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# Un déplacement sans précédent

Dans les années 1970 et 1980, la NASA et Boeing se sont associés dans le but de créer une technologie innovante pour le transport des orbiteurs de la NASA, communément appelés navettes spatiales. Des moyens de transport aériens ont été développés en raison de la complexité et du caractère chronophage du transport terrestre. Des équipes de la NASA et de Boeing ont collaboré pour déterminer la pertinence et la manière de repenser les avions Boeing™ 747™, conçus à l'origine pour un usage commercial, afin de les utiliser pour transporter des navettes spatiales (Shuttle Carrier Aircraft (SCA)).

Entre 1974 et 1990, deux avions Boeing 747 ont été transformés avec succès pour transporter des navettes spatiales actives entre les sites d'atterrissement et les complexes de lancement, principalement vers et depuis le centre spatial Kennedy de la NASA en Floride.

\* La NASA a acheté le premier Boeing 747 SCA à une compagnie aérienne commerciale en 1974. Initialement utilisé pour réaliser des recherches sur les turbulences de sillage, il a ensuite été configuré pour transporter des navettes. Il a joué un rôle clé dans les tests d'approche et d'atterrissement

de la navette spatiale en 1977 avec le prototype de l'orbiteur, Enterprise. Cet avion a effectué la plupart des missions de convoyage de la navette et a livré des navettes retirées du service aux musées. Il ne vole plus depuis 2012 et est maintenant exposé au centre spatial de la NASA à Houston.

Le deuxième Boeing 747 SCA a été utilisé entre 1990 et 2012, cumulant plus de 33 000 heures de vol au total depuis sa construction. Il est actuellement exposé dans un musée du patrimoine aérospatial en Californie.

# Préparation pour le premier lancement

Les deux SCA ont été modifiés en profondeur.  
La majeure partie du mobilier intérieur a été retirée  
afin de les alléger et faire place aux installations  
nécessaires au transport des navettes.



#### **STABILISATEURS VERTICAUX :**

*Deux stabilisateurs verticaux supplémentaires ont été installés à chaque extrémité du stabilisateur horizontal standard pour améliorer la stabilité en vol.*



#### **AJOUTS DE BLOCS D'ALIMENTATION :**

*Des blocs d'alimentation électrique et des câbles ont été ajoutés, principalement pour alimenter les réchauffeurs du système de fluide de l'orbiteur et les pompes du circuit de refroidissement d'eau pendant les opérations de convoyage.*



#### **SUPPORTS DE FIXATION DE L'ORBITEUR :**

*Trois supports de fixation ont été ajoutés – l'un à l'avant et les deux autres à l'arrière – afin de fixer l'orbiteur de la navette spatiale à l'avion.*



#### **CÔNE DE QUEUE :**

*Un capot spécial en forme de cône a été installé sur le moteur de la navette spatiale pour améliorer l'aérodynamisme pendant le transport.*

#### **OPTIMISATION DES MOTEURS :**

*Les moteurs Pratt & Whitney JT9D ont été modifiés pour fournir plus de puissance.*



## Un mot de l'équipe de designers LEGO® Icons

En 1983, le premier Boeing™ 747™ SCA et l'orbiteur Enterprise de la NASA ont été présentés ensemble au salon du Bourget en France dans le cadre de leur tournée internationale. Suite à cette exposition unique et avec l'aide de nos partenaires de la NASA et de Boeing, nous avons développé de nouvelles solutions et de nouveaux éléments de construction pour recréer les détails et fonctions spécifiques de ces modèles. Nous espérons que vous prendrez autant de plaisir à construire cette merveille d'ingénierie aéronautique que nous en avons pris à la créer.

#### COCKPIT :

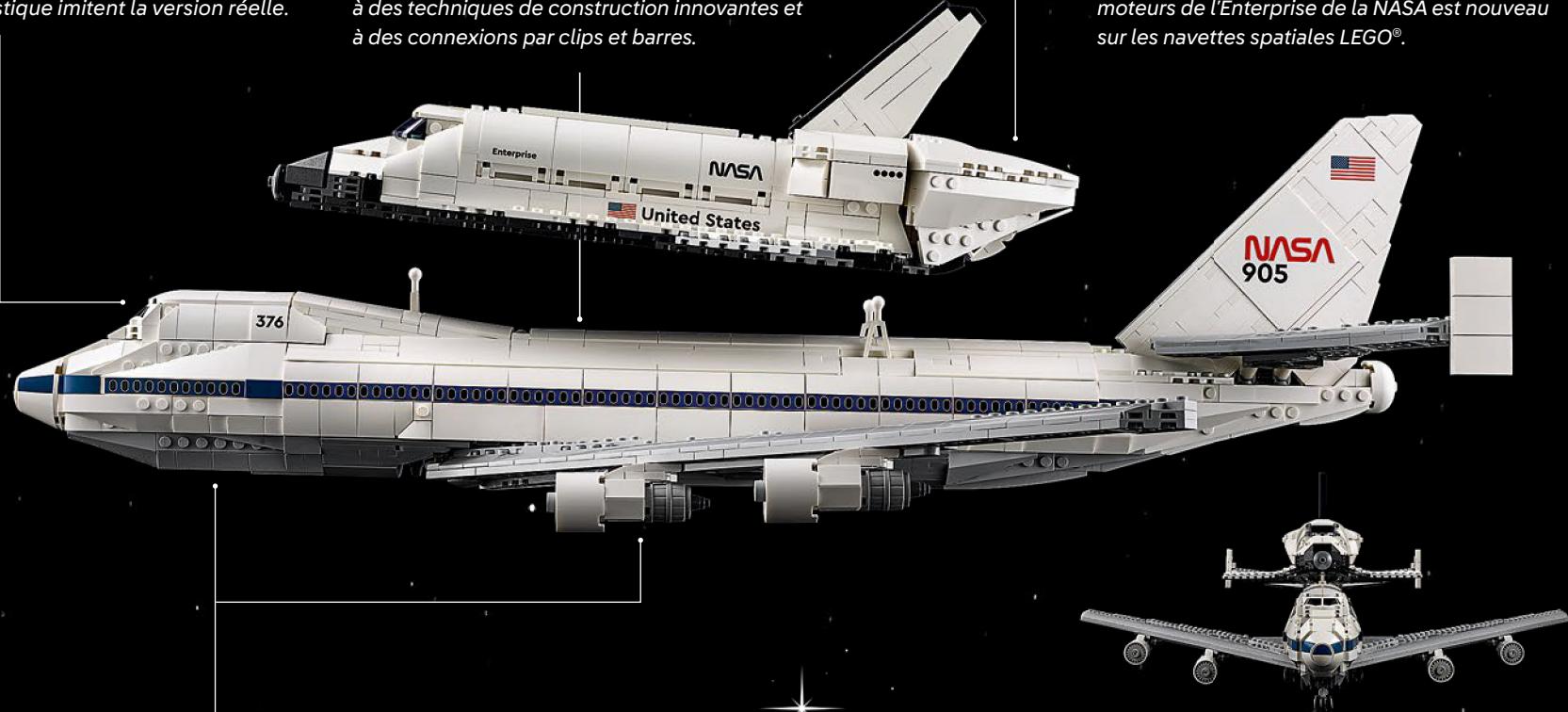
*Le cockpit incurvé et le nez caractéristique imitent la version réelle.*

#### FUSELAGE :

*La forme lisse du Boeing 747 est obtenue grâce à des techniques de construction innovantes et à des connexions par clips et barres.*

#### CÔNE DE QUEUE :

*Le cône de queue utilisé pour recouvrir les moteurs de l'Enterprise de la NASA est nouveau sur les navettes spatiales LEGO®.*

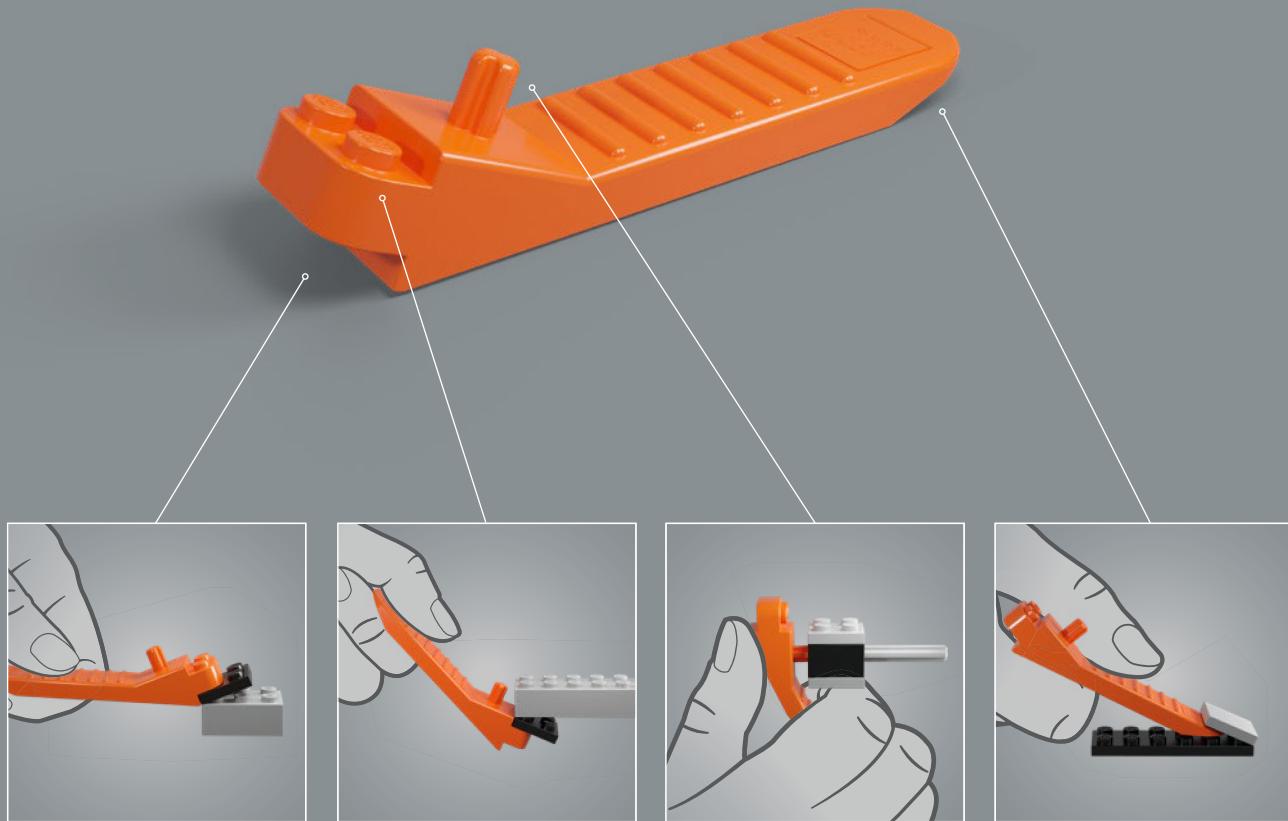


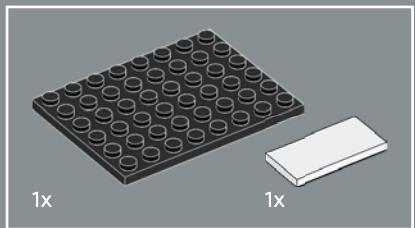
#### TRAIN D'ATTERRISSAGE :

*Il s'agit du premier avion LEGO® officiel doté de cinq trains d'atterrissement synchronisés pour bouger simultanément. Un nouvel élément du train d'atterrissement maintient quatre roues de l'avion sur le « camion ».*

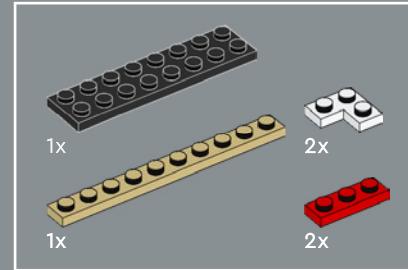
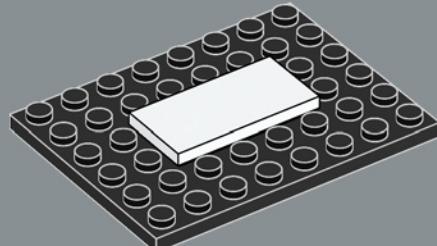
#### AILES :

*Un ensemble de structures triangulaires, l'une horizontale et l'autre verticale, est utilisé pour former le bord d'attaque incurvé des ailes du Boeing™ 747™ et leur légère inclinaison verticale.*

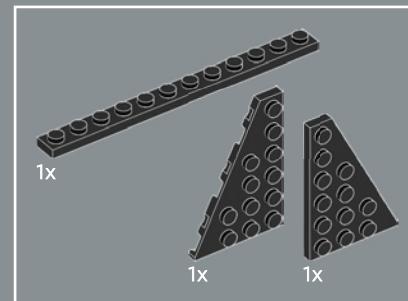
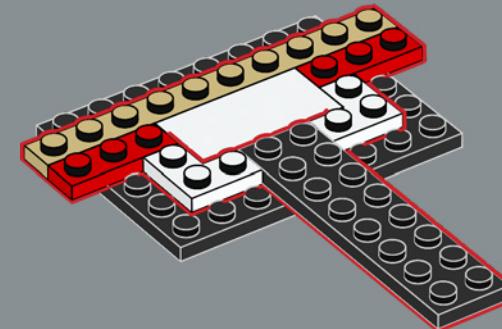




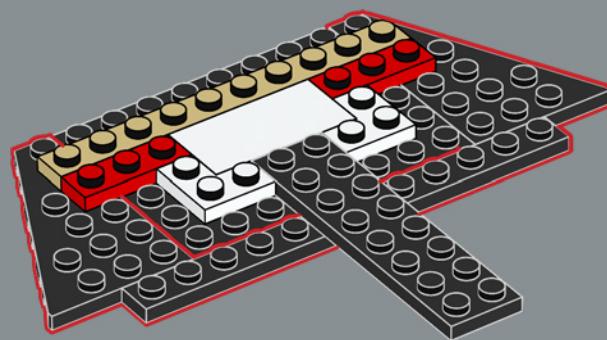
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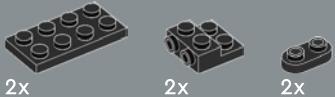


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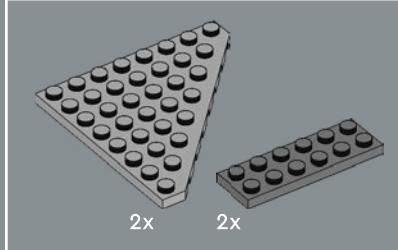
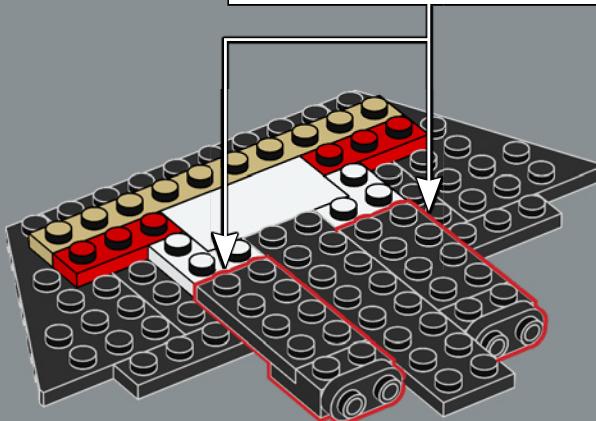
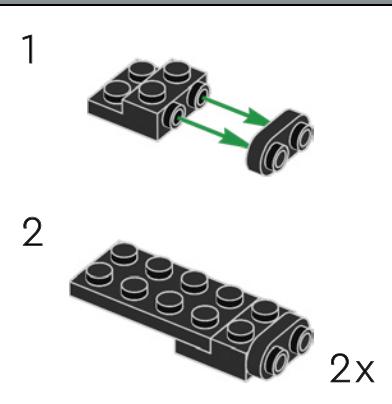


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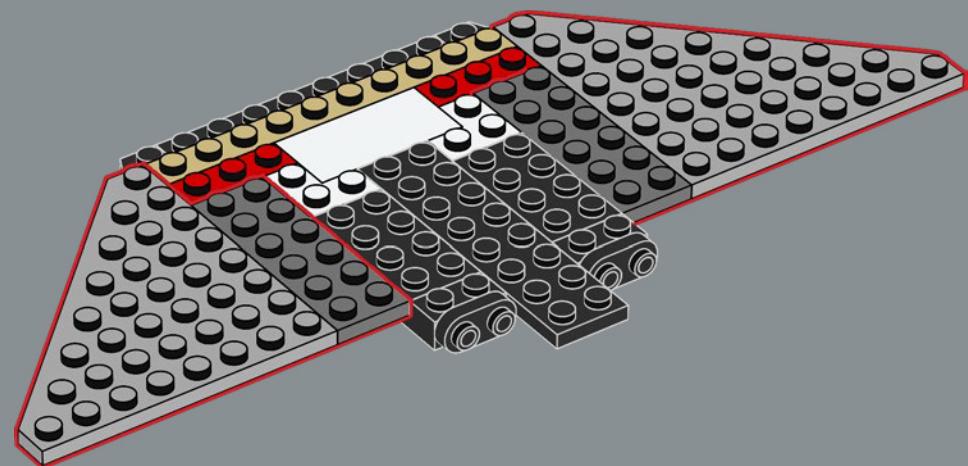




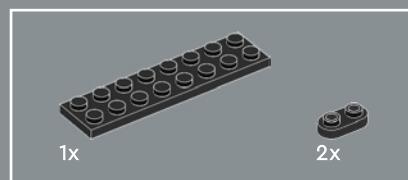
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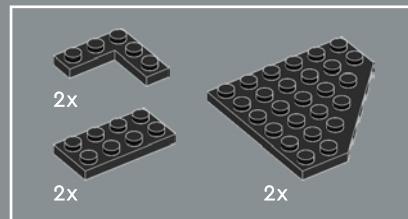
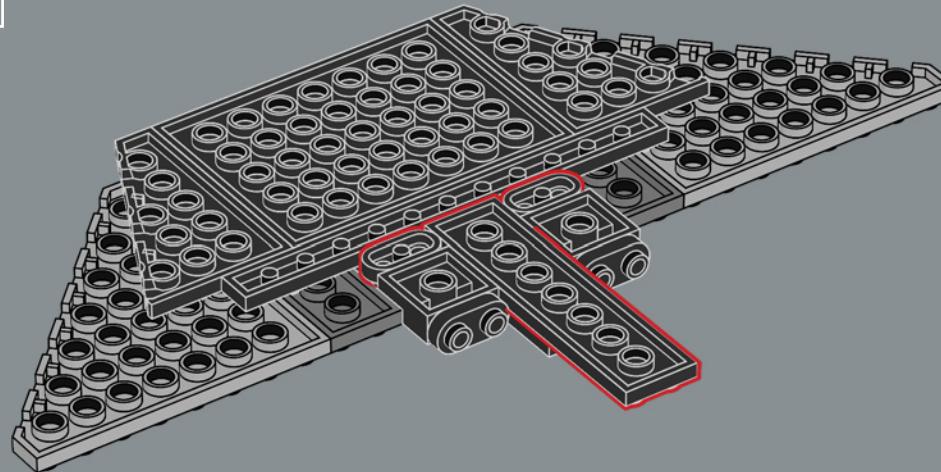
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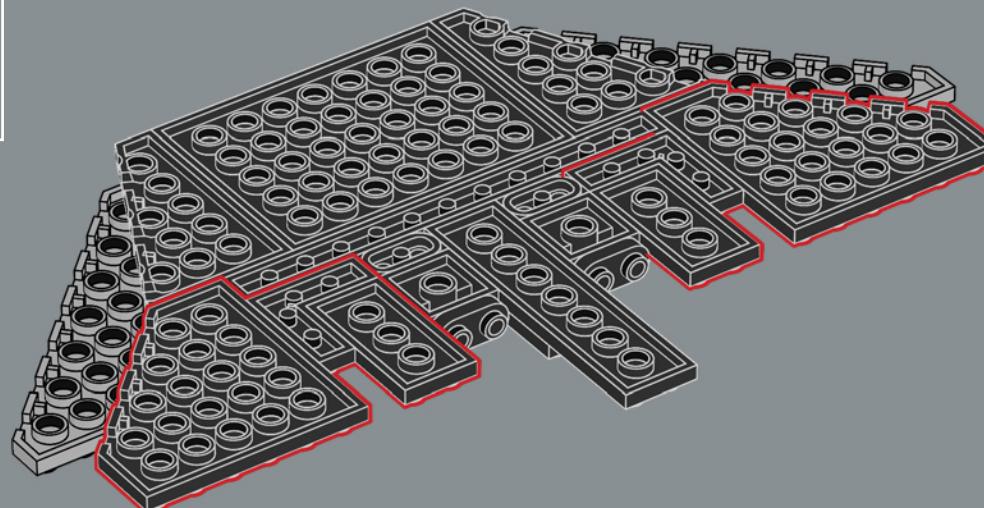
L'Enterprise a été construit pour effectuer des vols d'essai dans l'atmosphère après son lancement depuis le SCA.

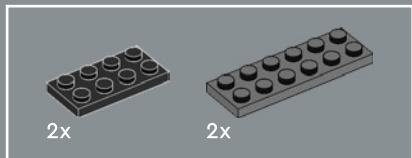


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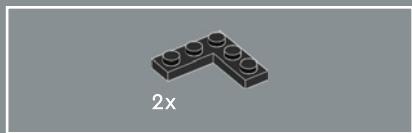
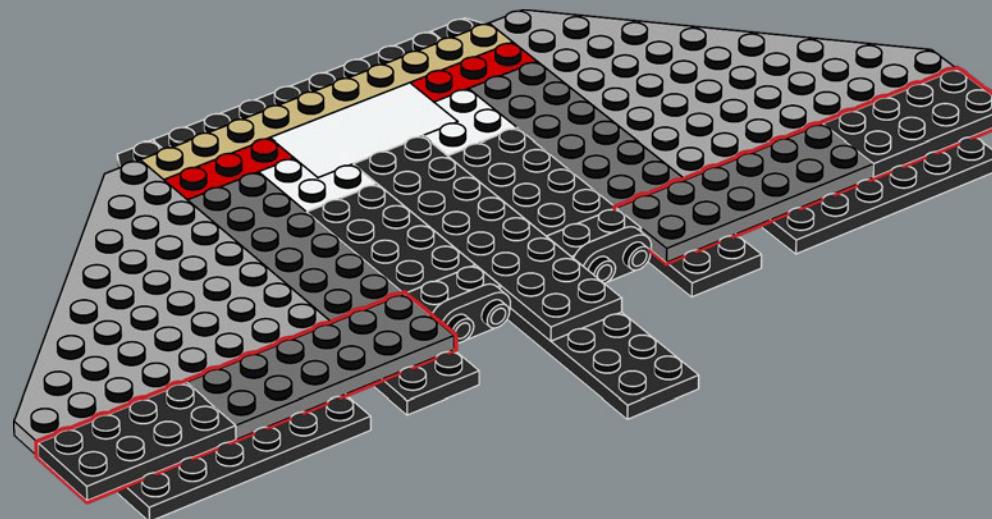


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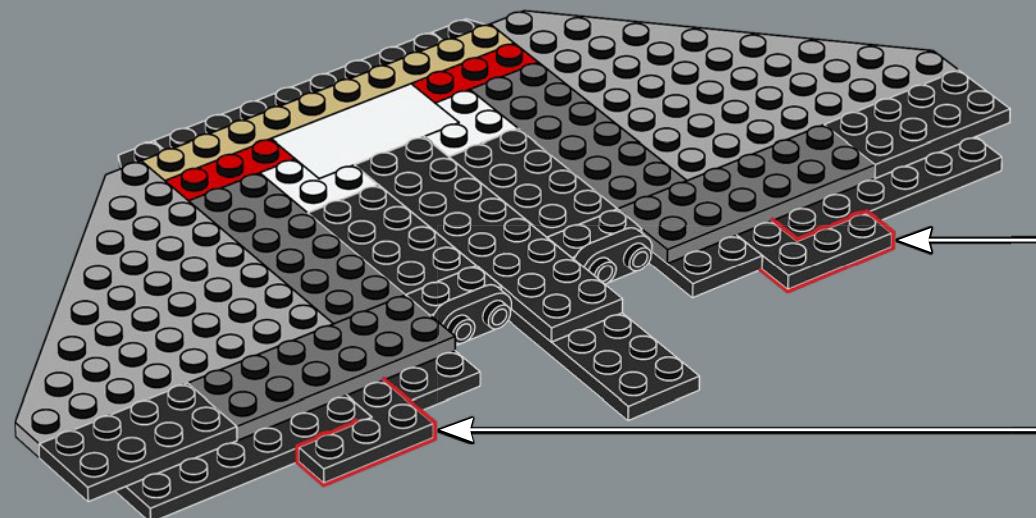
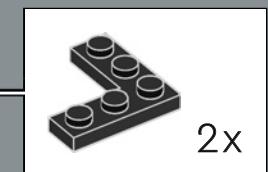


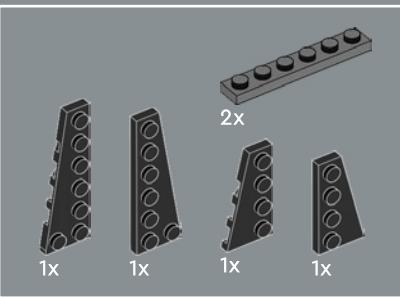


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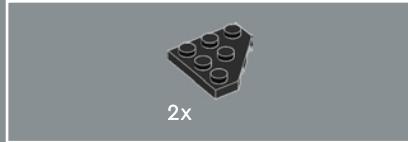
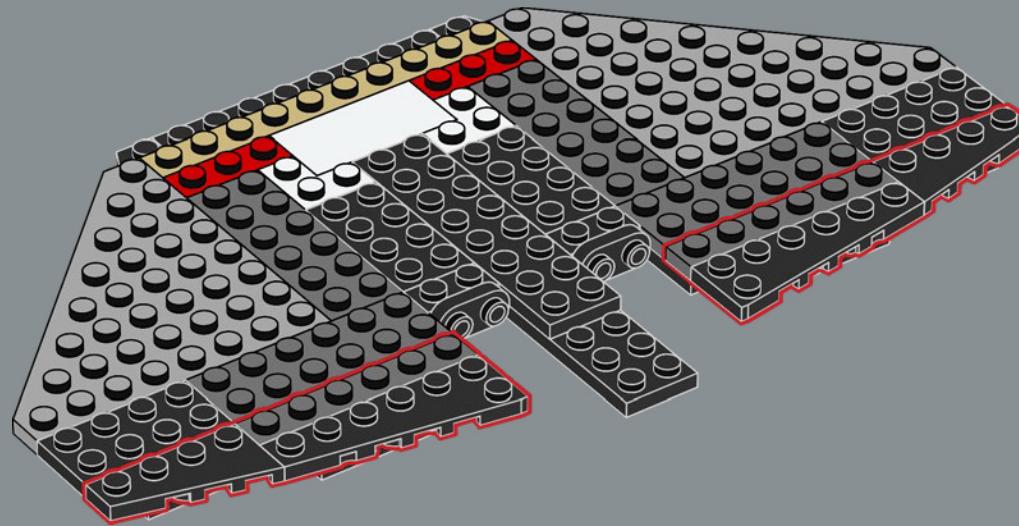


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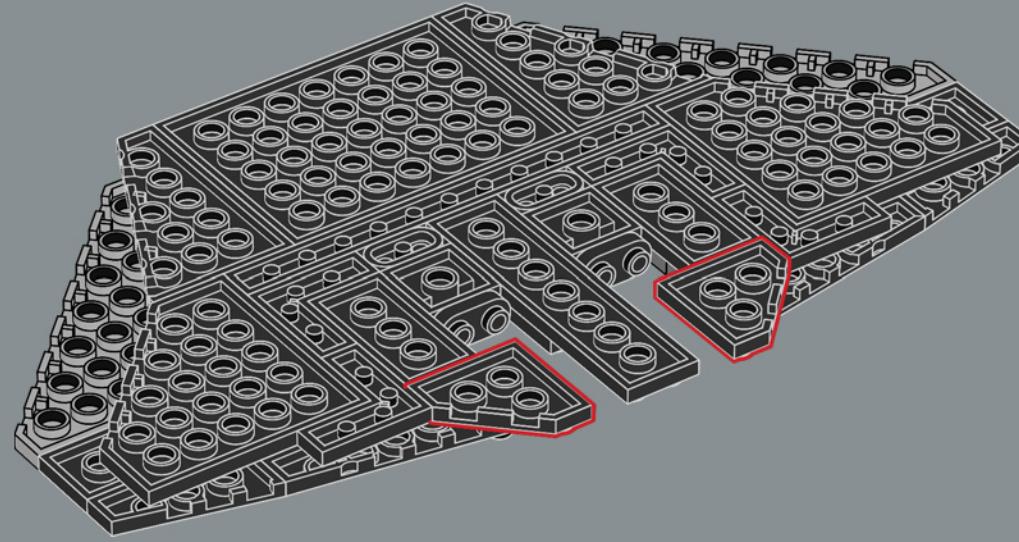




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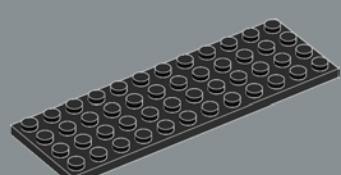
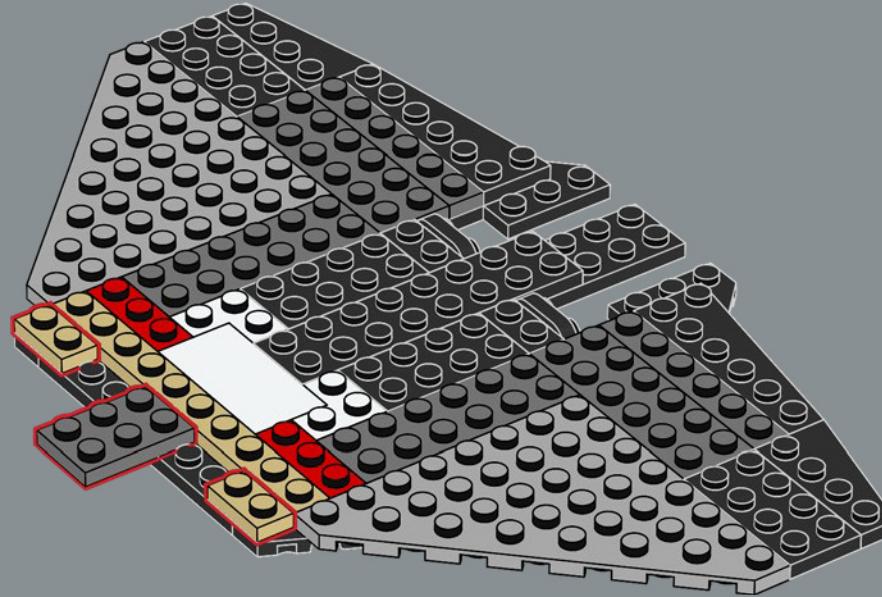


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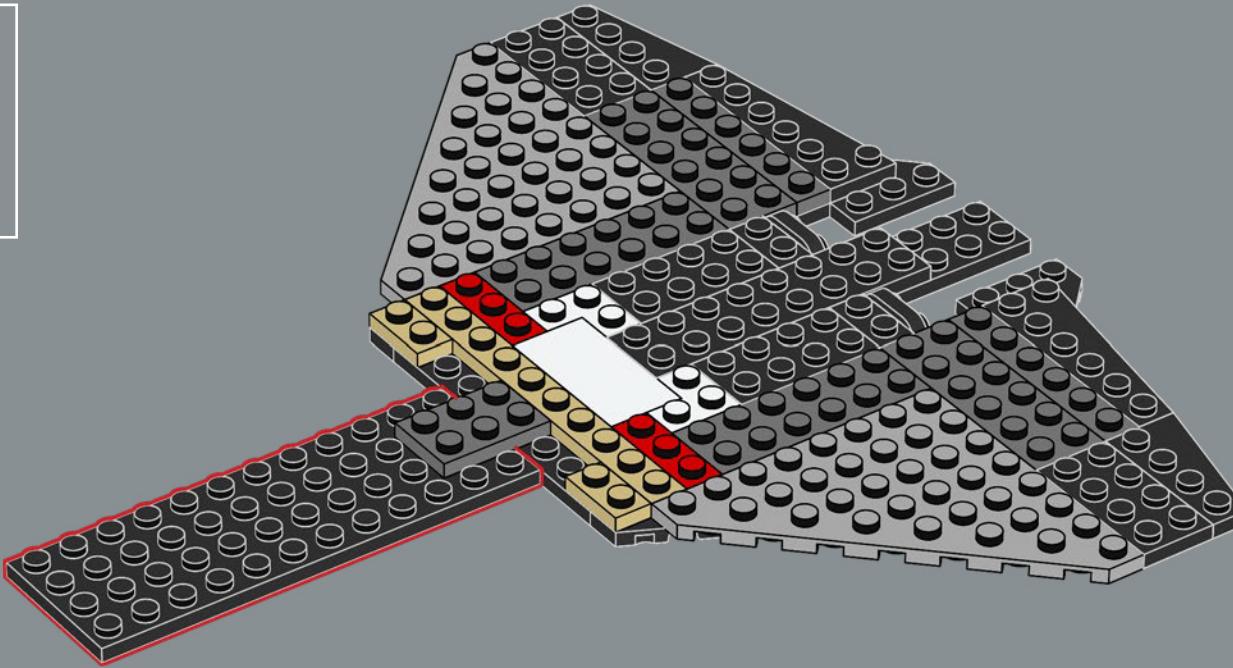
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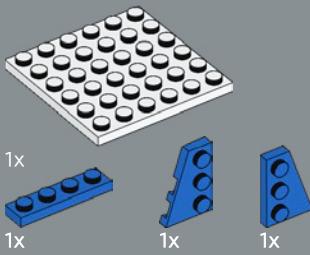
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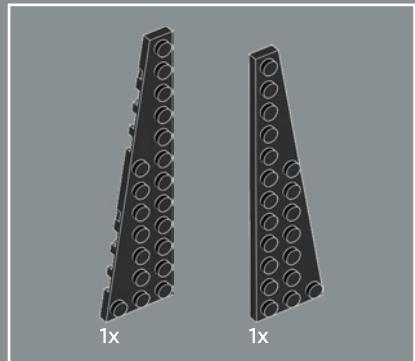
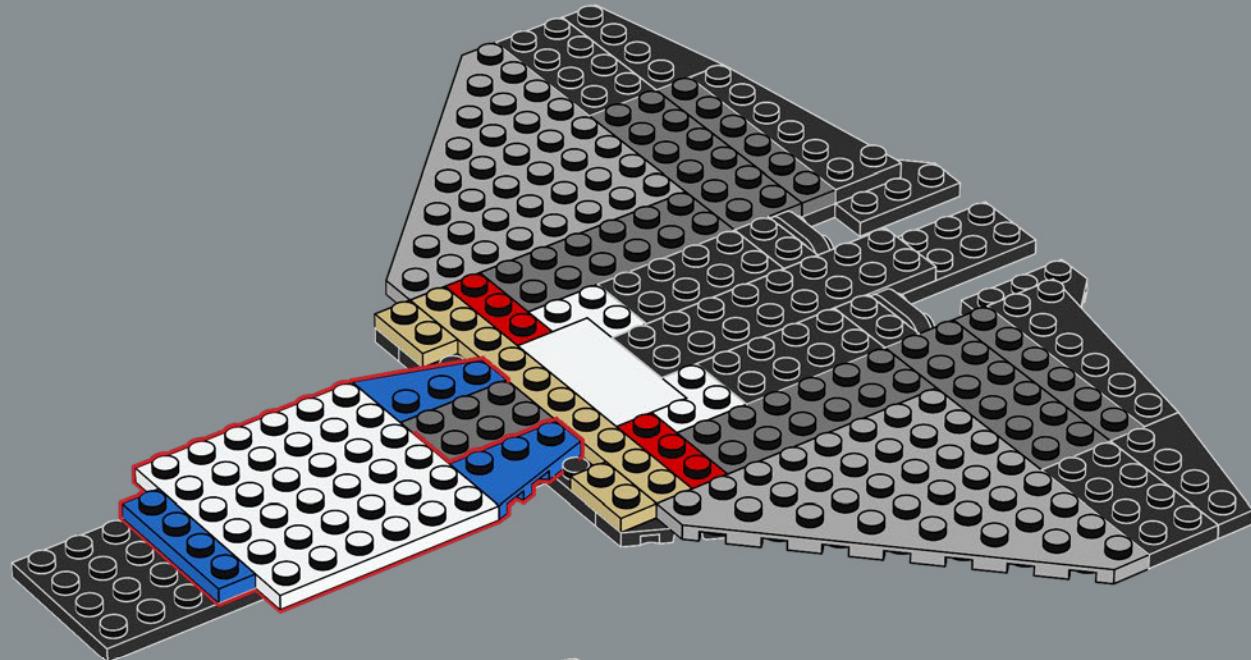
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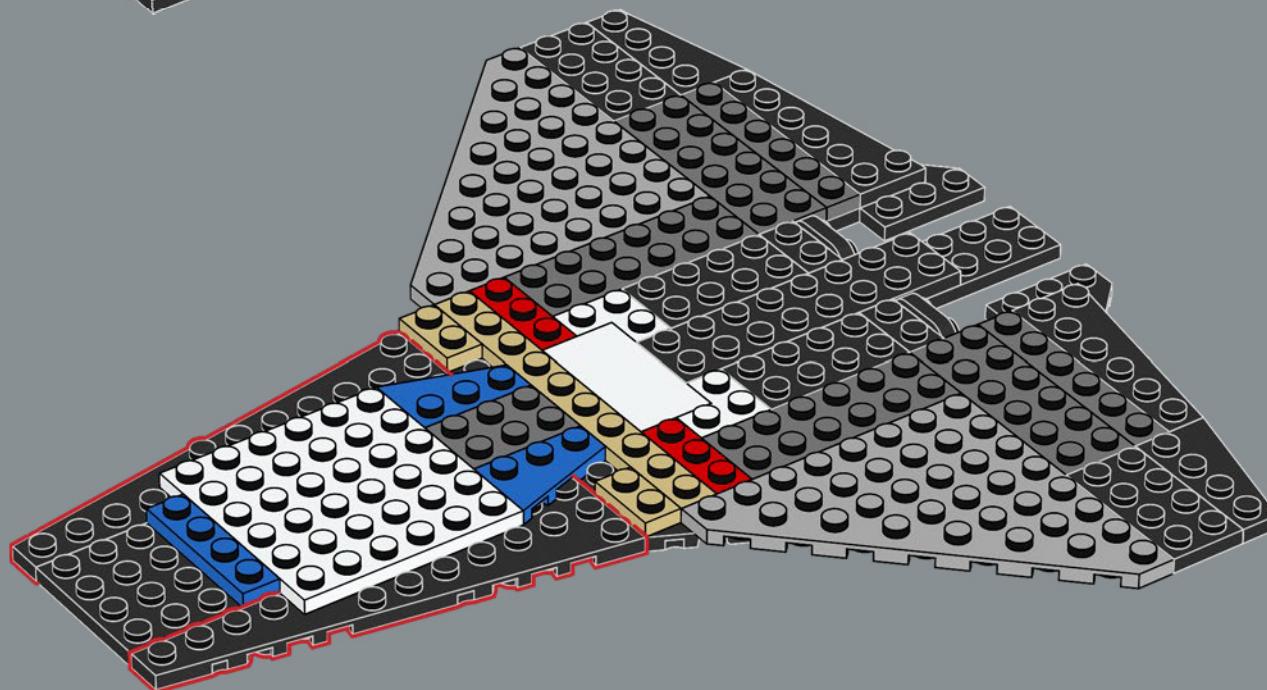


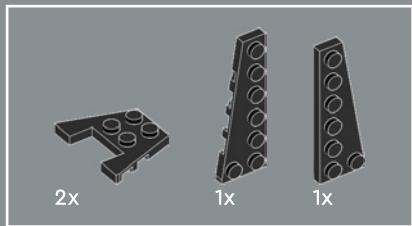


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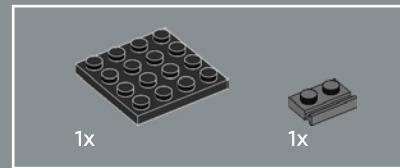
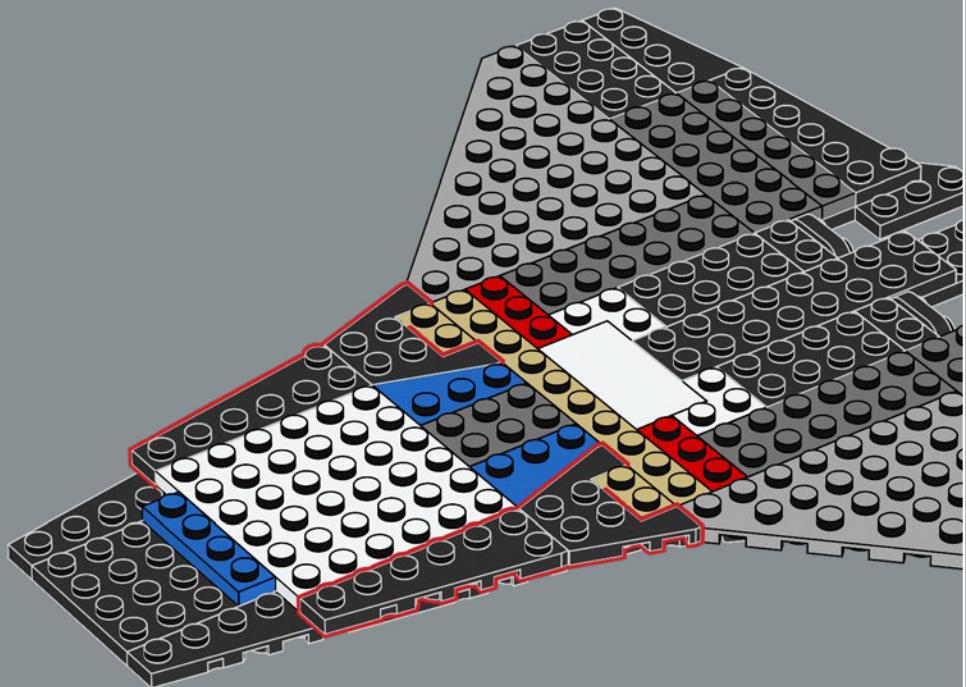


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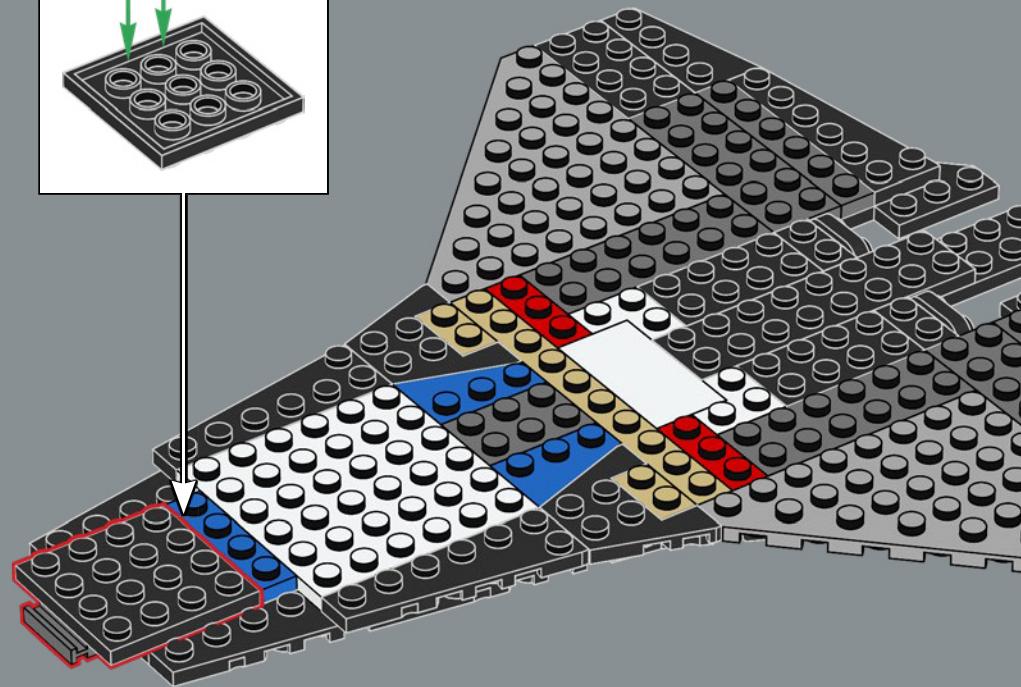
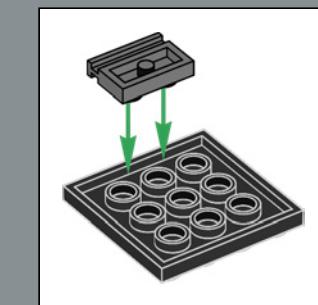


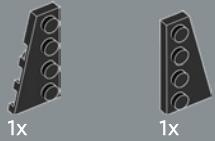


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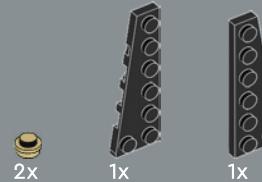
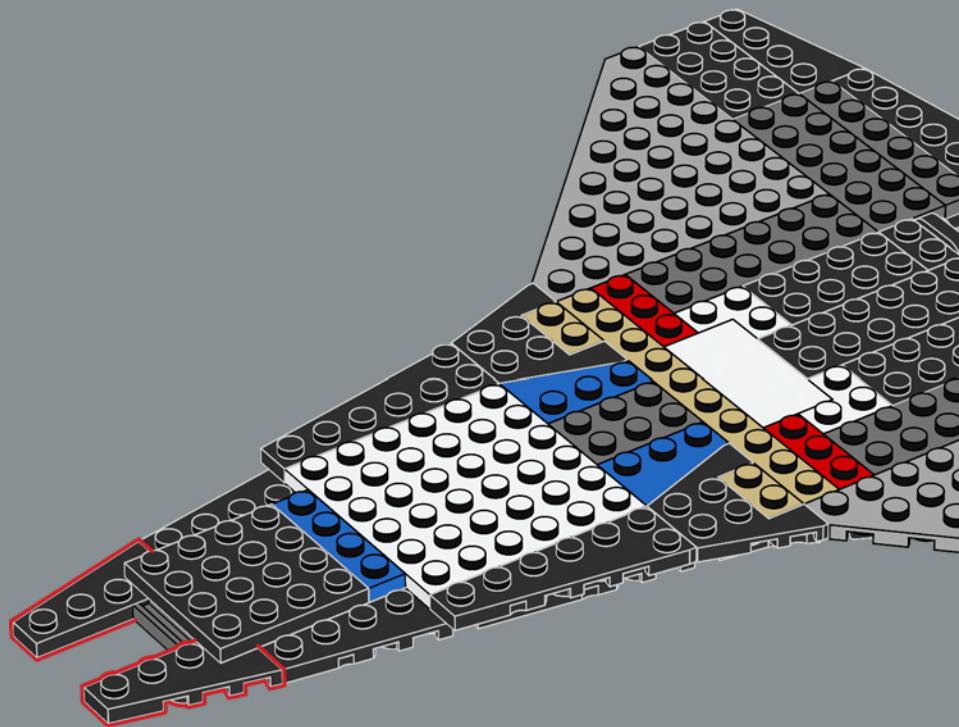


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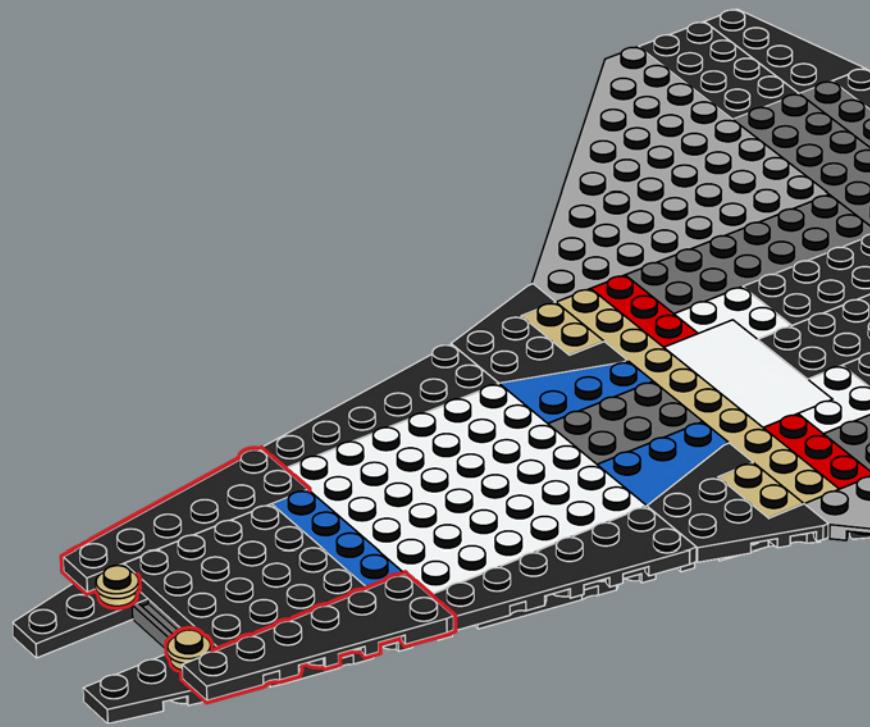


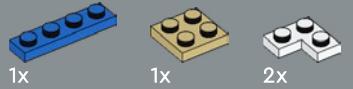


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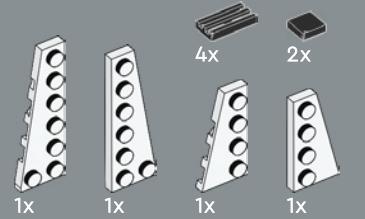
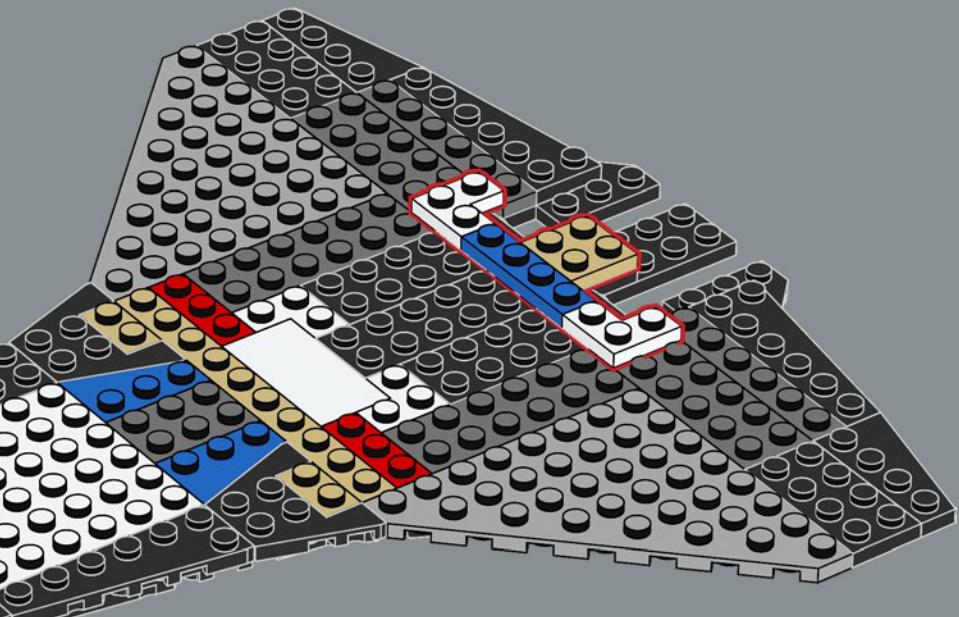


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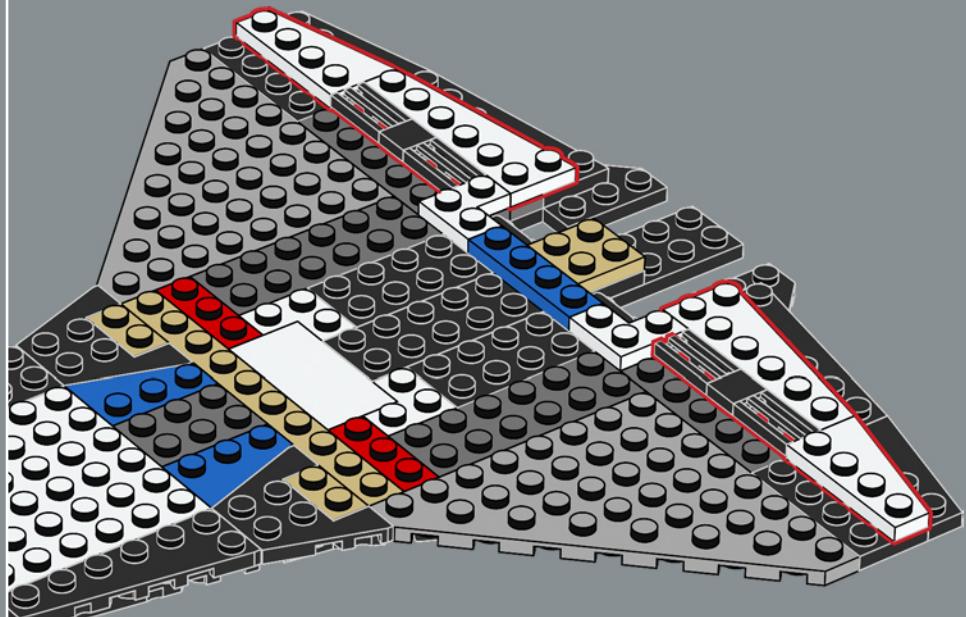


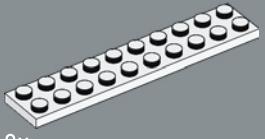


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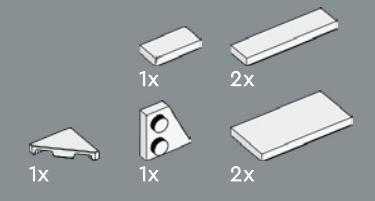
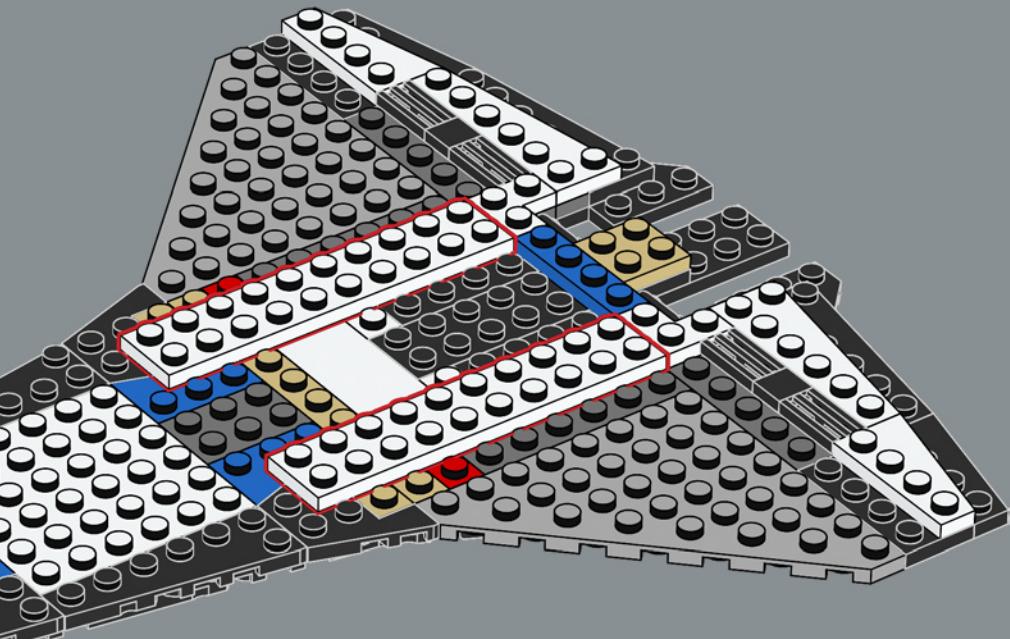


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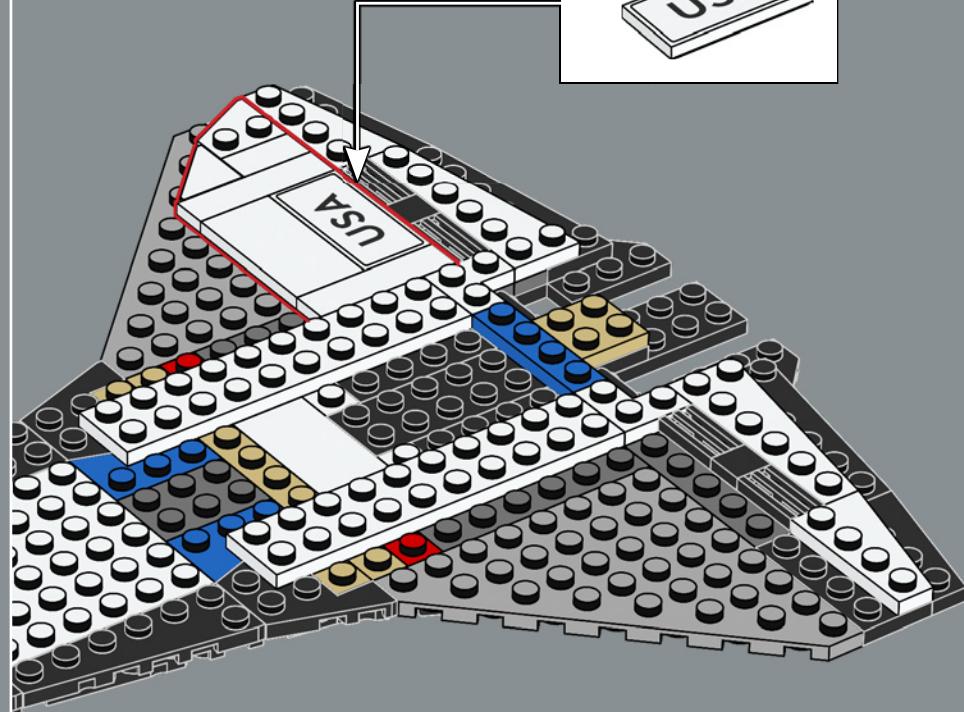
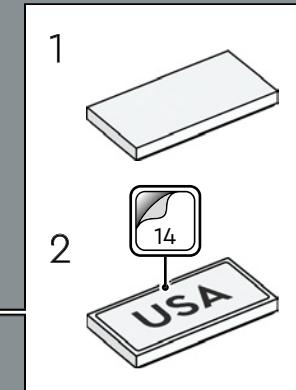


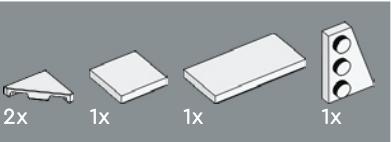


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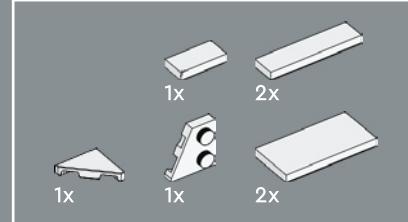
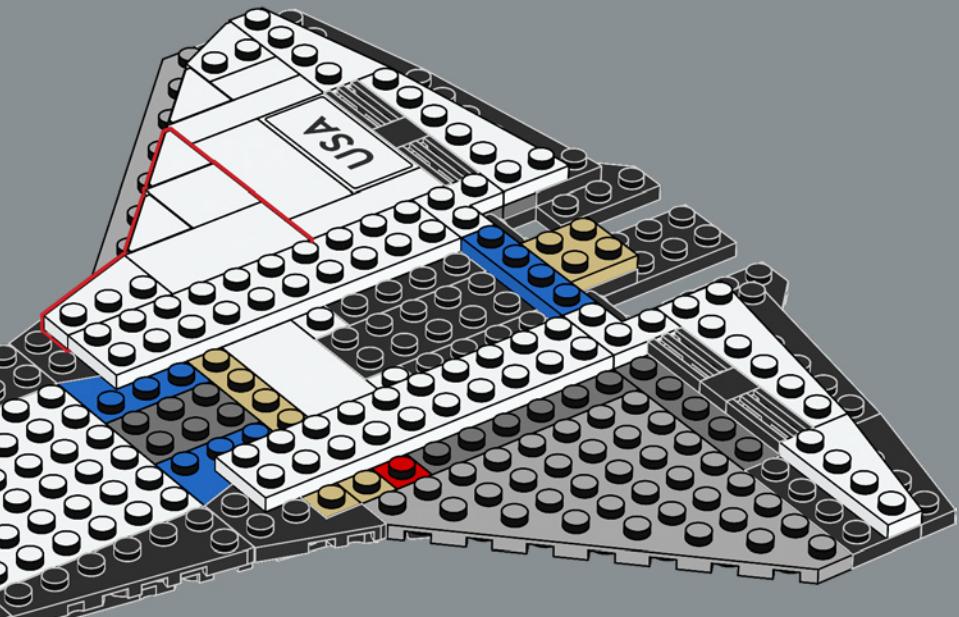


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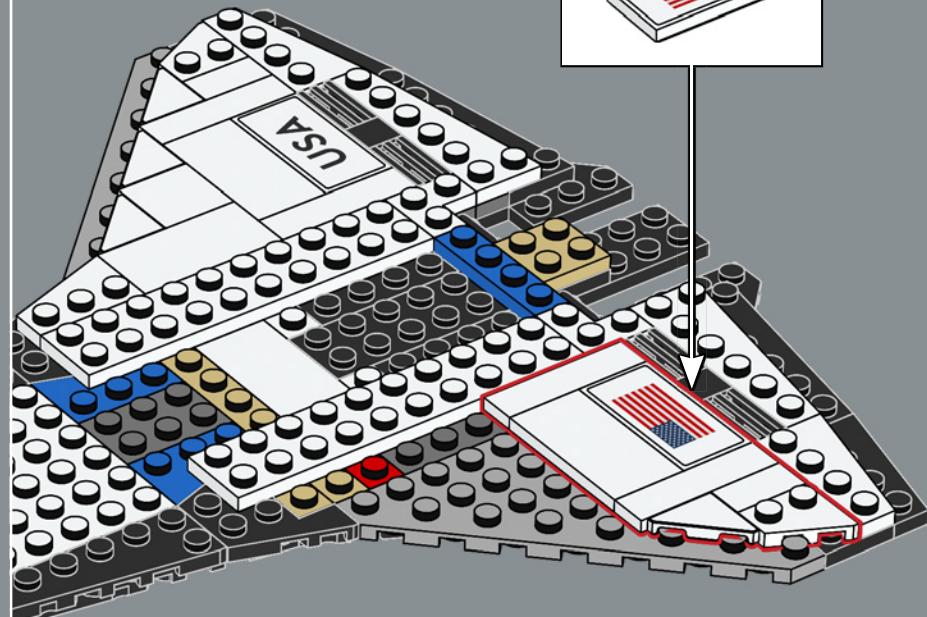


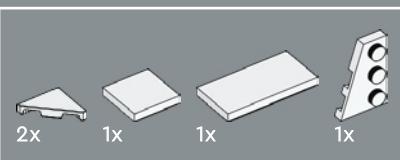


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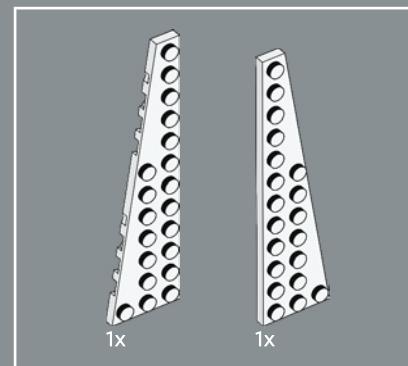
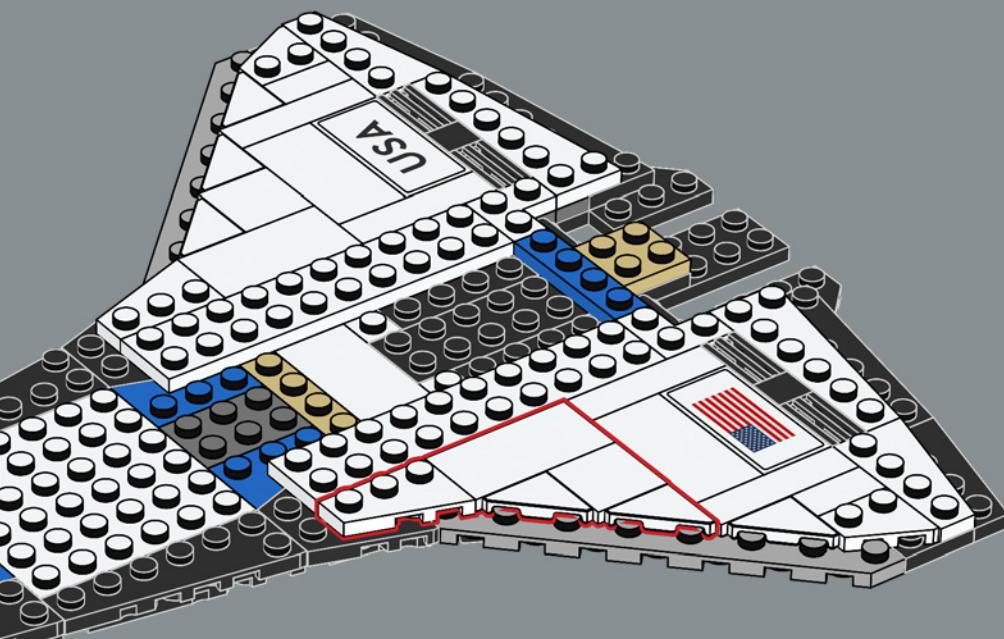


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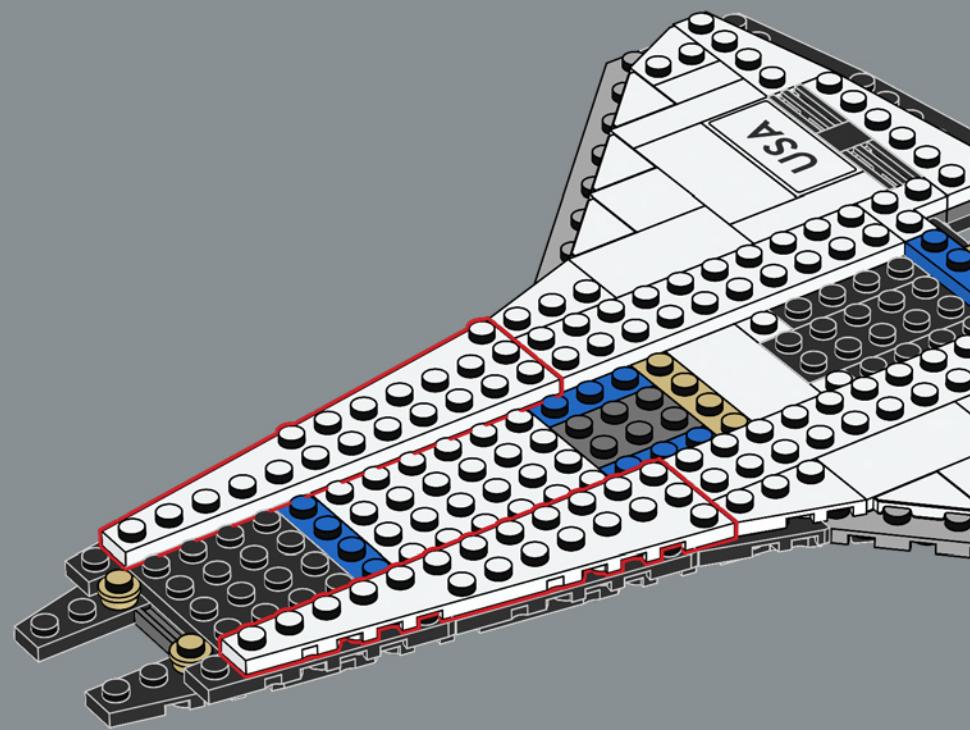


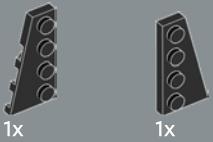


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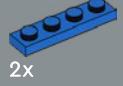
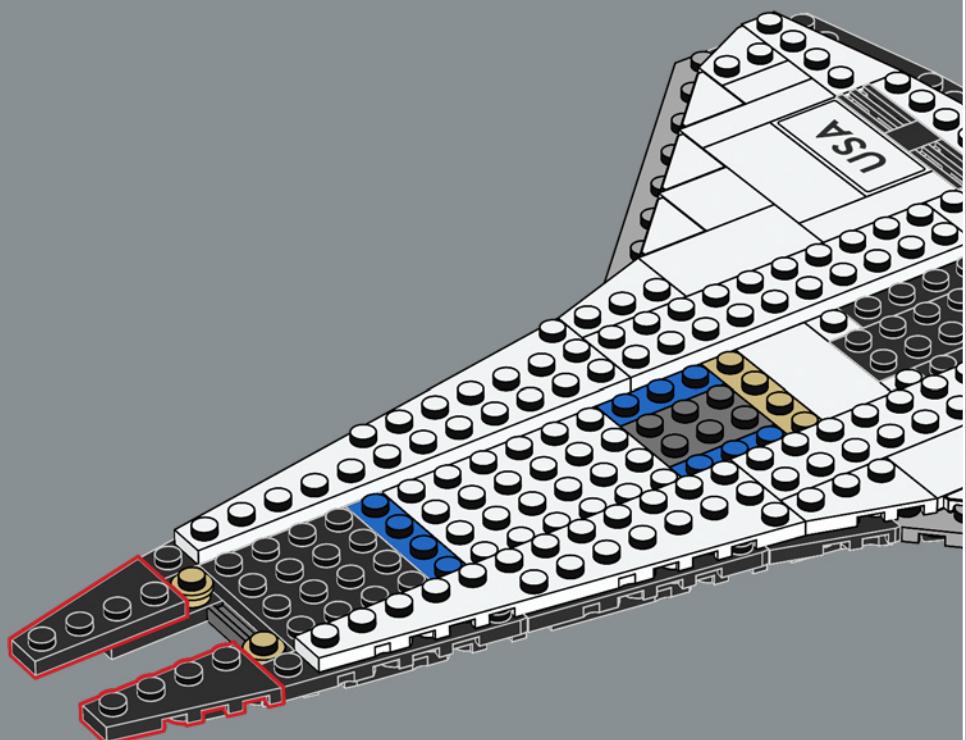


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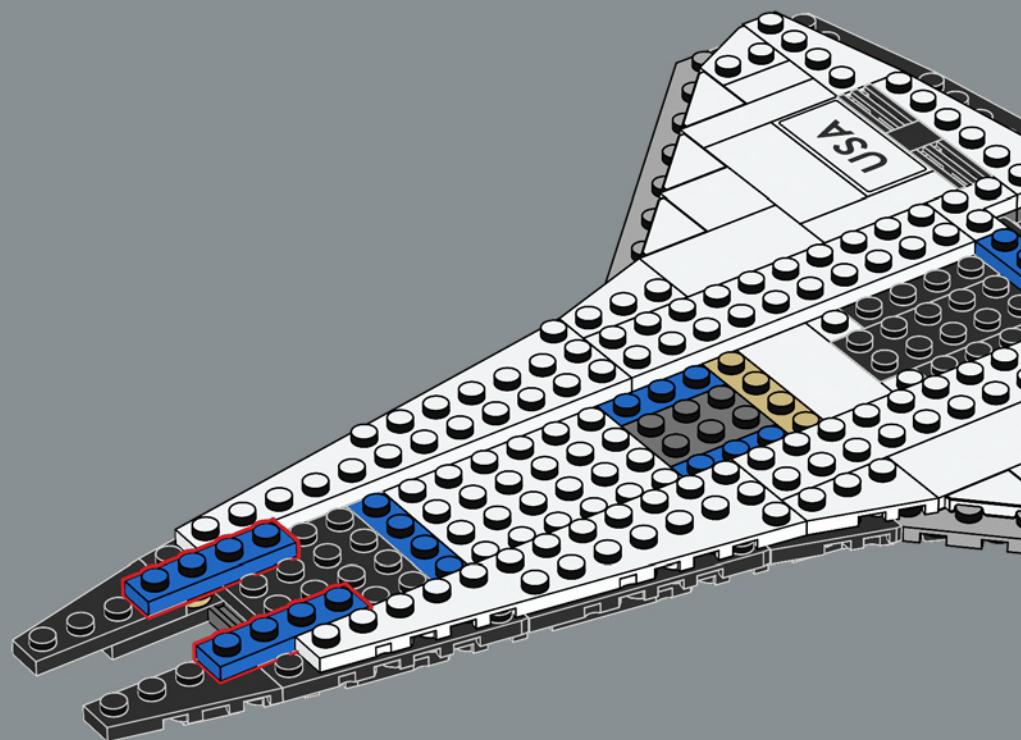




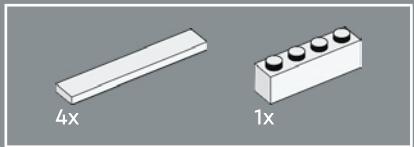
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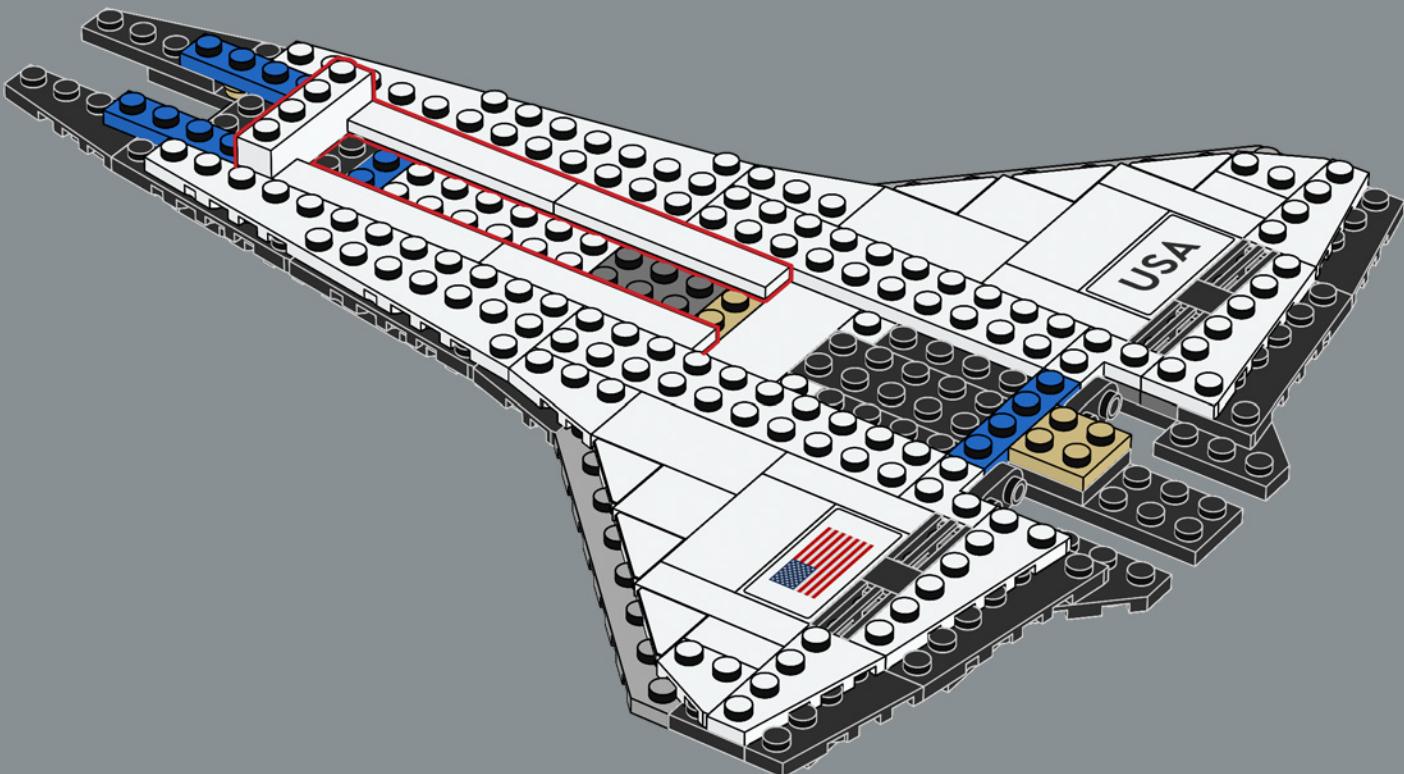
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Il est toujours possible de voir et de visiter l'Enterprise aujourd'hui dans un musée de l'aviation à New York.

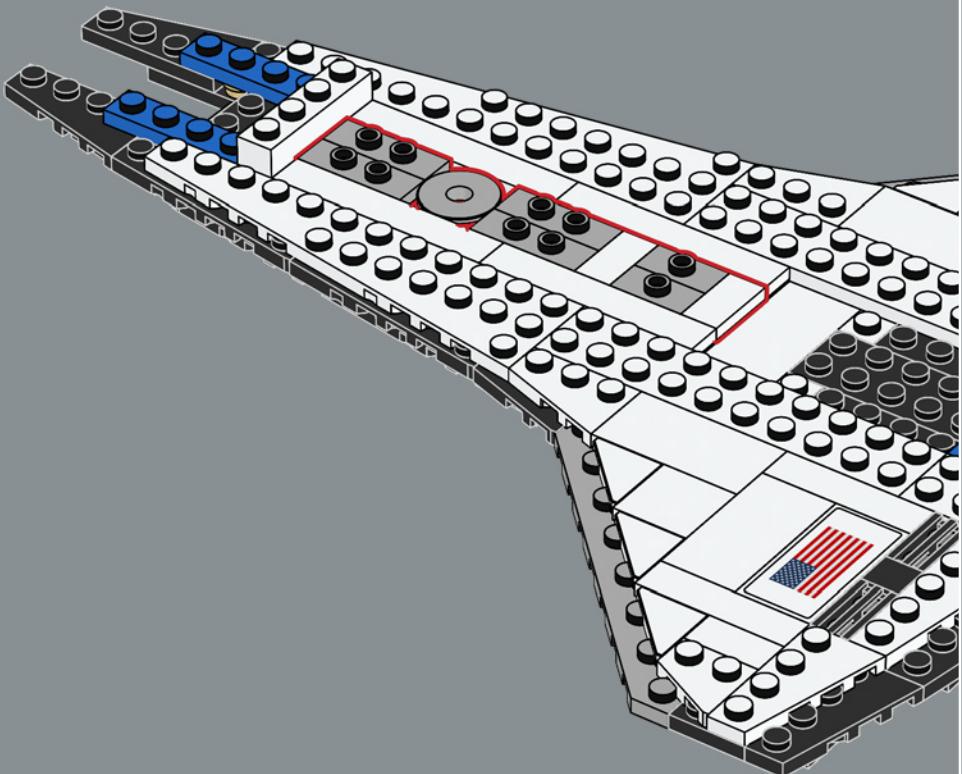


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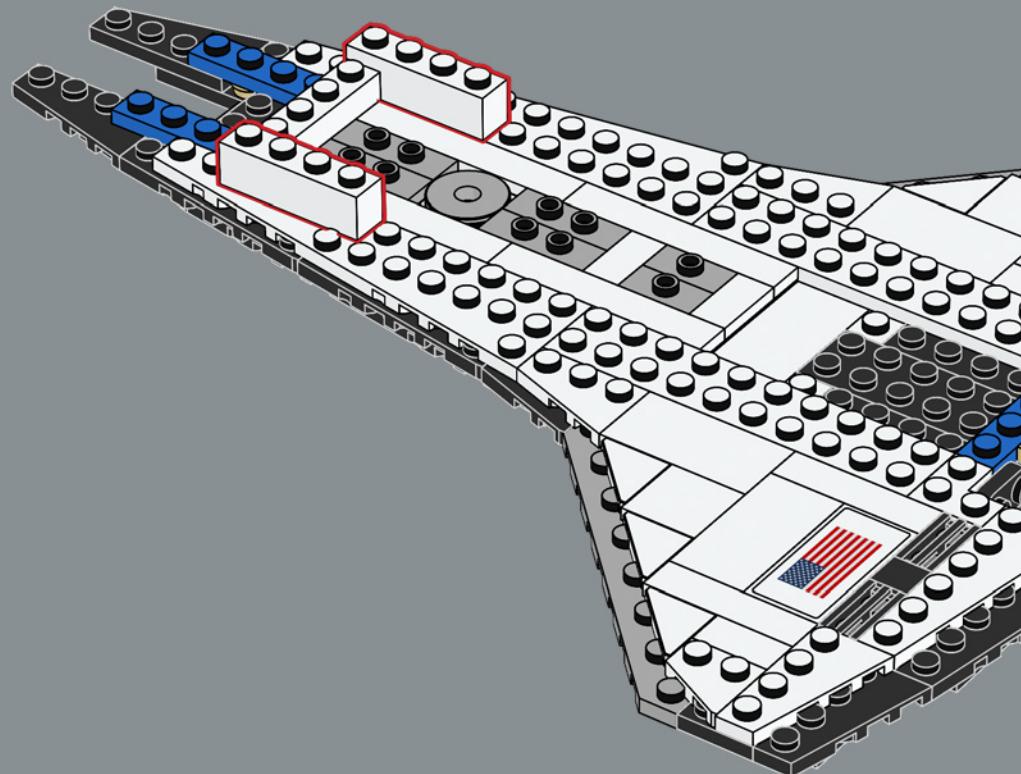


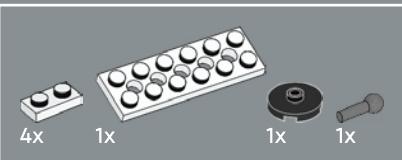
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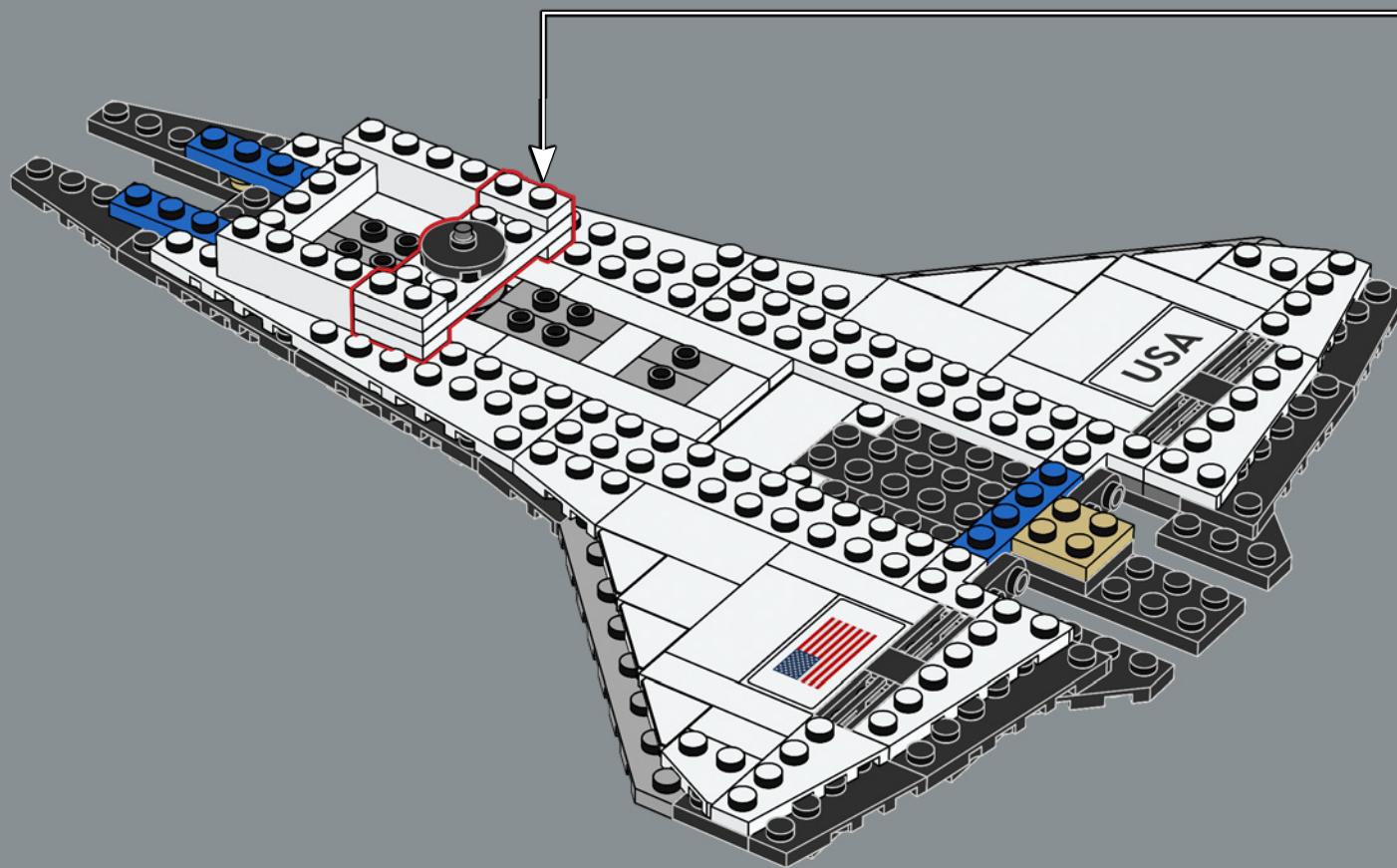
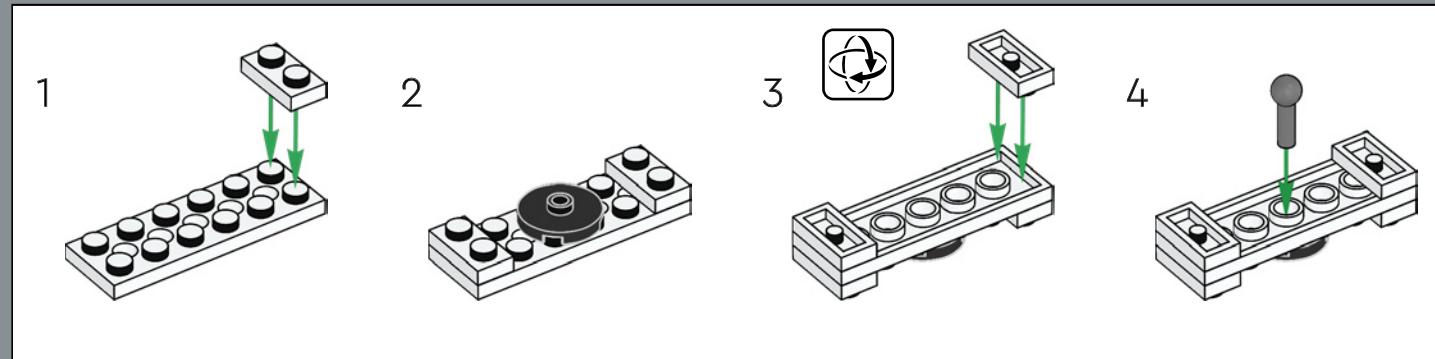
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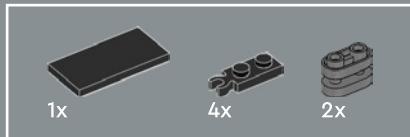
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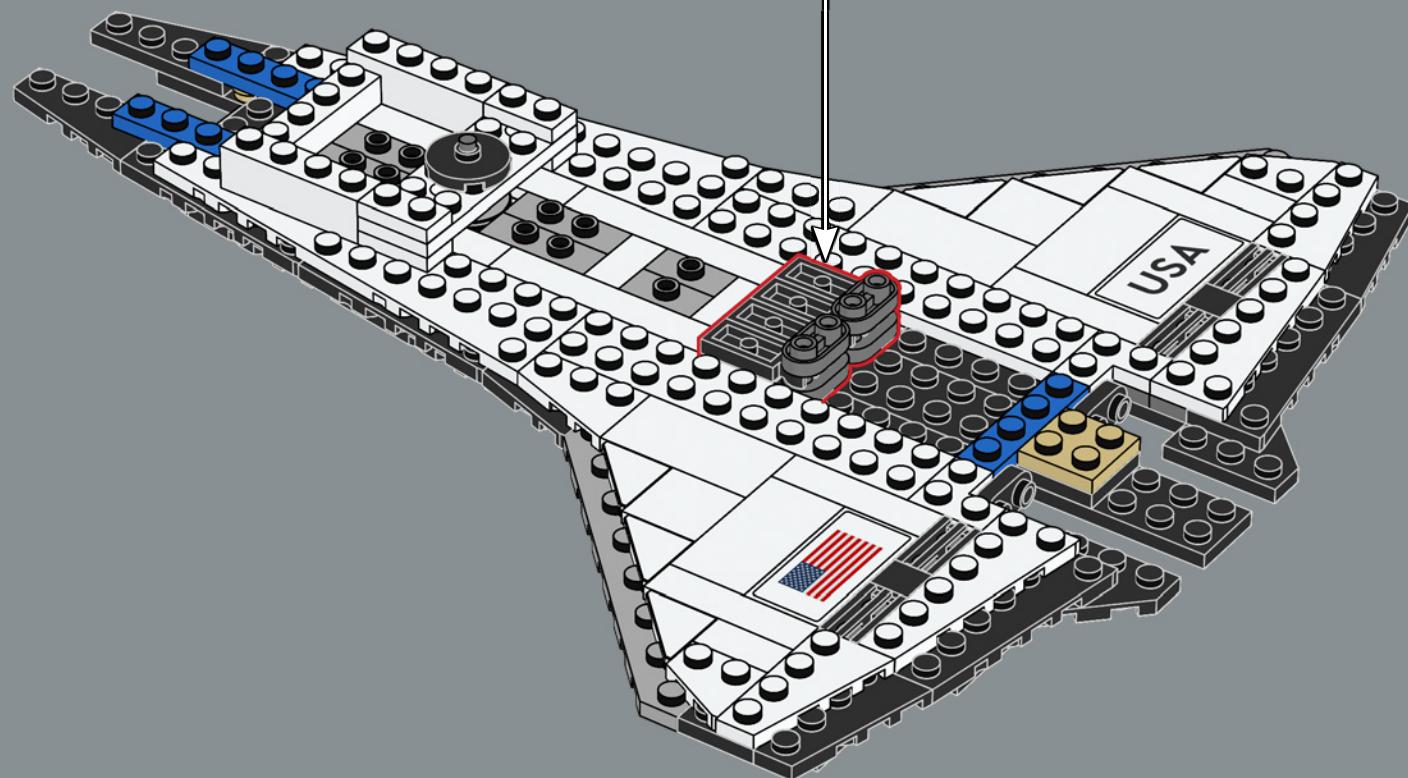
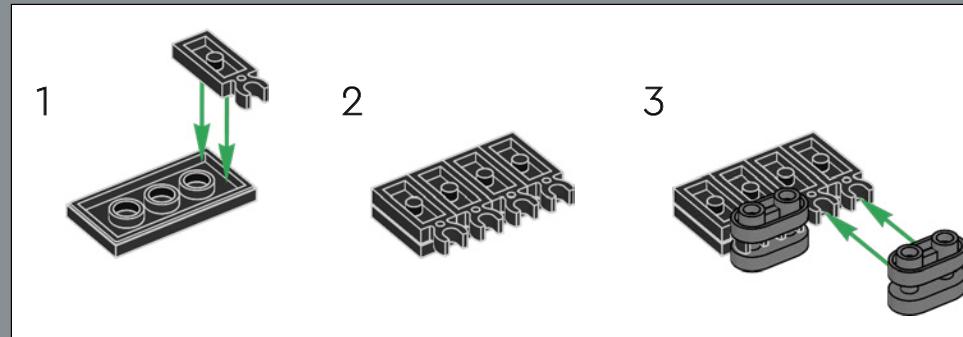


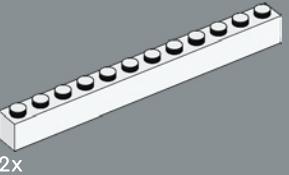
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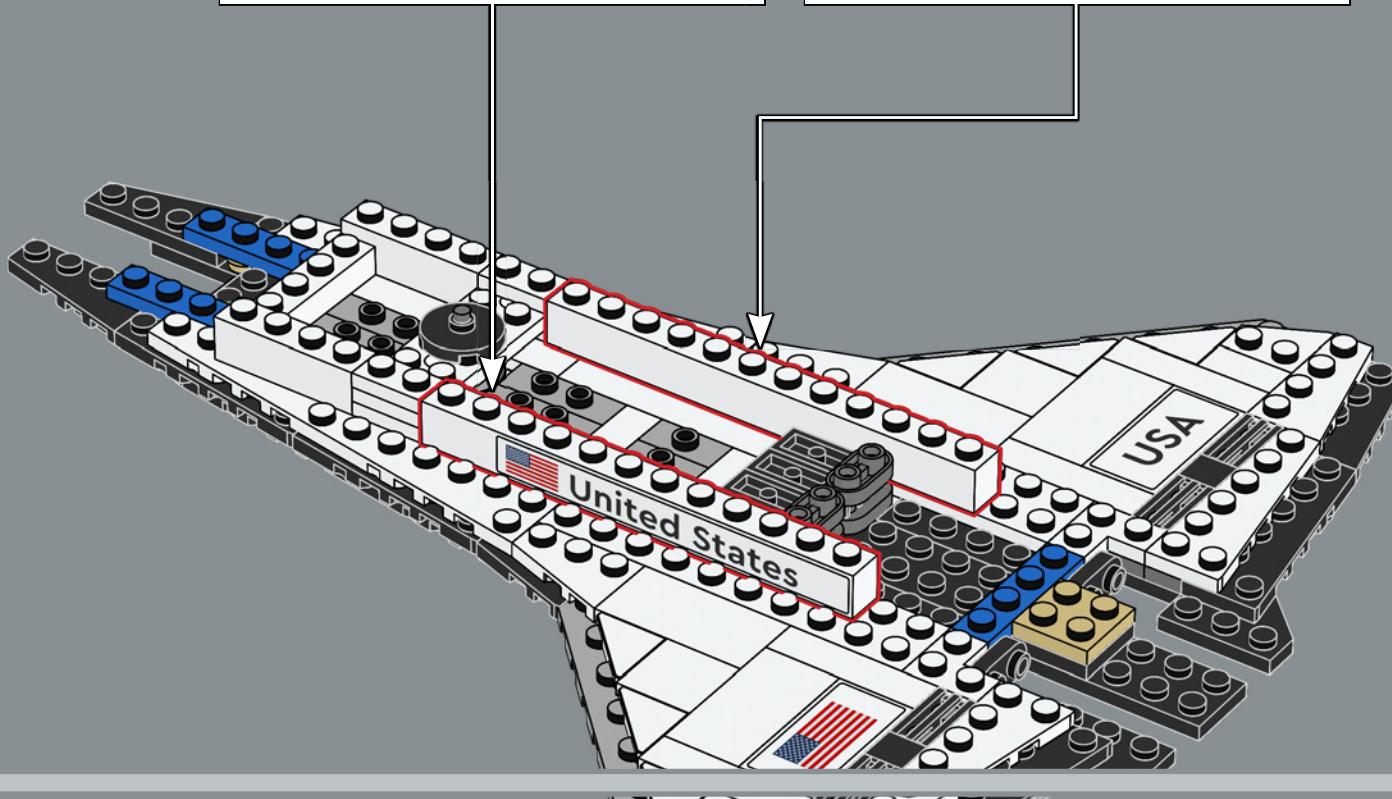
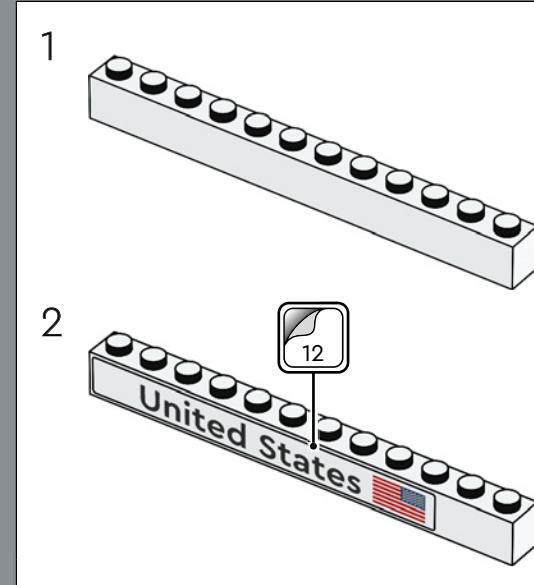
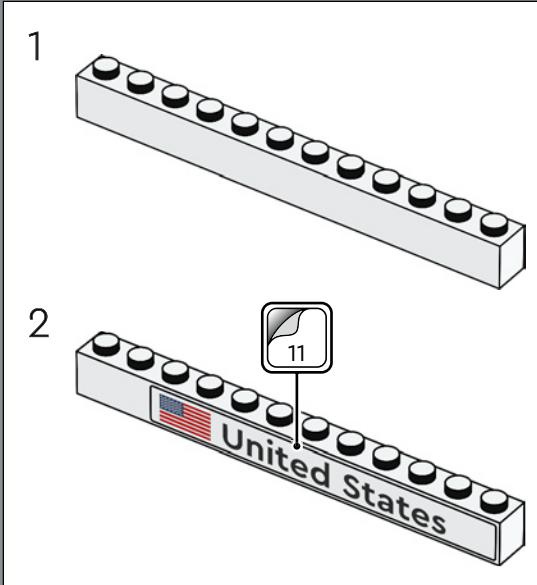


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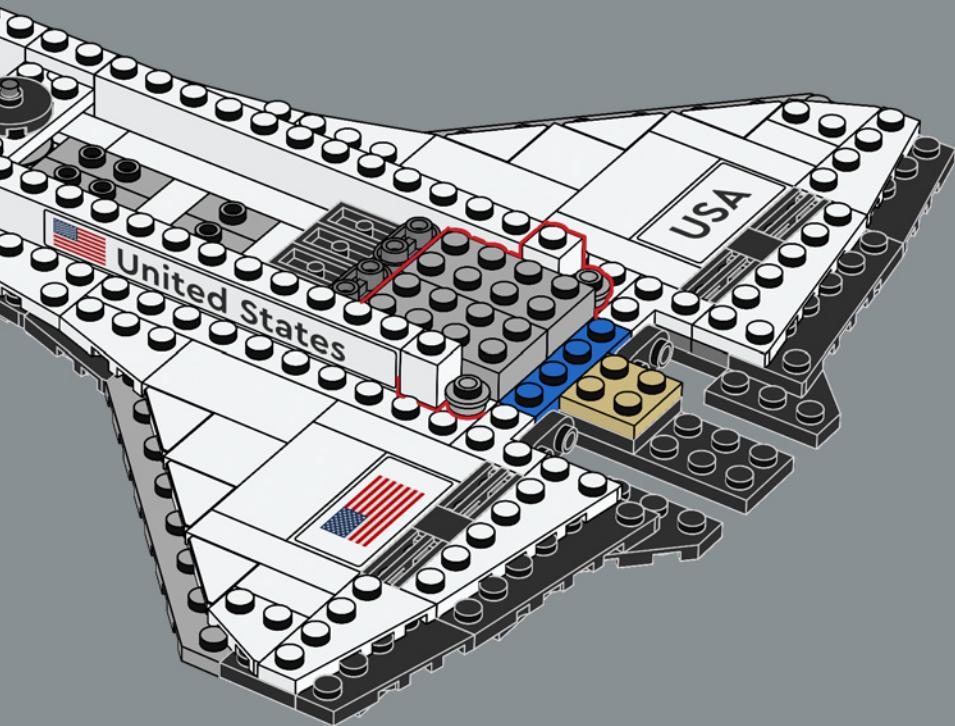


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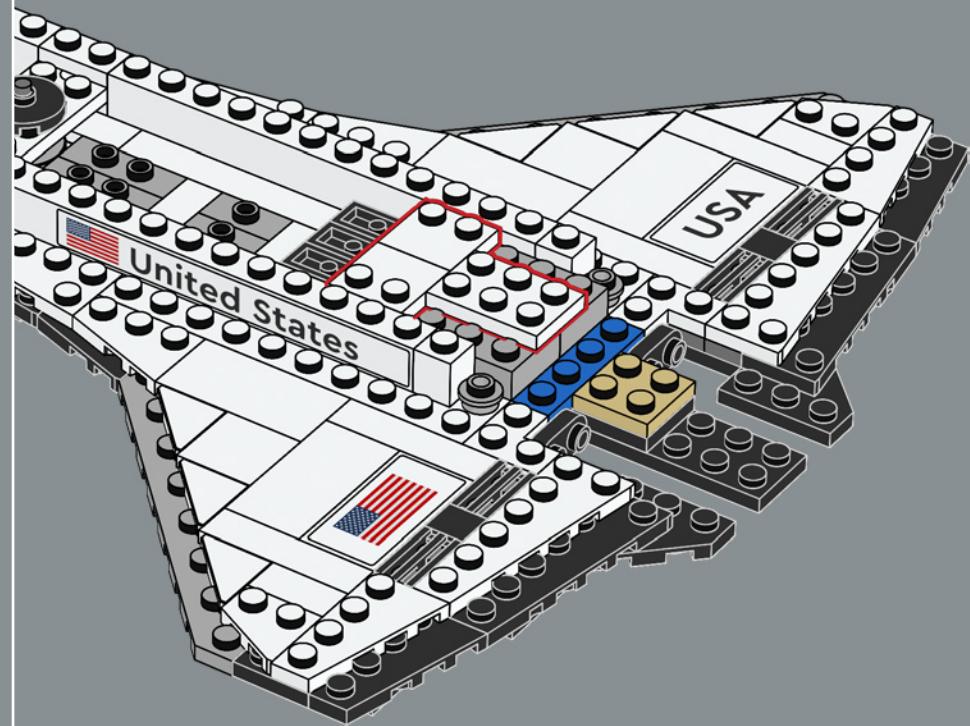




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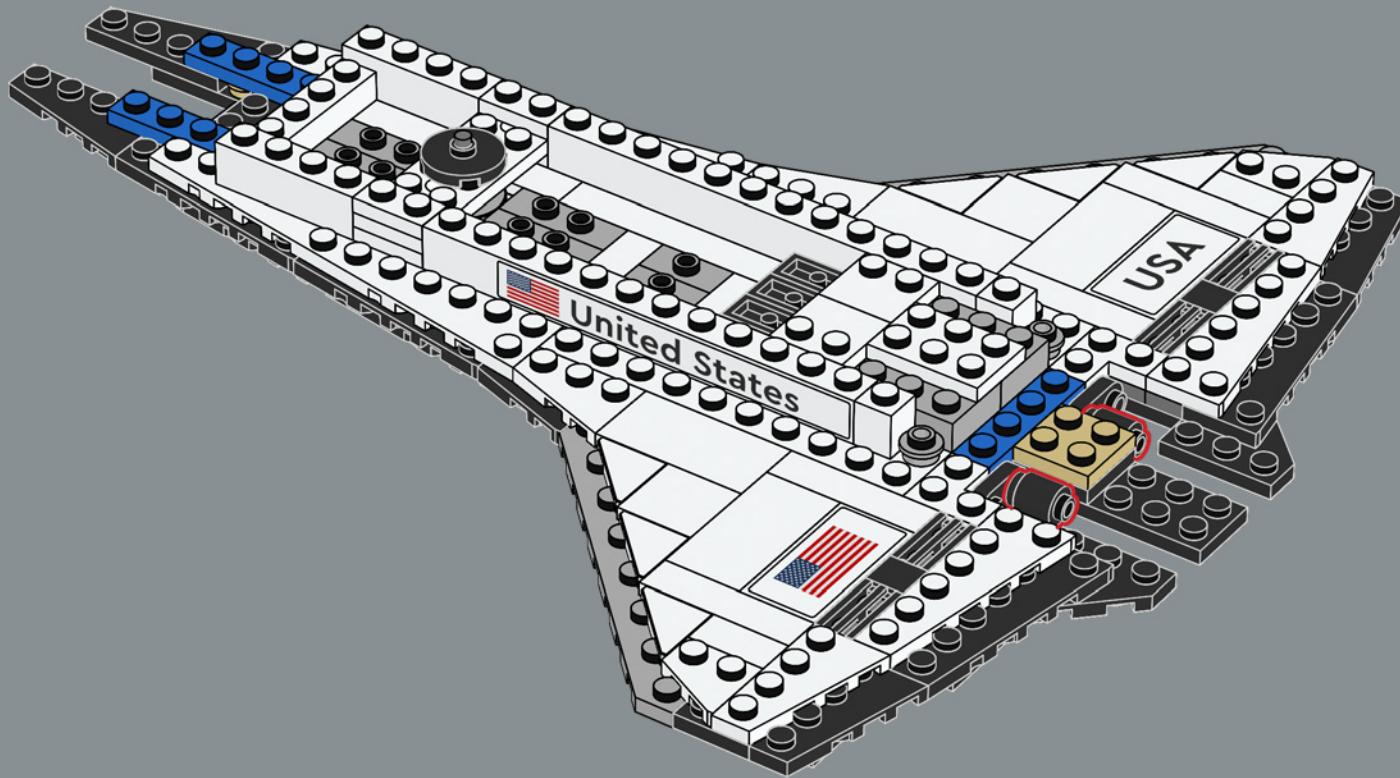
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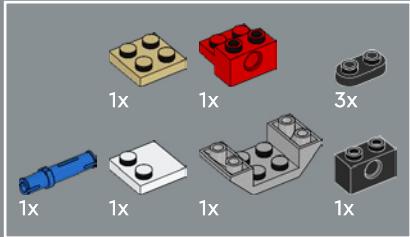




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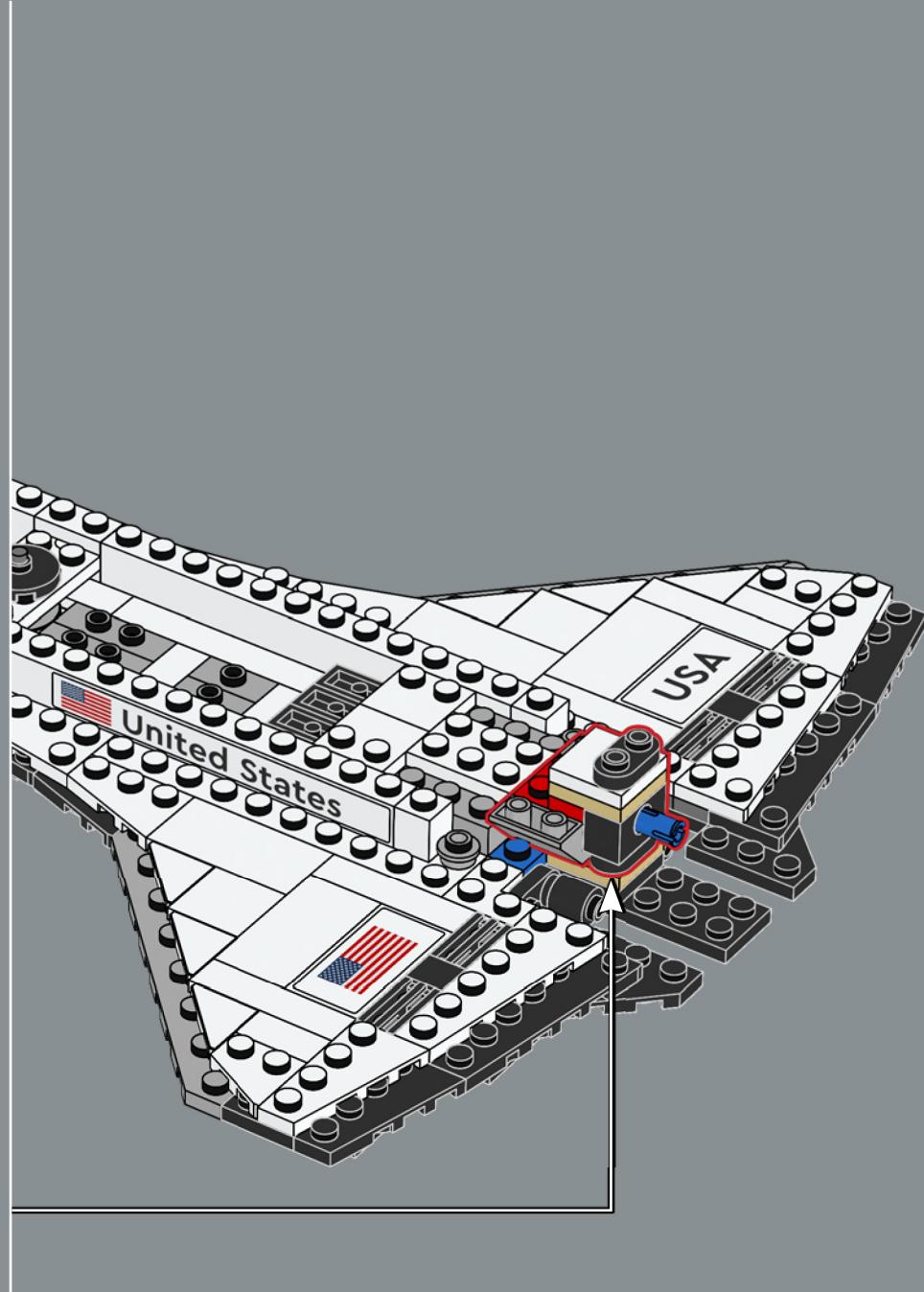
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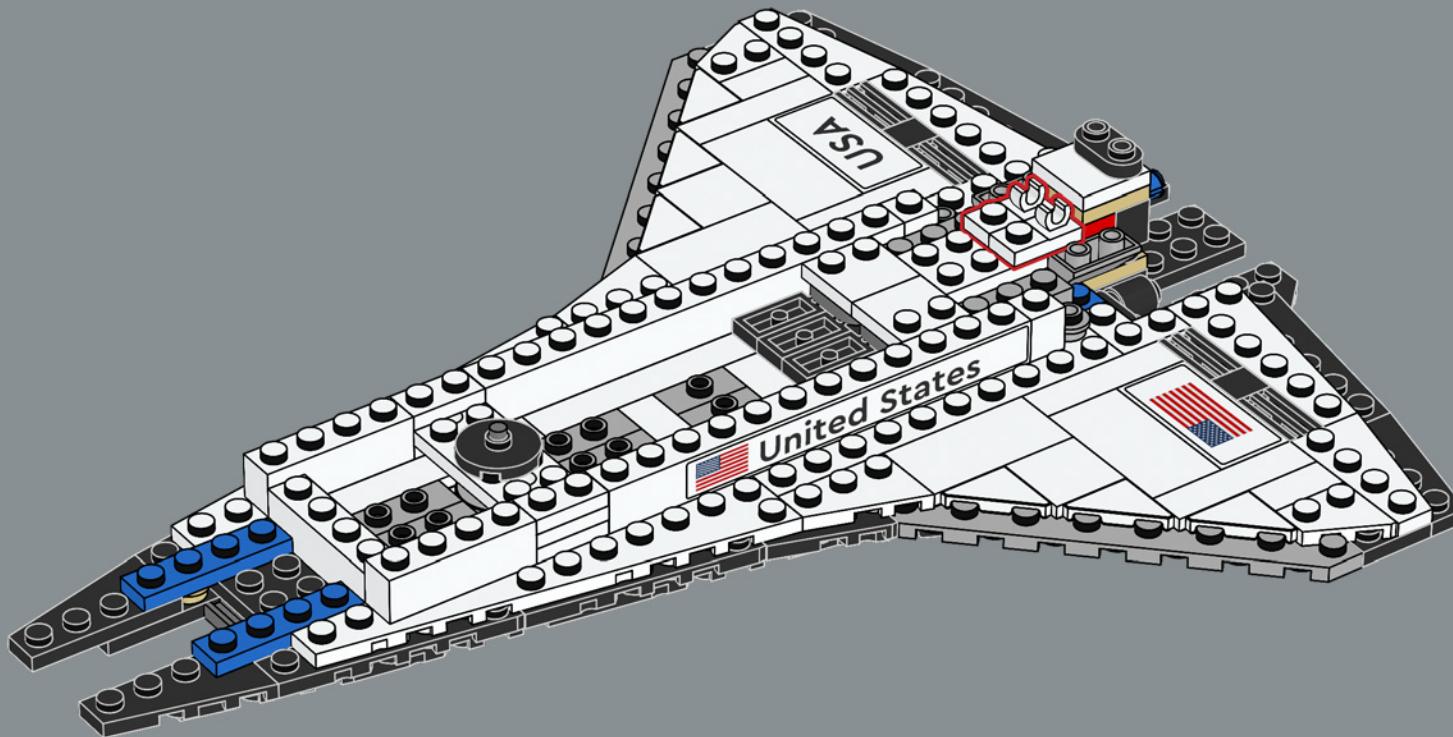
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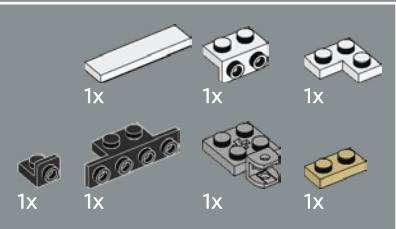




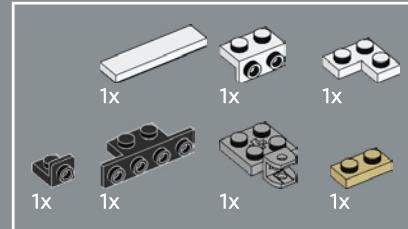
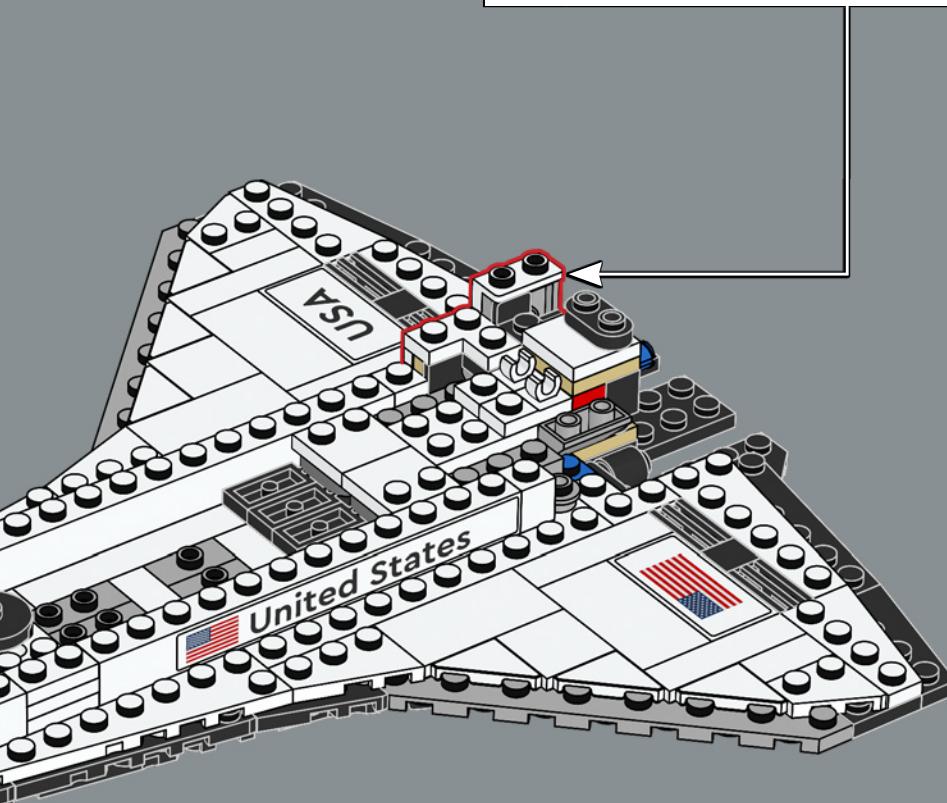
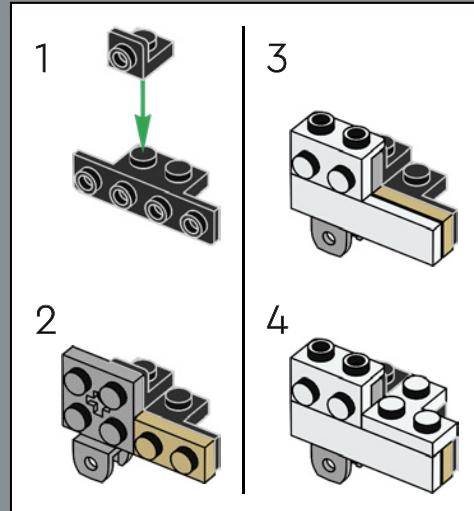
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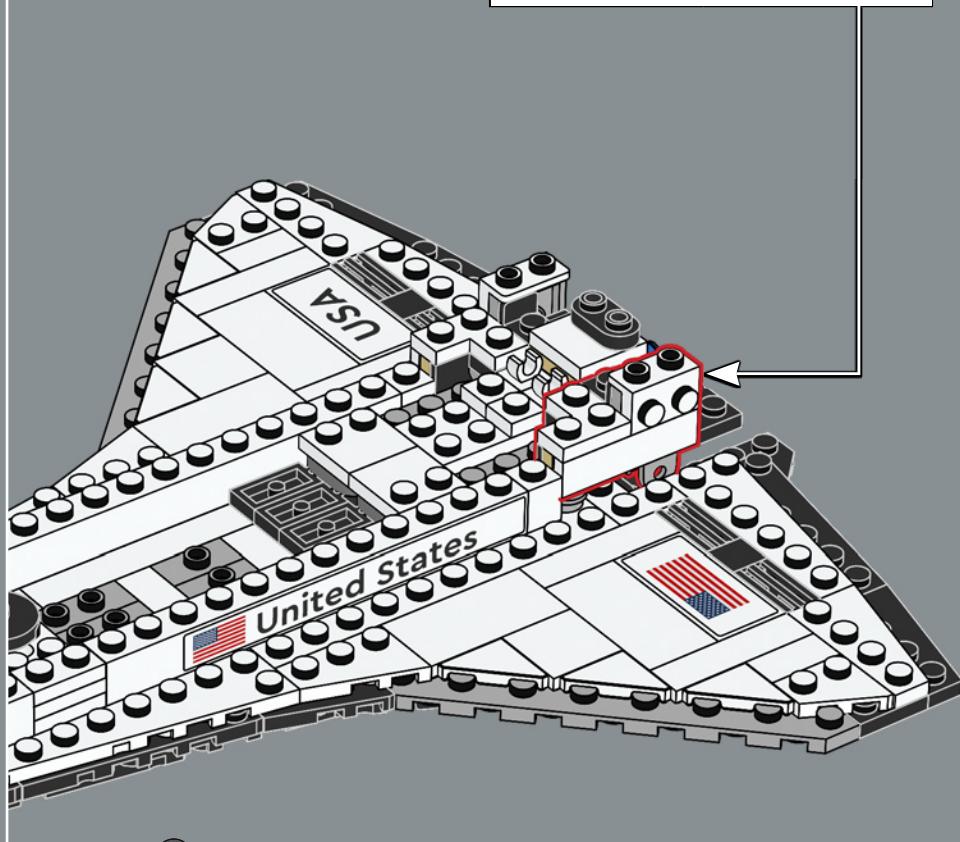
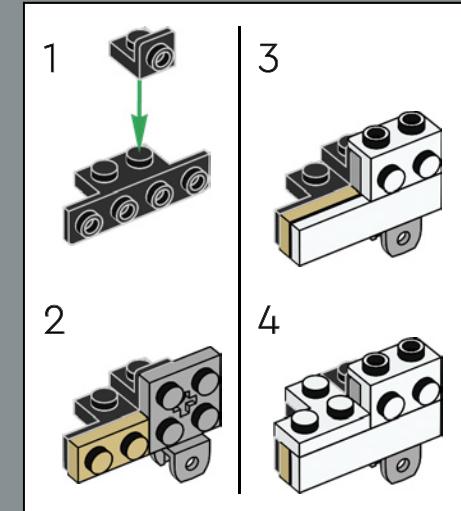


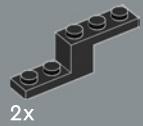


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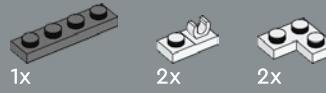
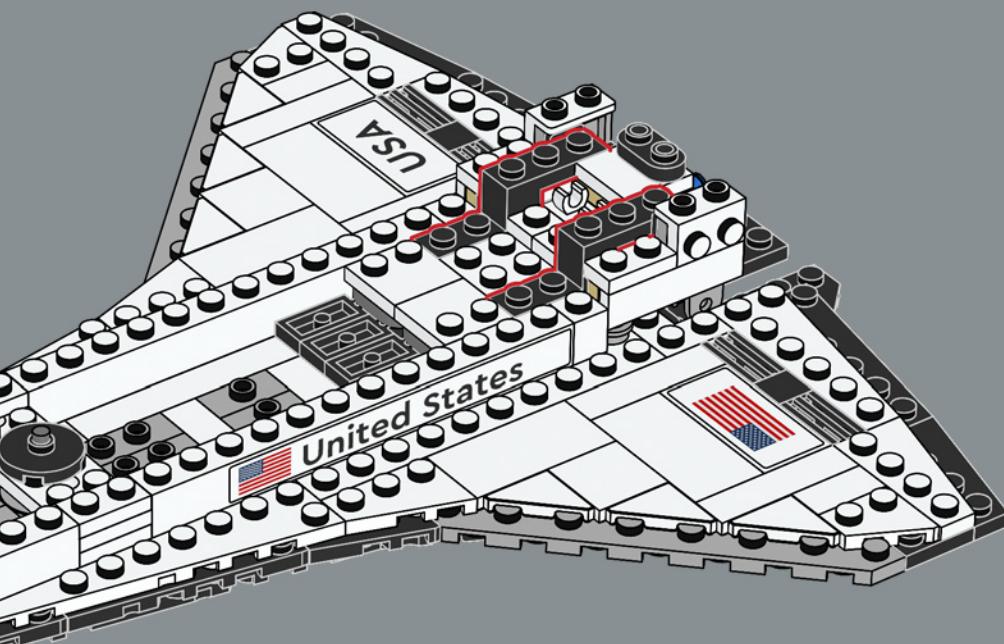


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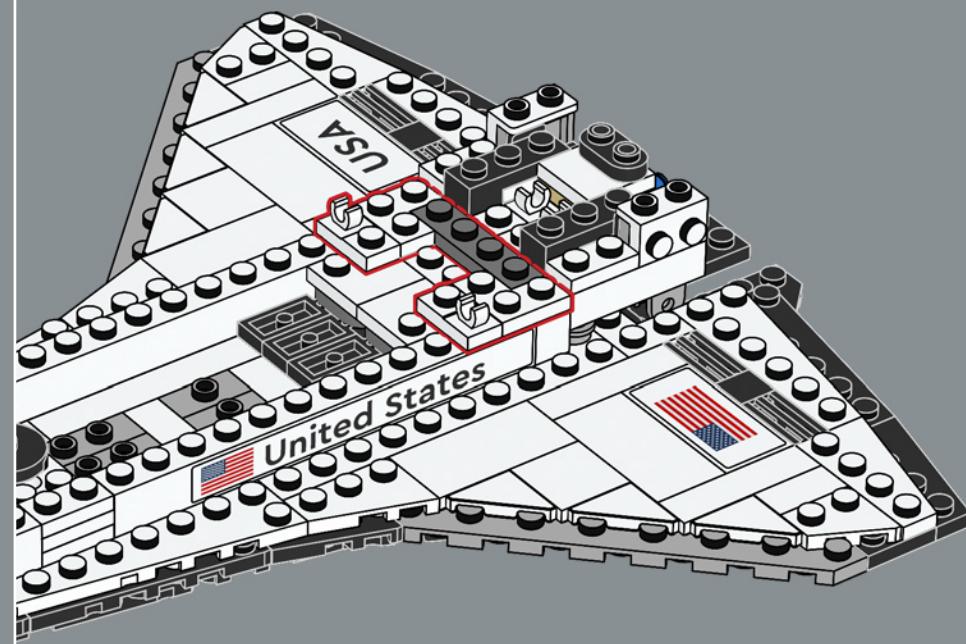




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44





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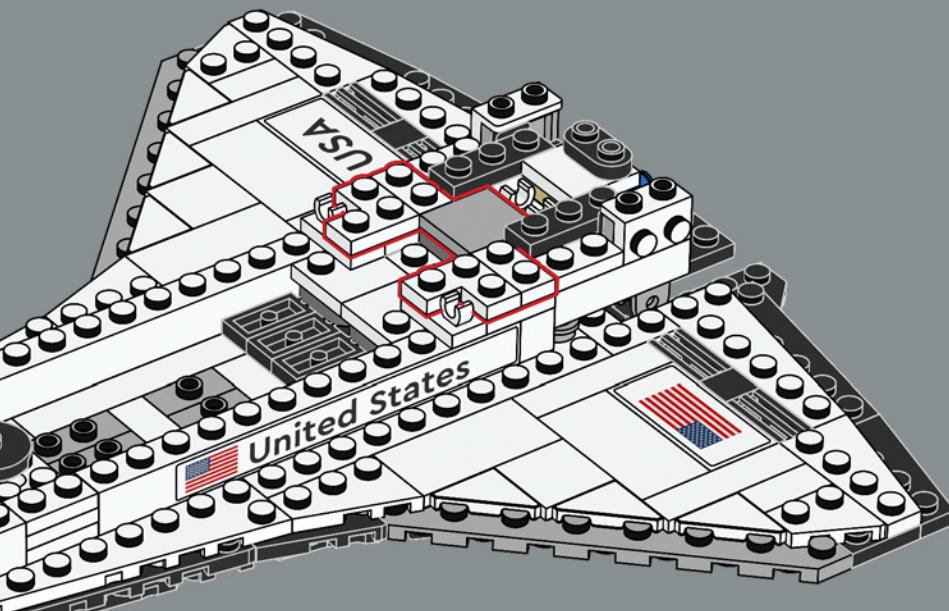


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2x

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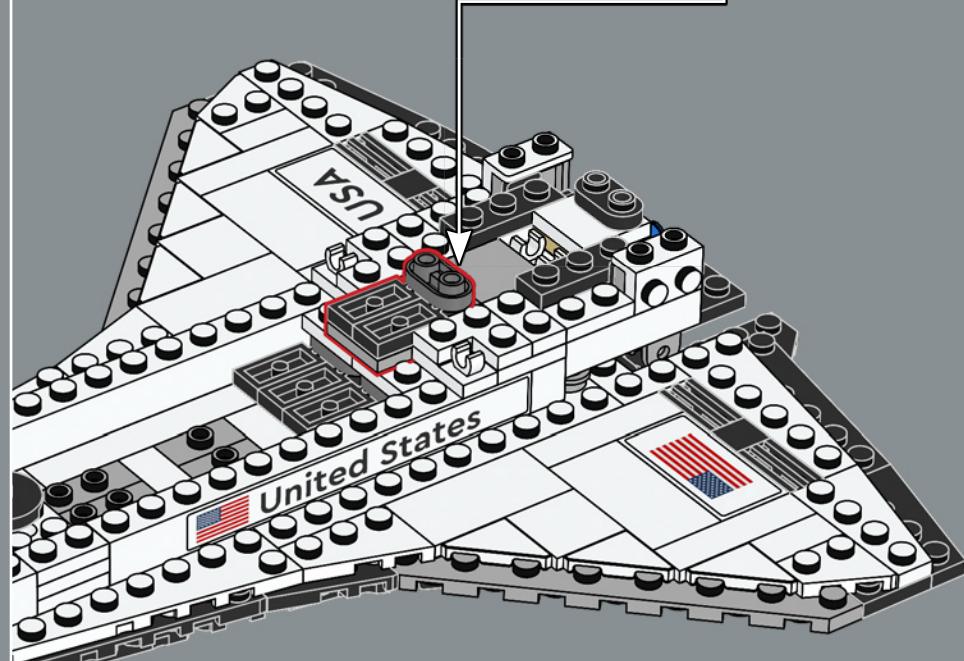
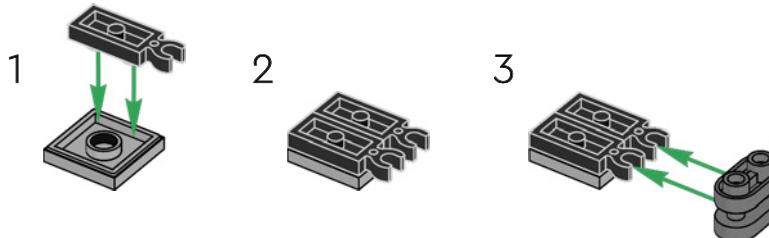


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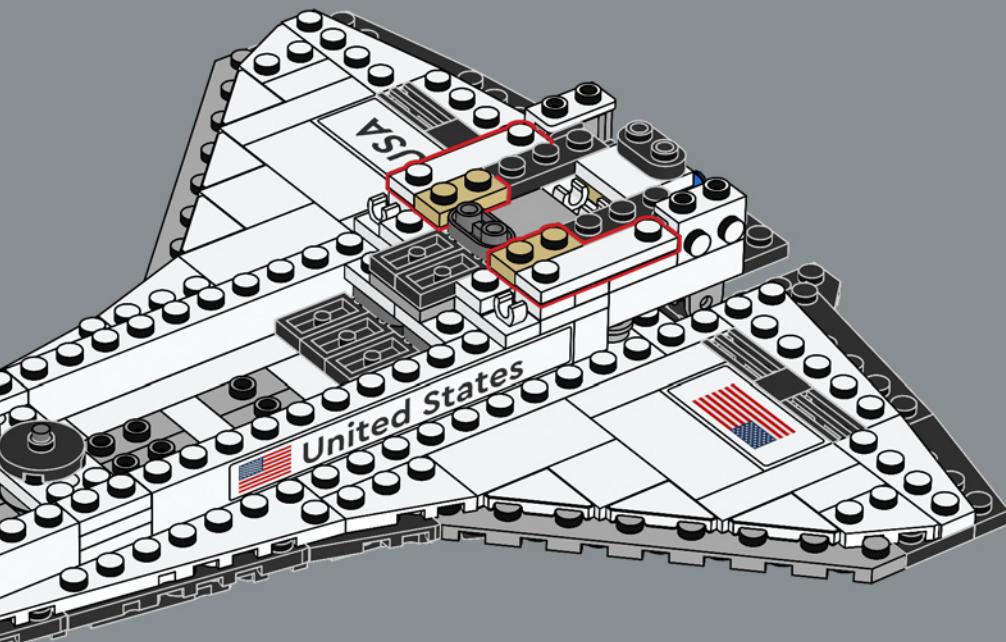
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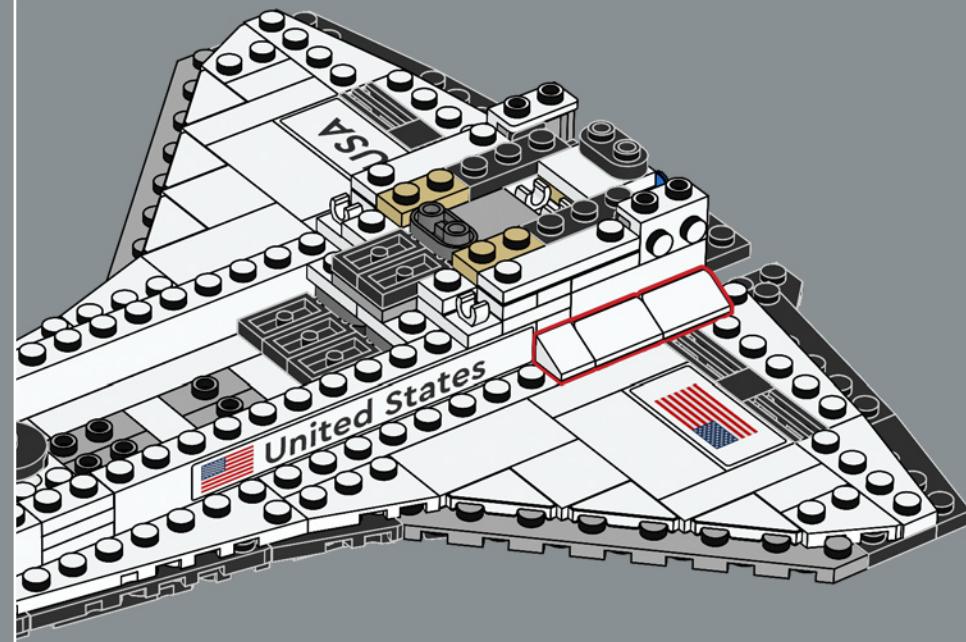


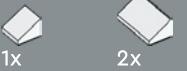


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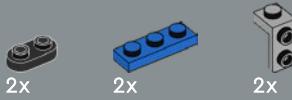
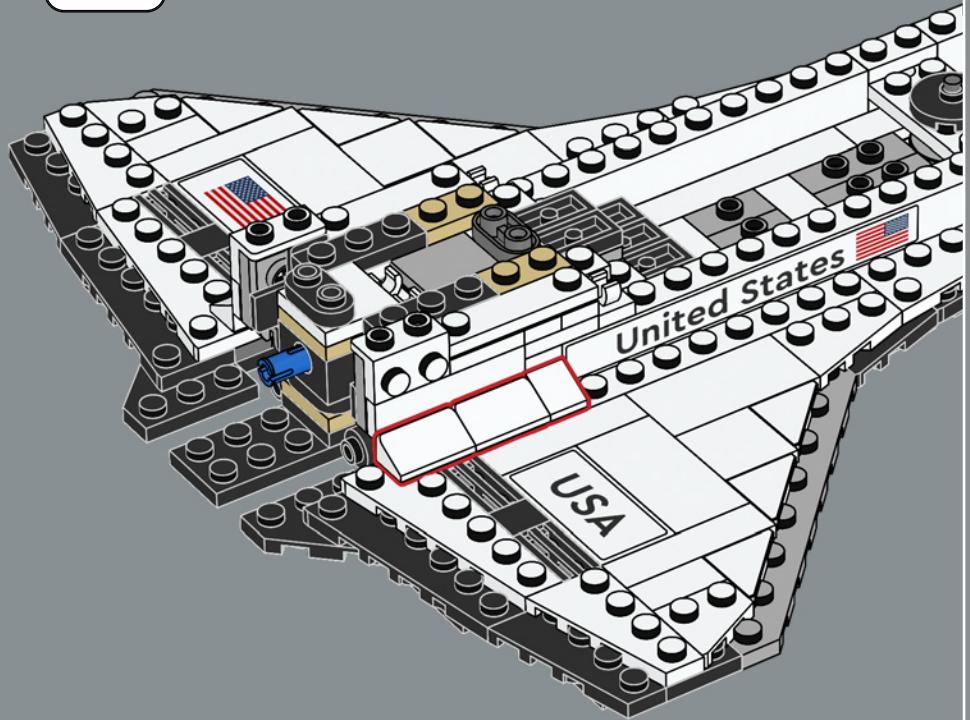


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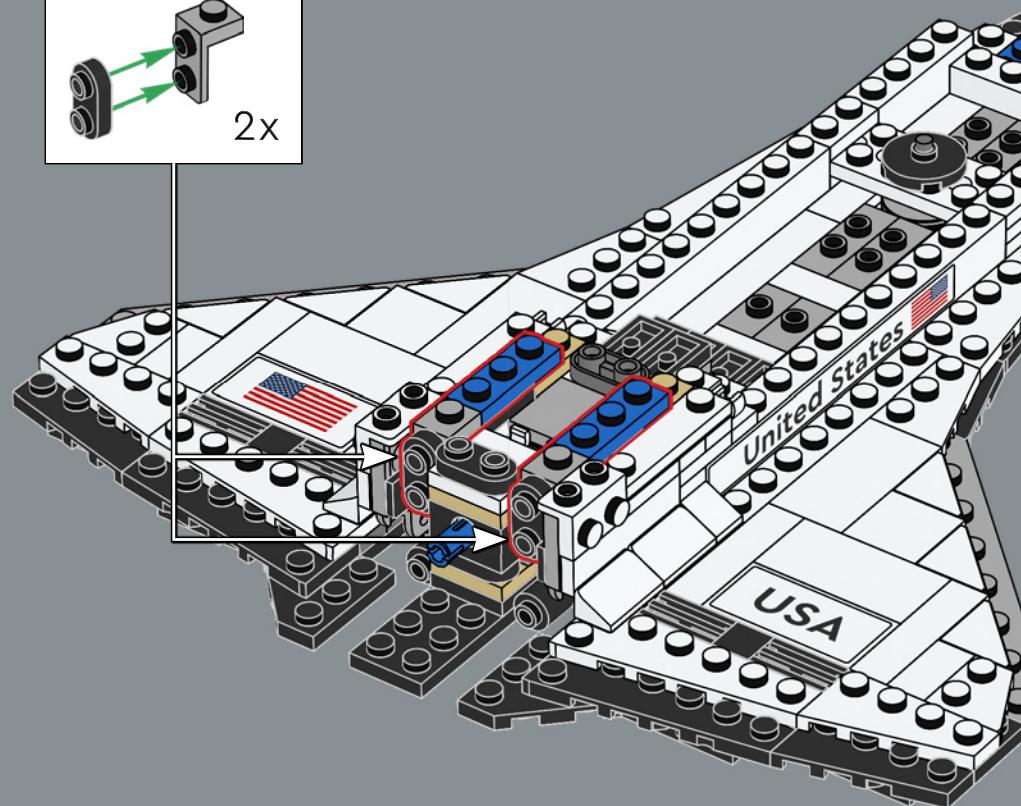
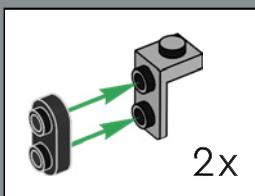


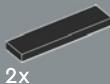


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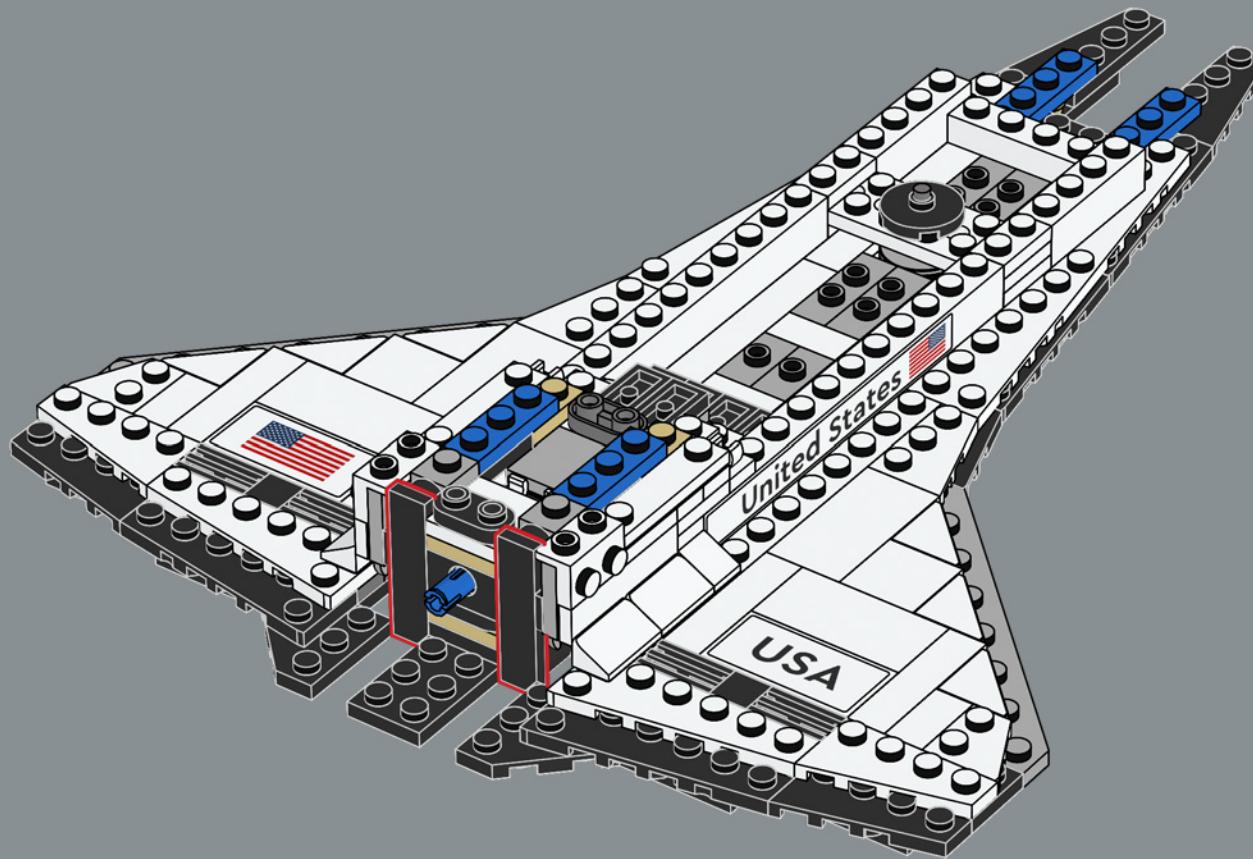
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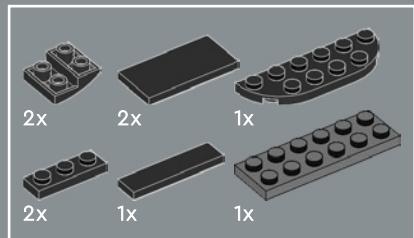




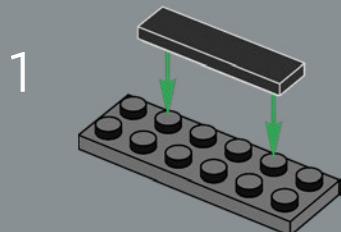
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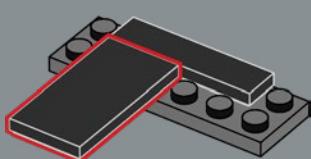




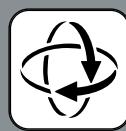
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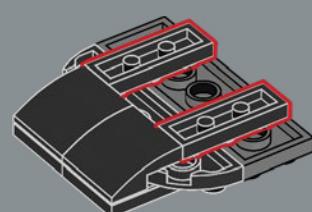
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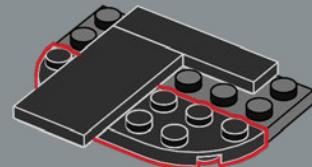
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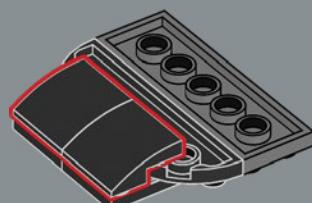
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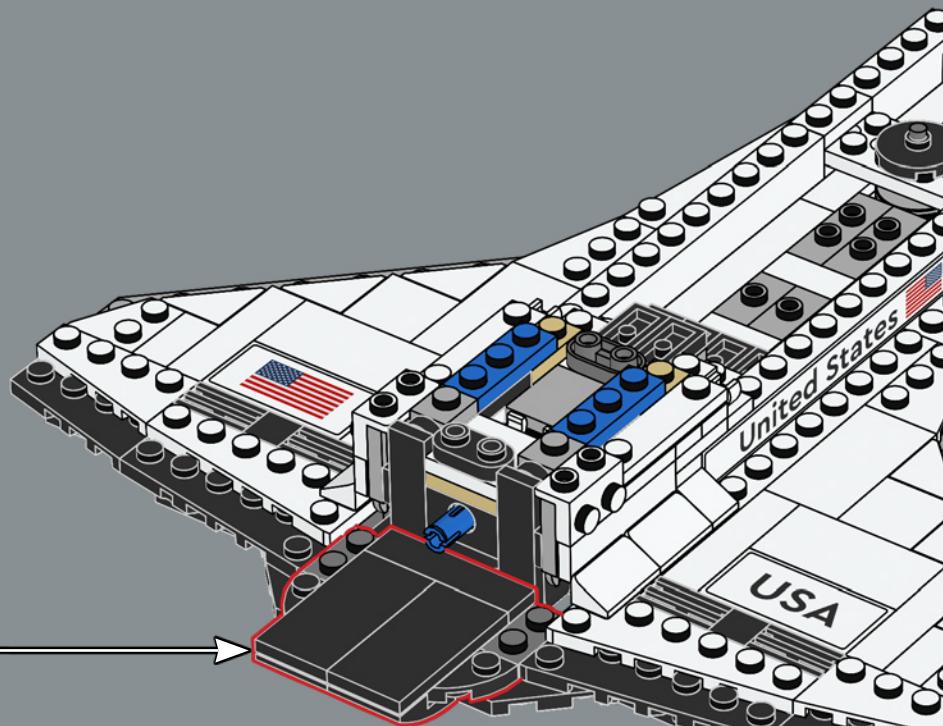
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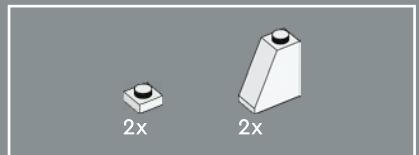


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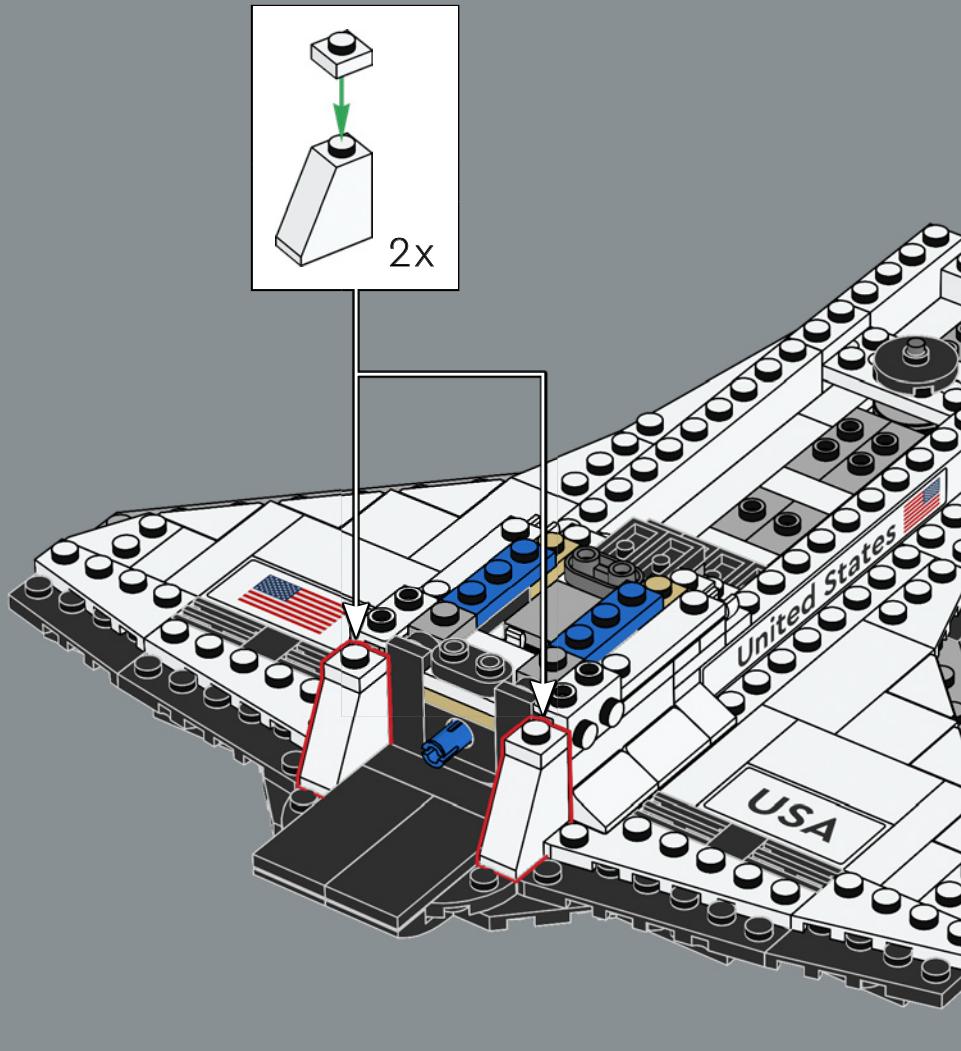


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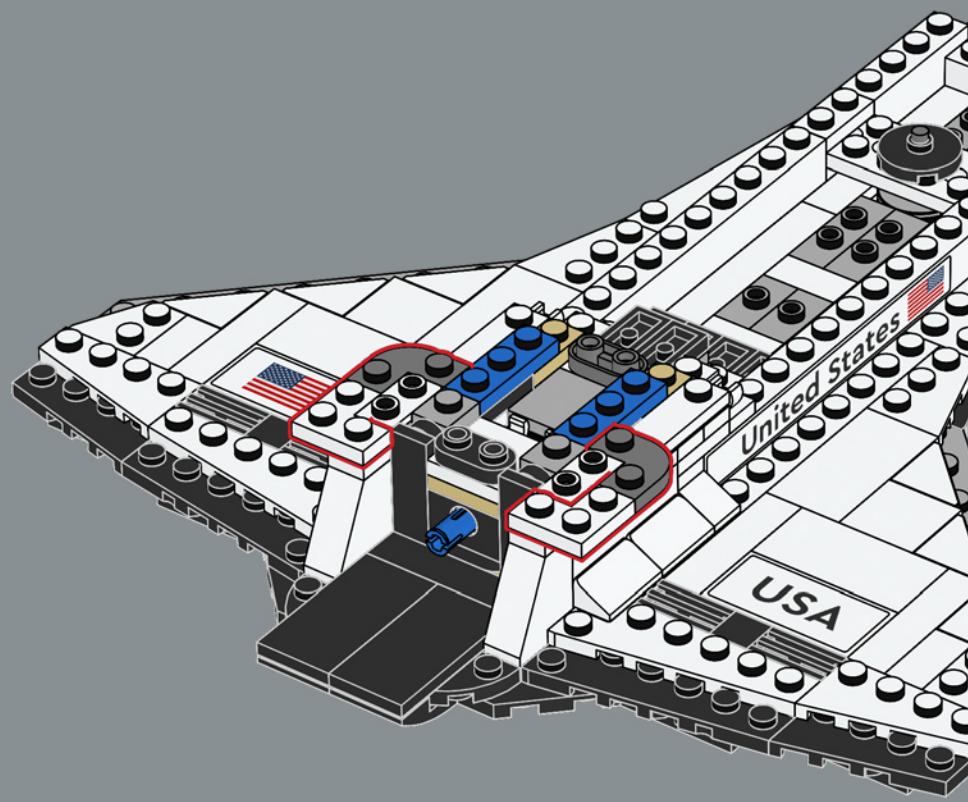


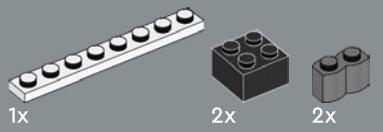


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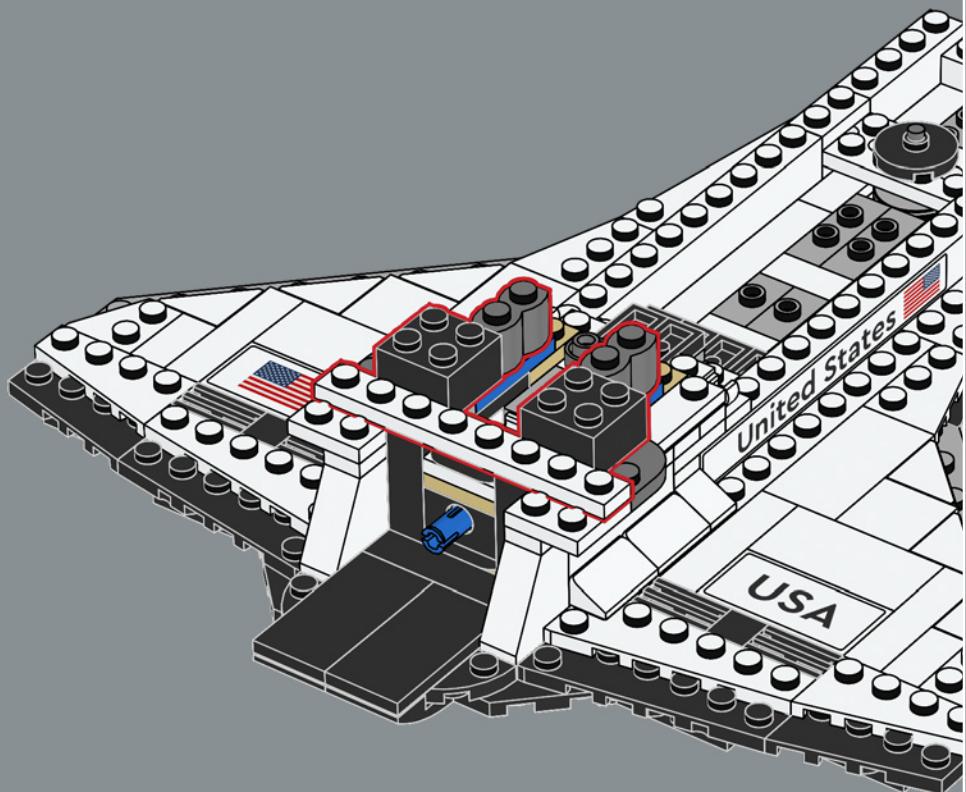


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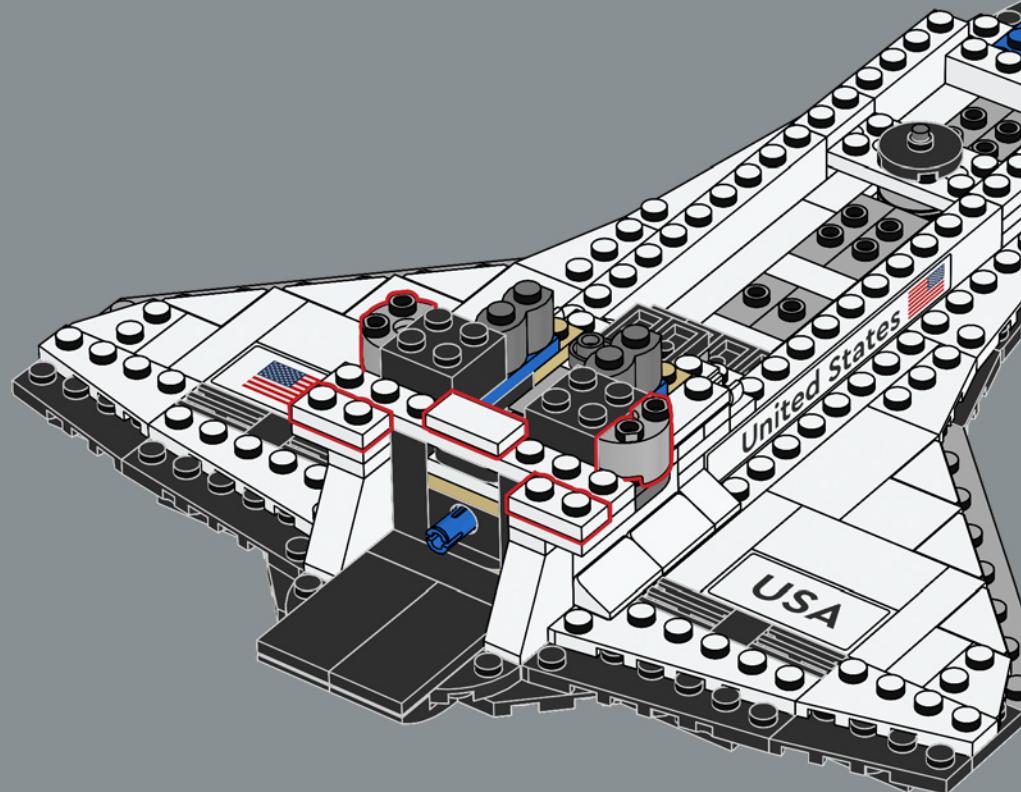




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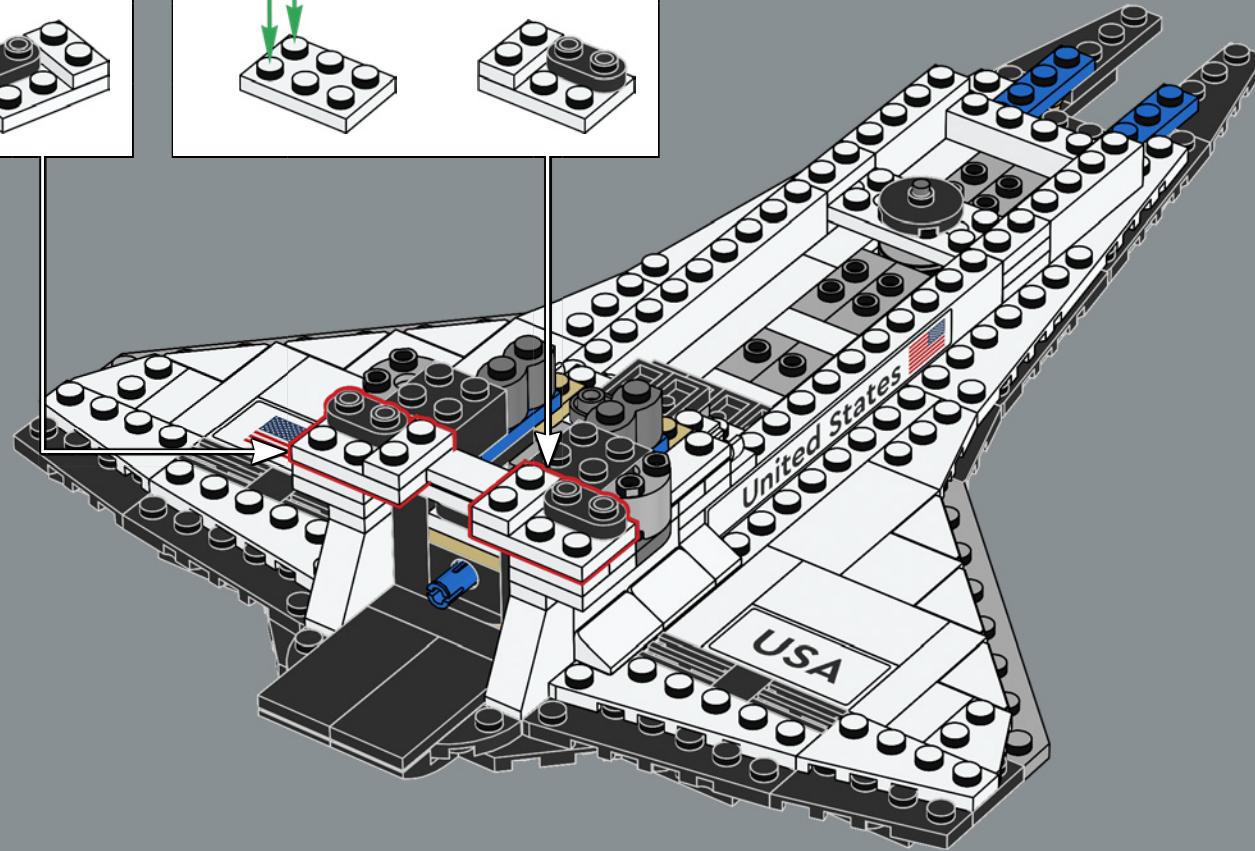
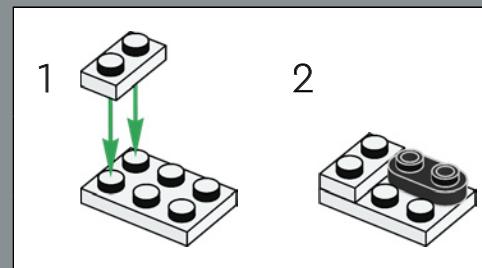
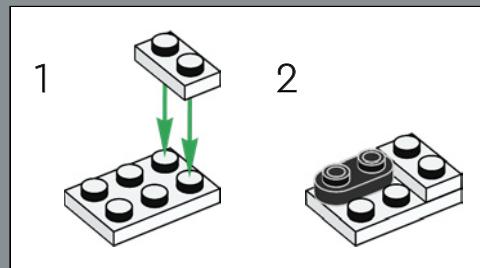


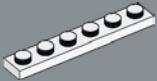
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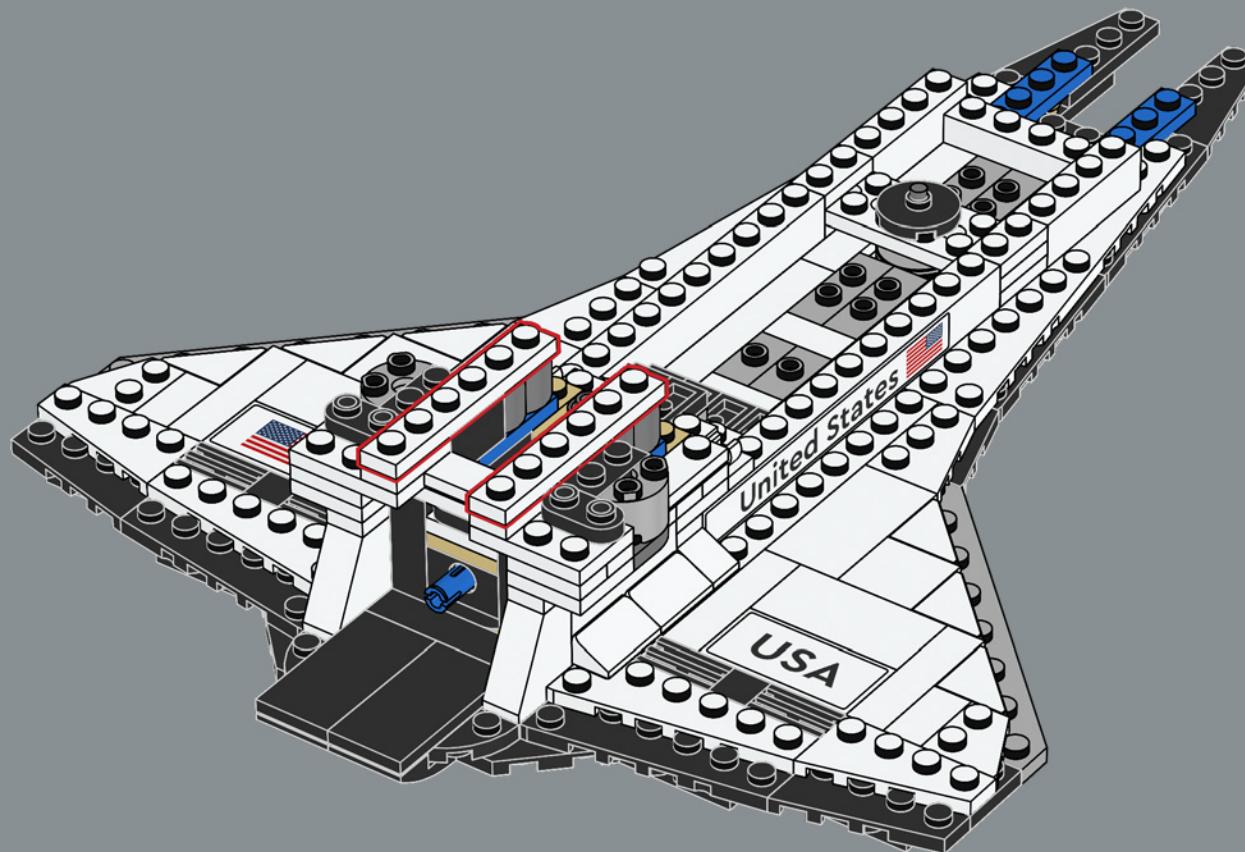
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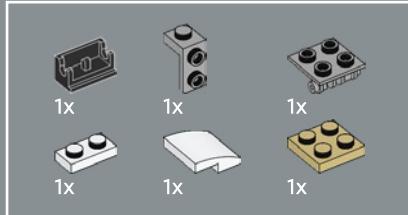




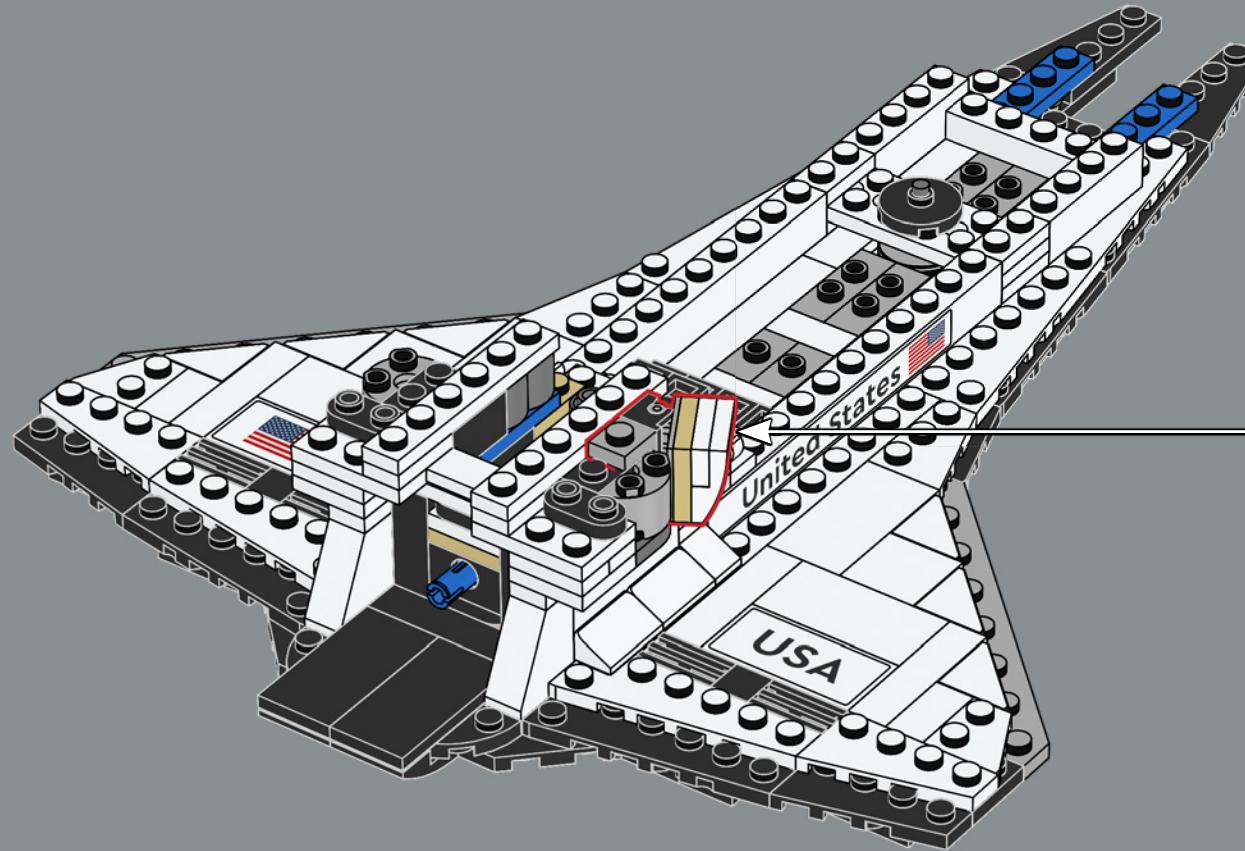
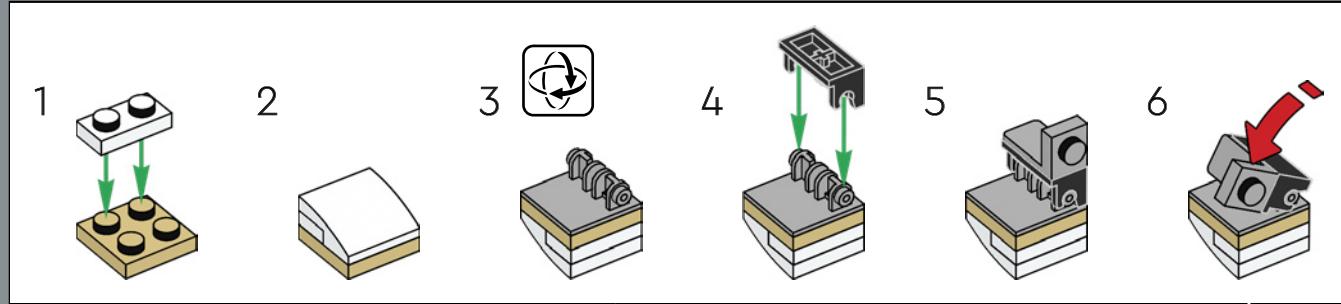
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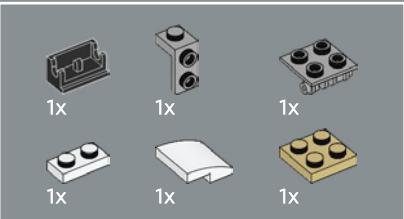
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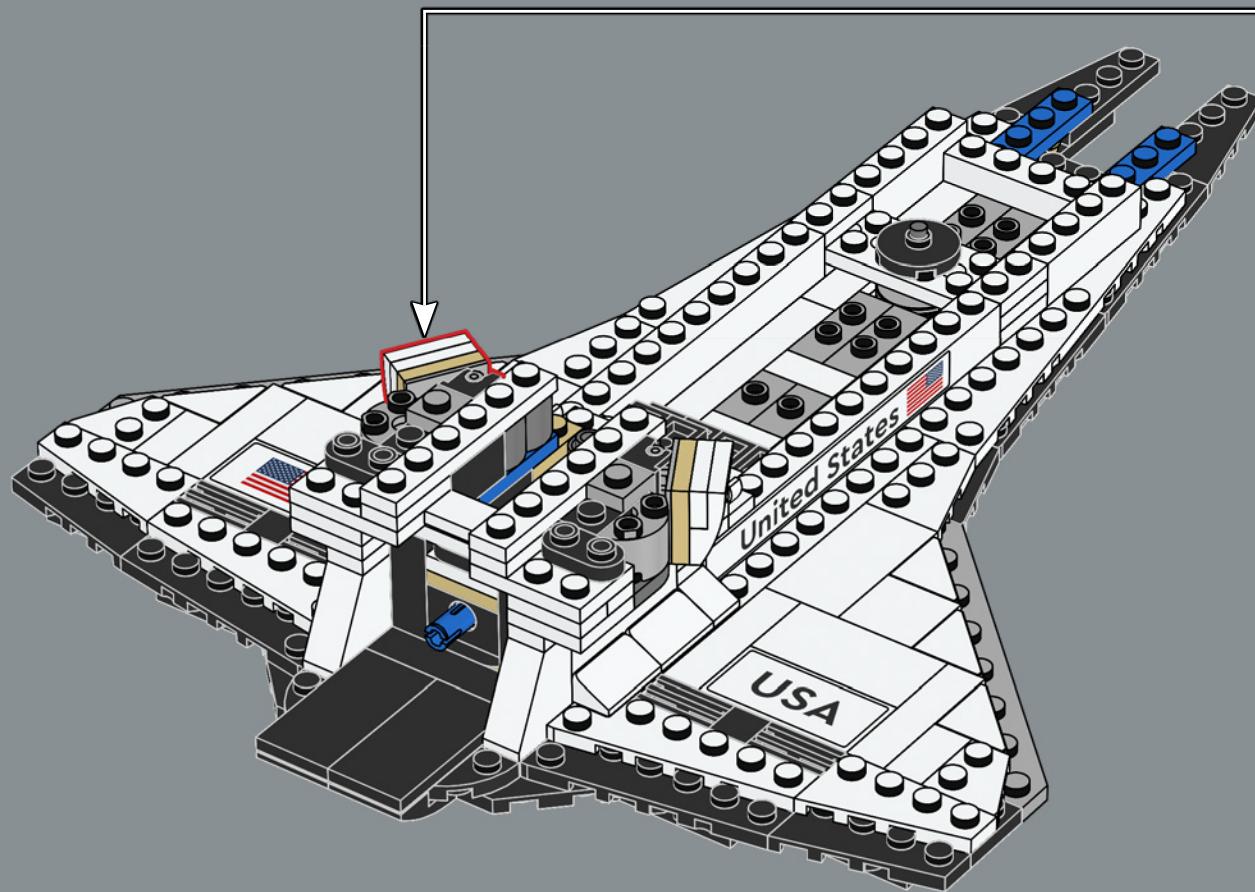
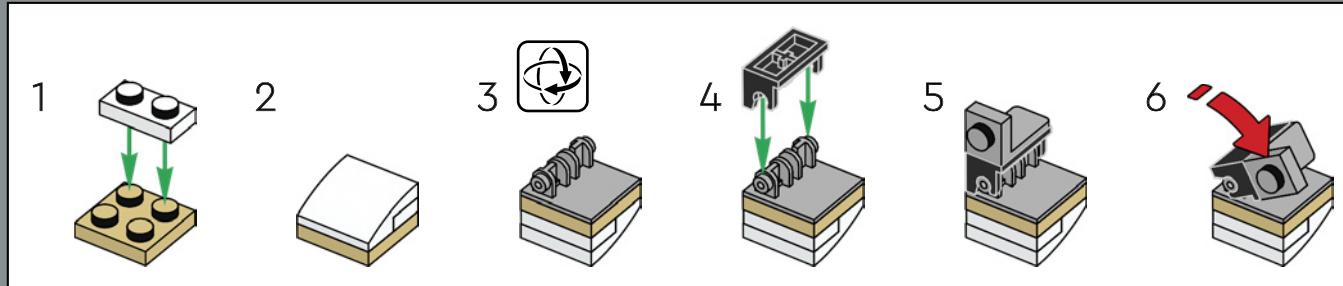


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60



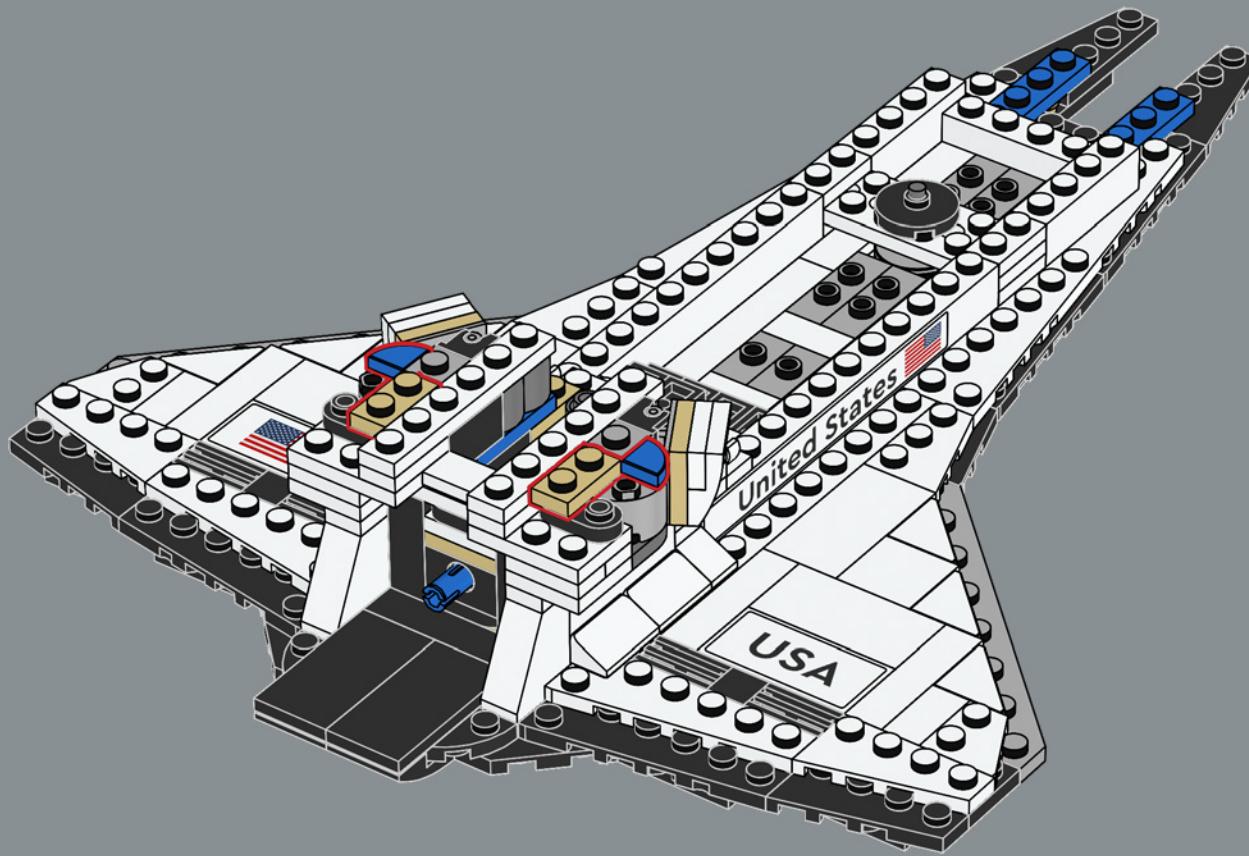


2x



2x

61





2x



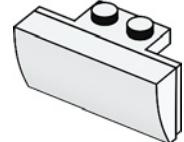
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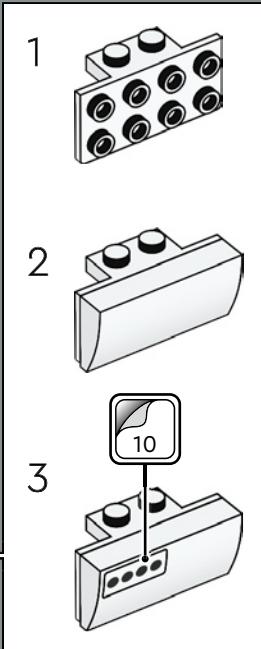
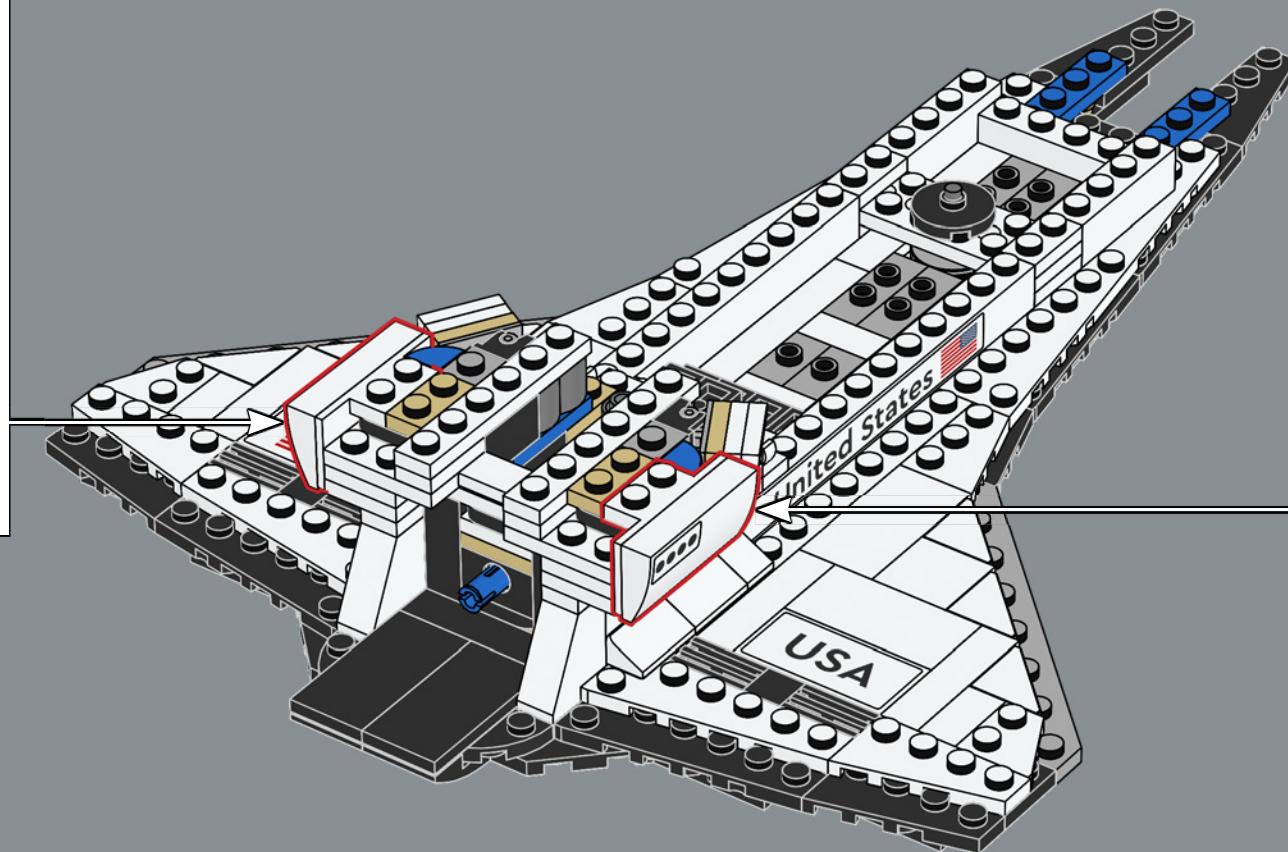
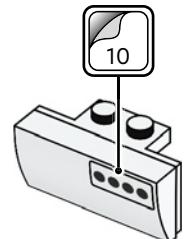
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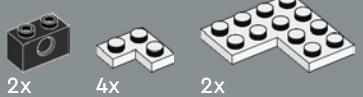


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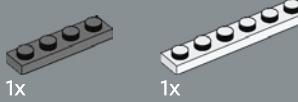
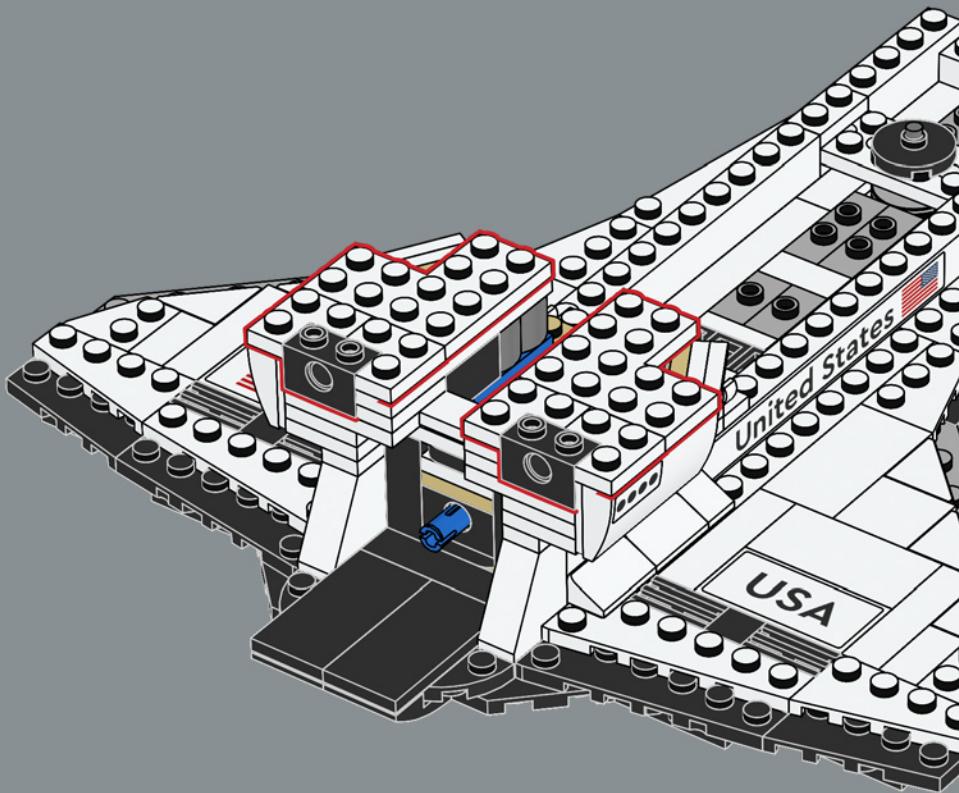


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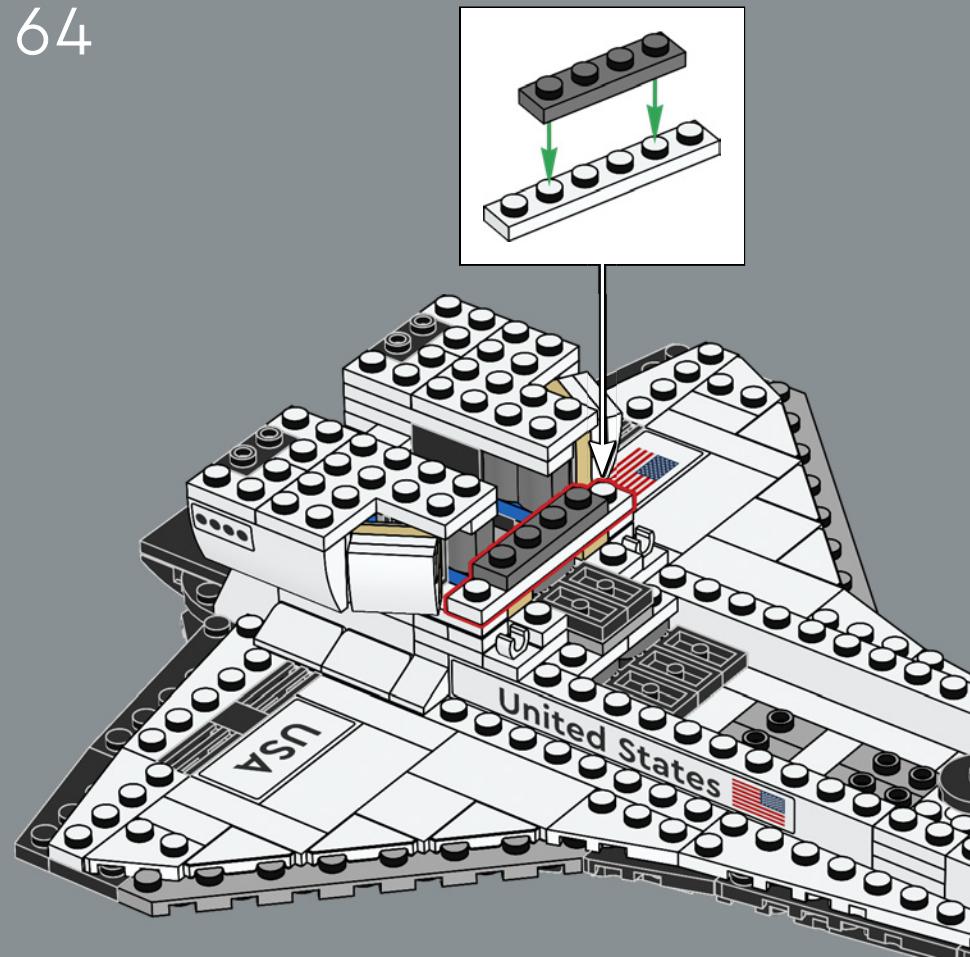




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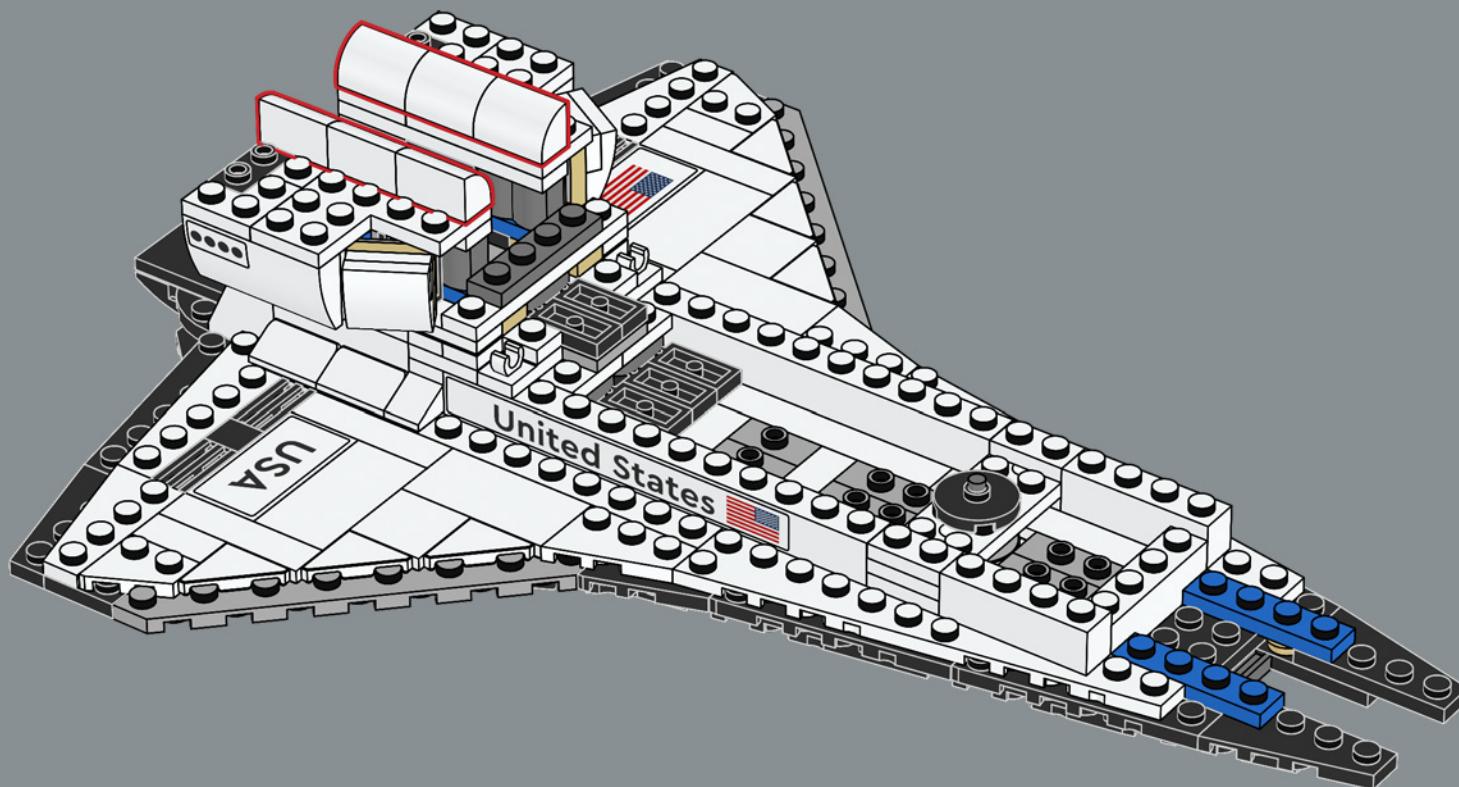
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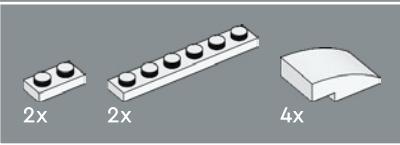




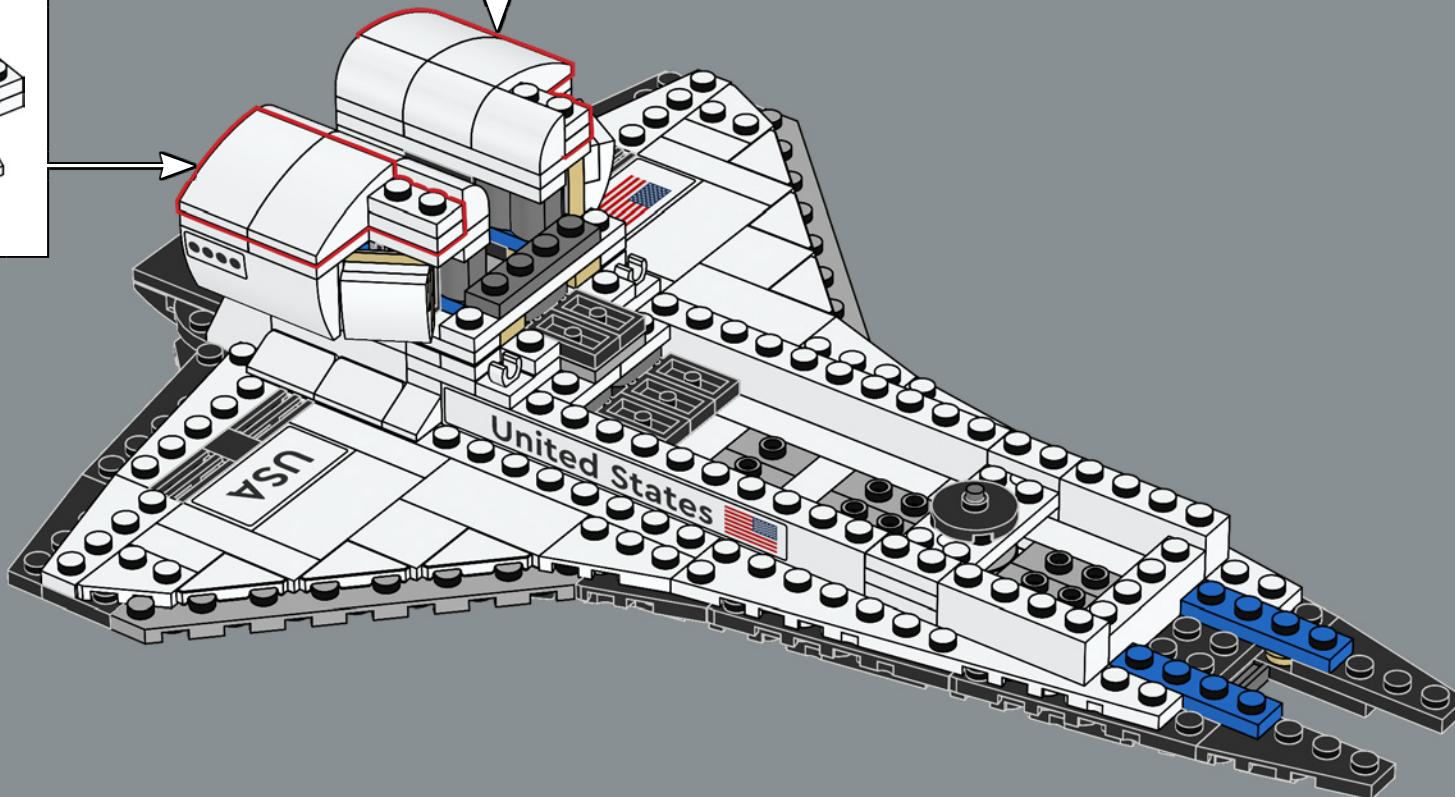
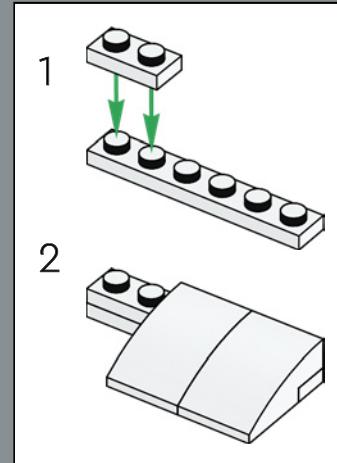
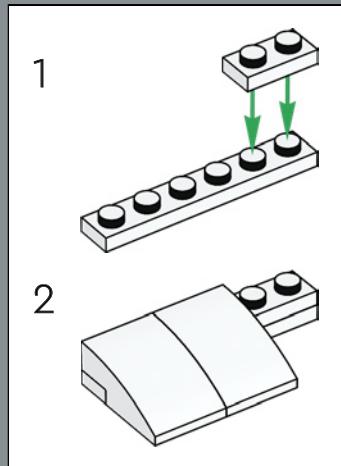
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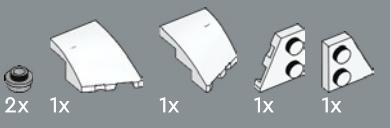
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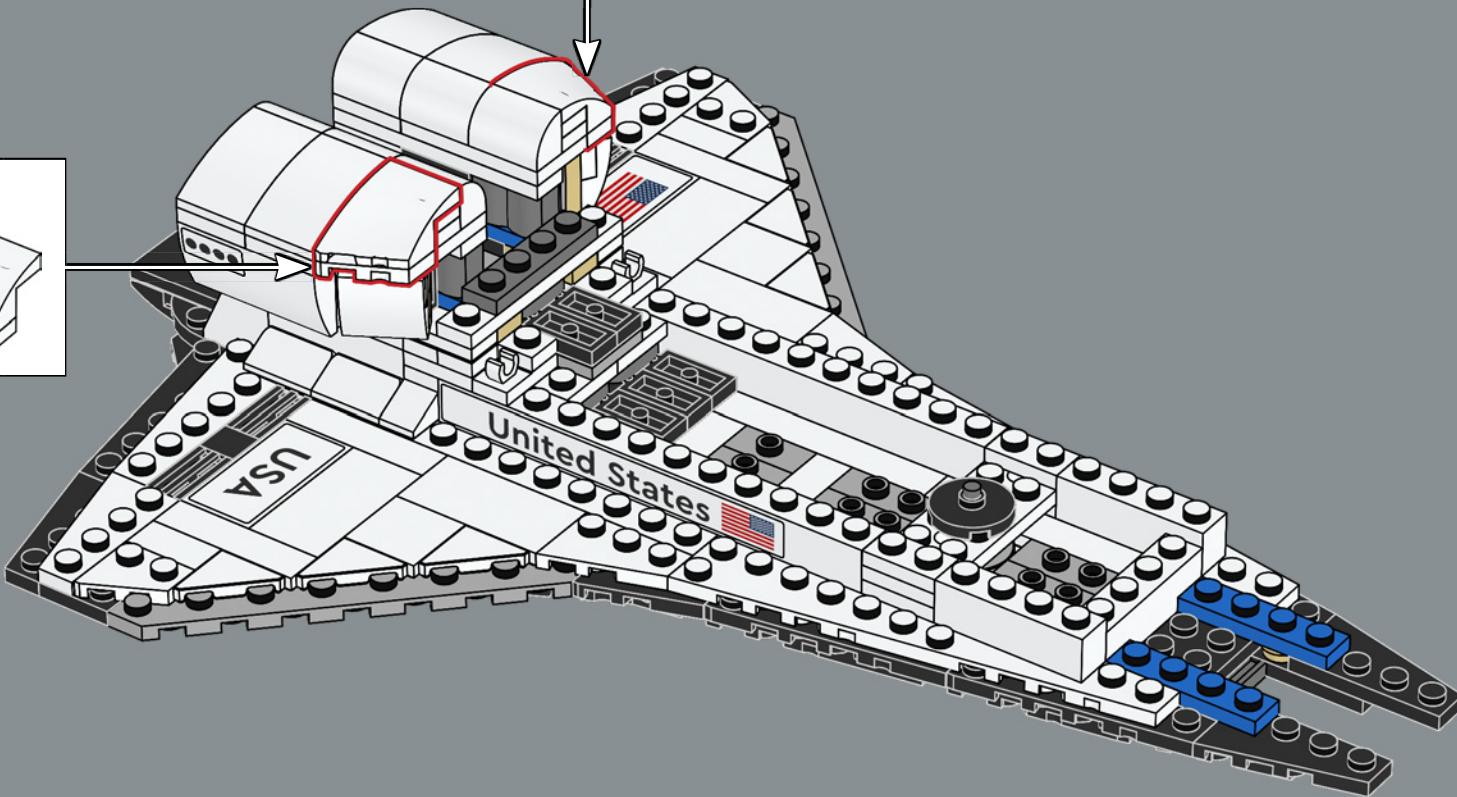
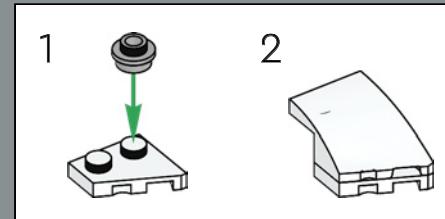


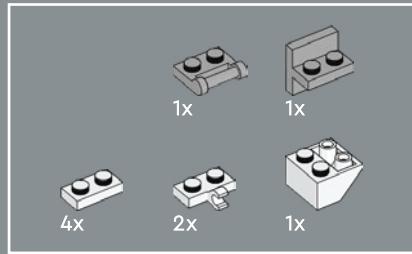
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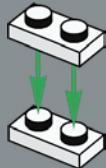
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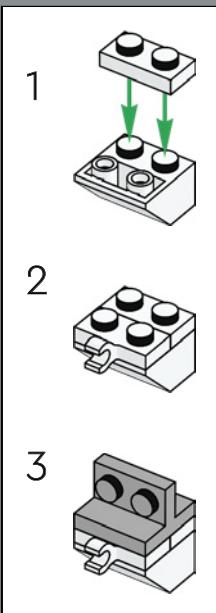
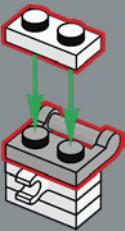
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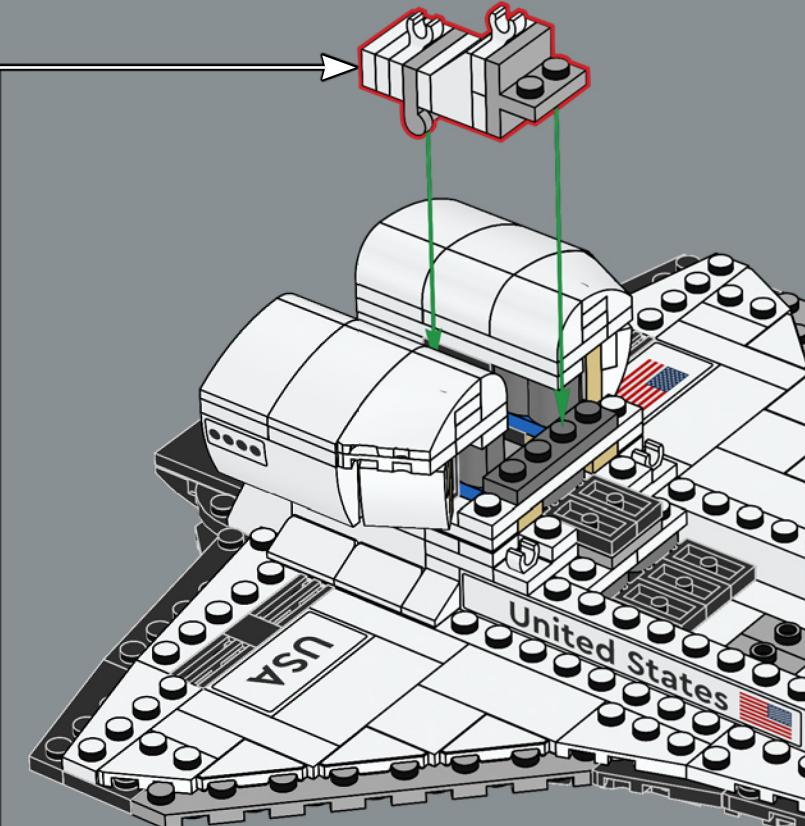
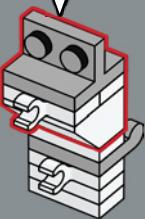
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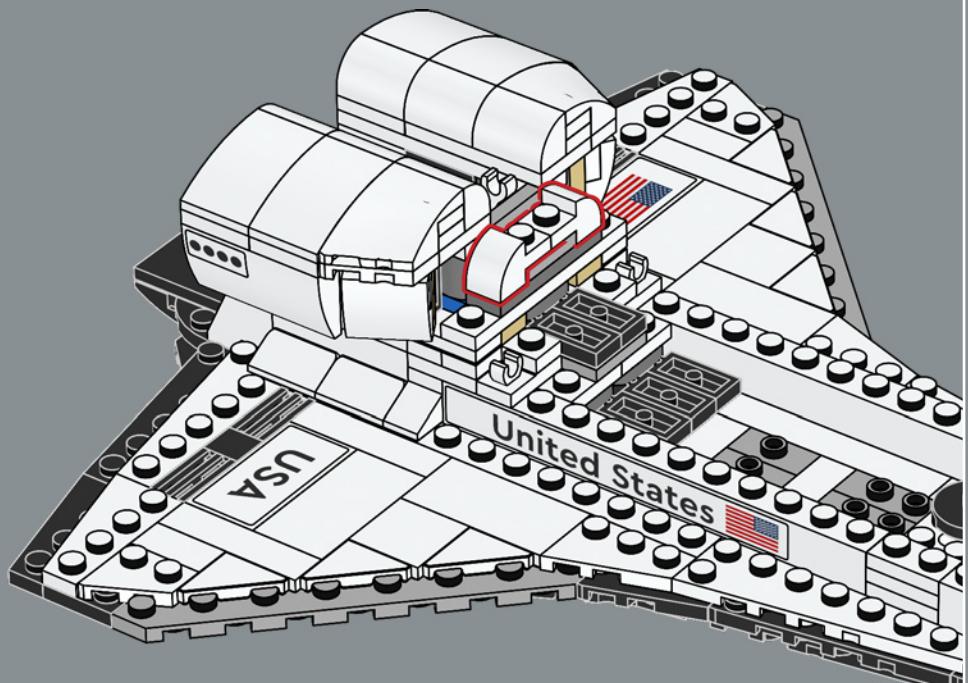
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69

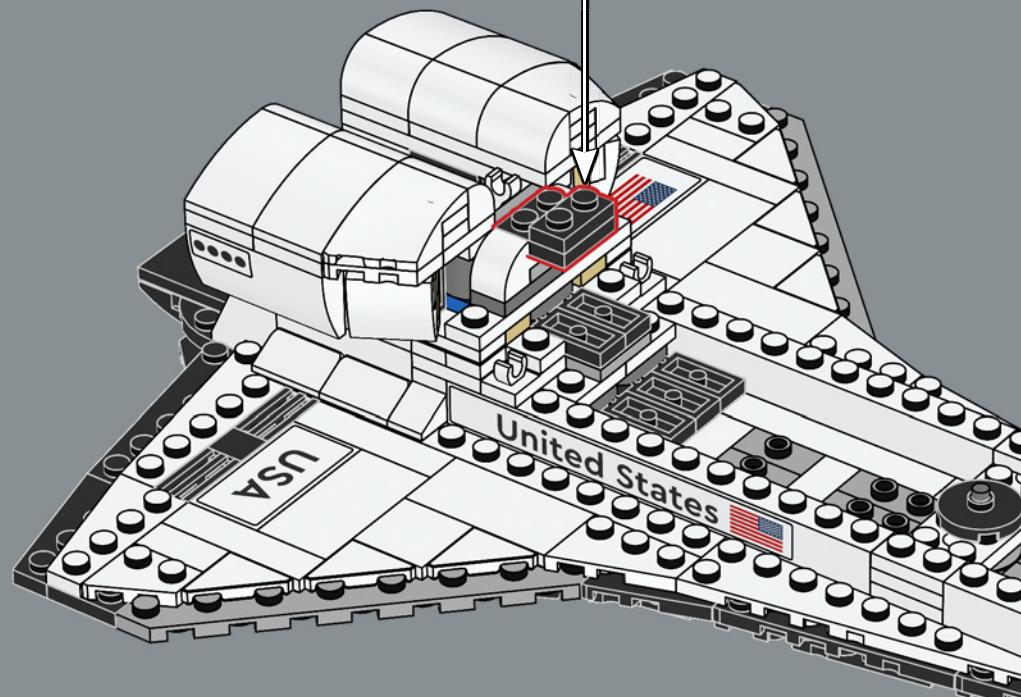
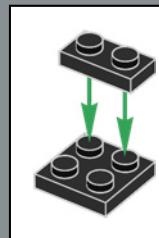


1x



1x

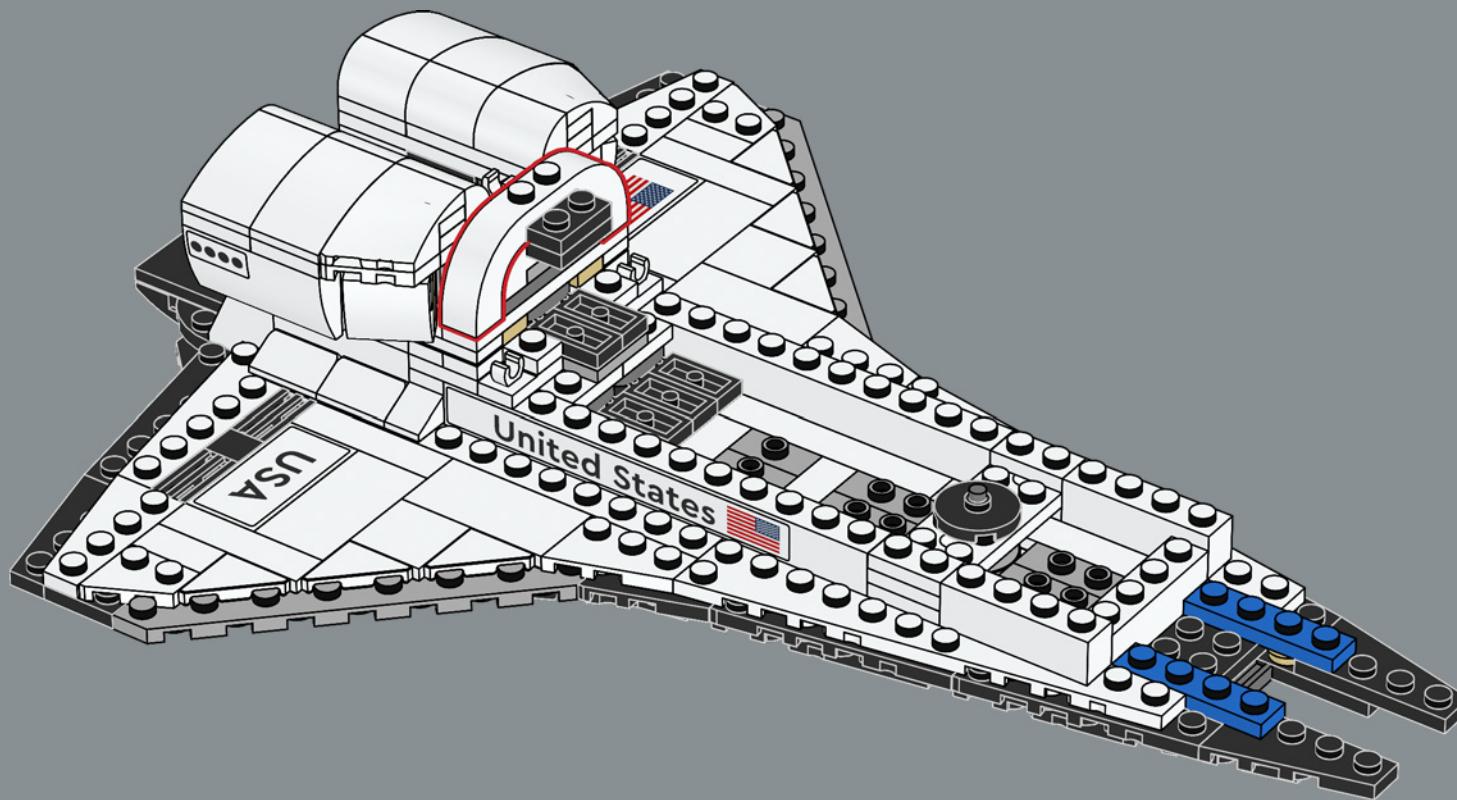
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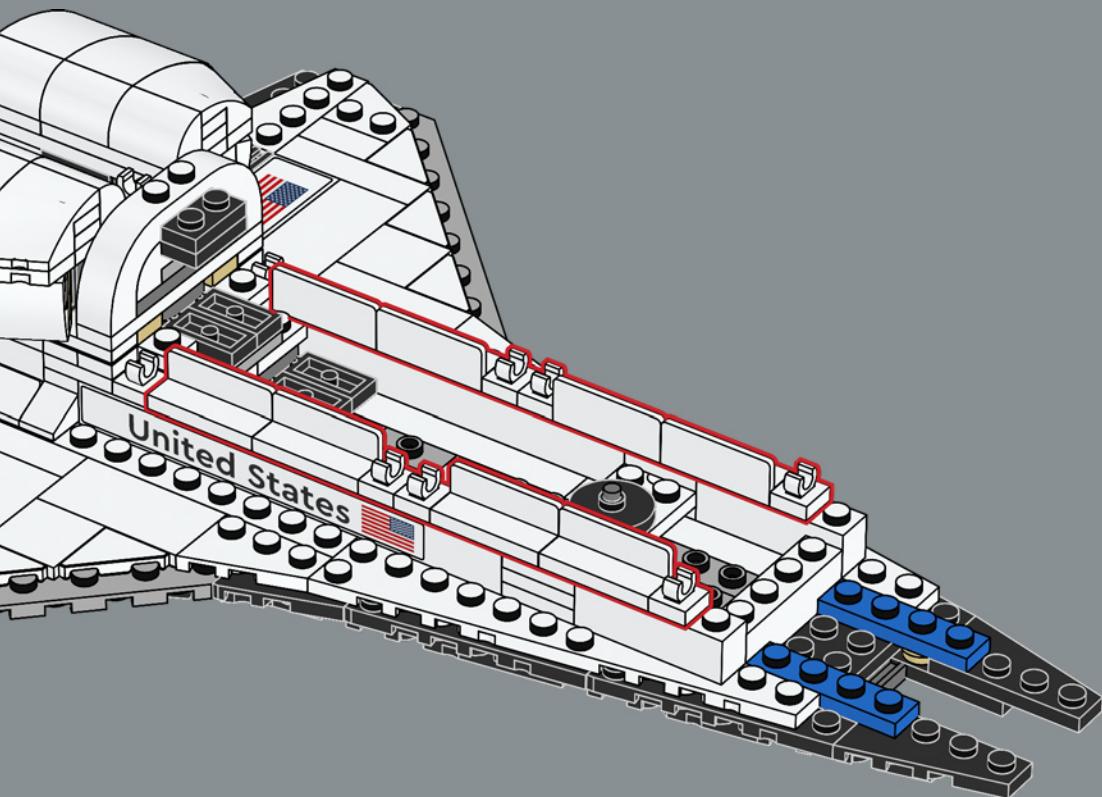
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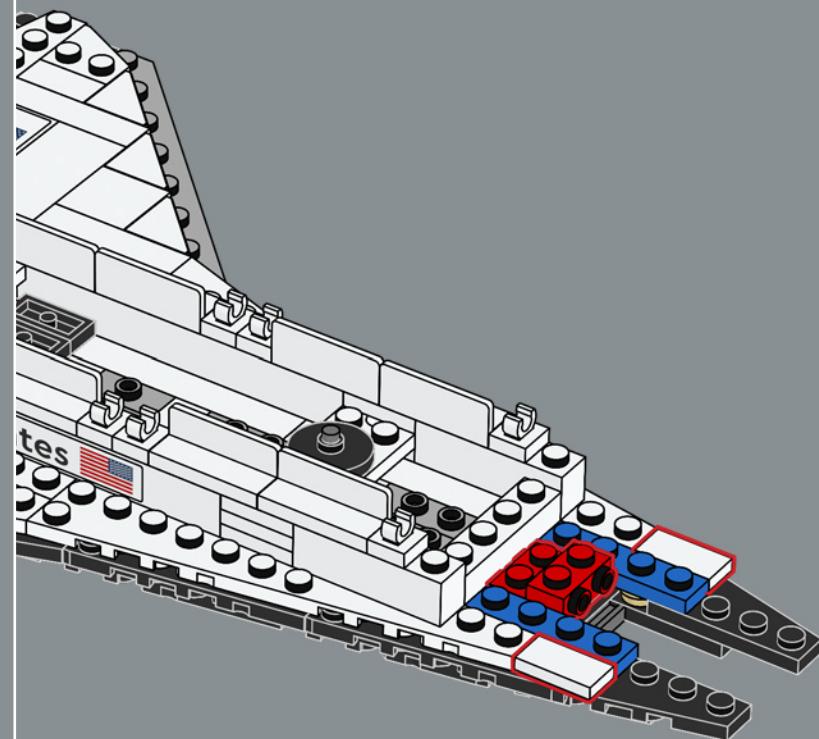




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73



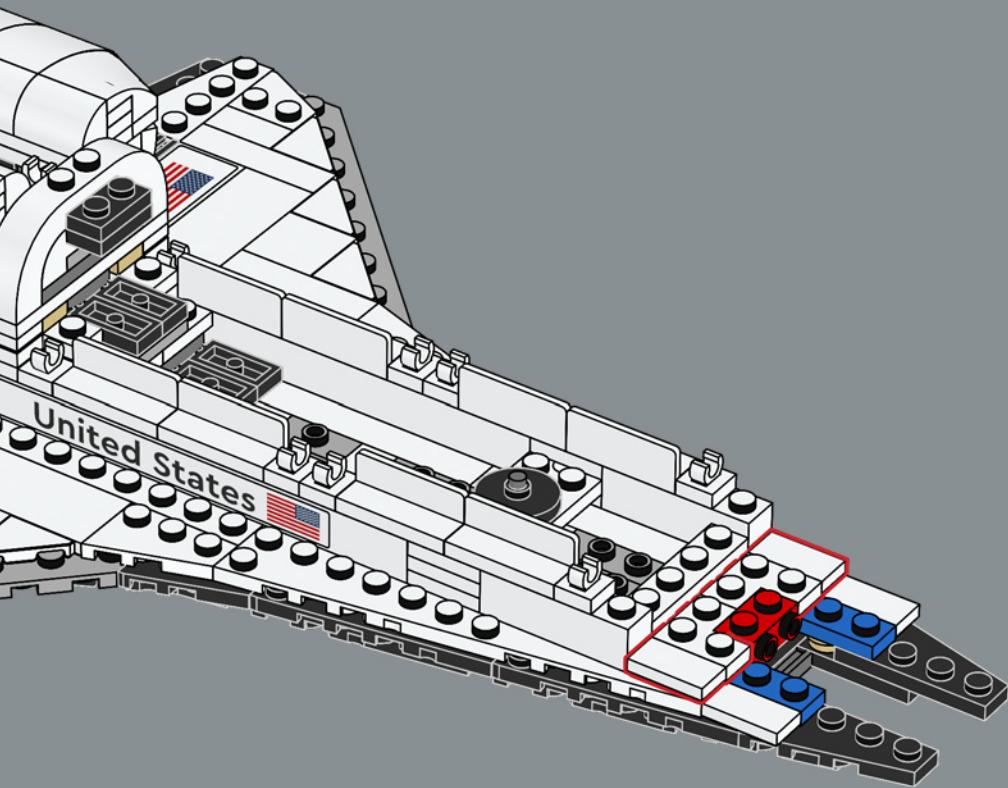


2x



2x

74

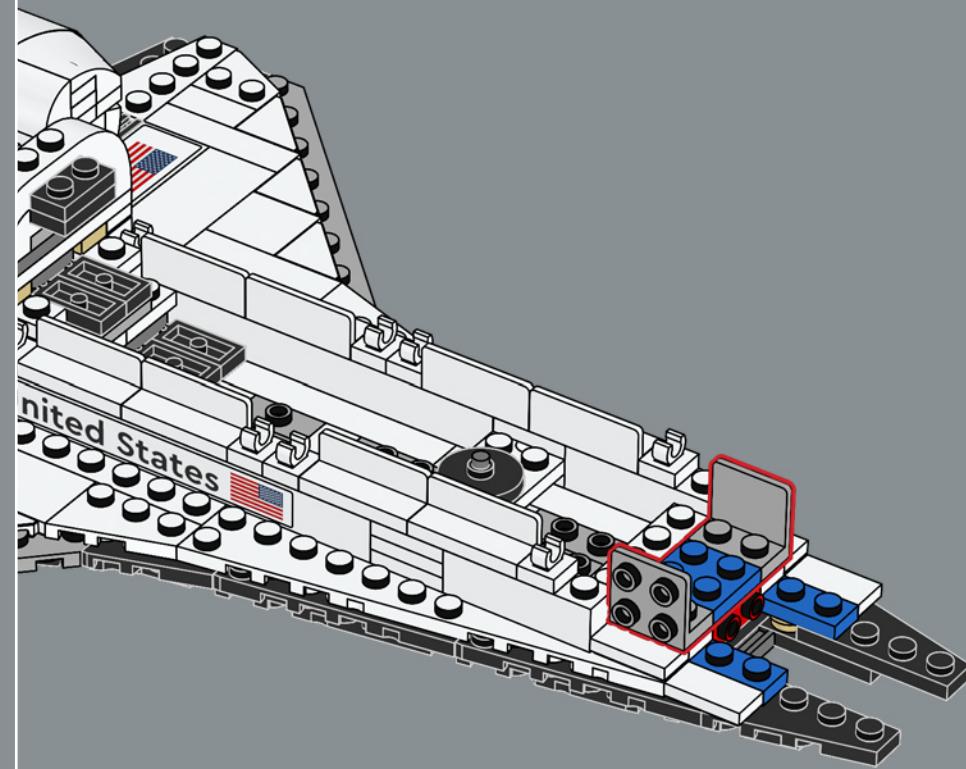


1x



2x

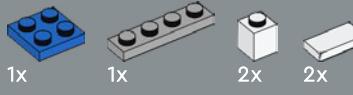
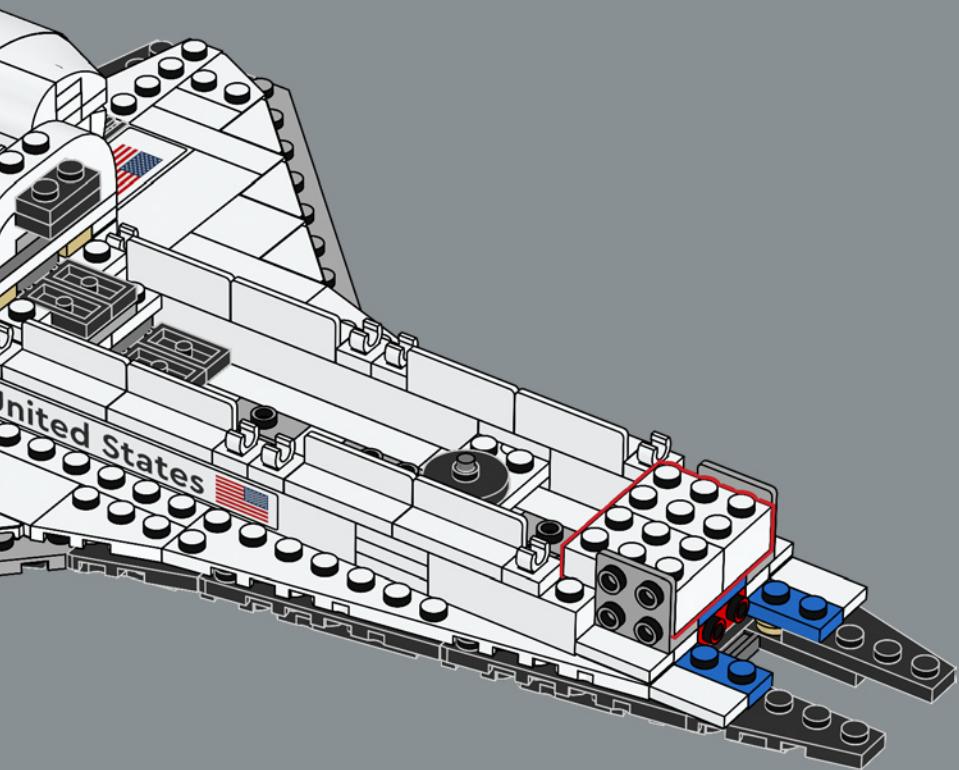
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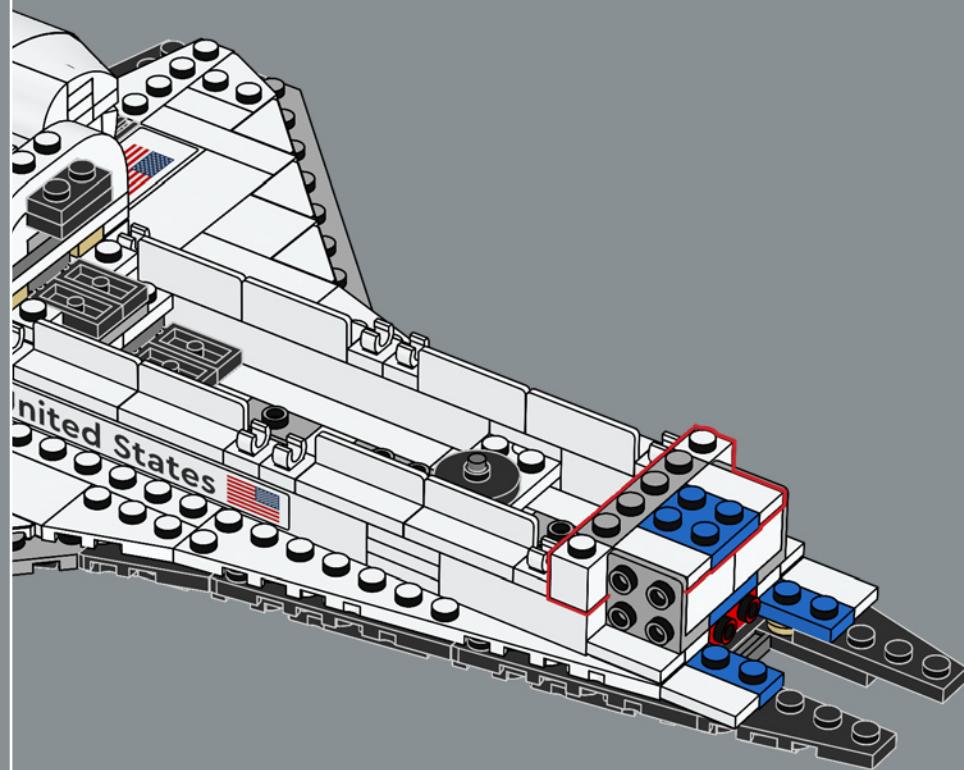


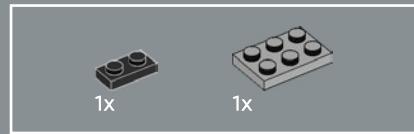
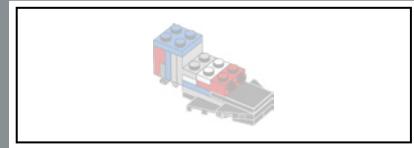
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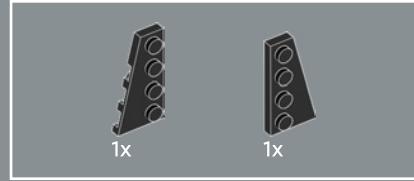
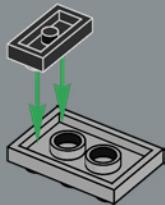


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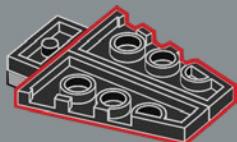




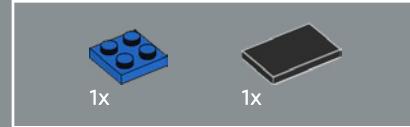
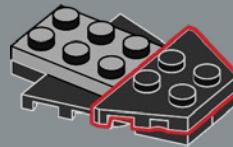
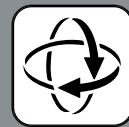
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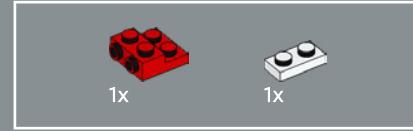
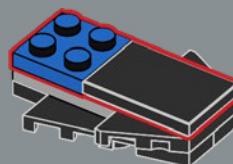
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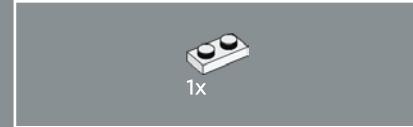
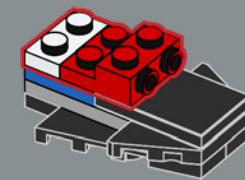
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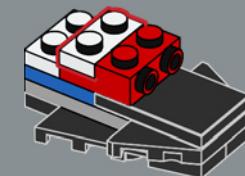
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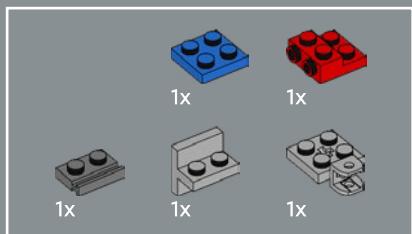


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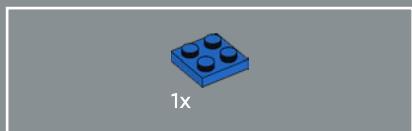
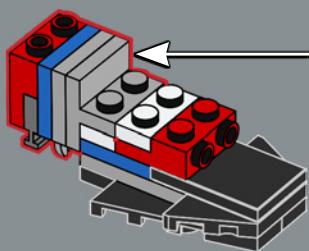
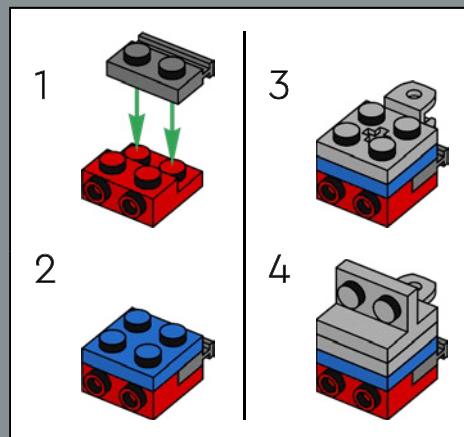


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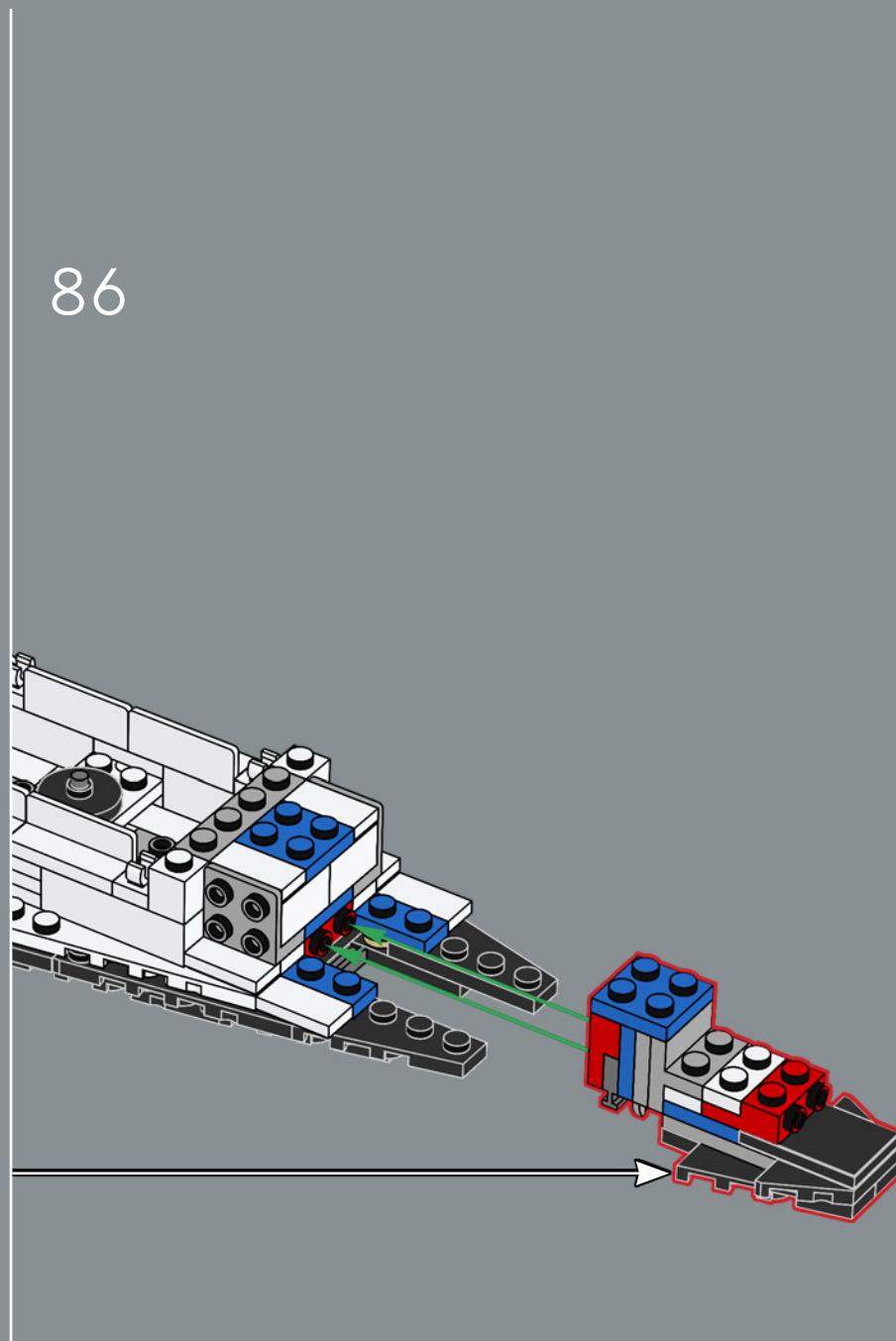
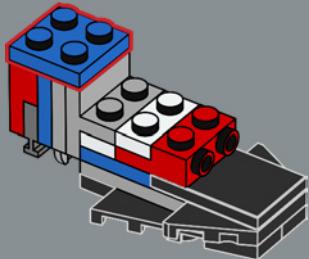




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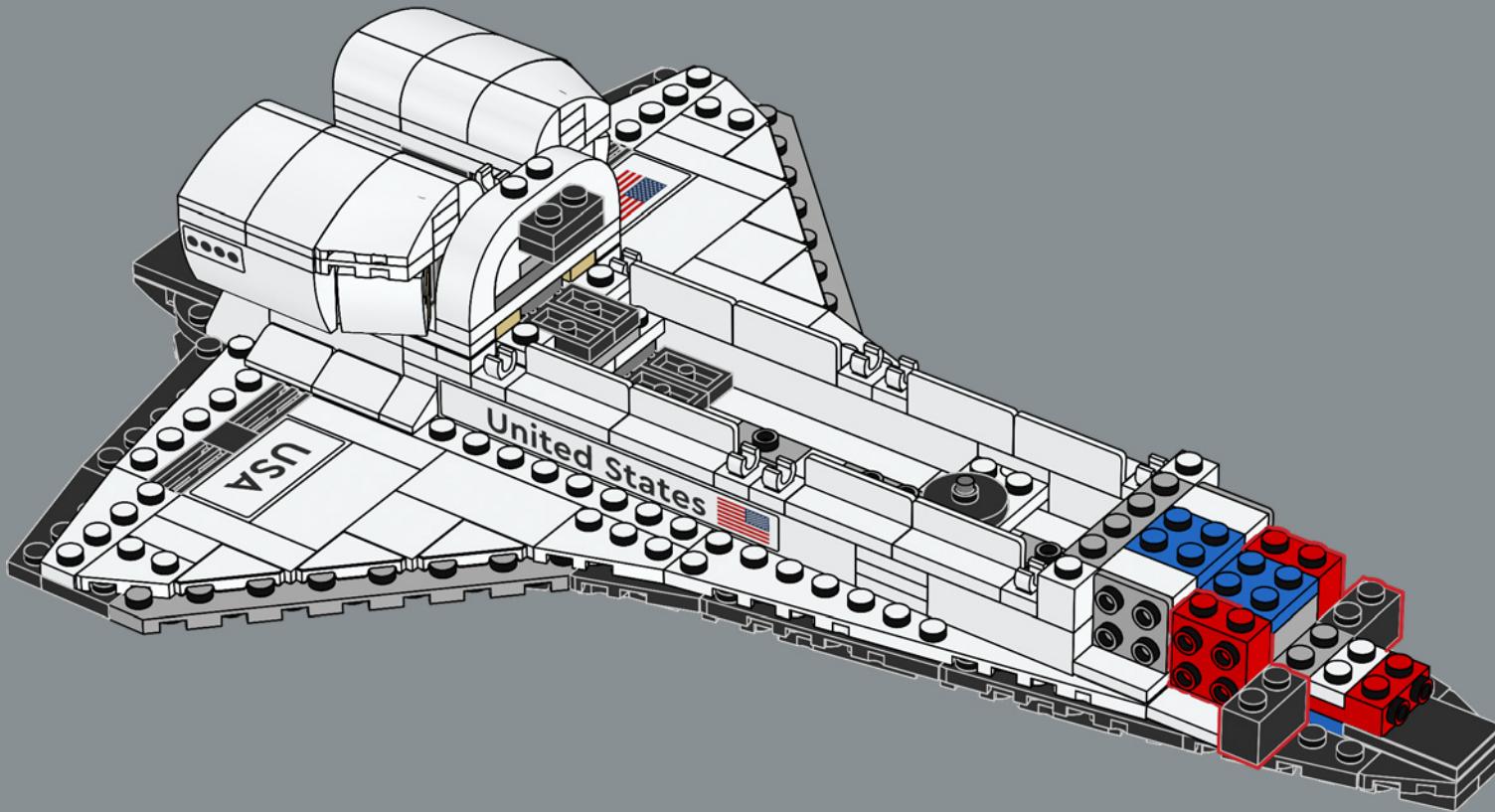


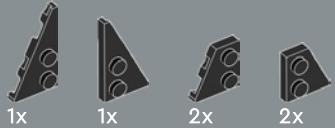
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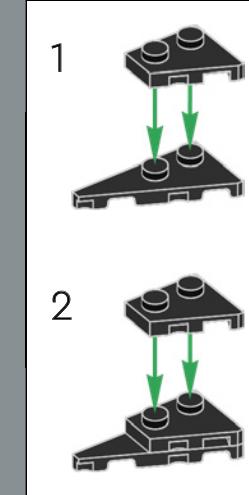
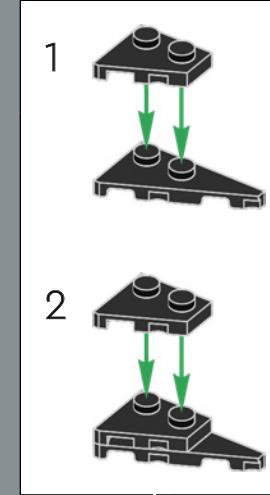
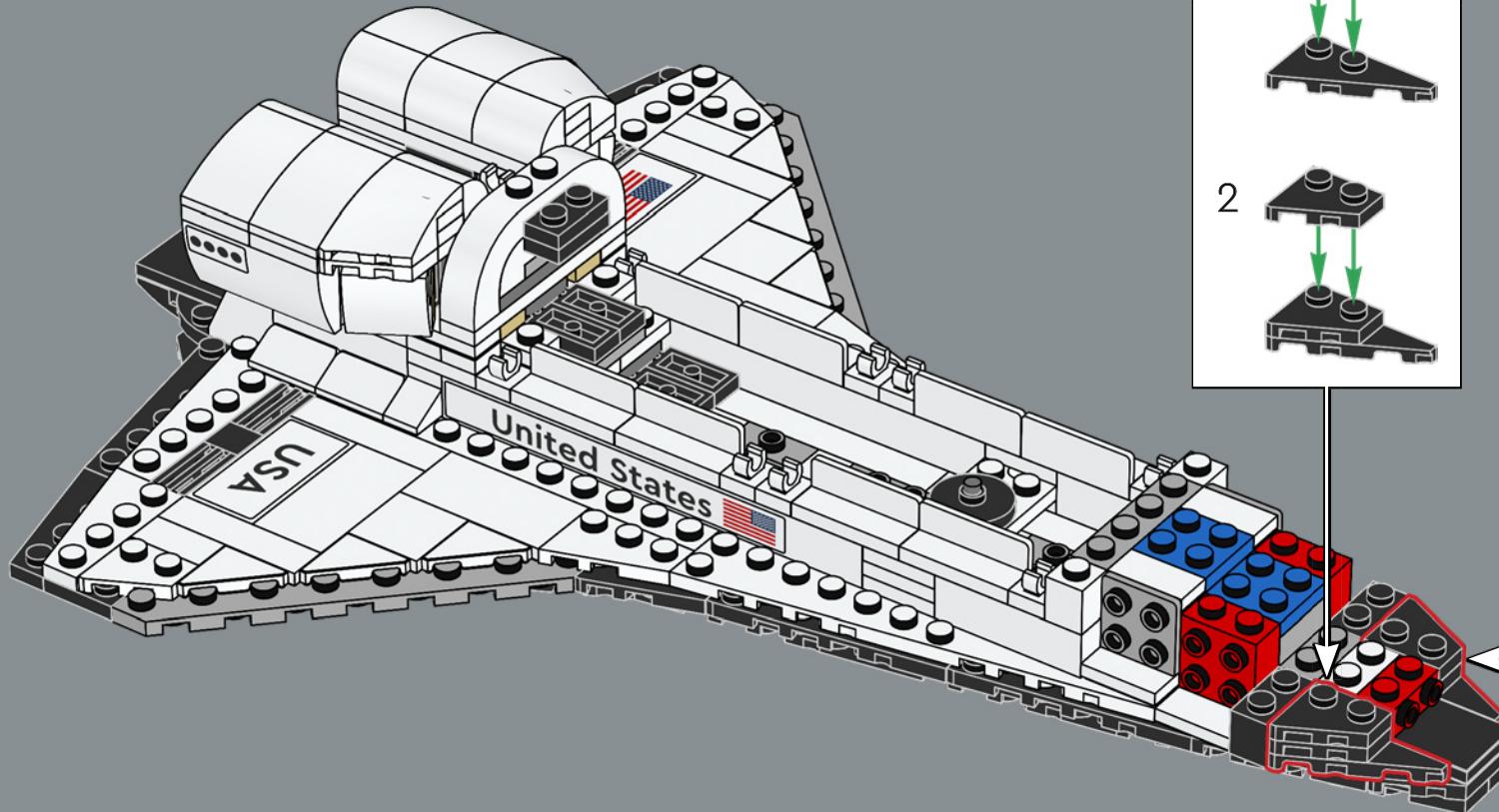
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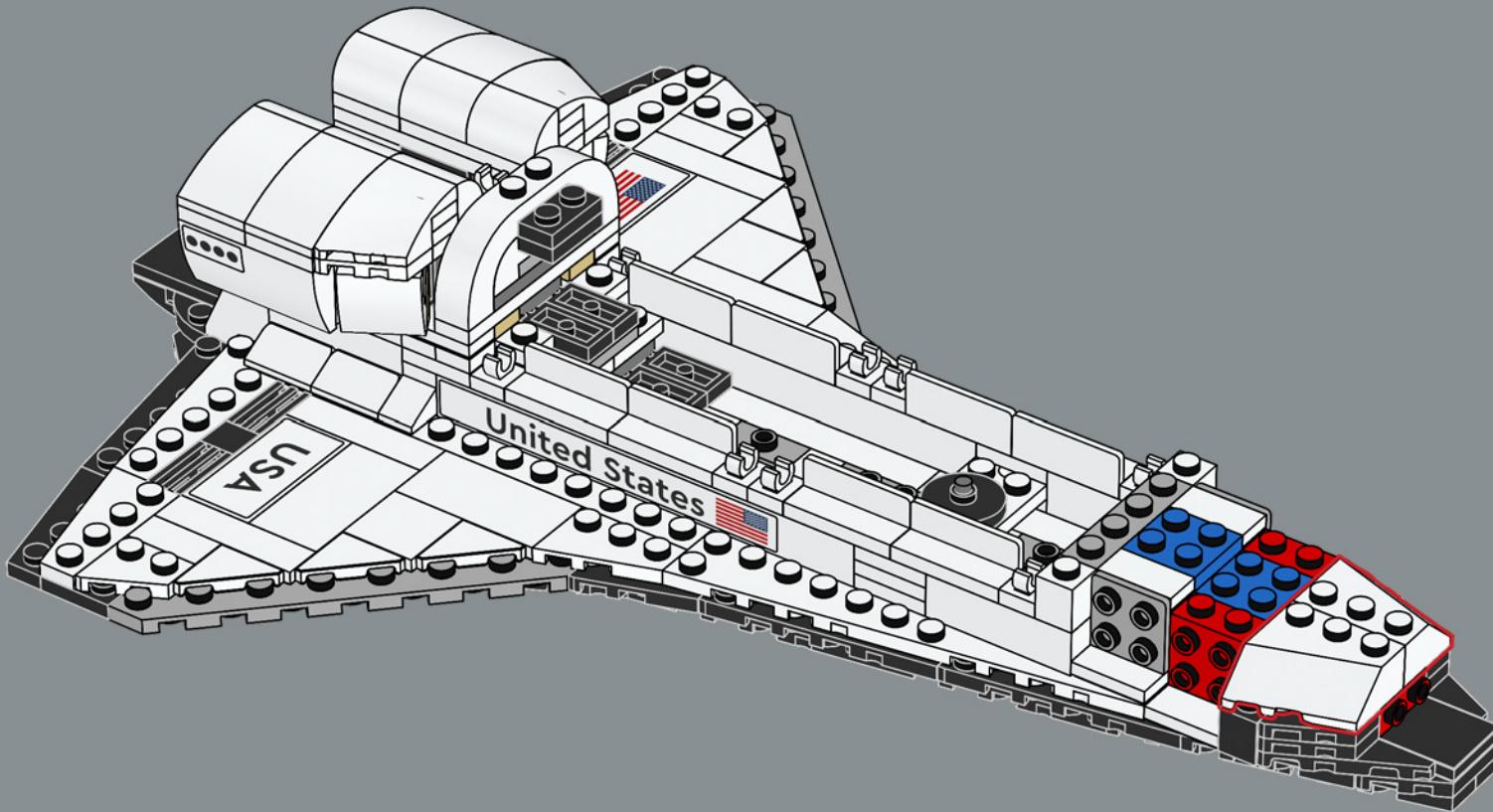


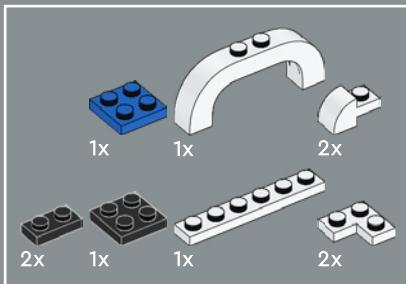
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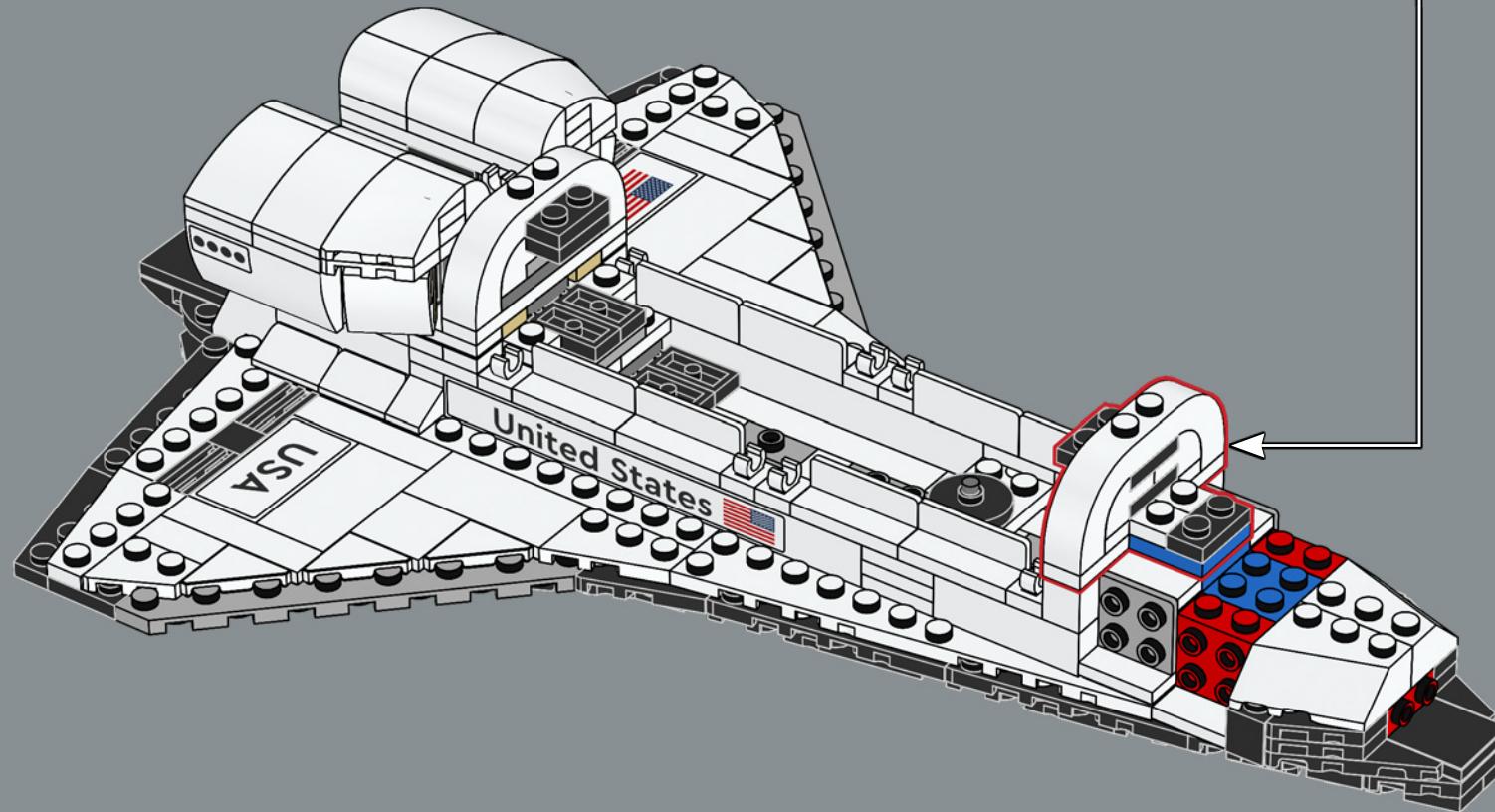
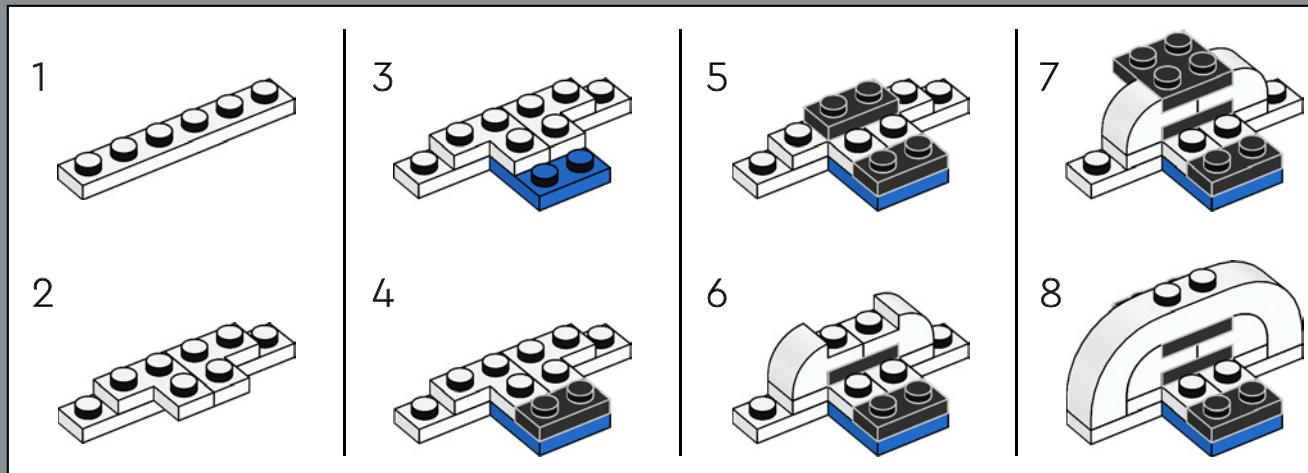
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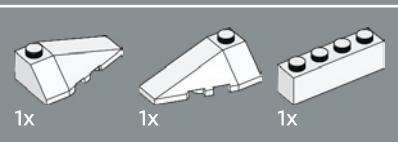
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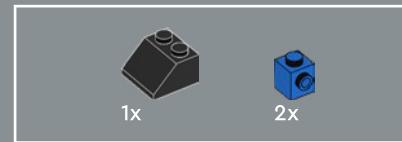
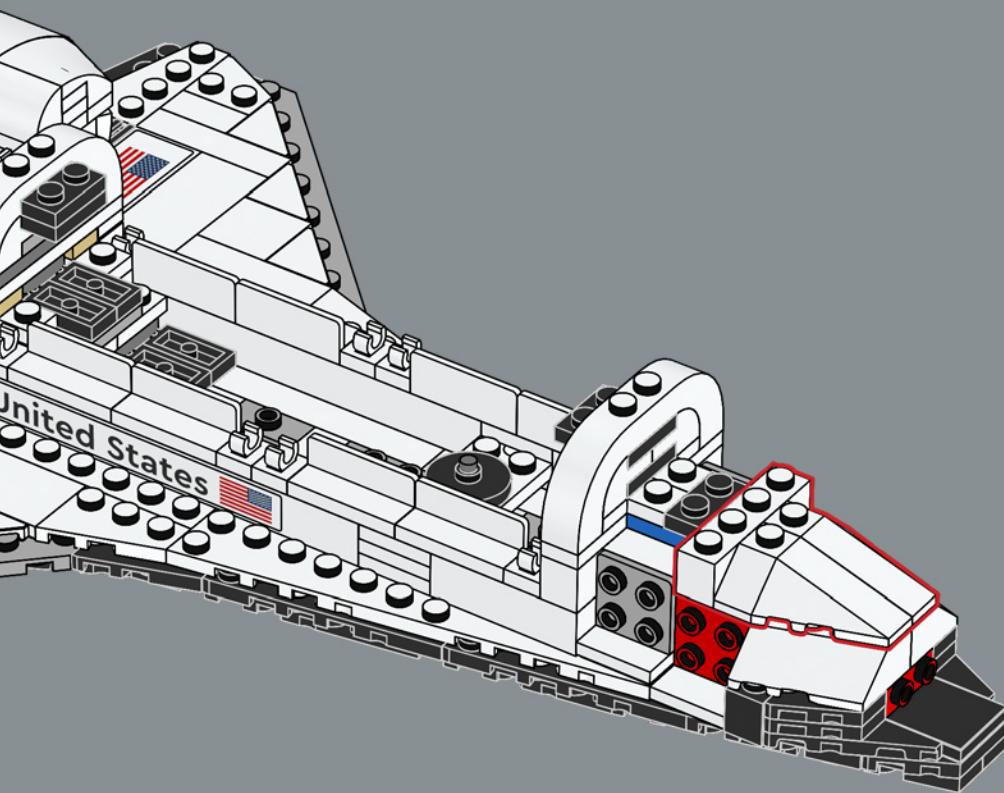


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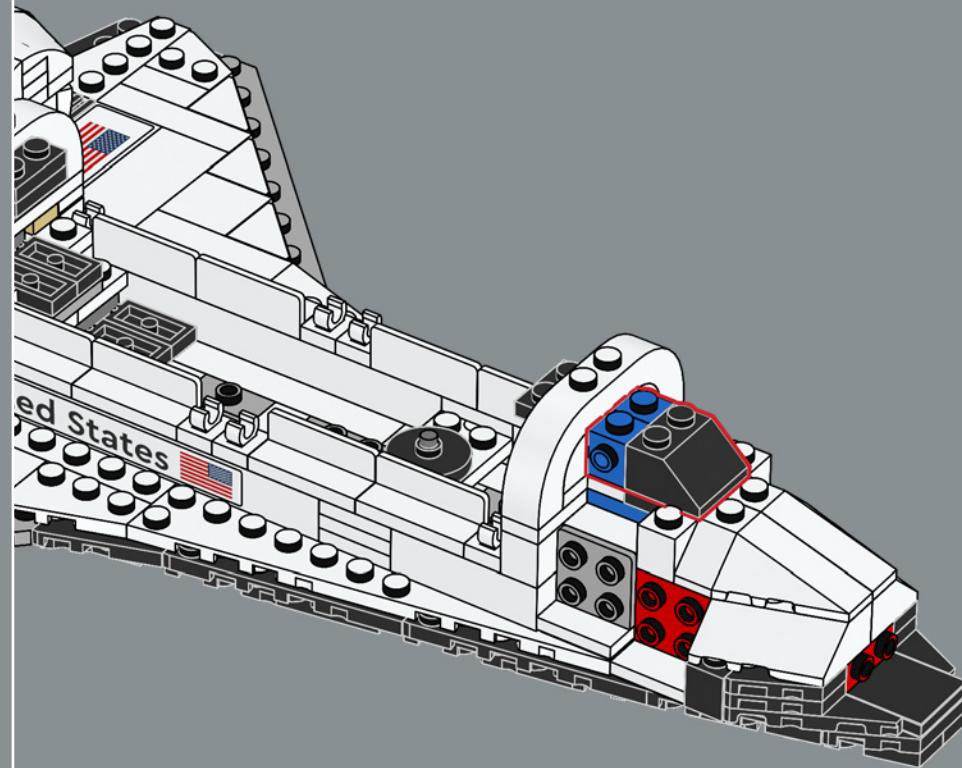




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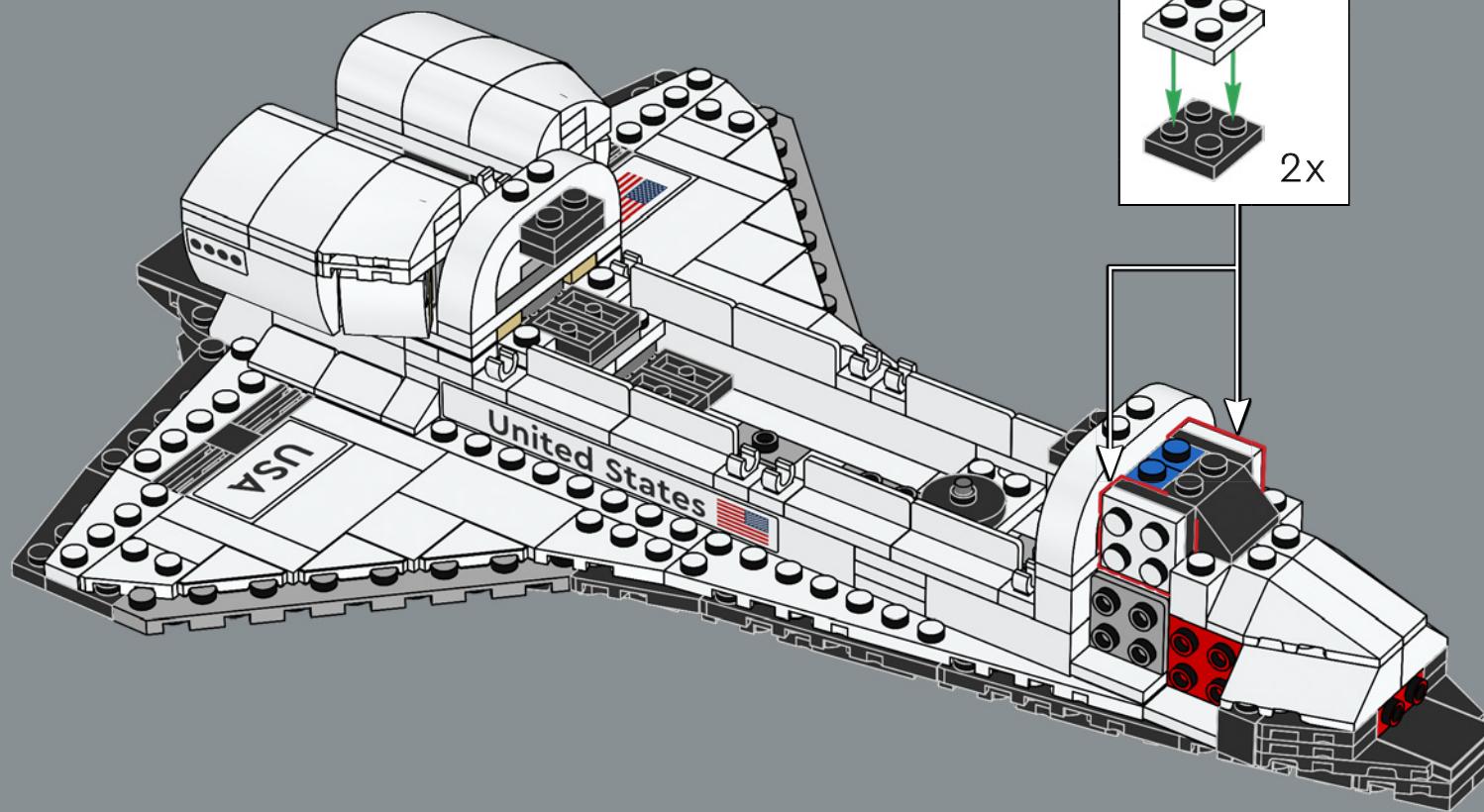


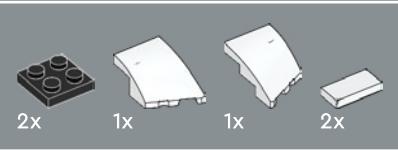
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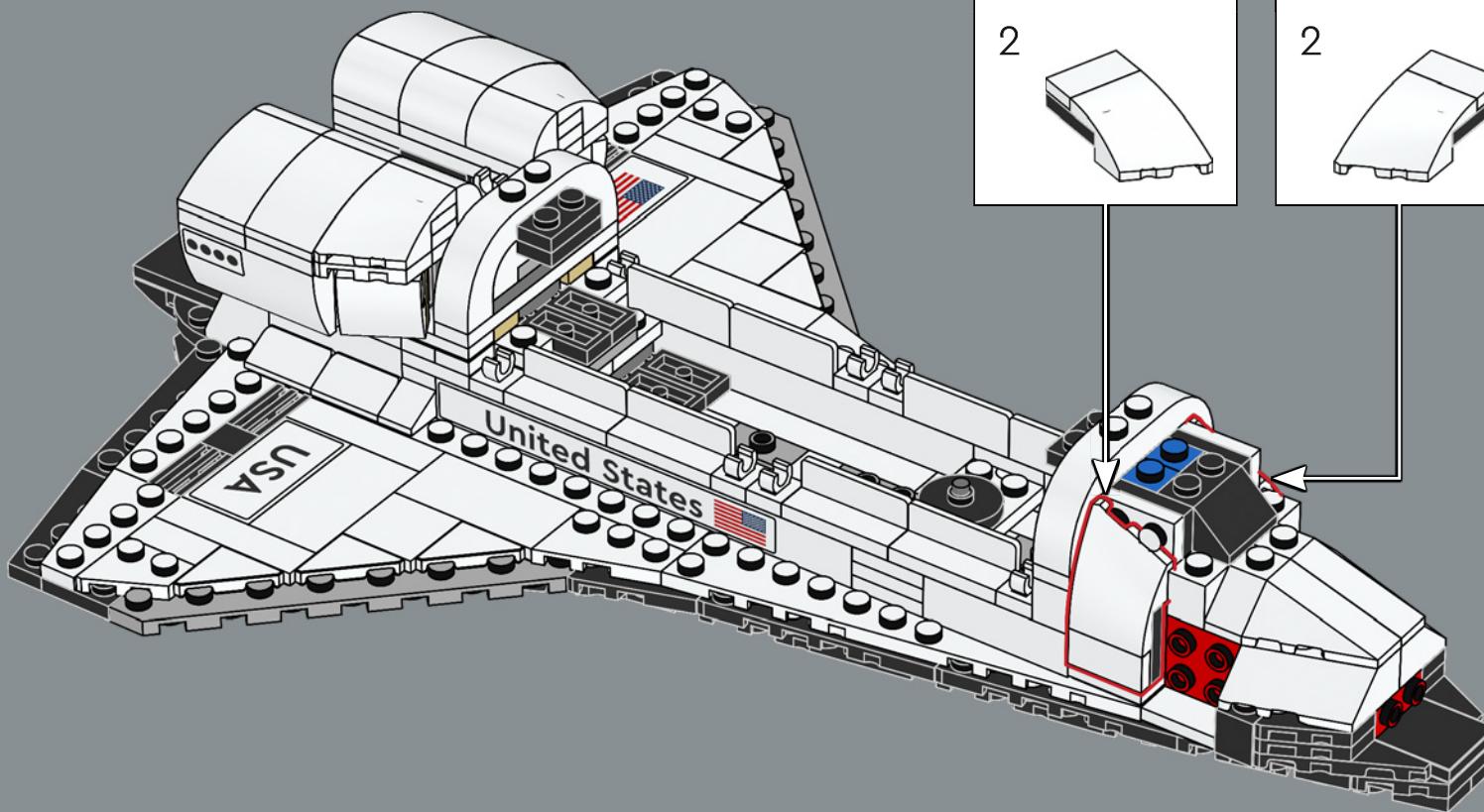
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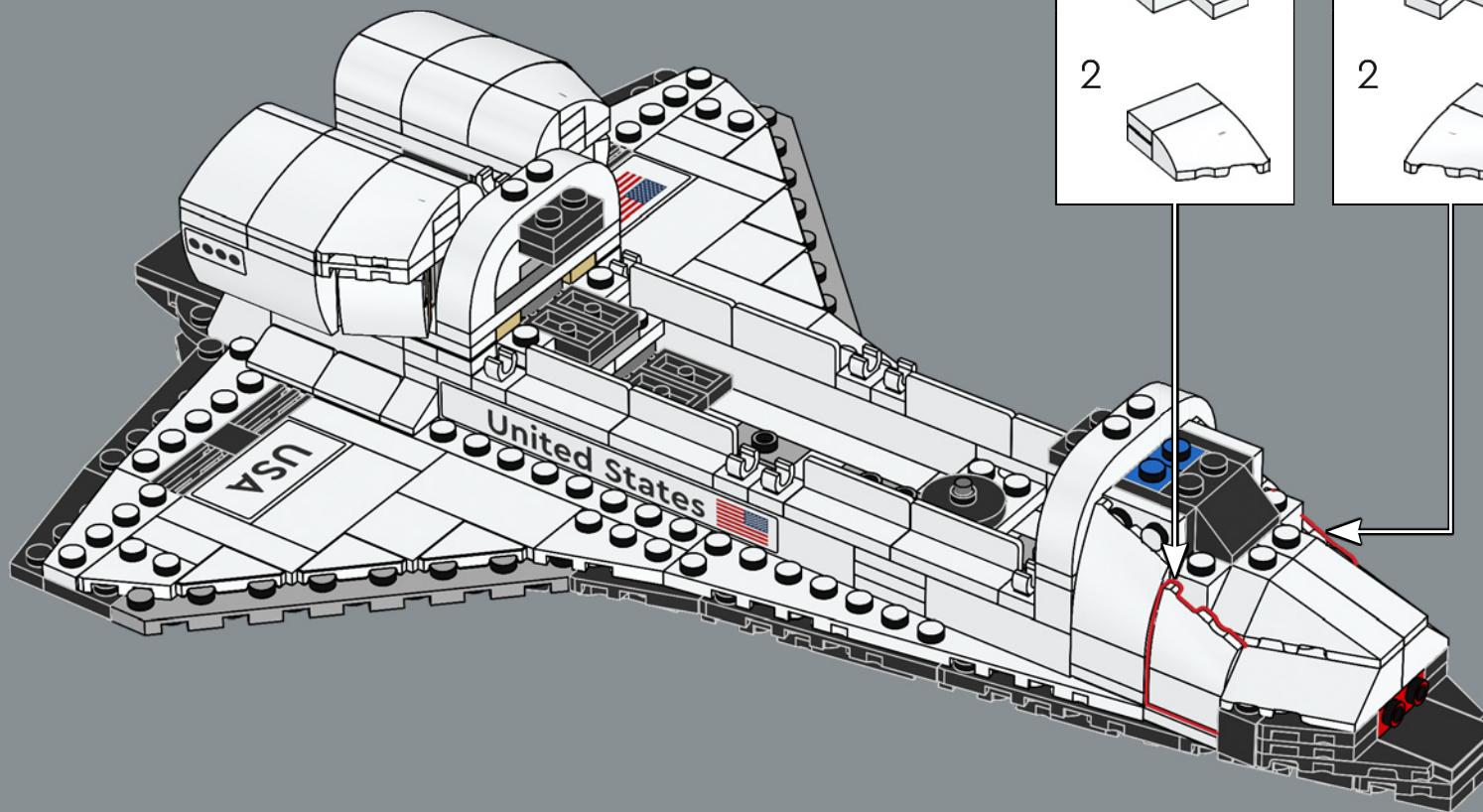


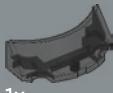
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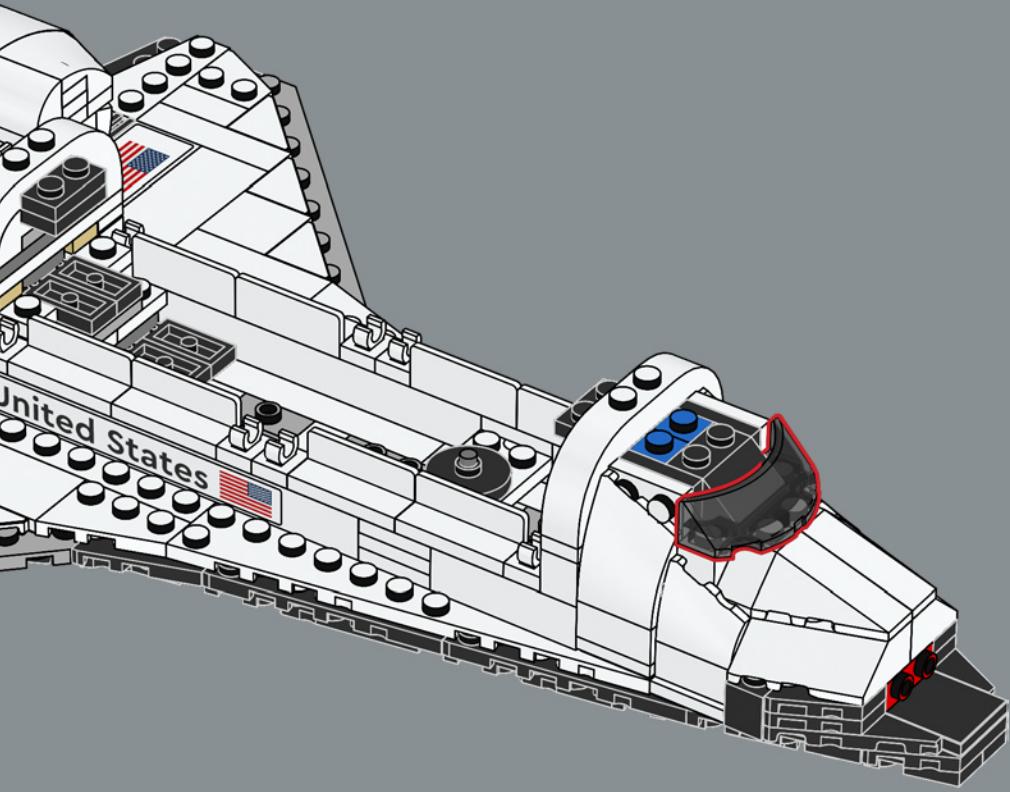
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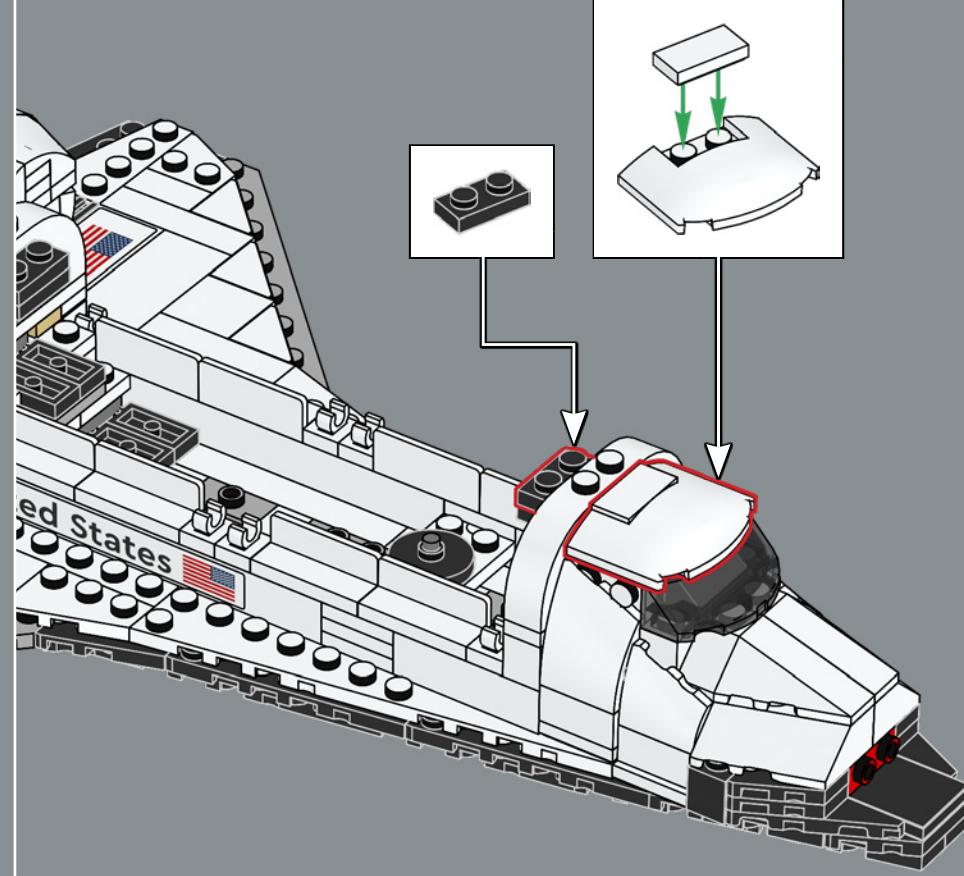


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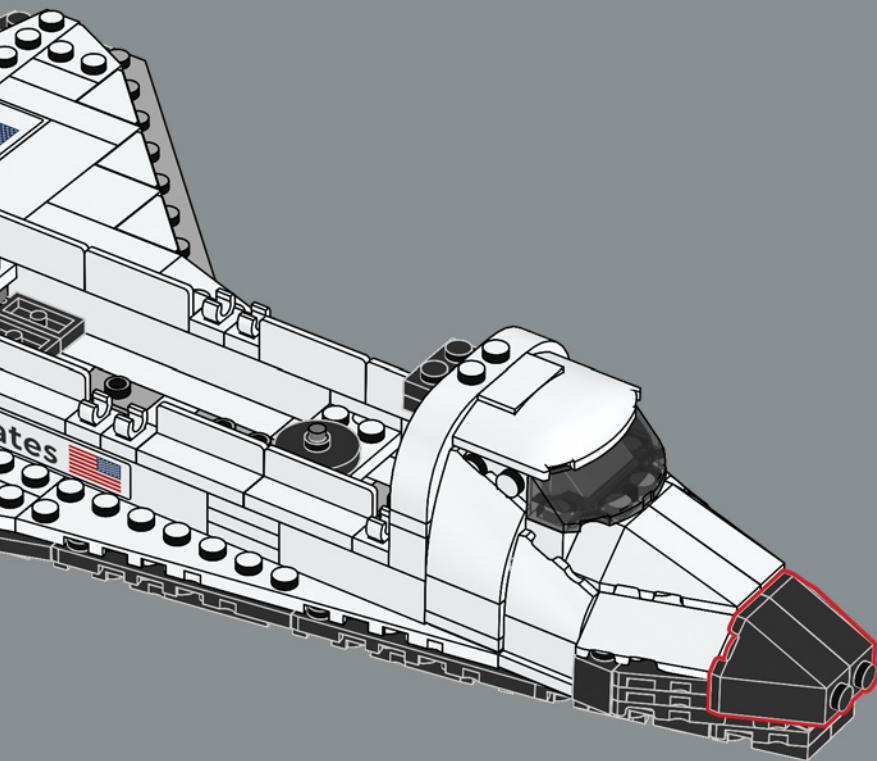
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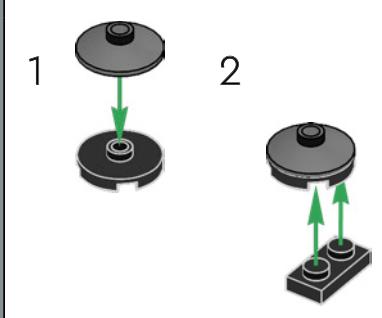
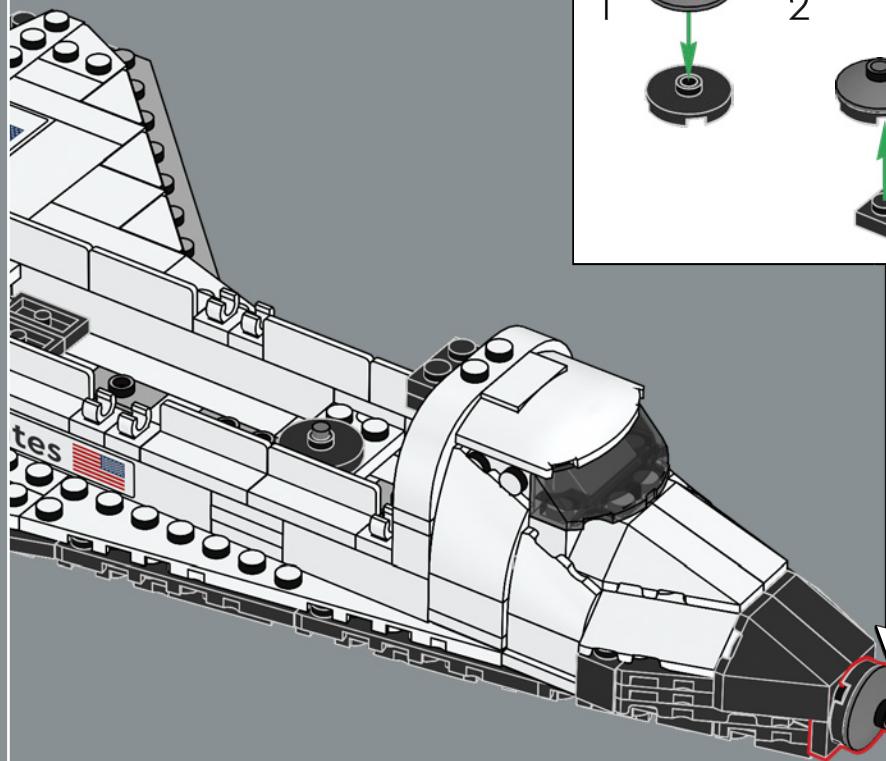


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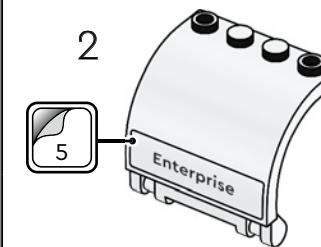
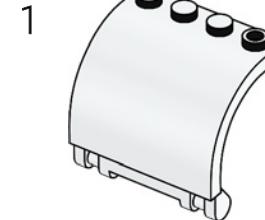
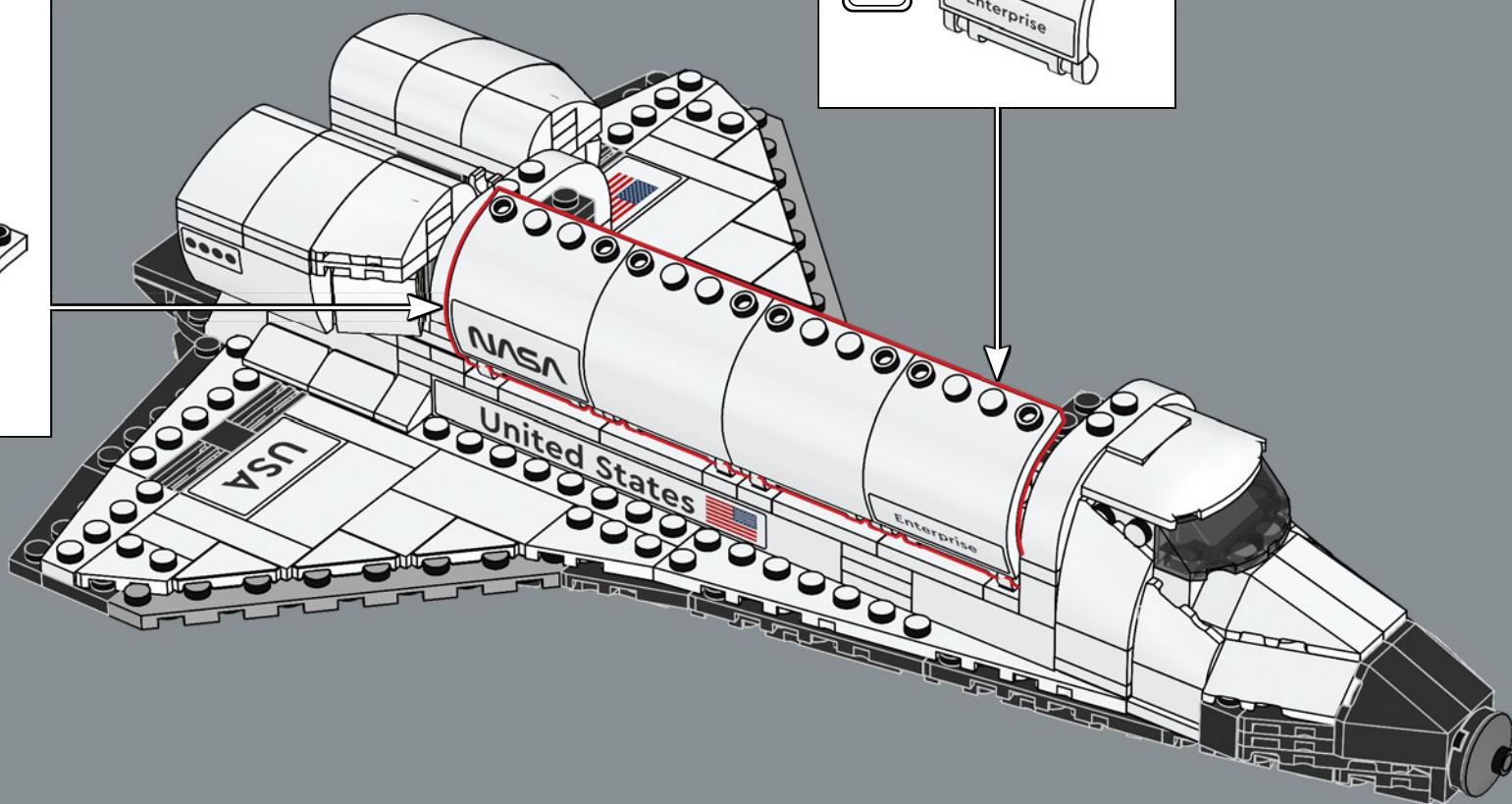
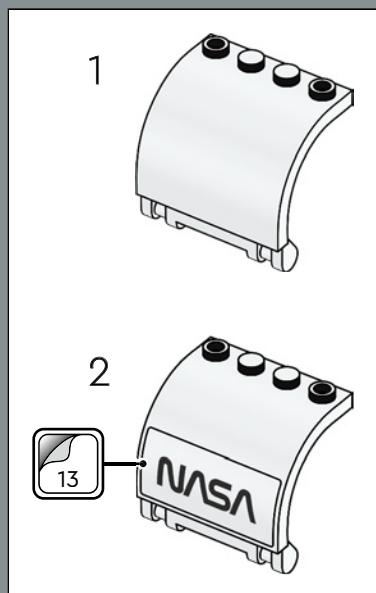


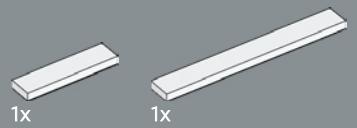
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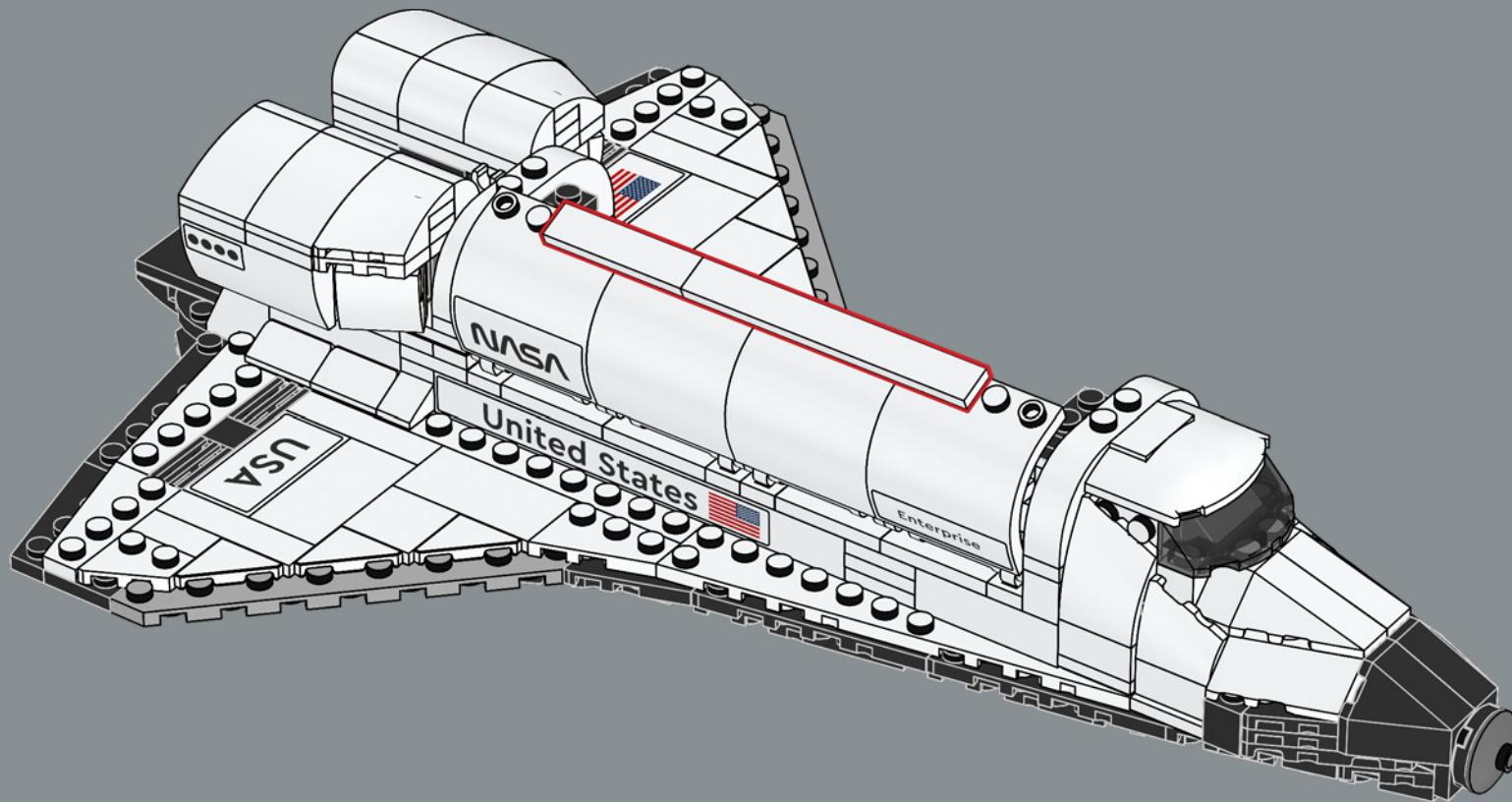


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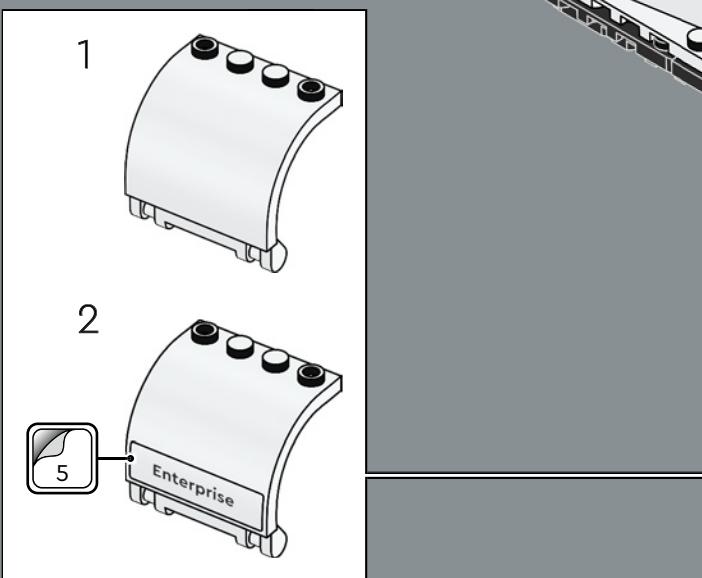
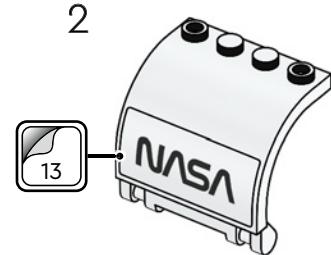
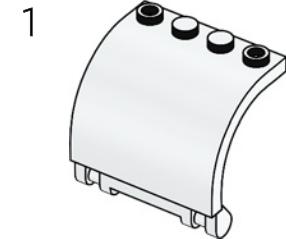
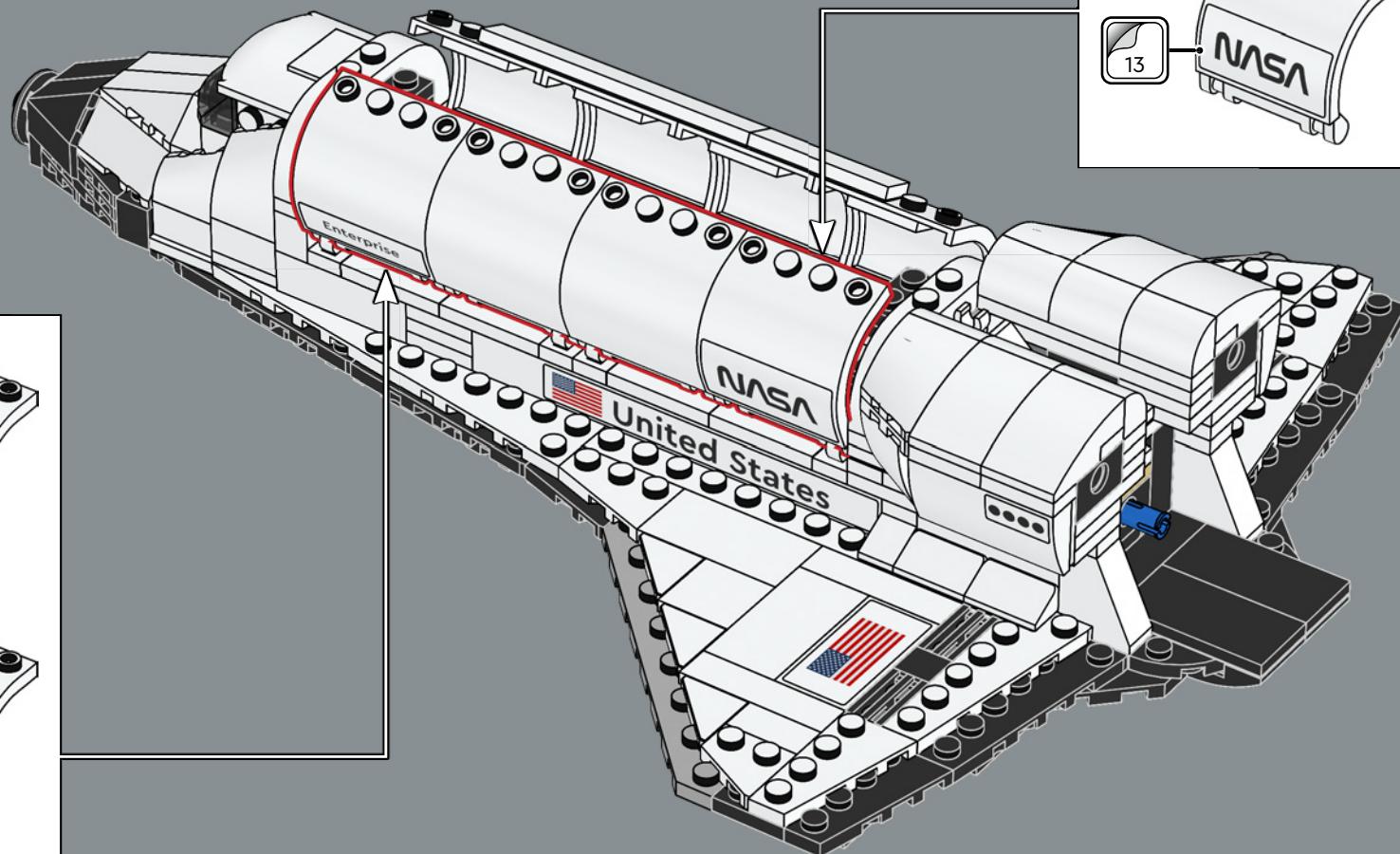


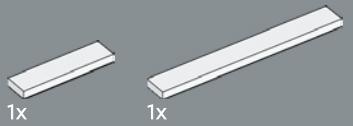
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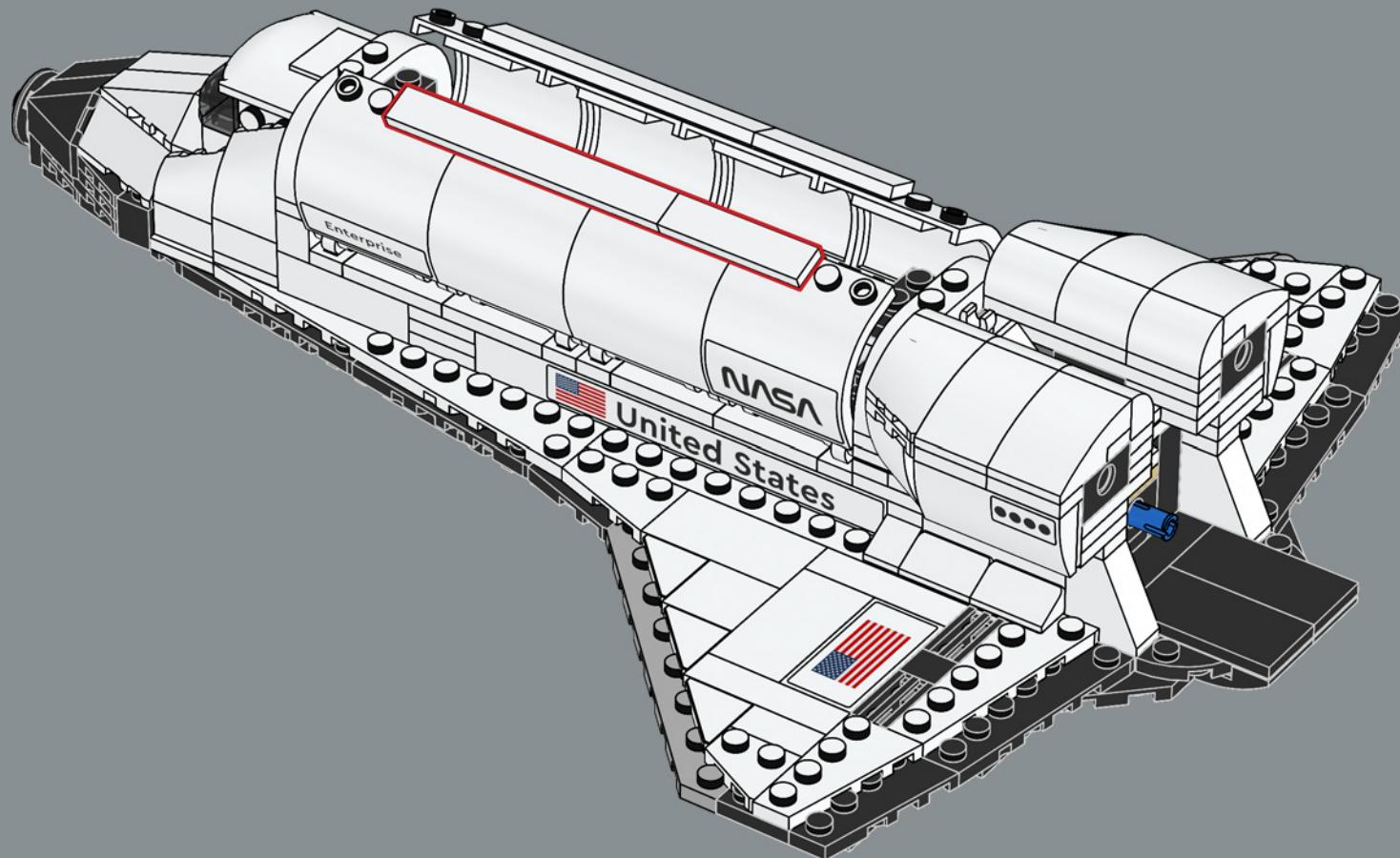
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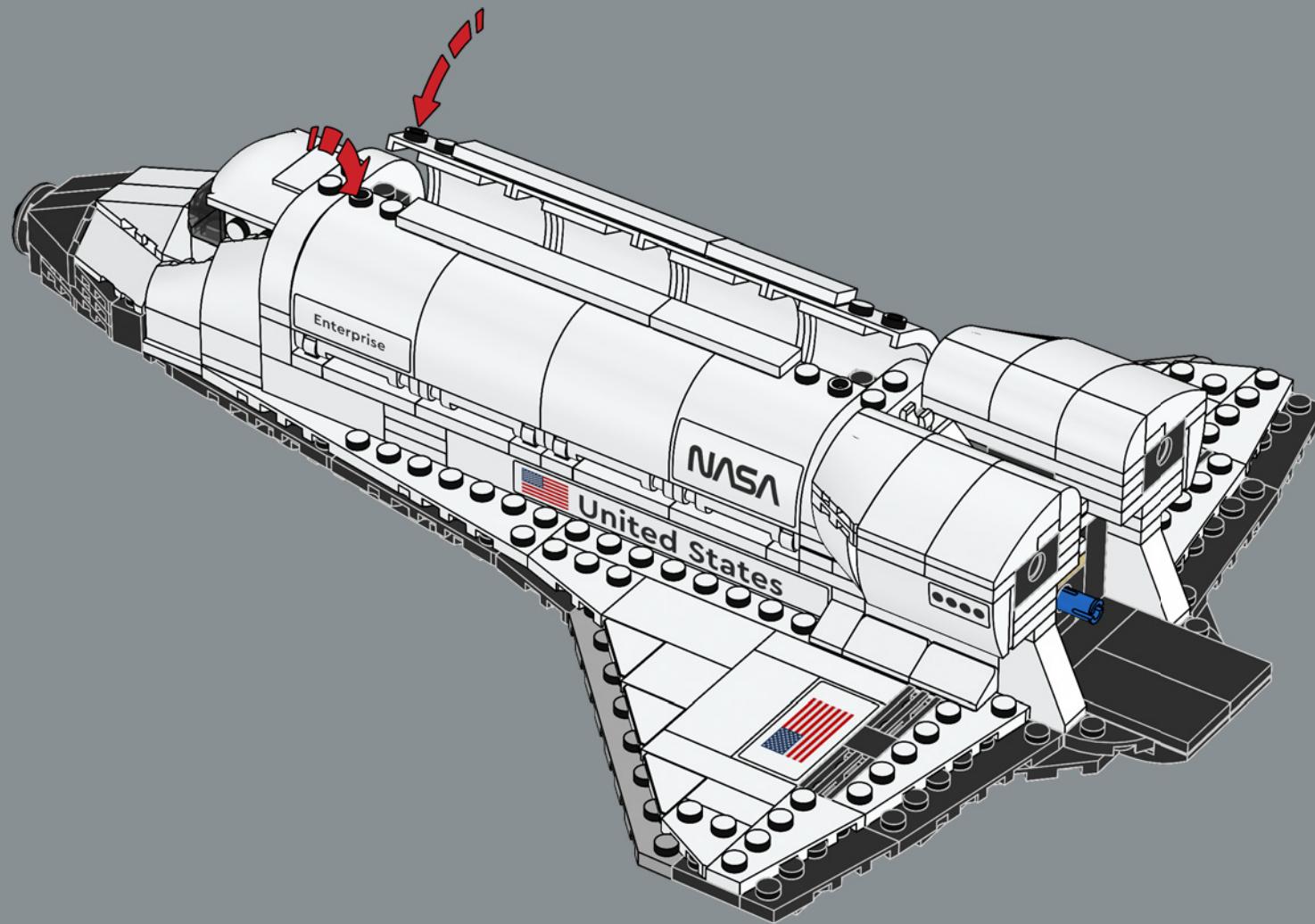


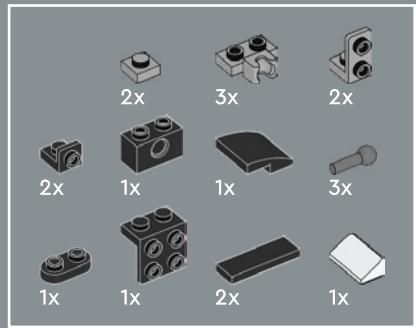
À l'origine, l'Enterprise devait s'appeler la Constitution, mais suite à une pétition organisée par des fans de science-fiction, le gouvernement américain a finalement décidé de le renommer !

103

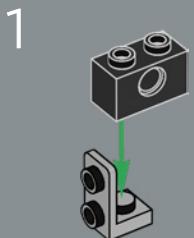


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105



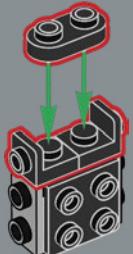
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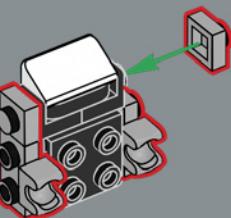
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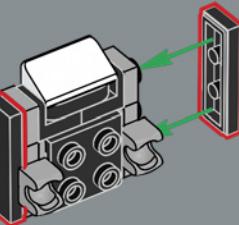
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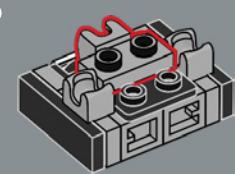
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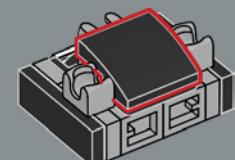
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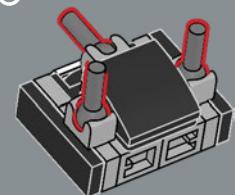
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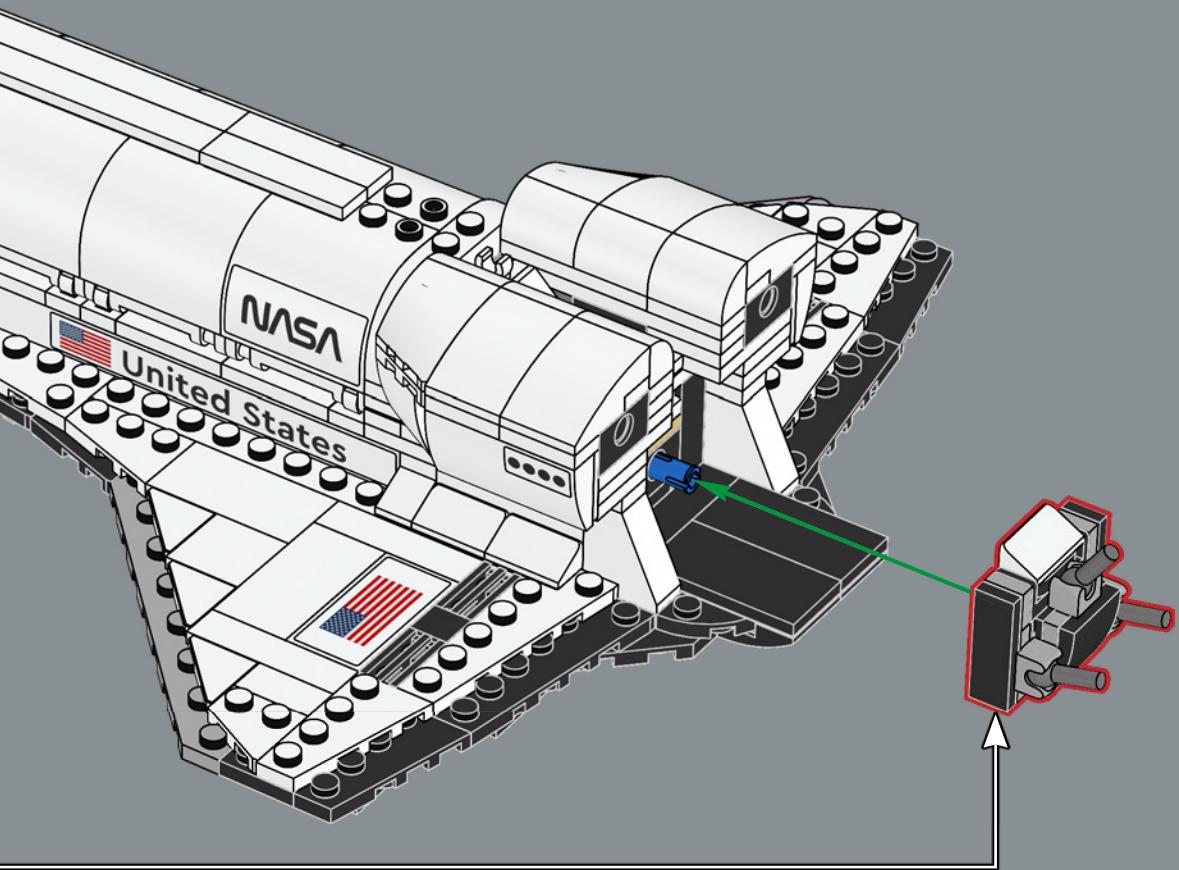


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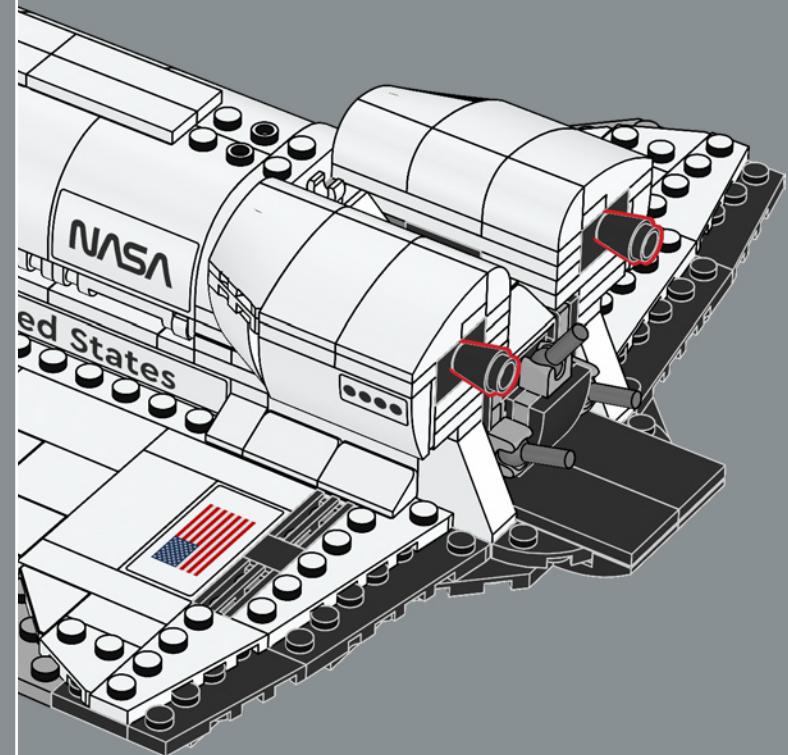


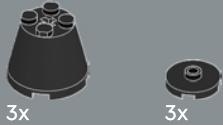
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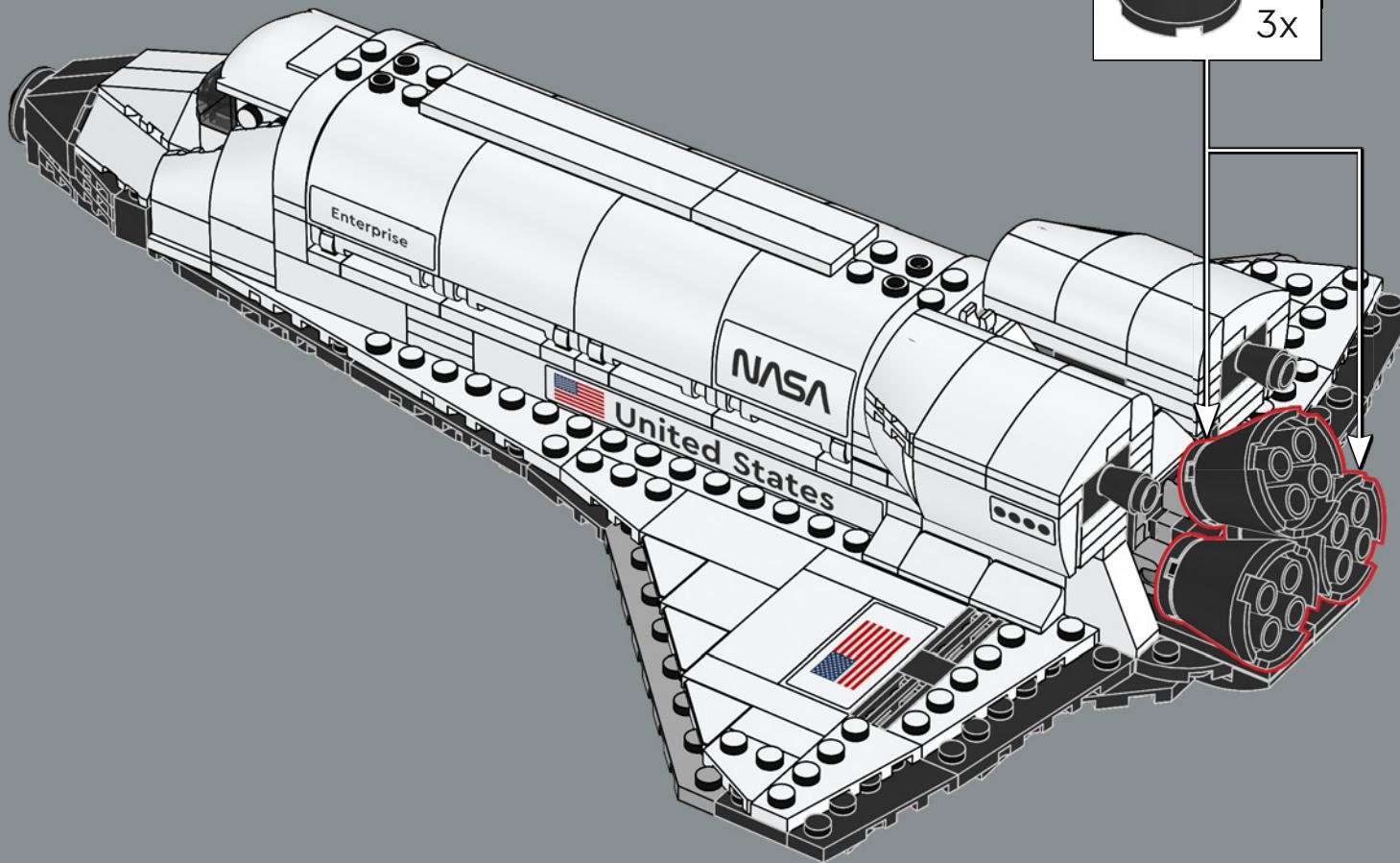


106





107



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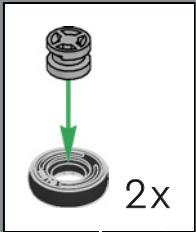
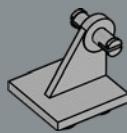


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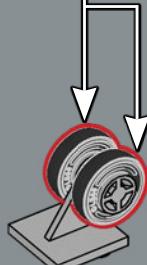
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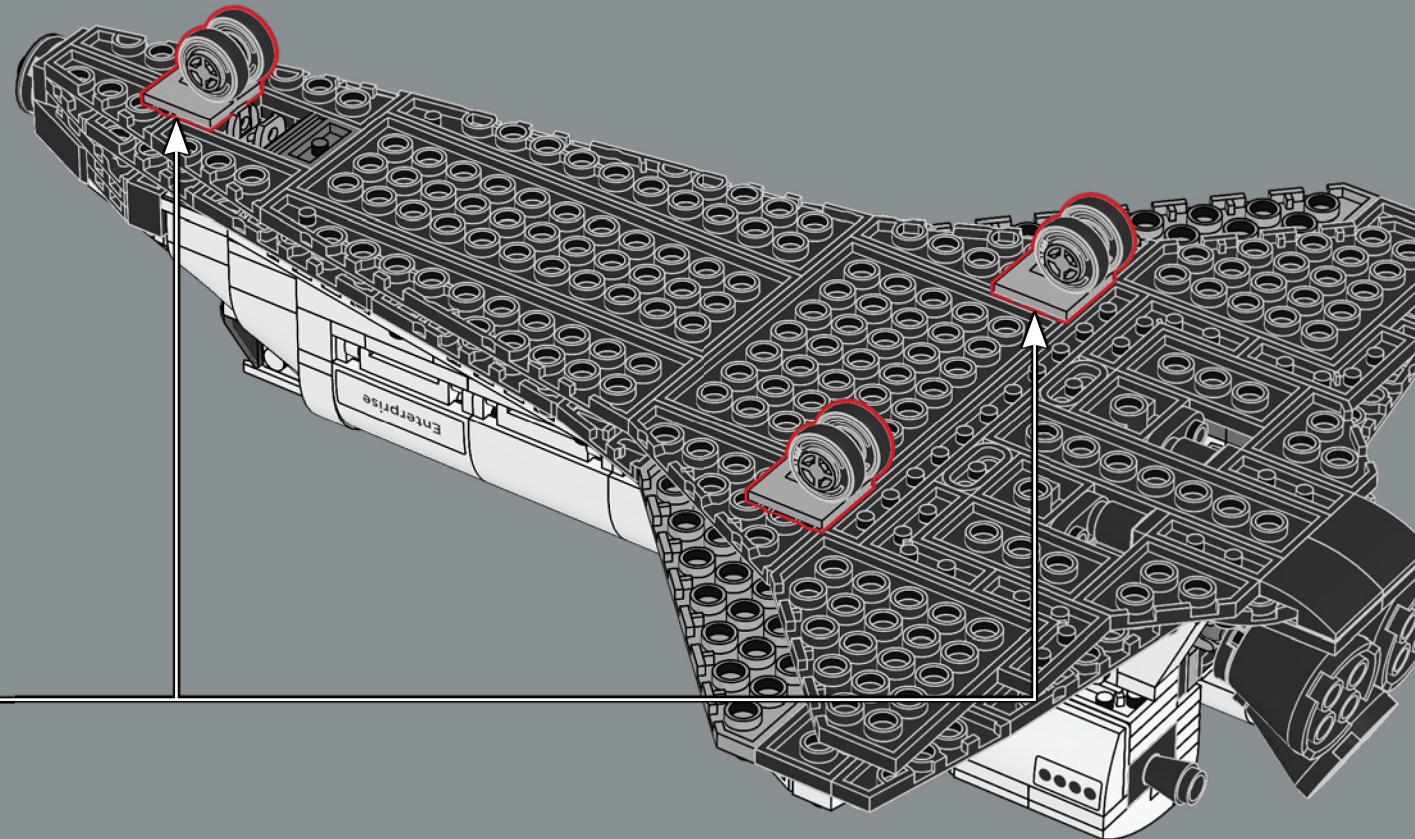


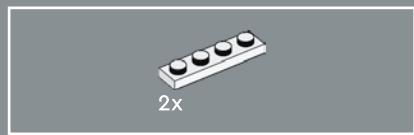
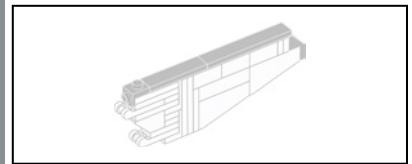
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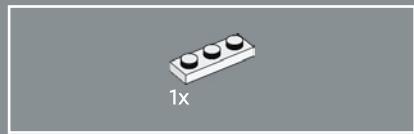
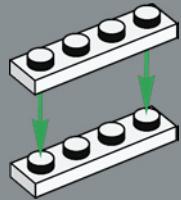


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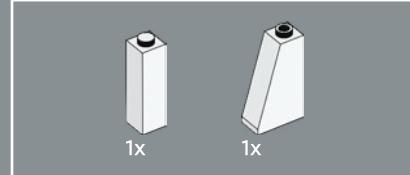
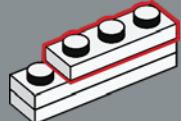




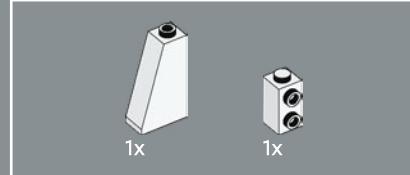
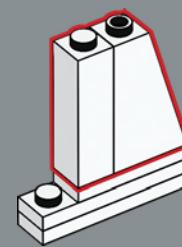
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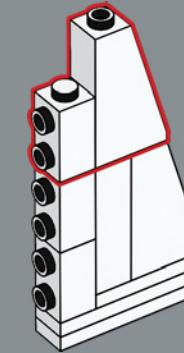
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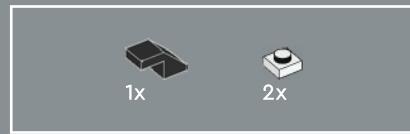
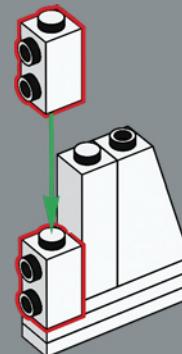
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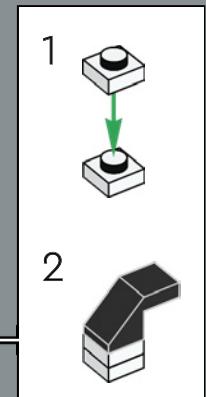
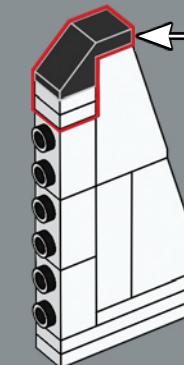
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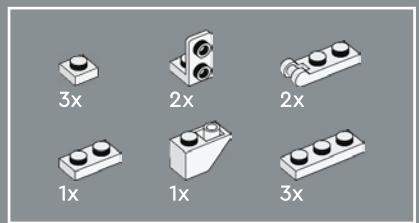


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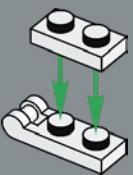
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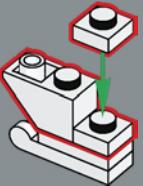


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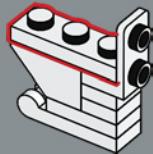
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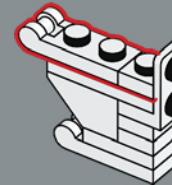
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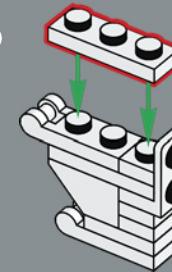
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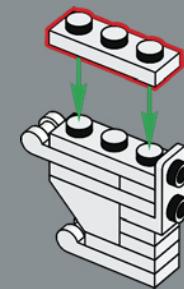
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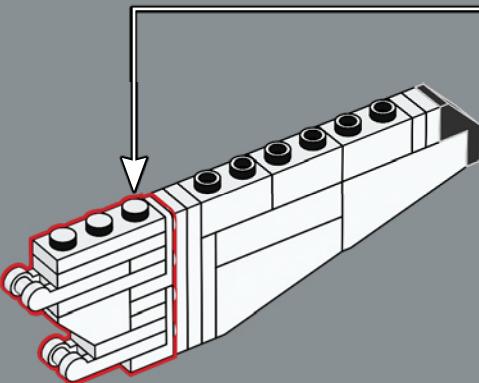
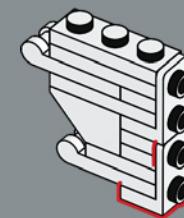
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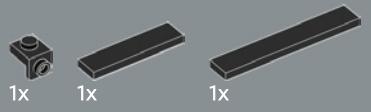


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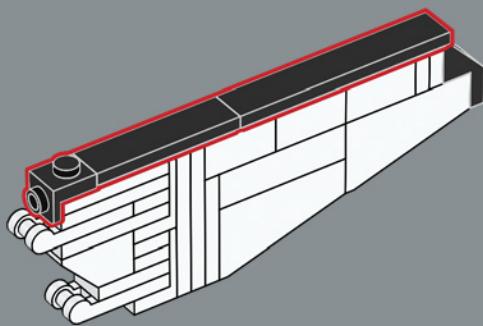


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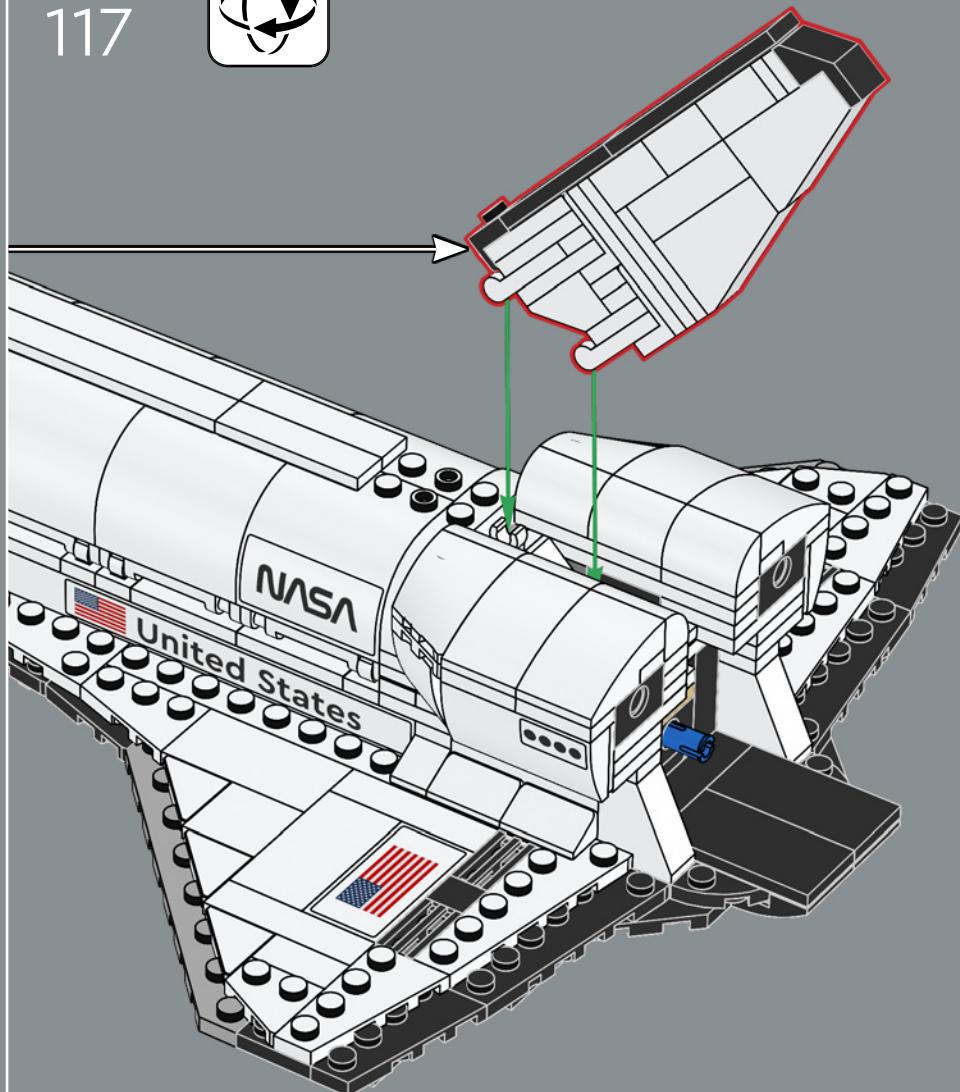


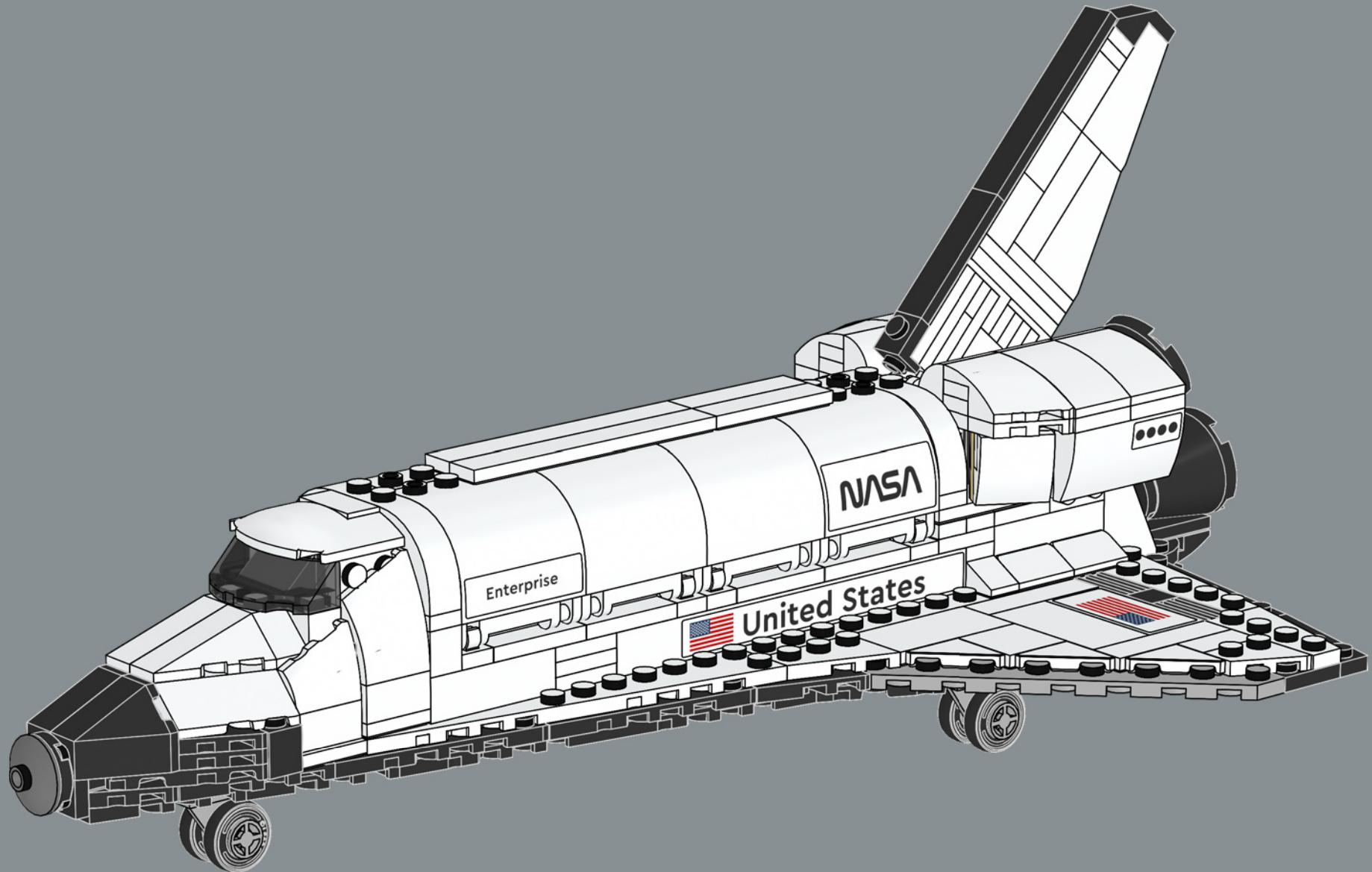


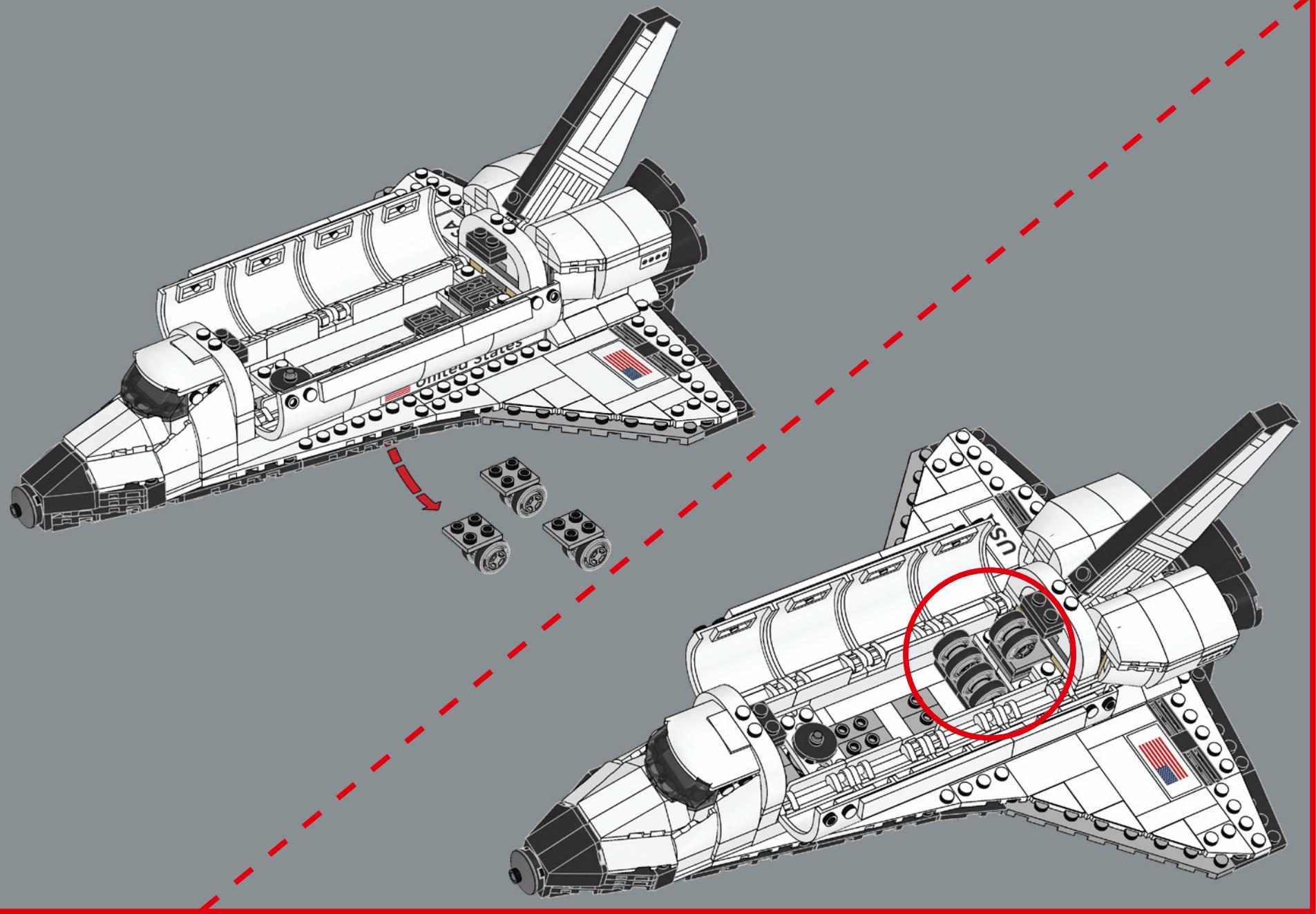
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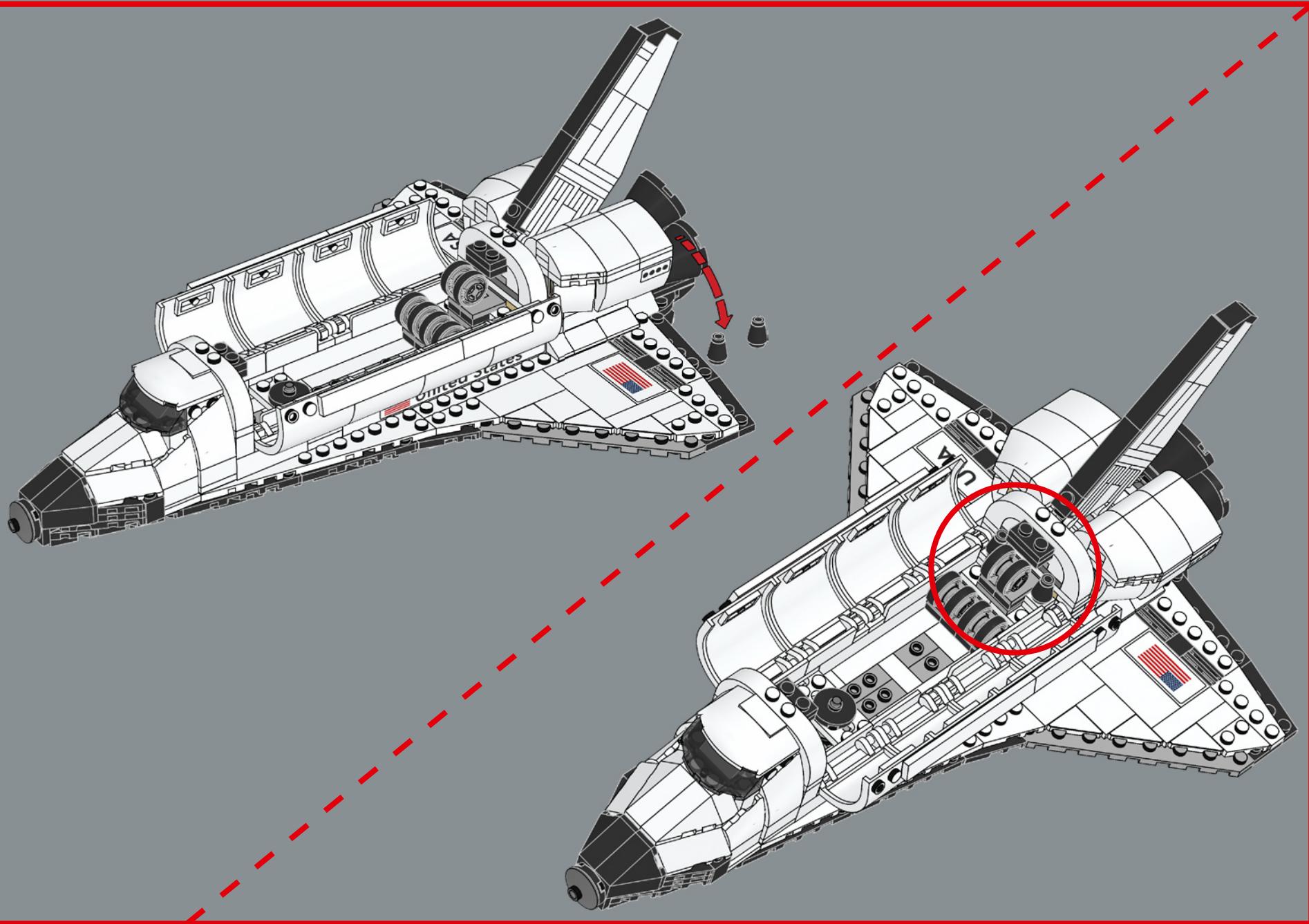


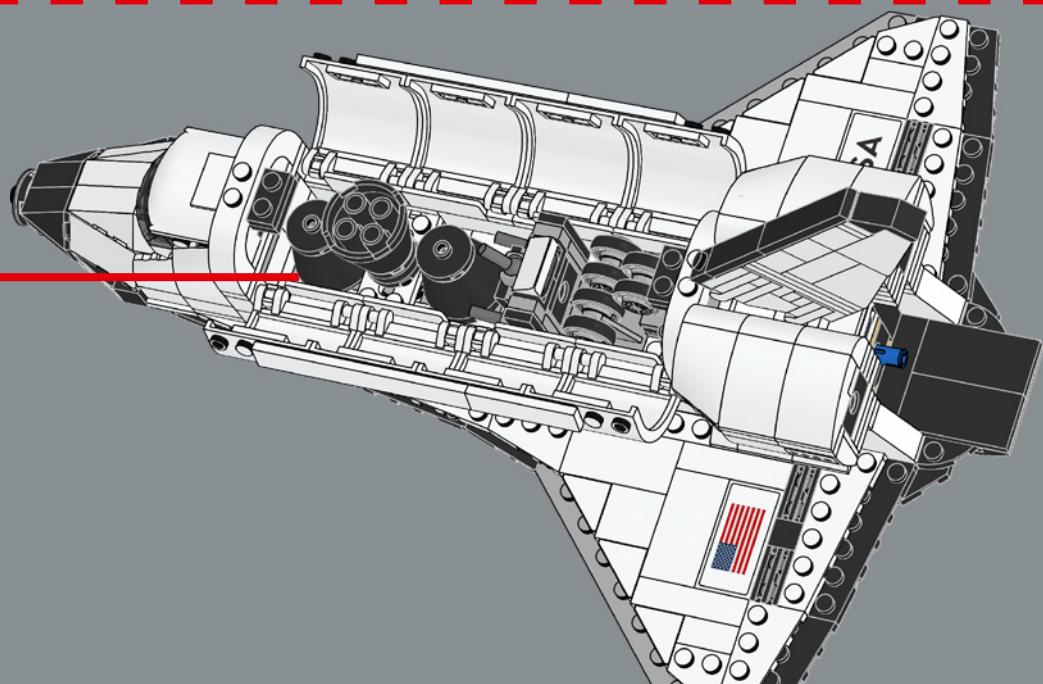
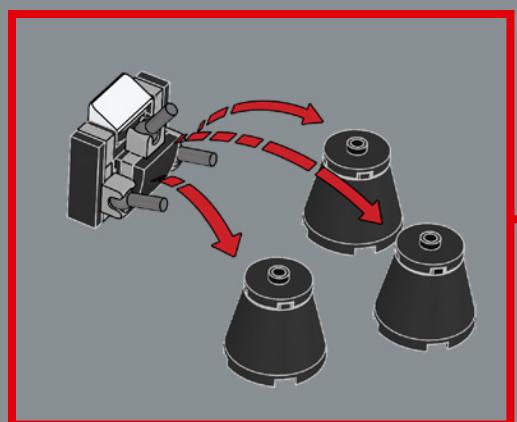
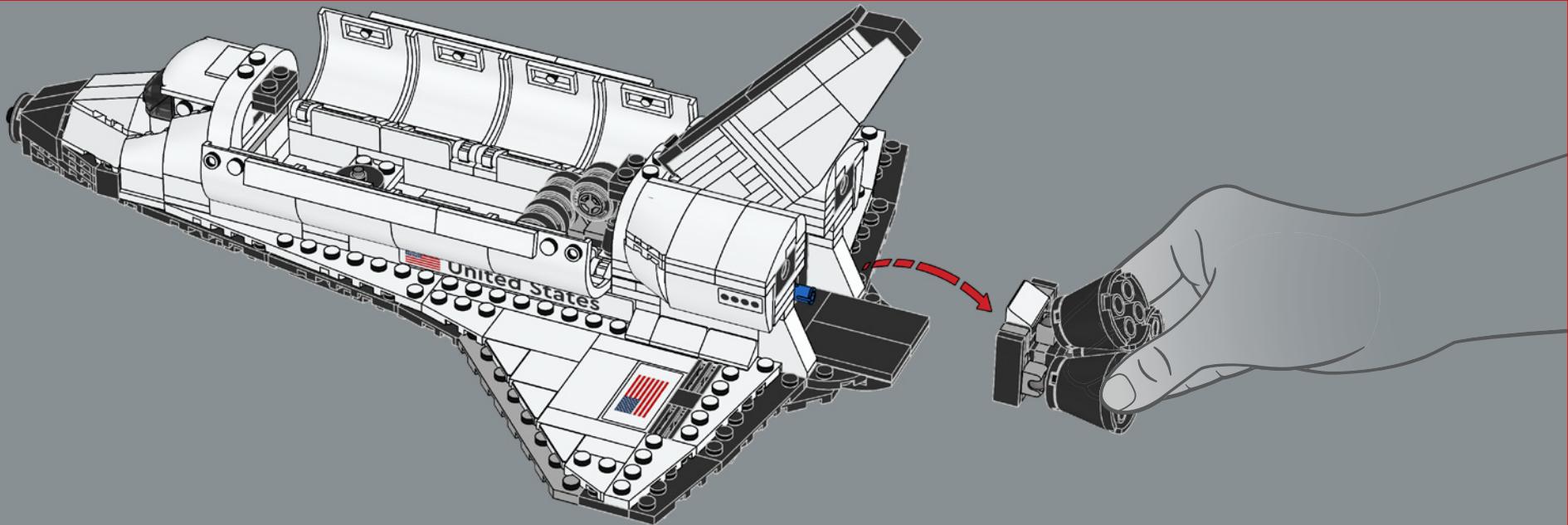
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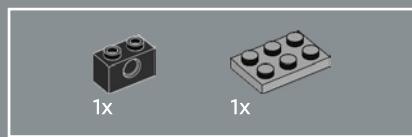
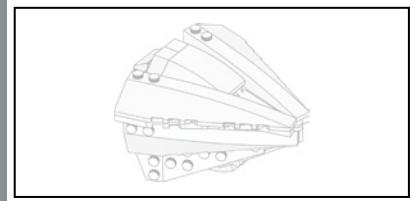




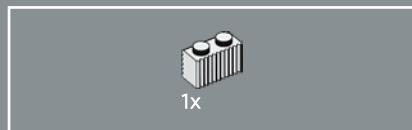
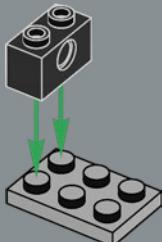




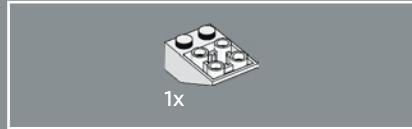
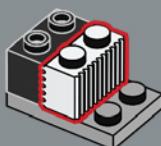




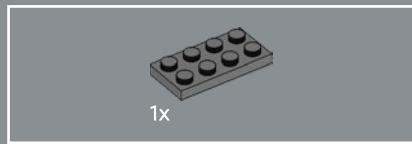
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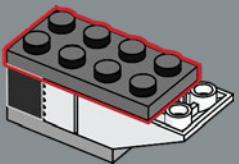
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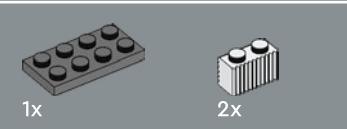
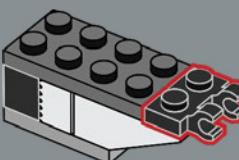
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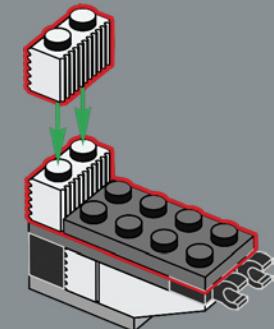
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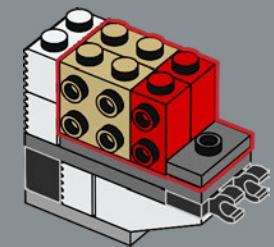
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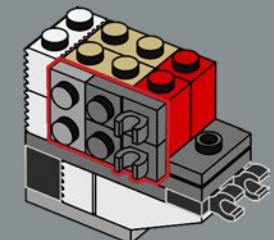
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124



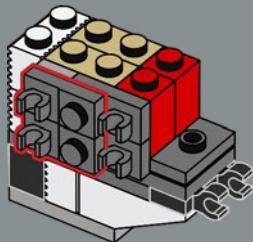
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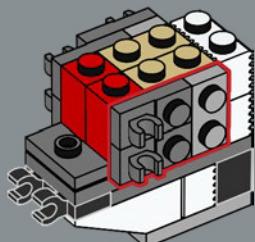
126



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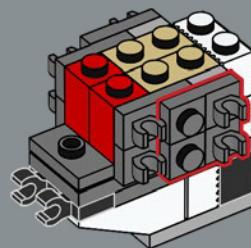
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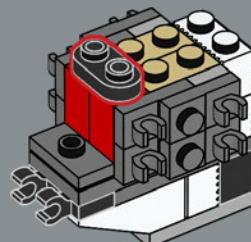


2x

128

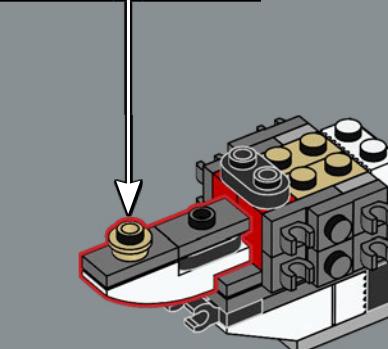
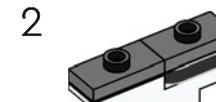
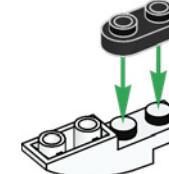


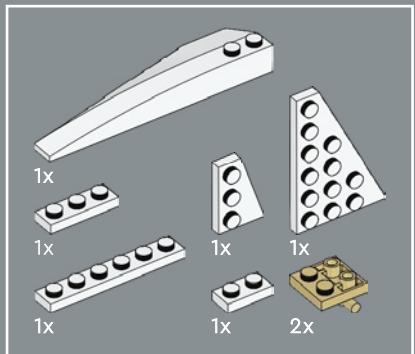
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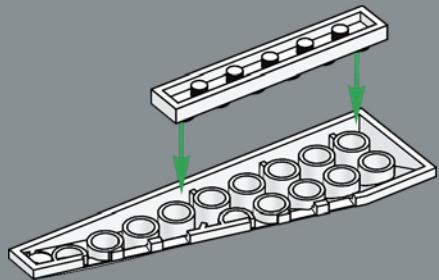
1x    1x    2x    1x

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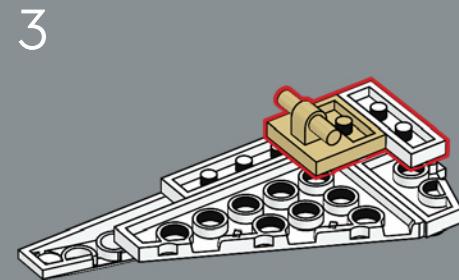




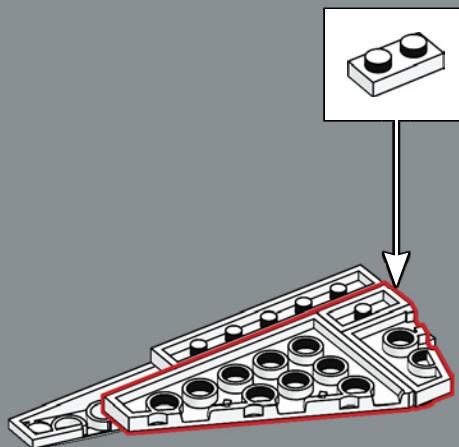
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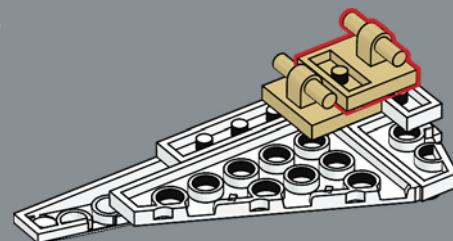
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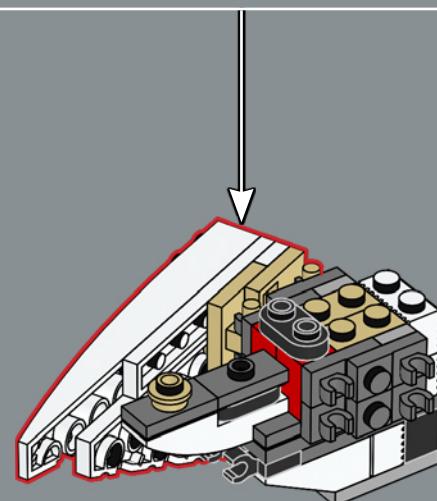
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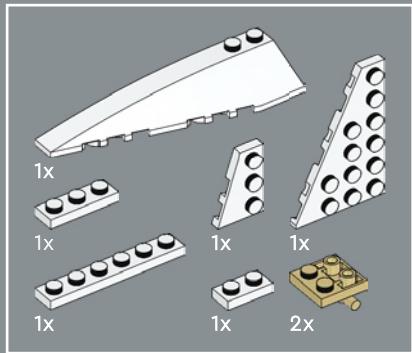
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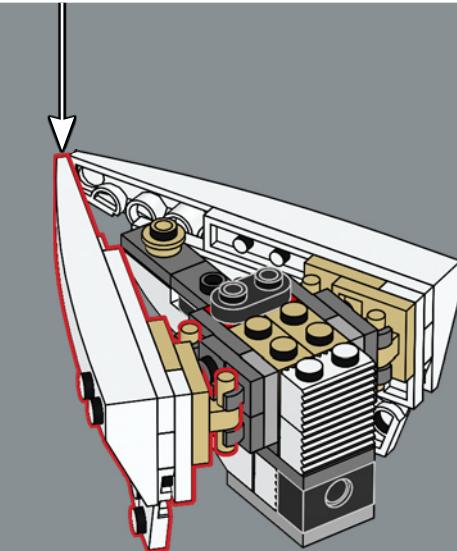
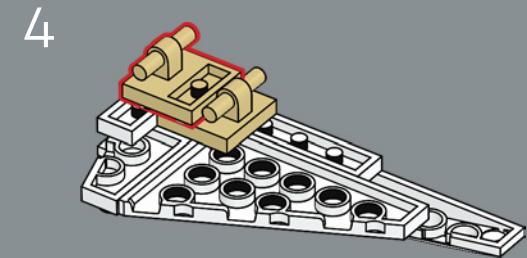
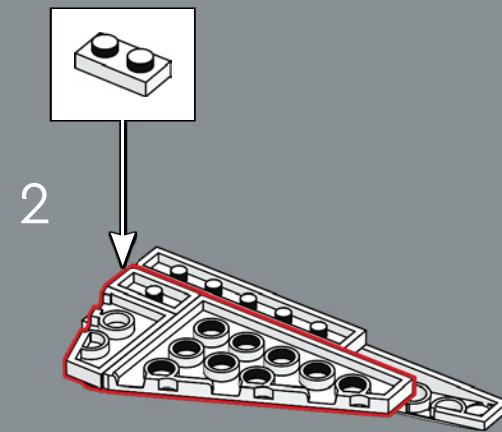
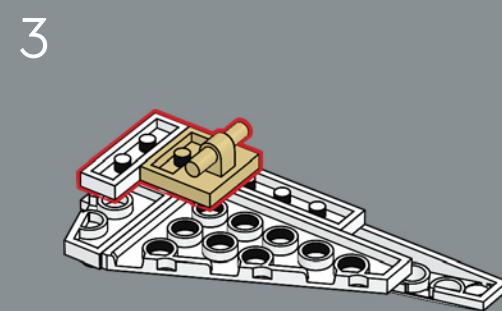
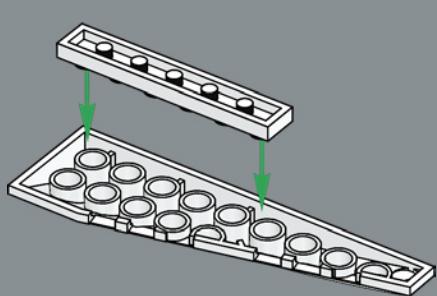
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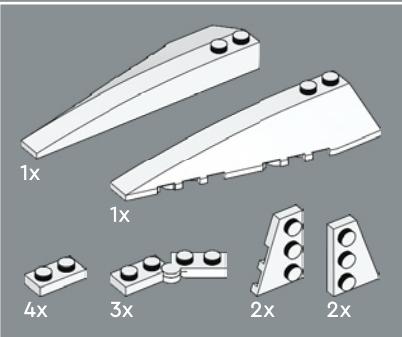


Le cône de queue, protection pour les vrais moteurs de la navette spatiale, a été fixé lors du transport pour améliorer l'aérodynamisme. La version LEGO® imite la forme et n'est pas creuse.



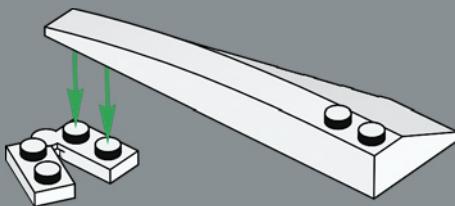
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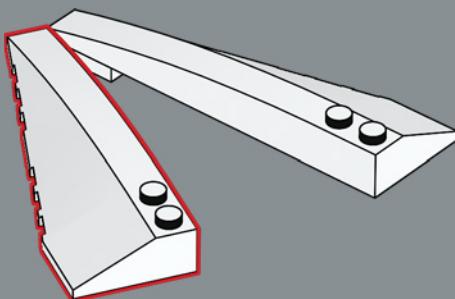


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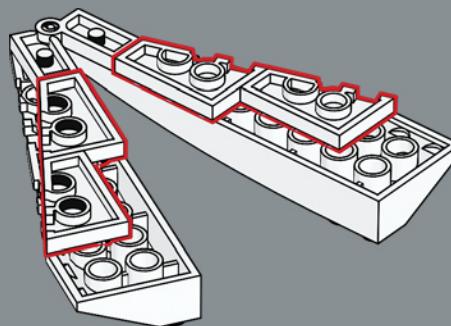
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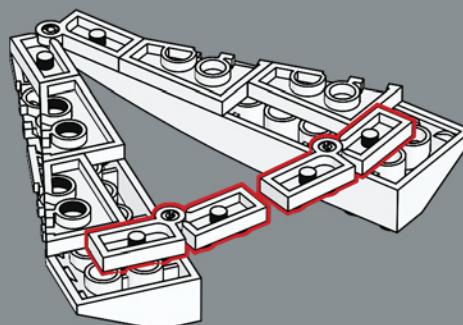
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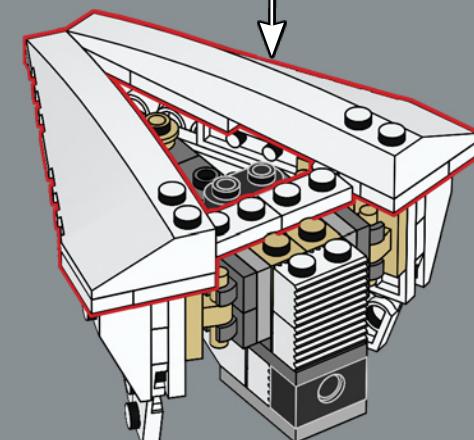
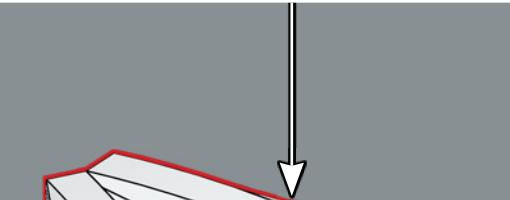
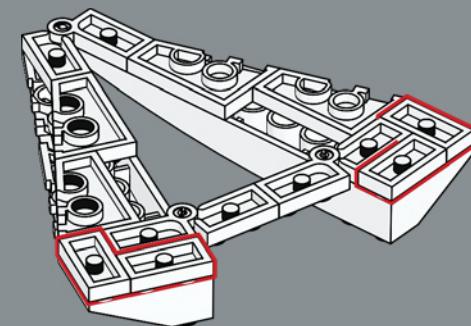
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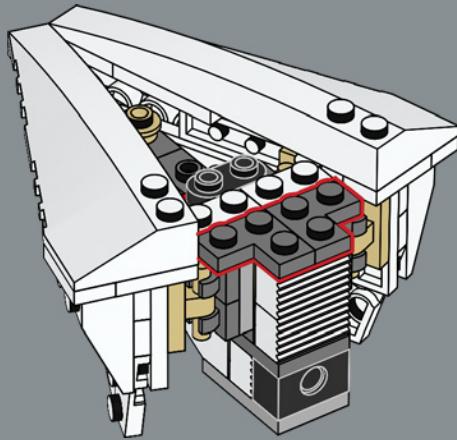
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2x

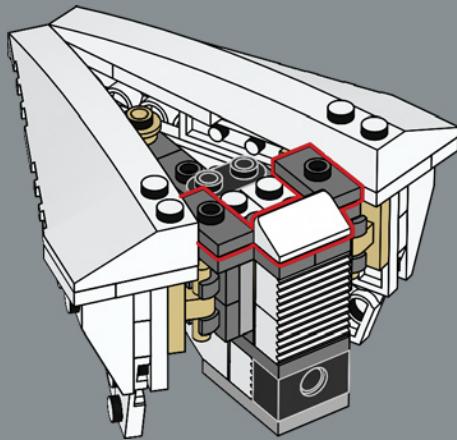
134



2x

1x

135

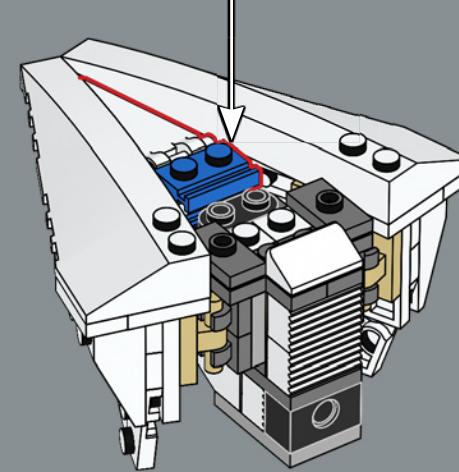
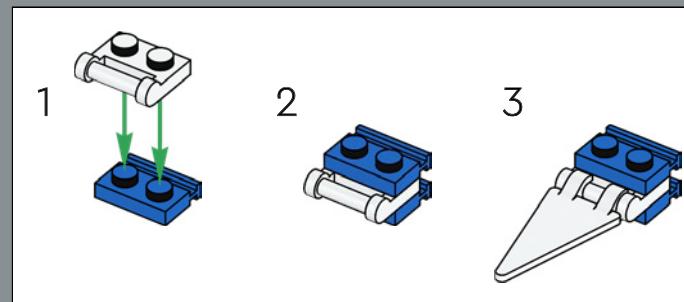


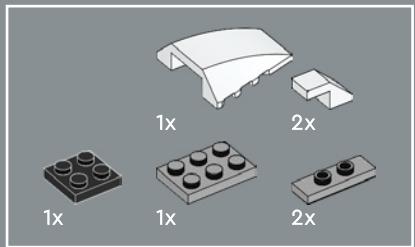
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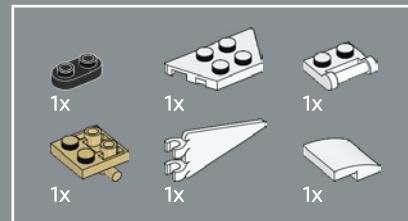
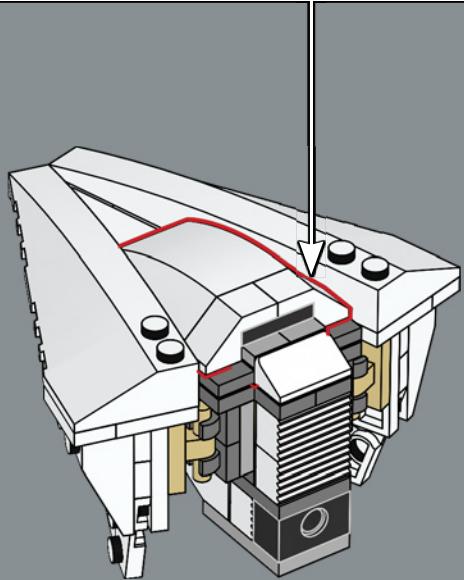
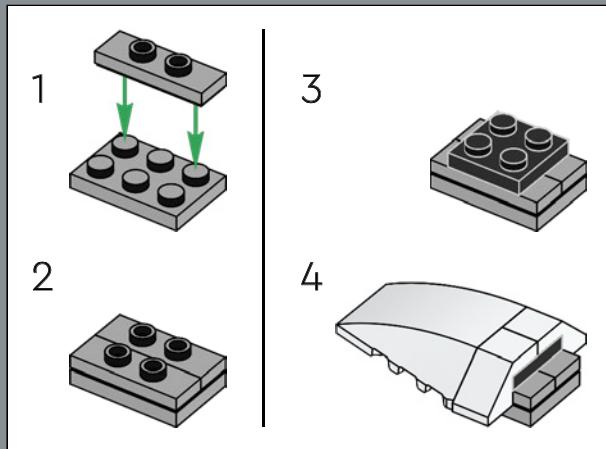
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136

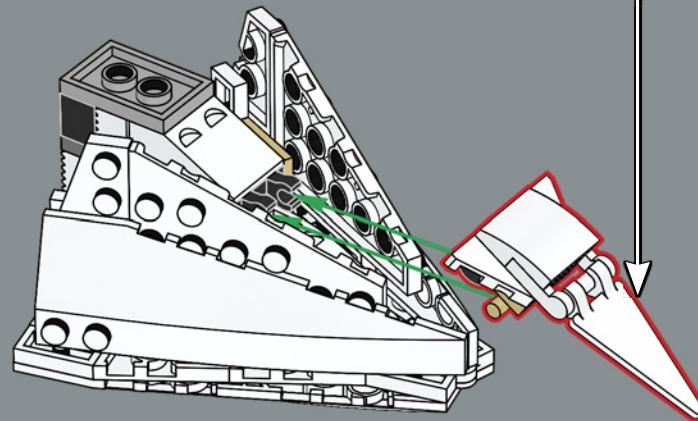
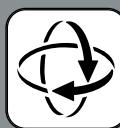
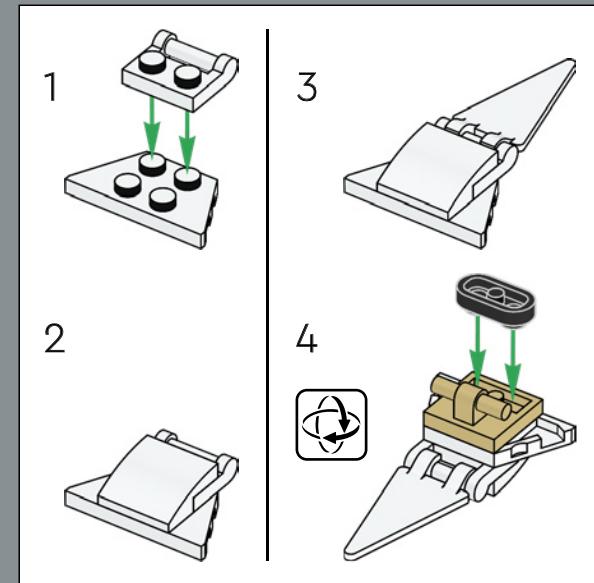




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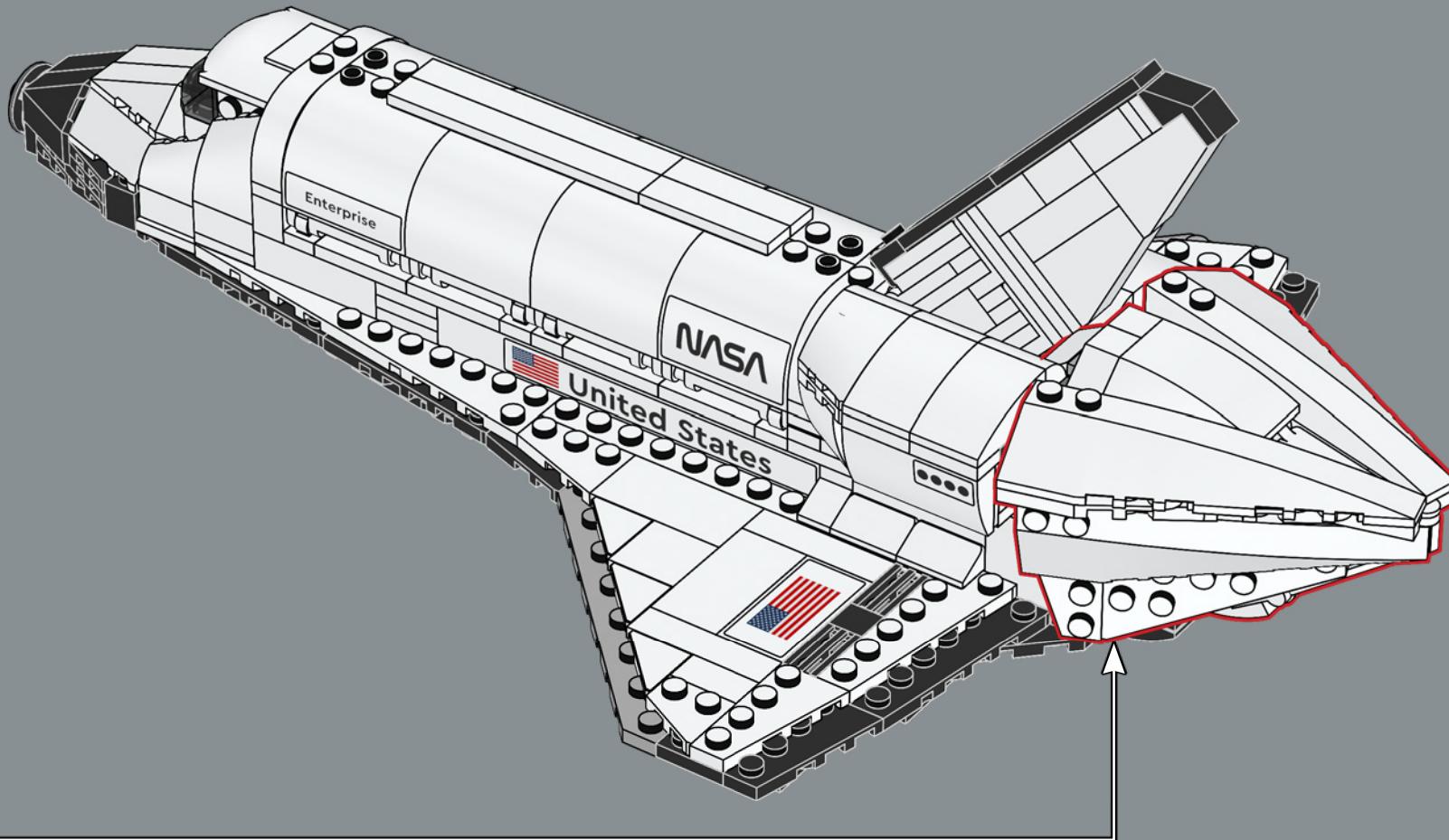


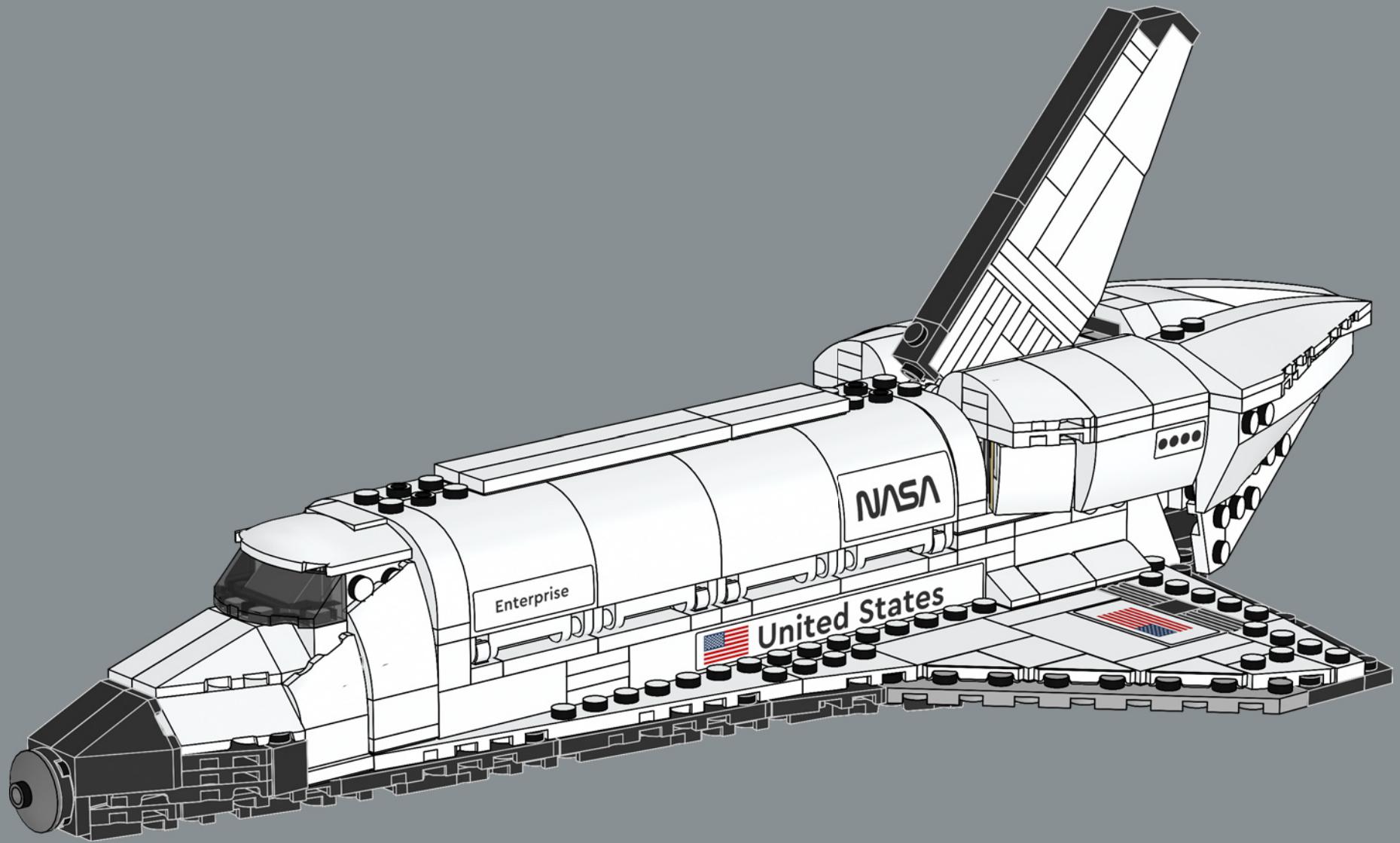
138



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La navette spatiale Enterprise a réalisé cinq vols libres avec équipage à des fins de tests. Le cône de queue a été installé pour les trois premiers vols, puis remplacé par des moteurs miniatures pour les deux derniers.







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