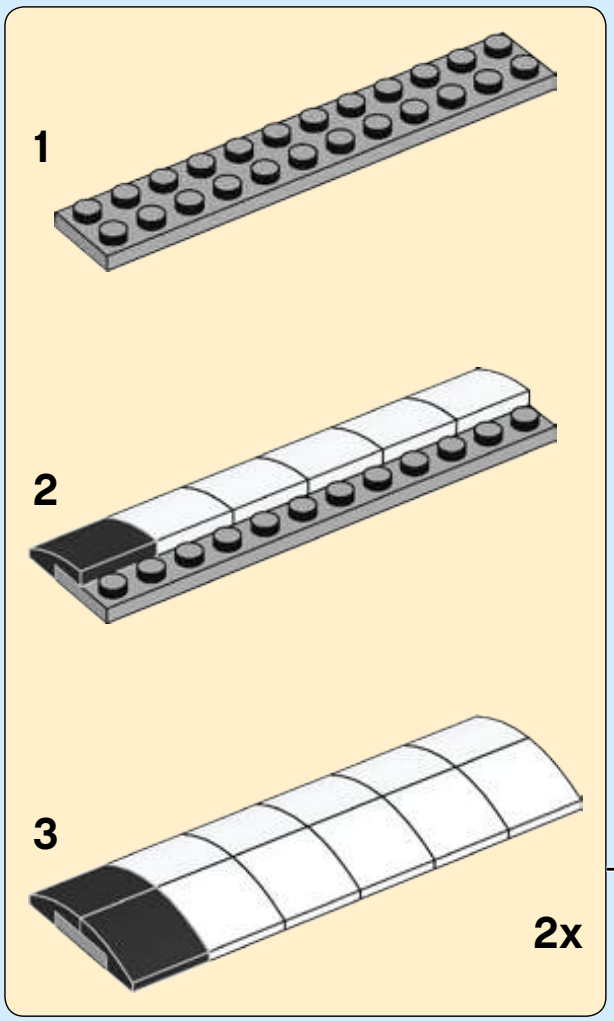

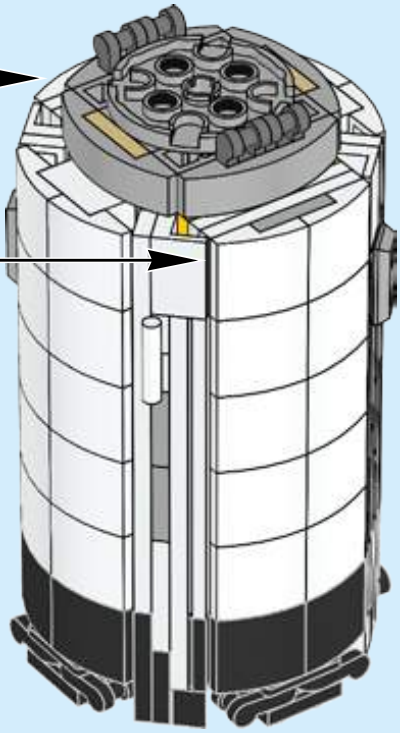

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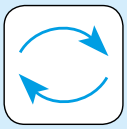

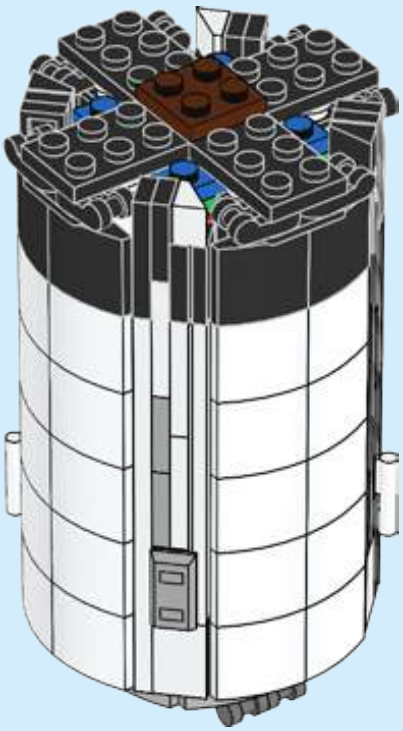

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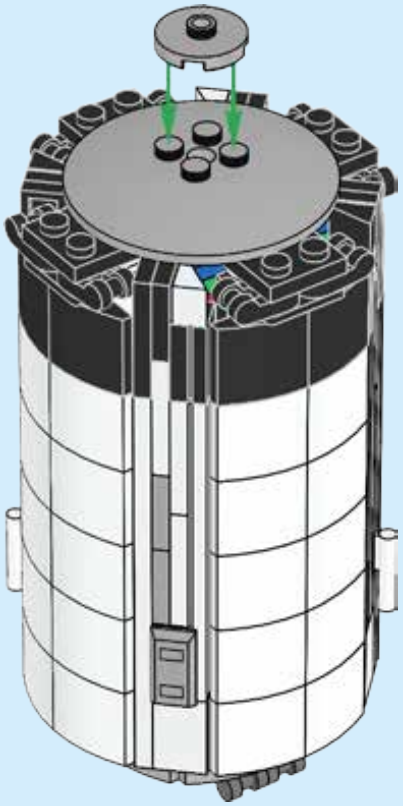

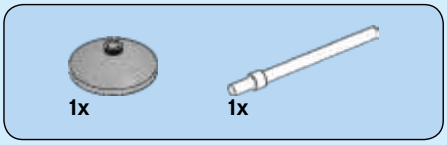

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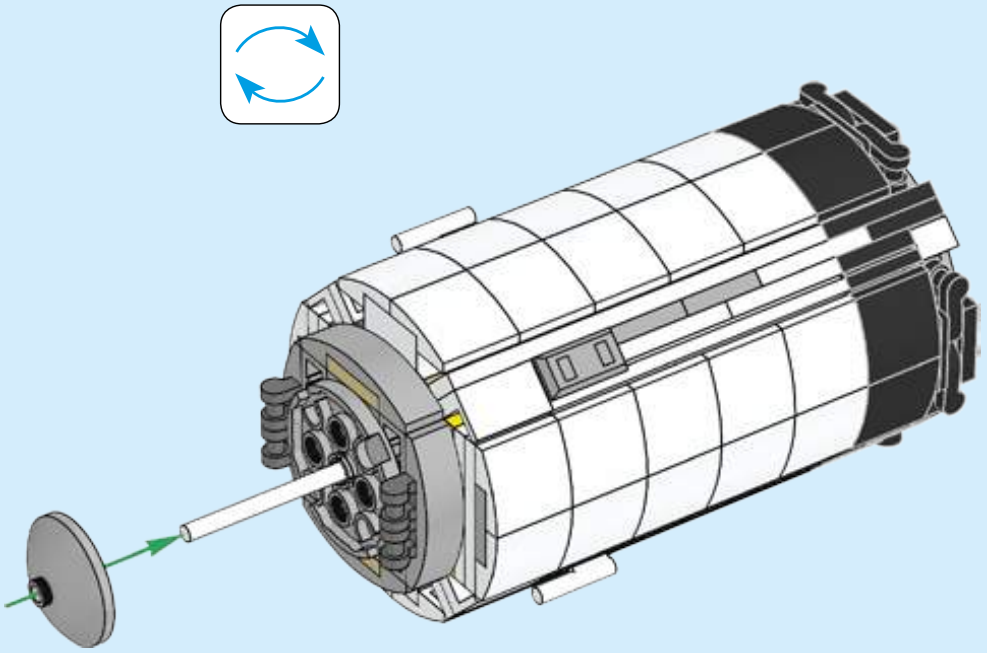

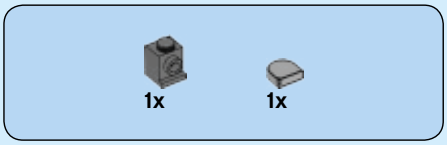

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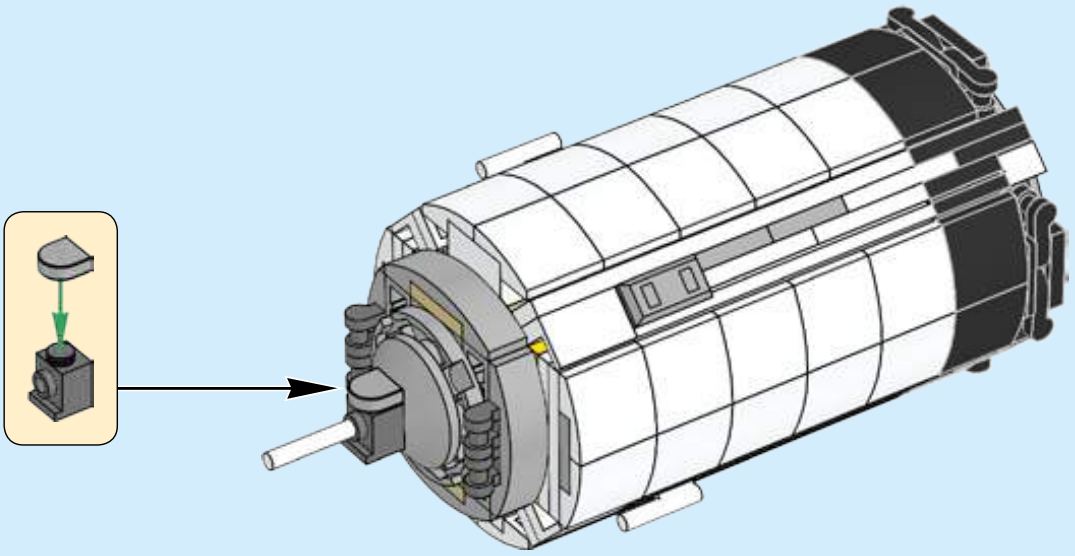

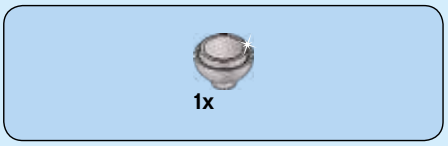

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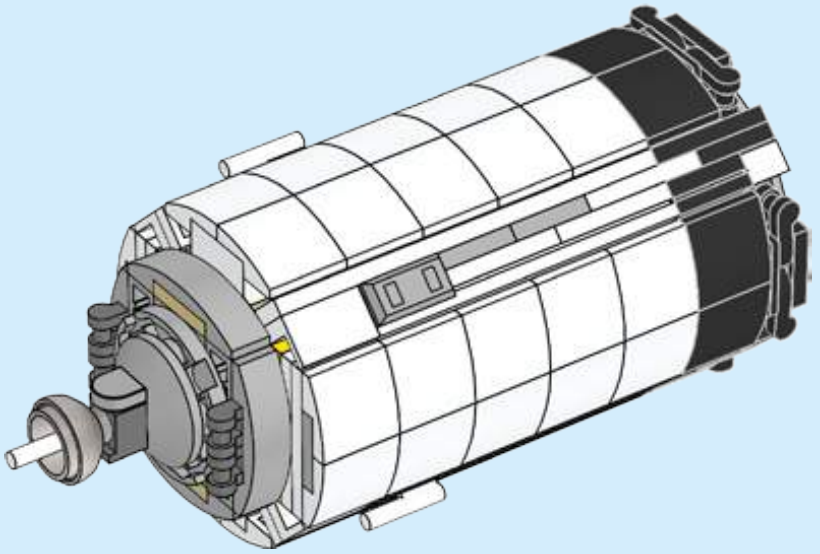

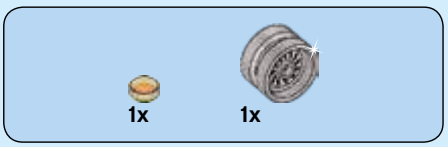

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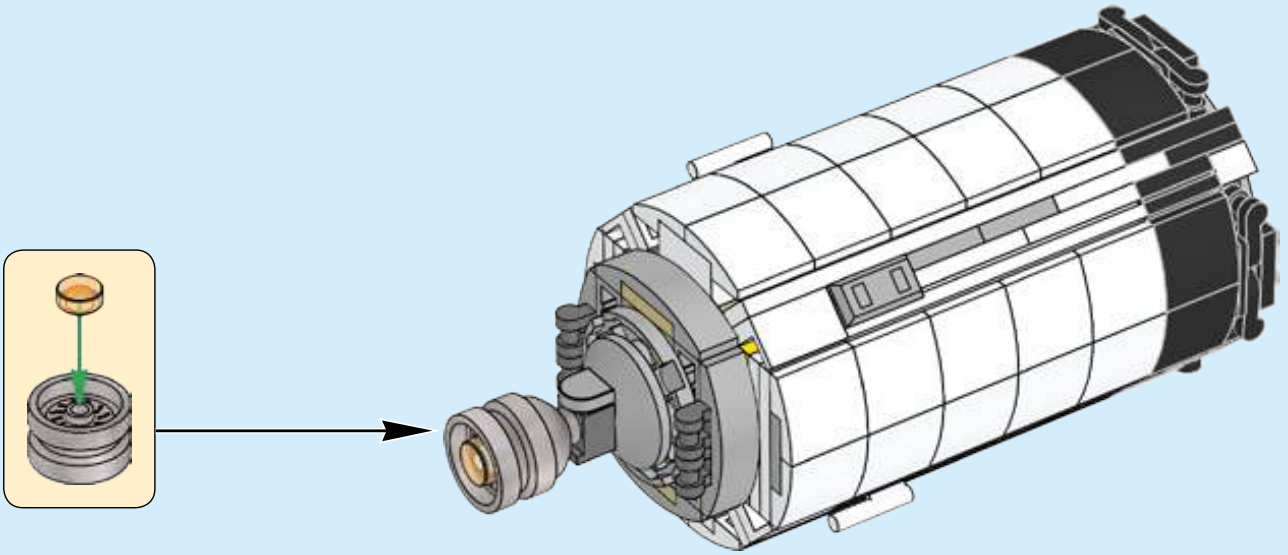

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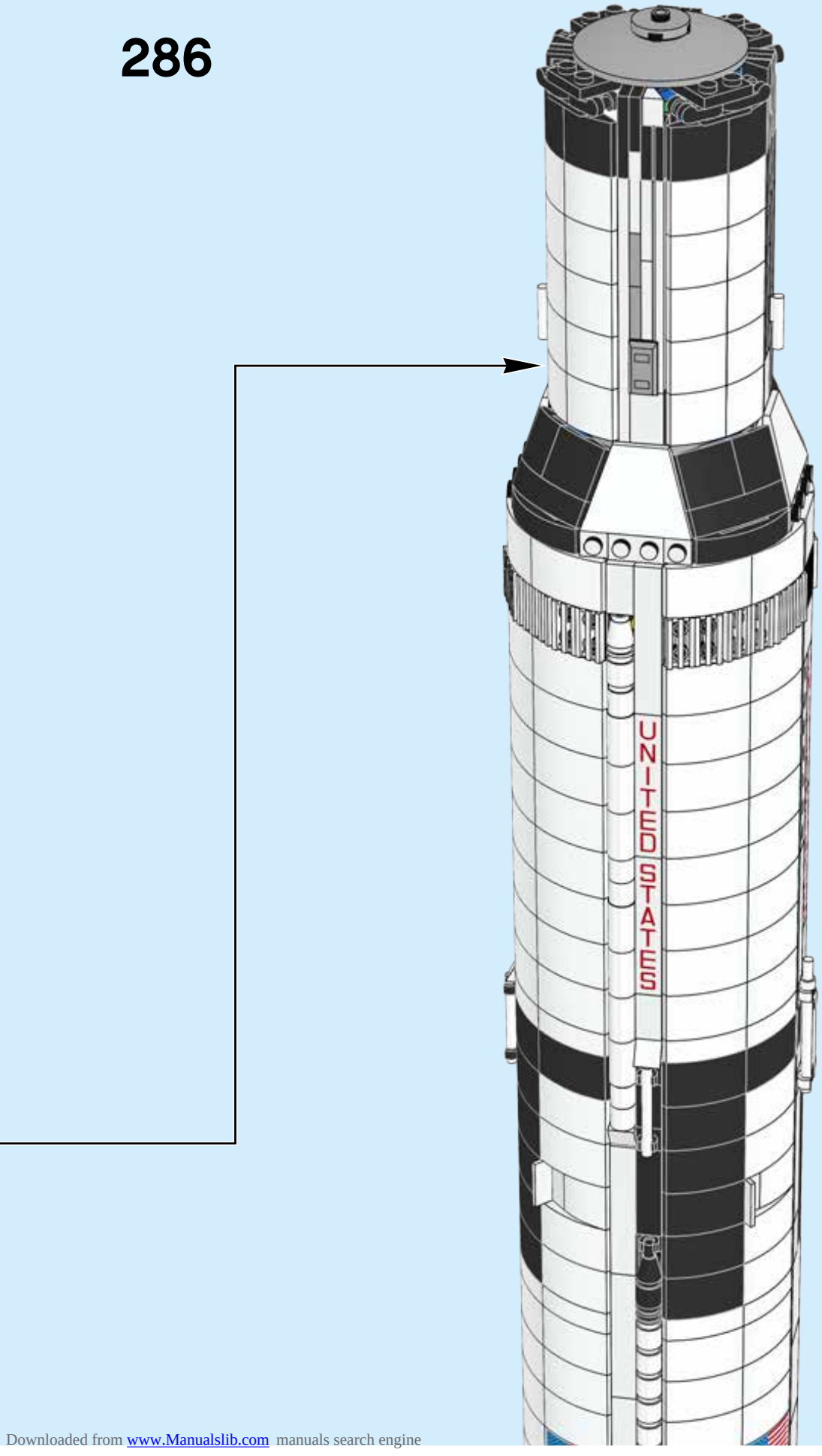

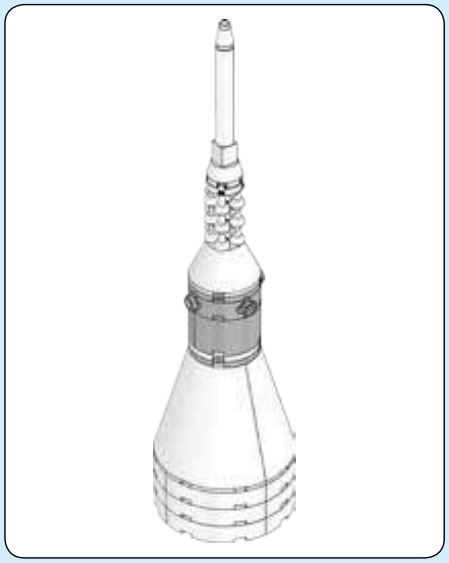

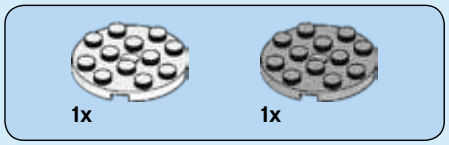

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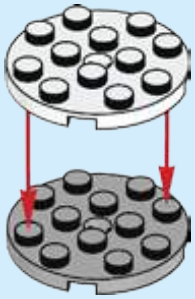

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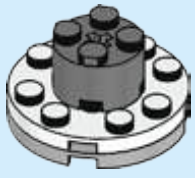

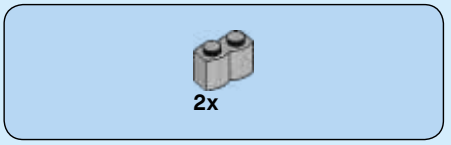

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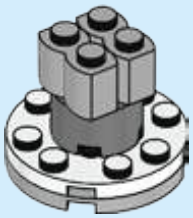

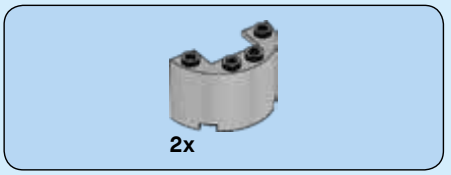

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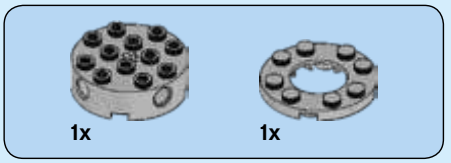

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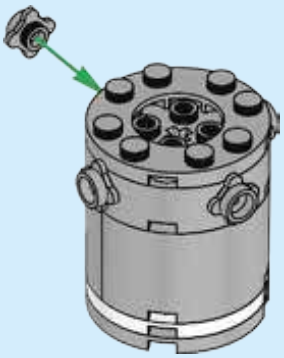
292



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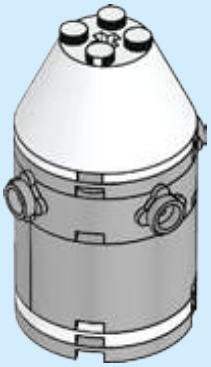

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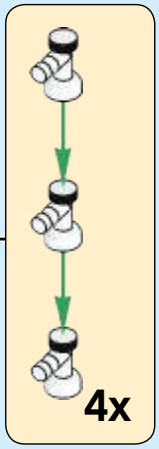

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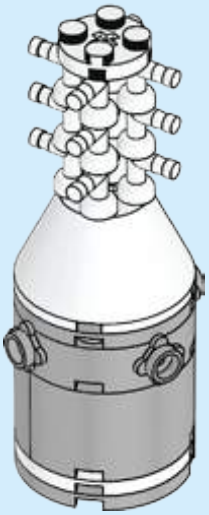

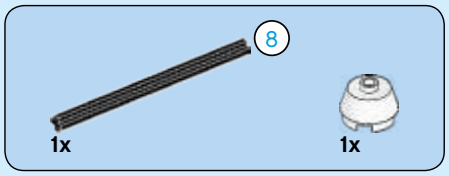

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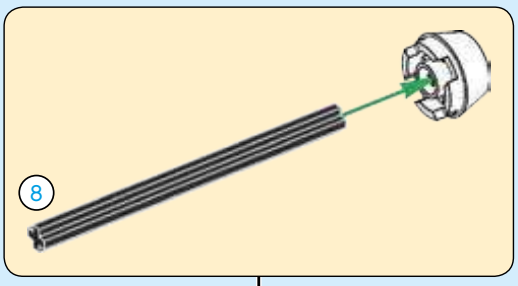

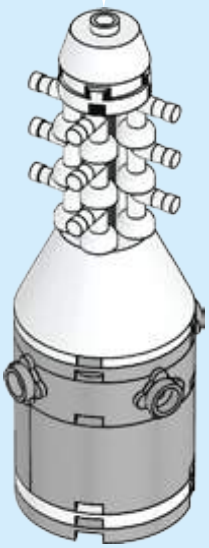

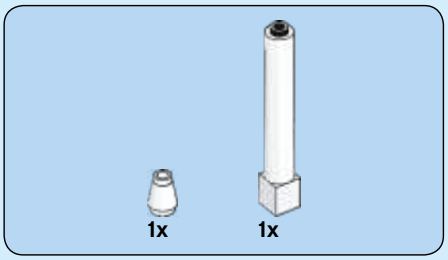

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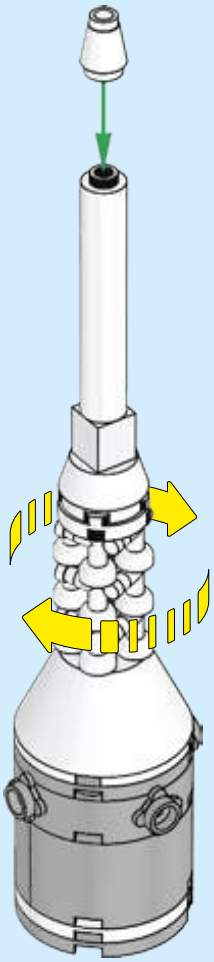

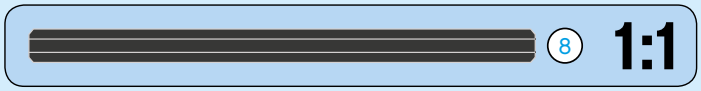

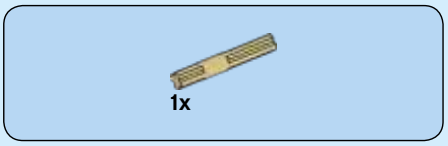

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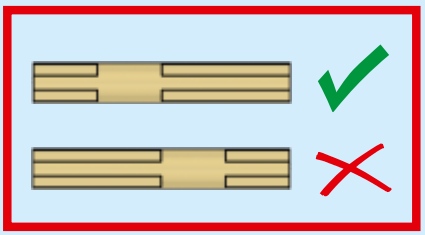

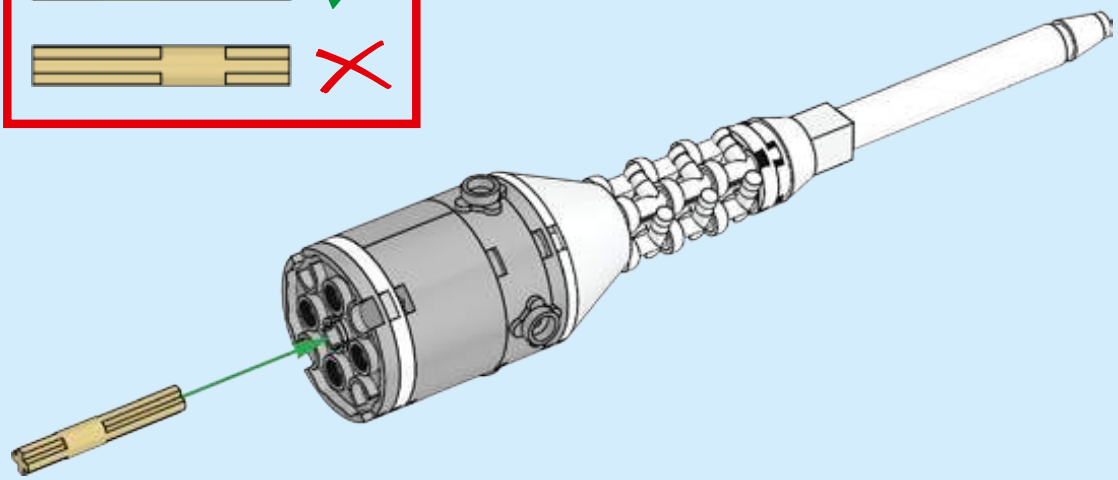

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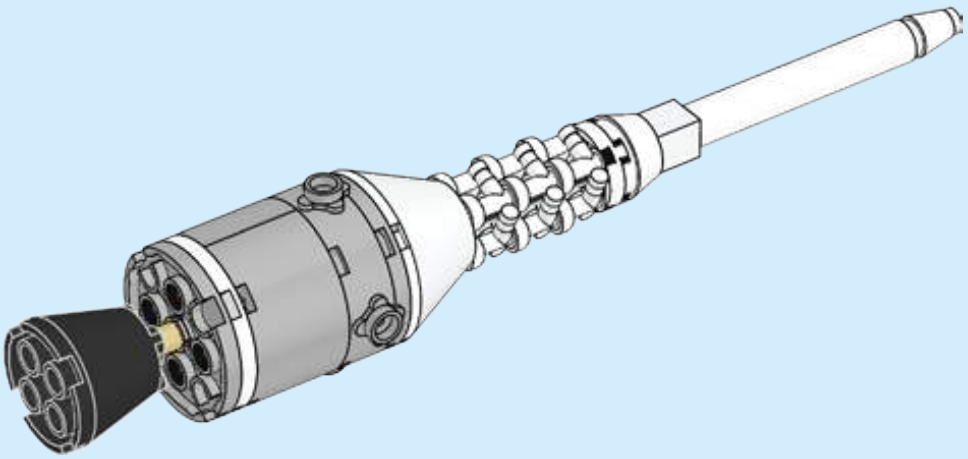

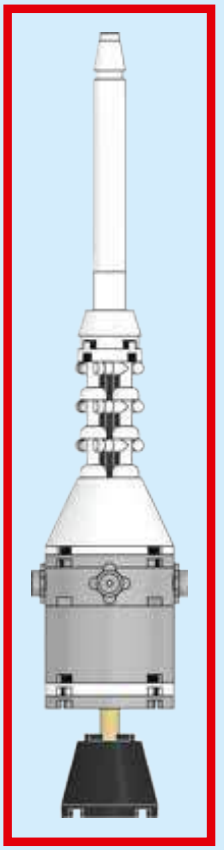

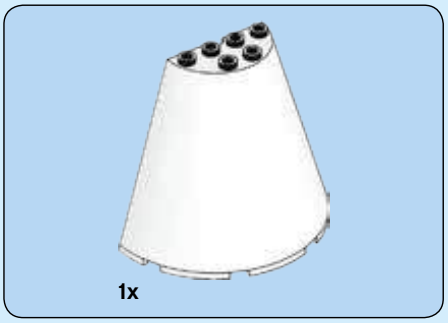

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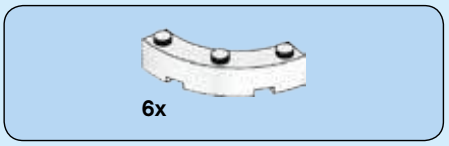

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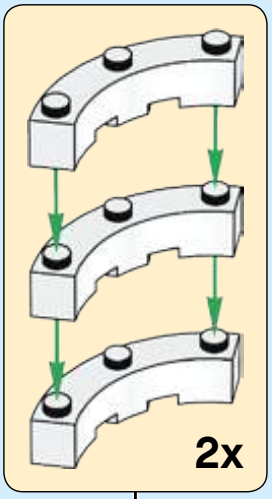

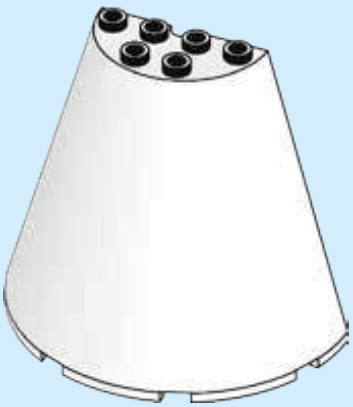

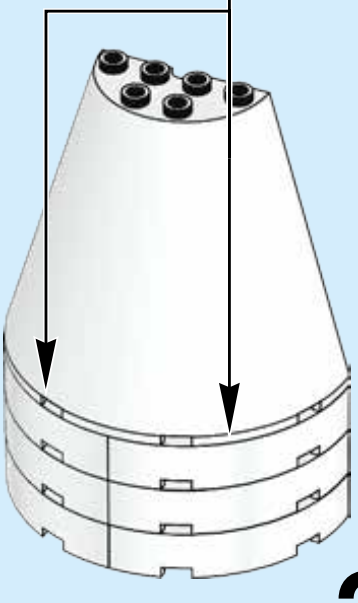

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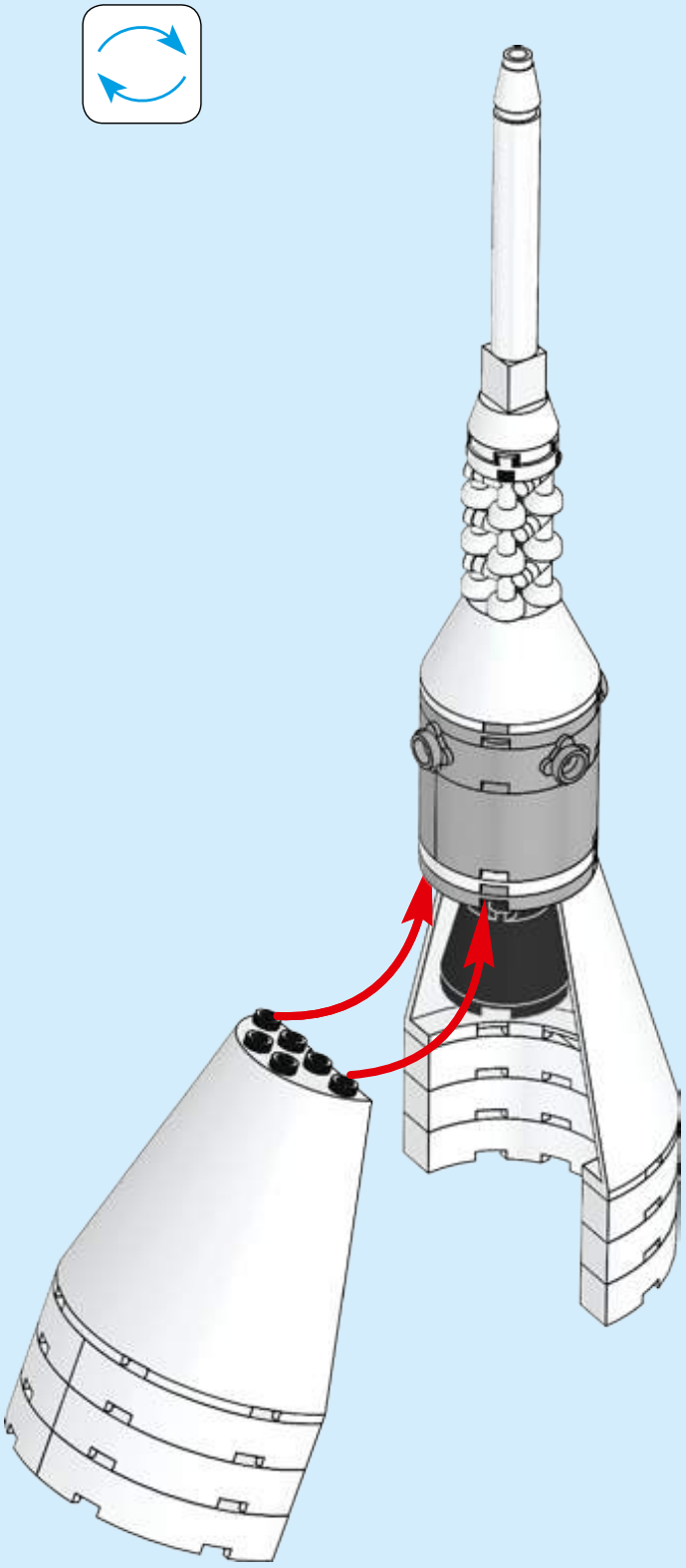

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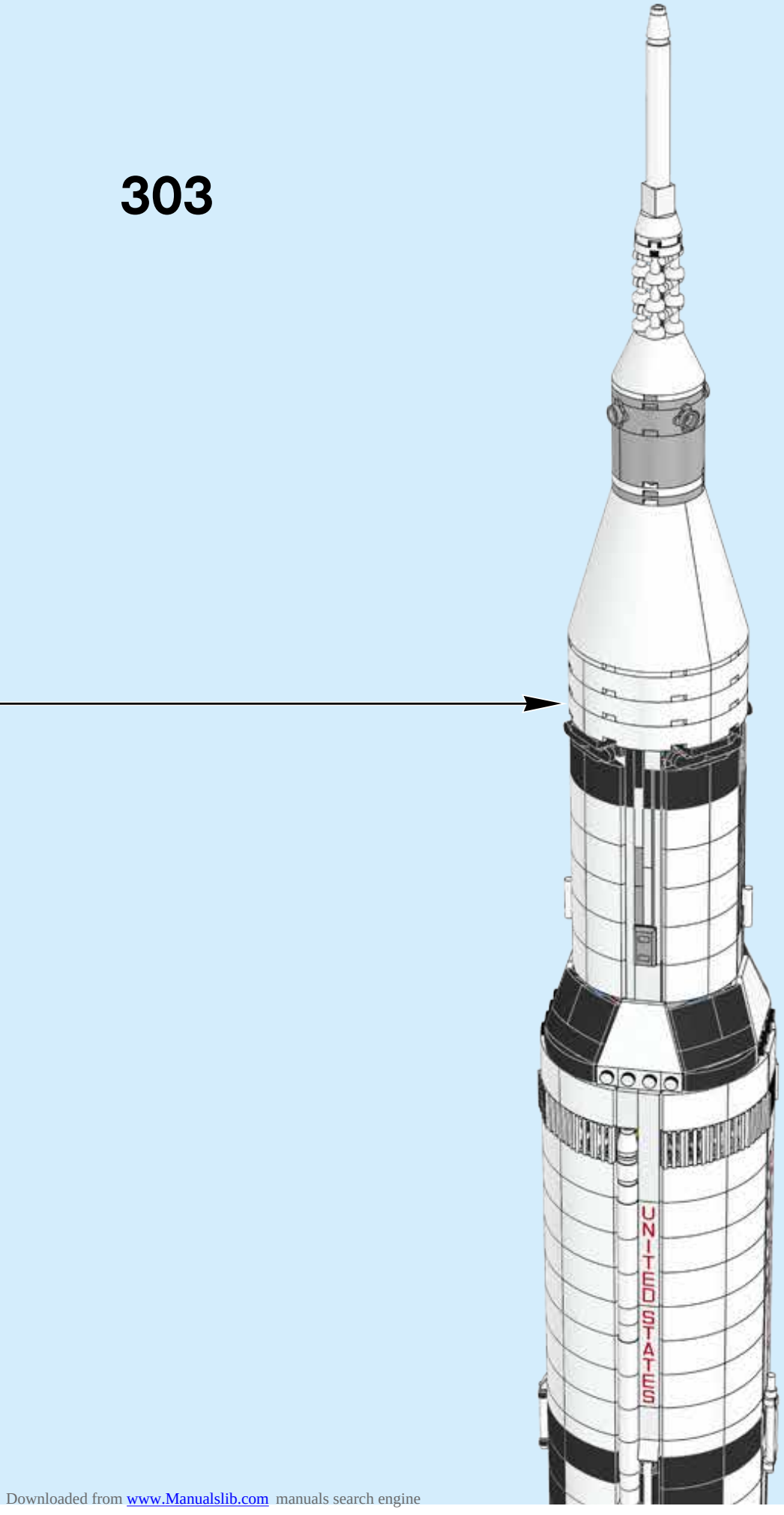

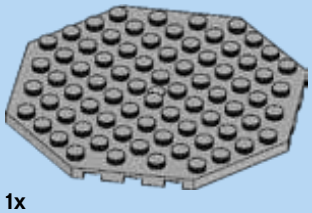

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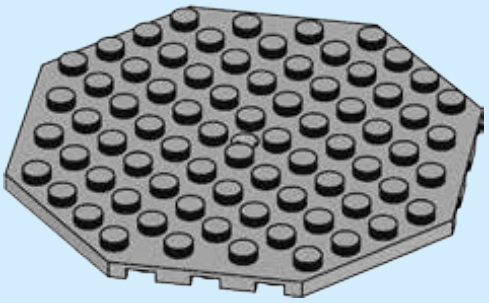

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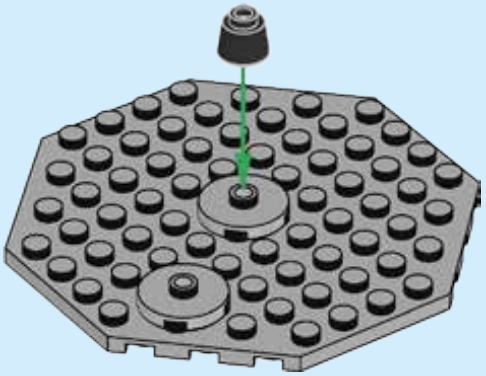

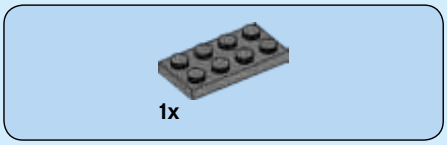

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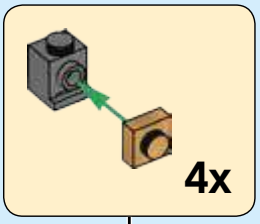

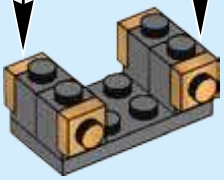

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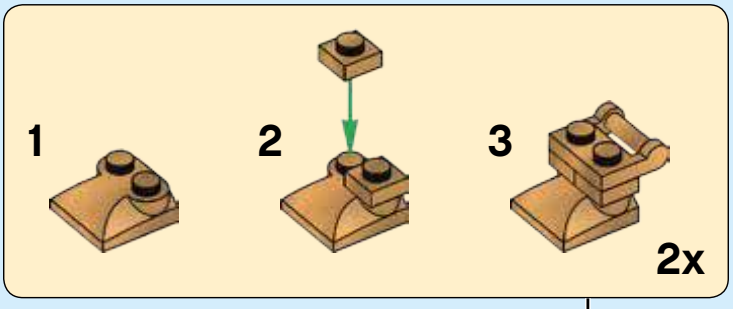

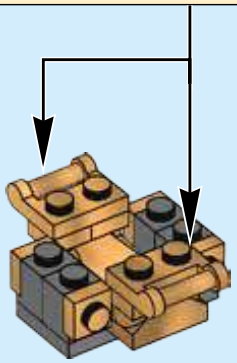

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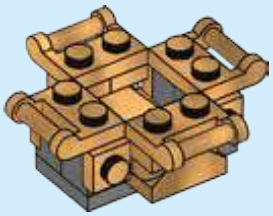

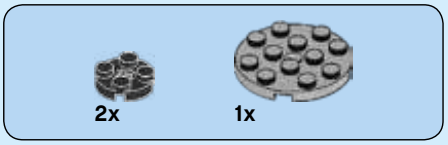

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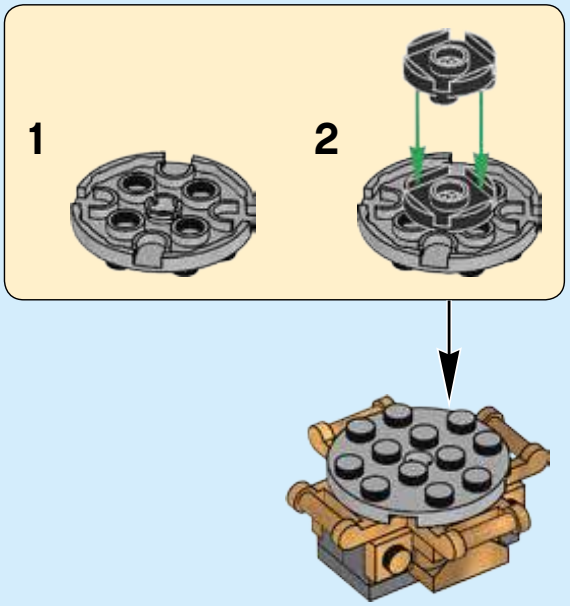

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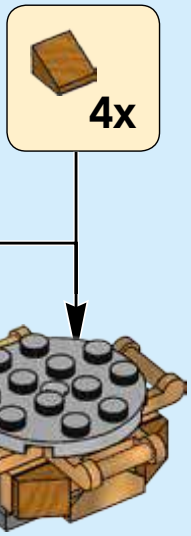

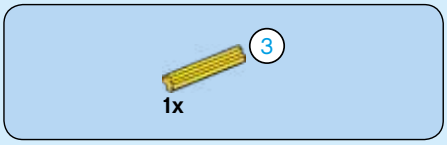

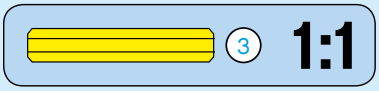

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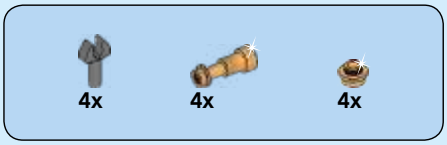

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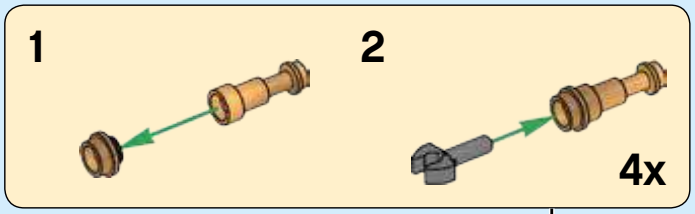

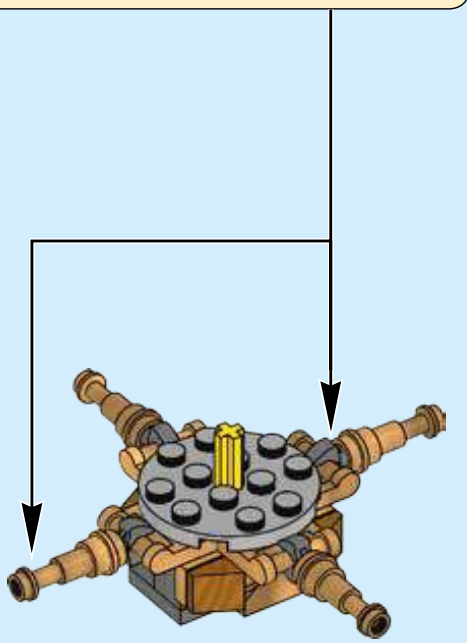

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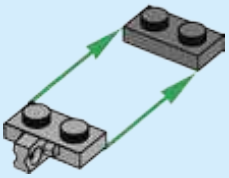

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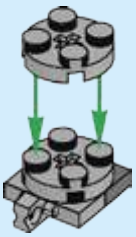

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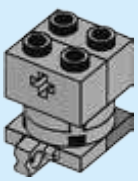

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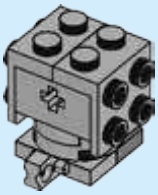

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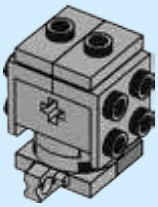

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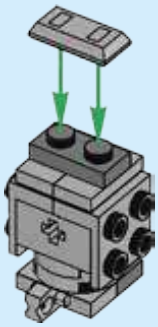

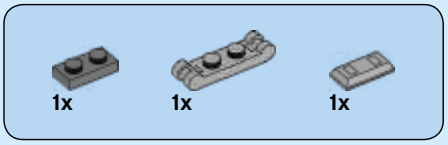

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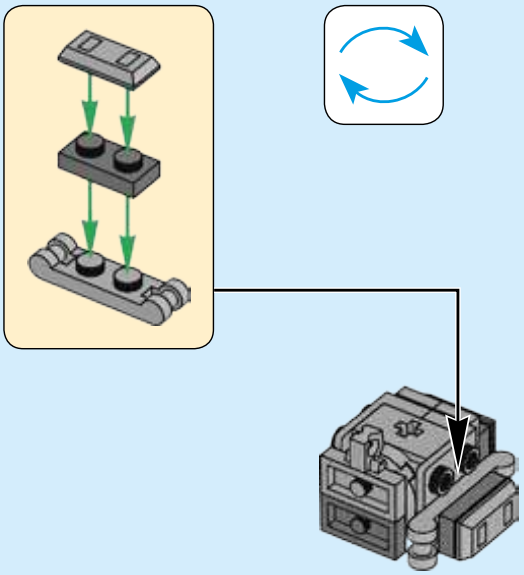

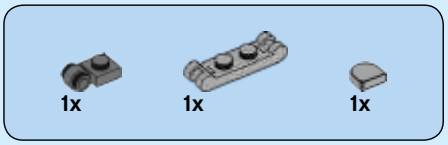

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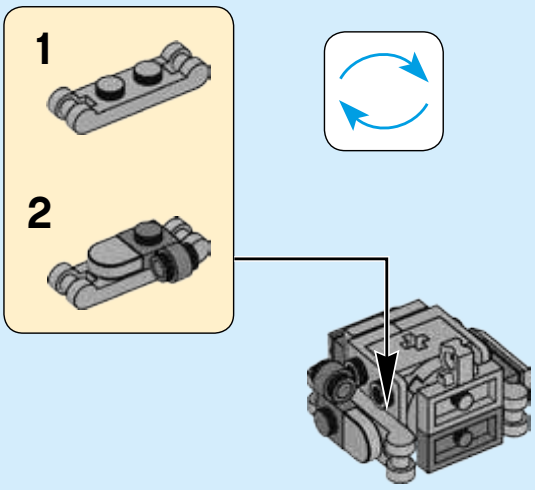

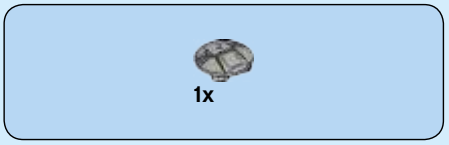

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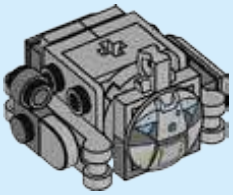

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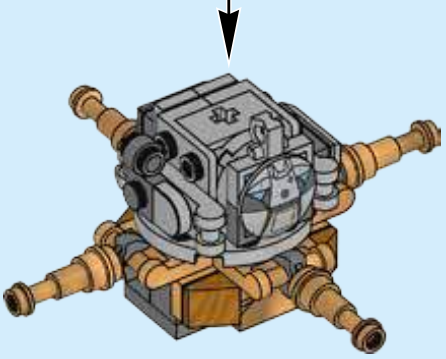

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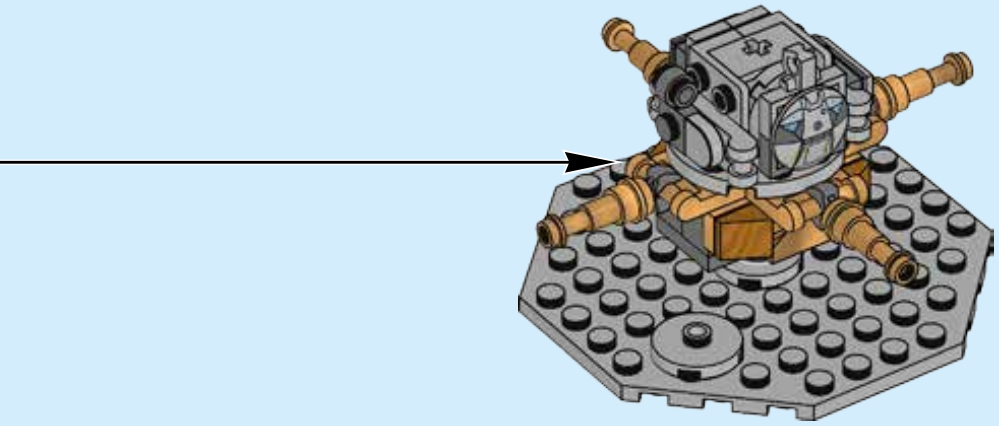

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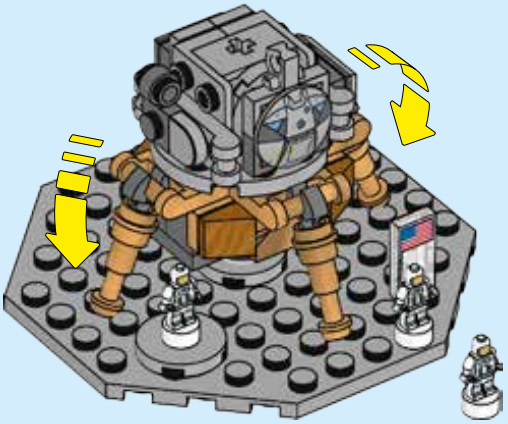

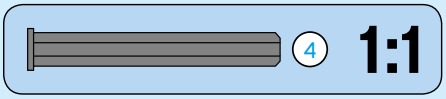

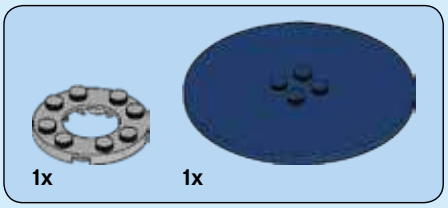

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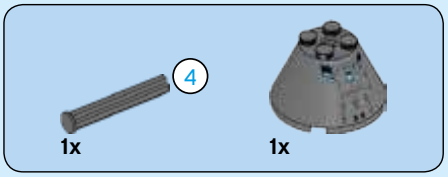

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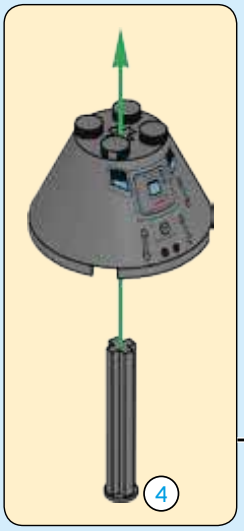

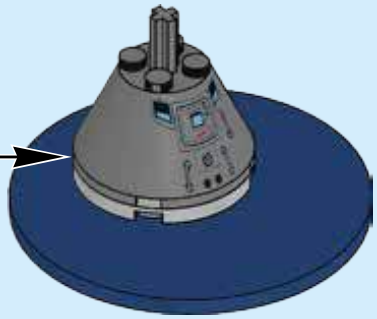

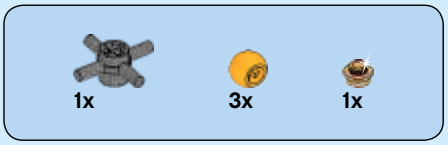

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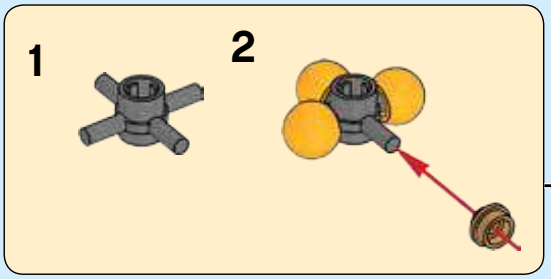

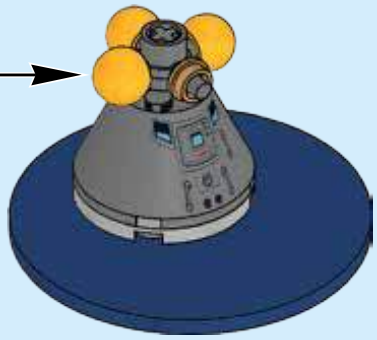

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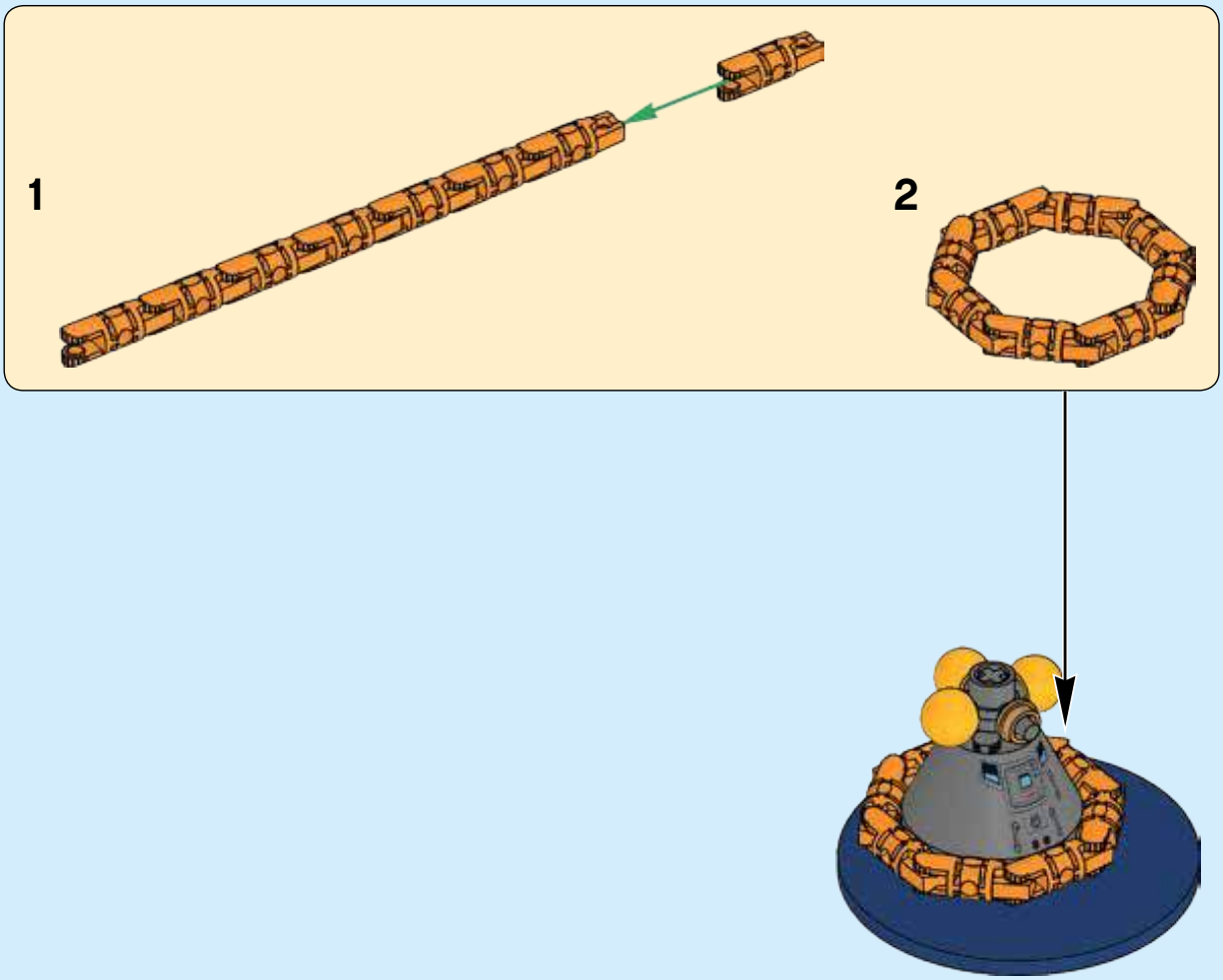

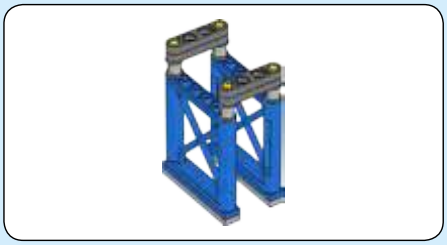

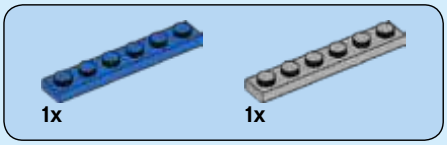

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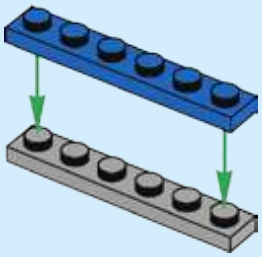

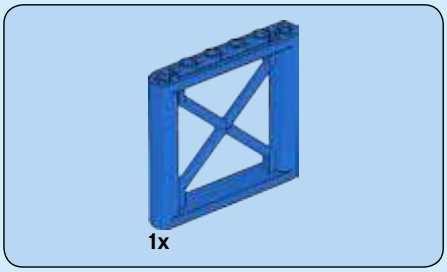

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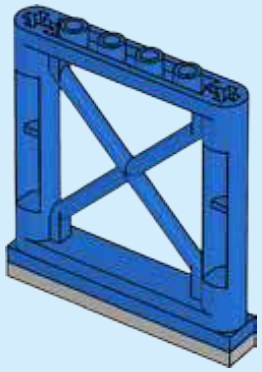

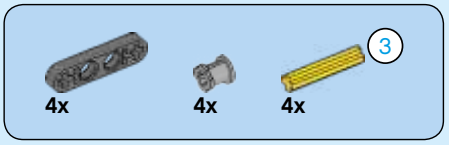

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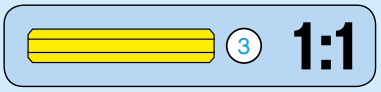

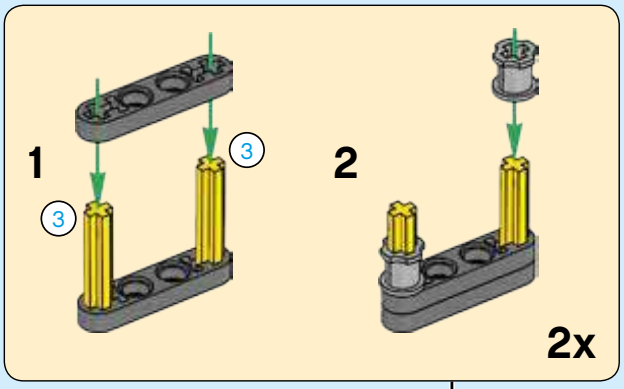

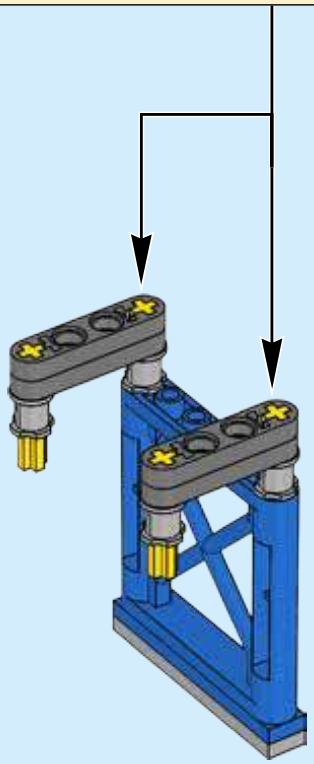

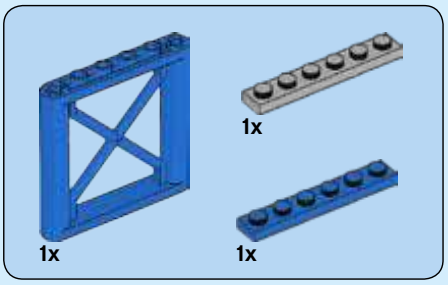

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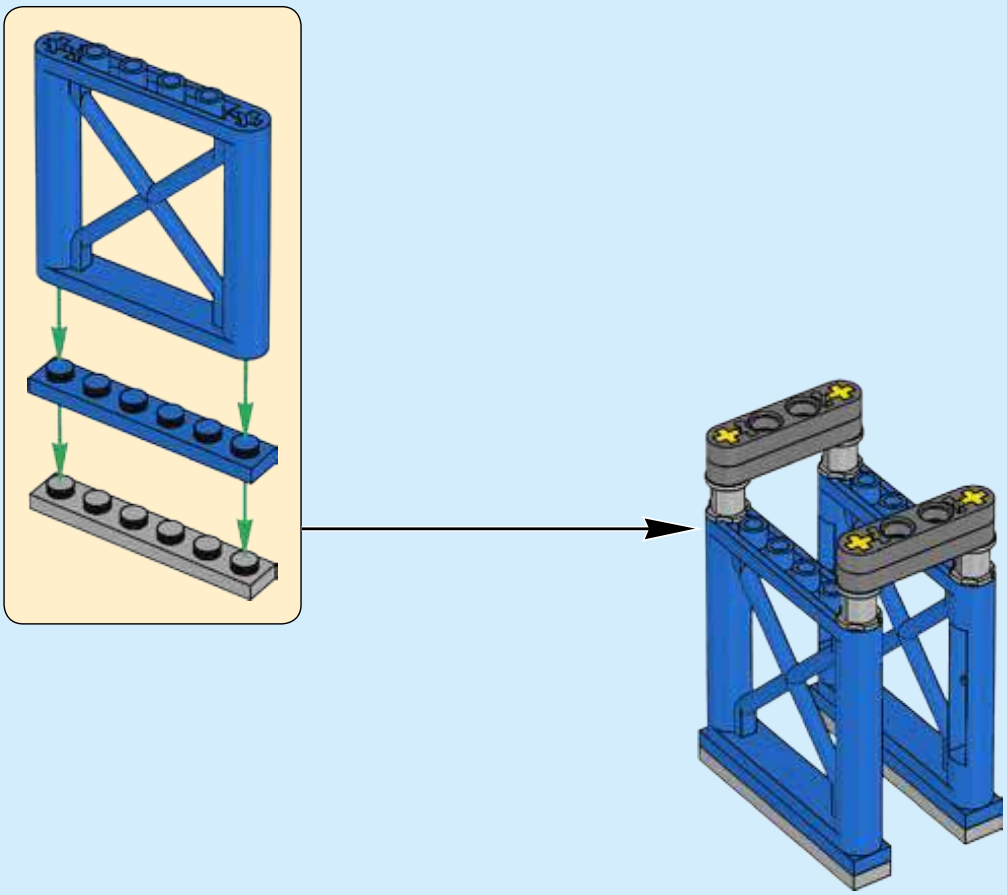

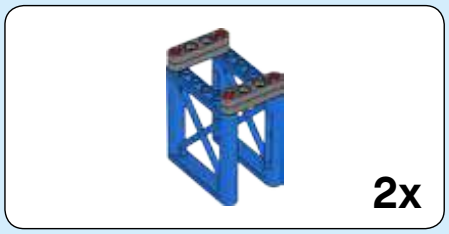

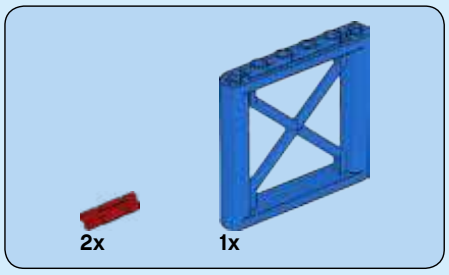

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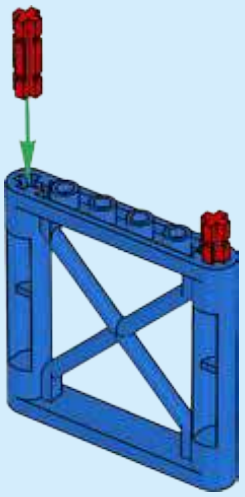

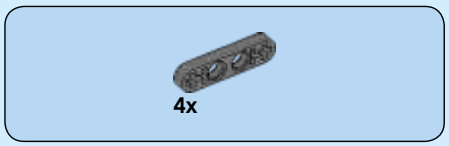

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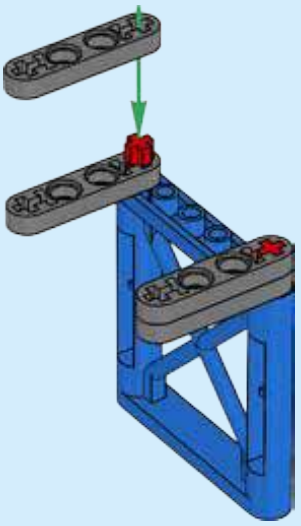

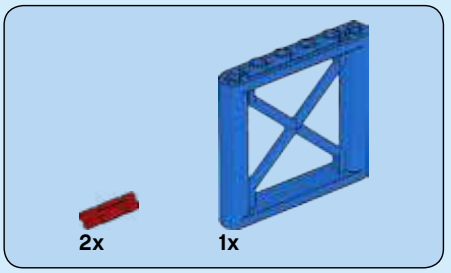

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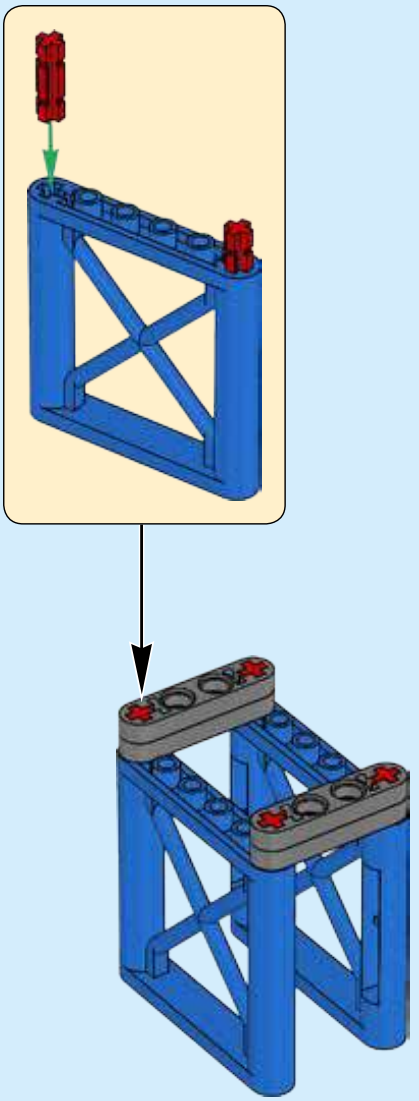

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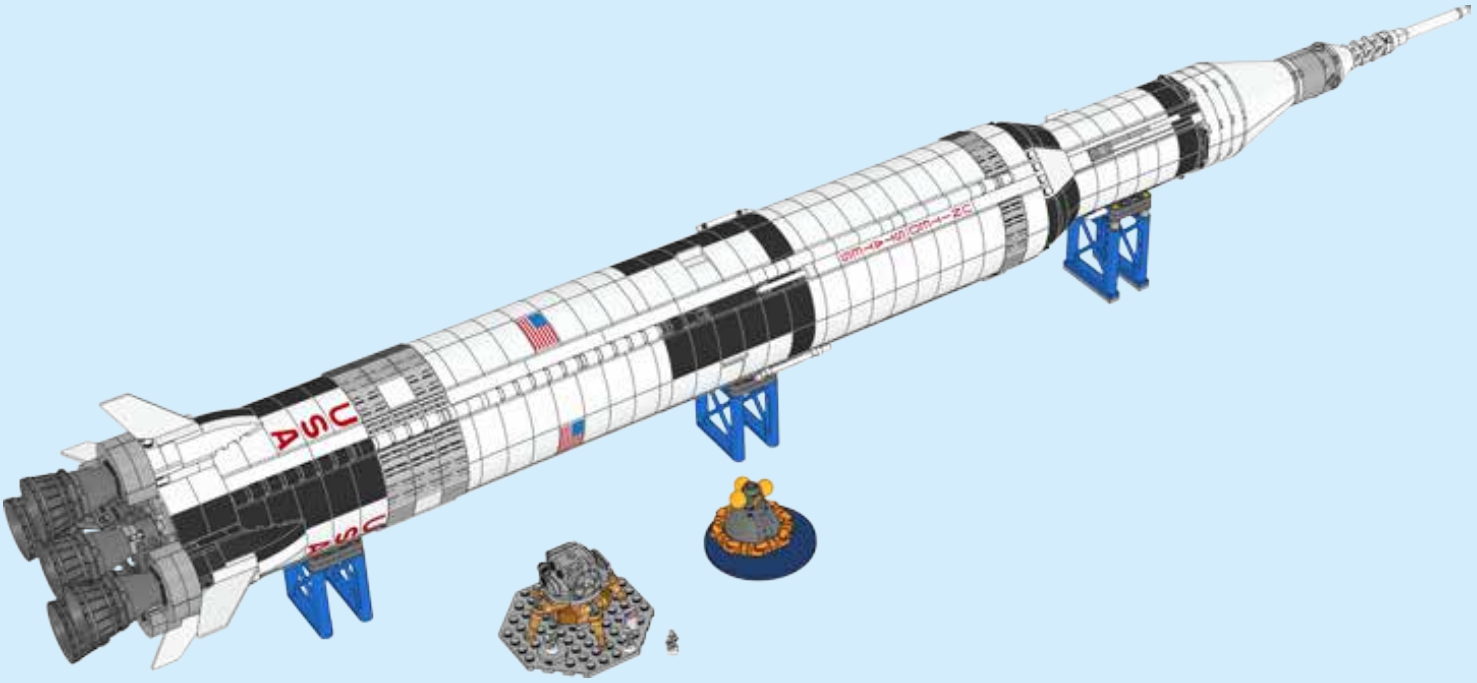

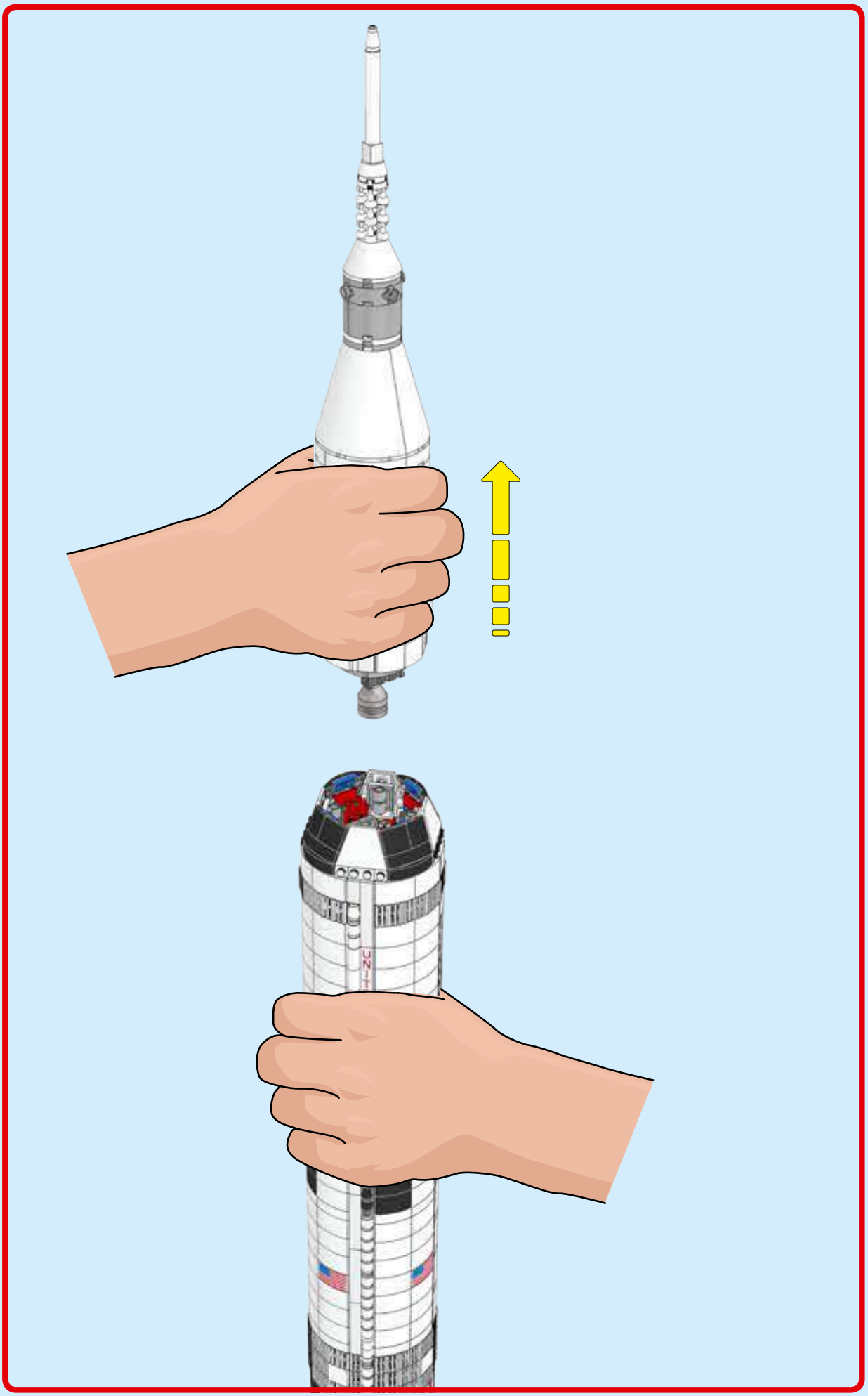

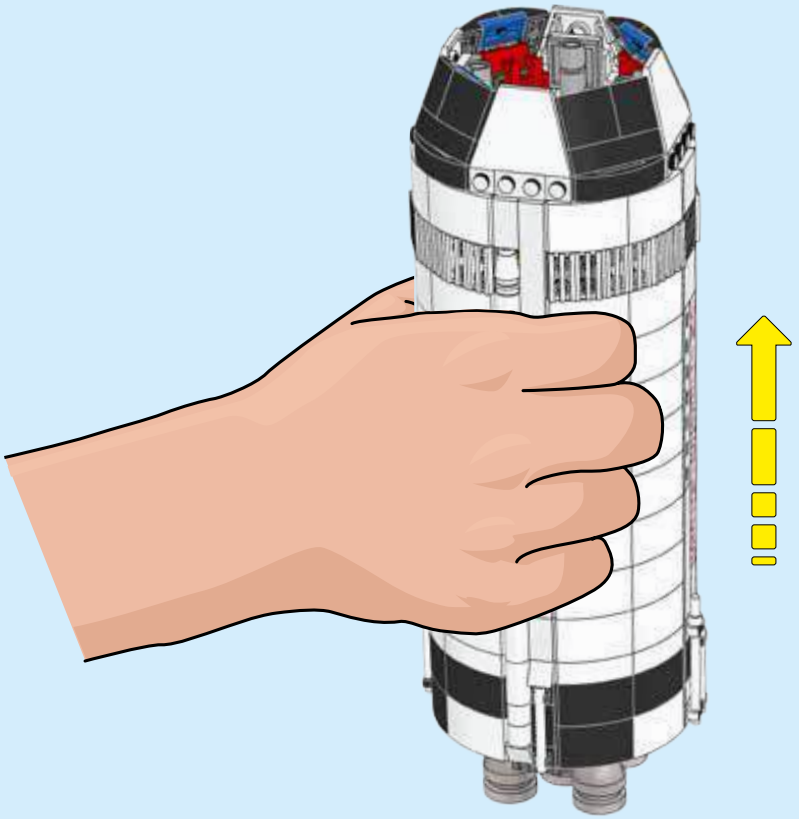

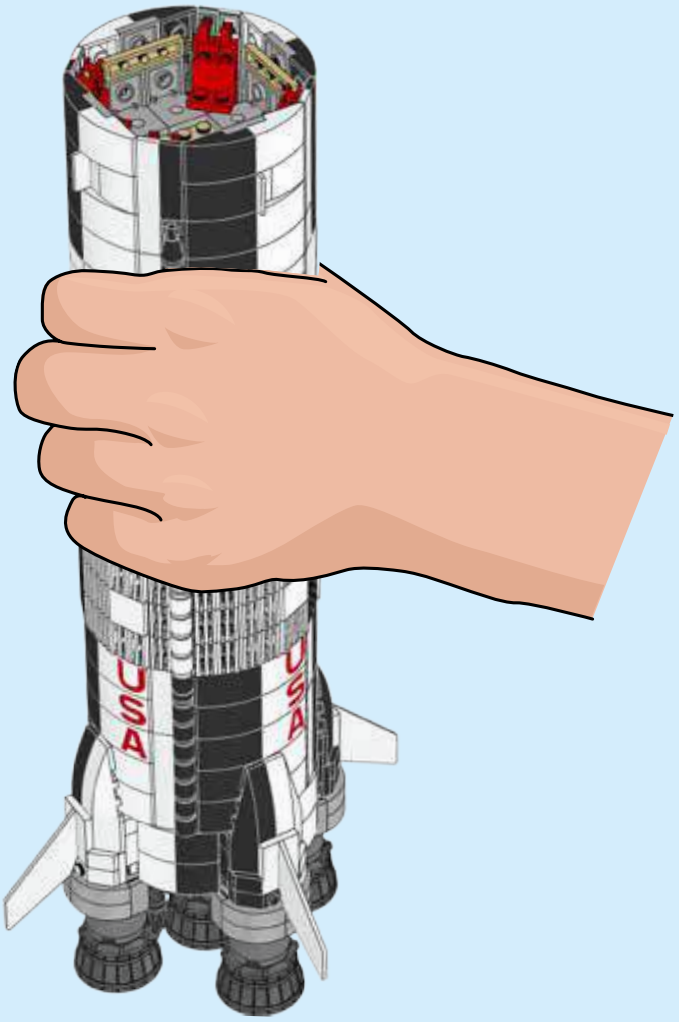

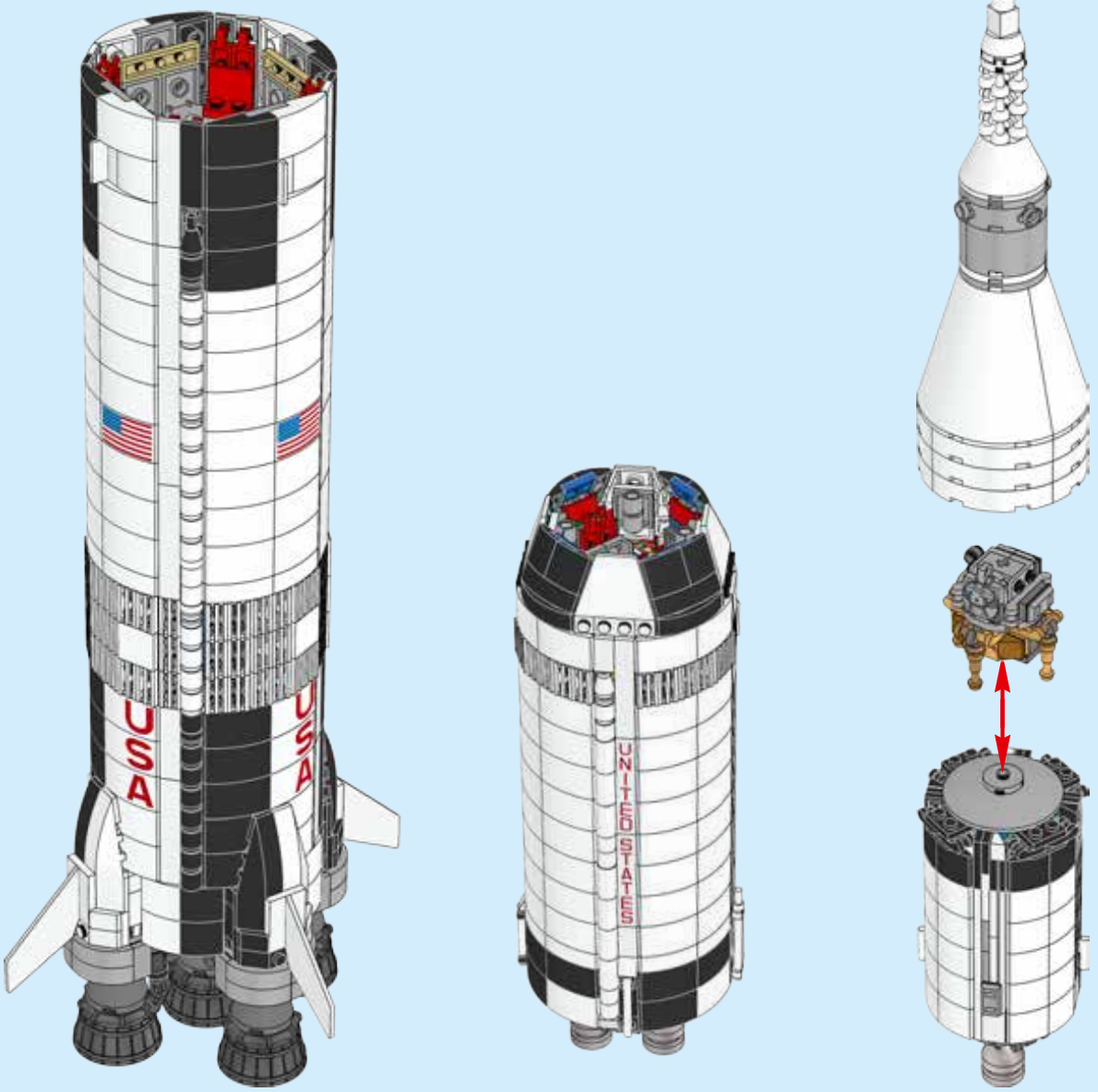

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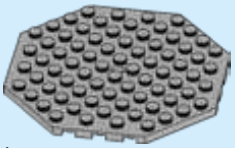
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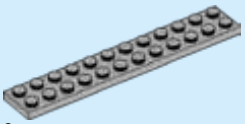
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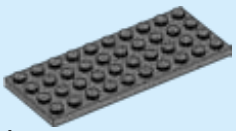
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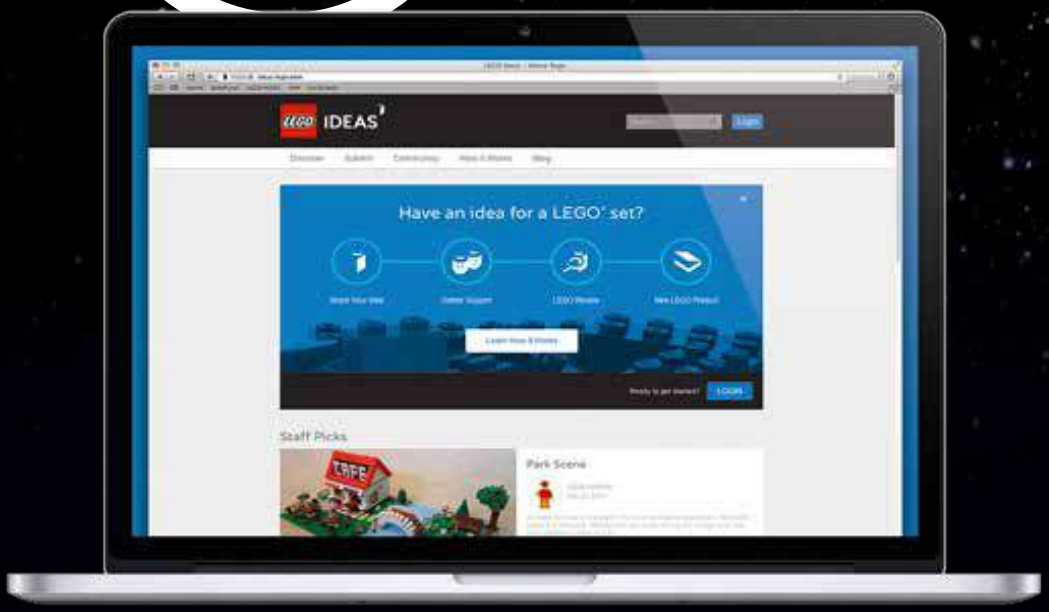

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