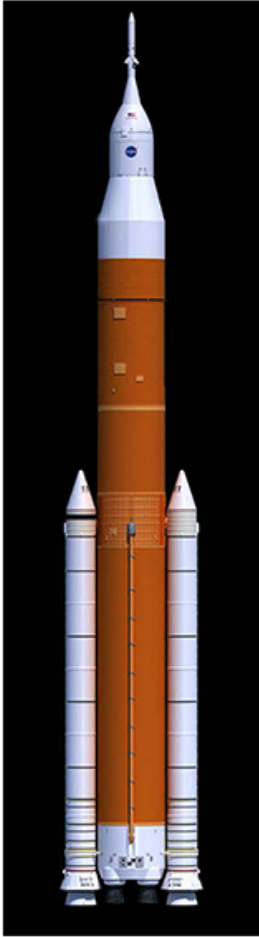
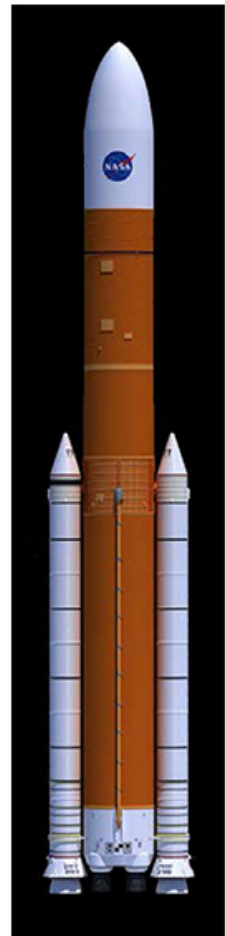


SLS (Space Launch System) Block 1B



SLS Block 1B Crew



SLS Block 1B Cargo

The Space Launch System (SLS) is an American Space Shuttle-derived super heavy-lift expendable launch vehicle. It is a primary part of NASA's deep space exploration plans, including the planned Orion Program crewed missions to the Moon and Mars. SLS follows the cancellation of the Constellation program and is to replace the retired Space Shuttle.

The SLS is to be the most powerful rocket in existence with a total thrust greater than that of the Saturn V, although Saturn V could carry a greater payload mass.

Three versions of the SLS launch vehicle are planned: Block 1, Block 1B, and Block 2. Each will use the same core stage with four main engines, but Block 1B will feature a more powerful second stage called the Exploration Upper Stage (EUS), and Block 2 will combine the EUS with upgraded boosters. Block 1 has a baseline LEO payload capacity of 95 metric tons (105 short tons) and Block 1B has a baseline of 105 metric tons (116 short tons). The proposed Block 2 will have lift capacity of 130 metric tons (140 short tons), which is similar to that of the Saturn V. Some sources state this would make the SLS the most capable heavy lift vehicle built; although the Saturn V lifted approximately 140 metric tons (150 short tons) to LEO in the Apollo 17 mission.

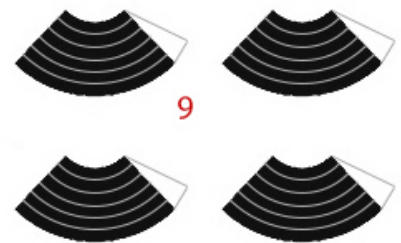
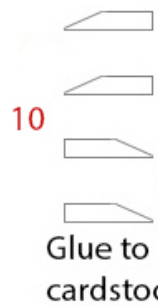
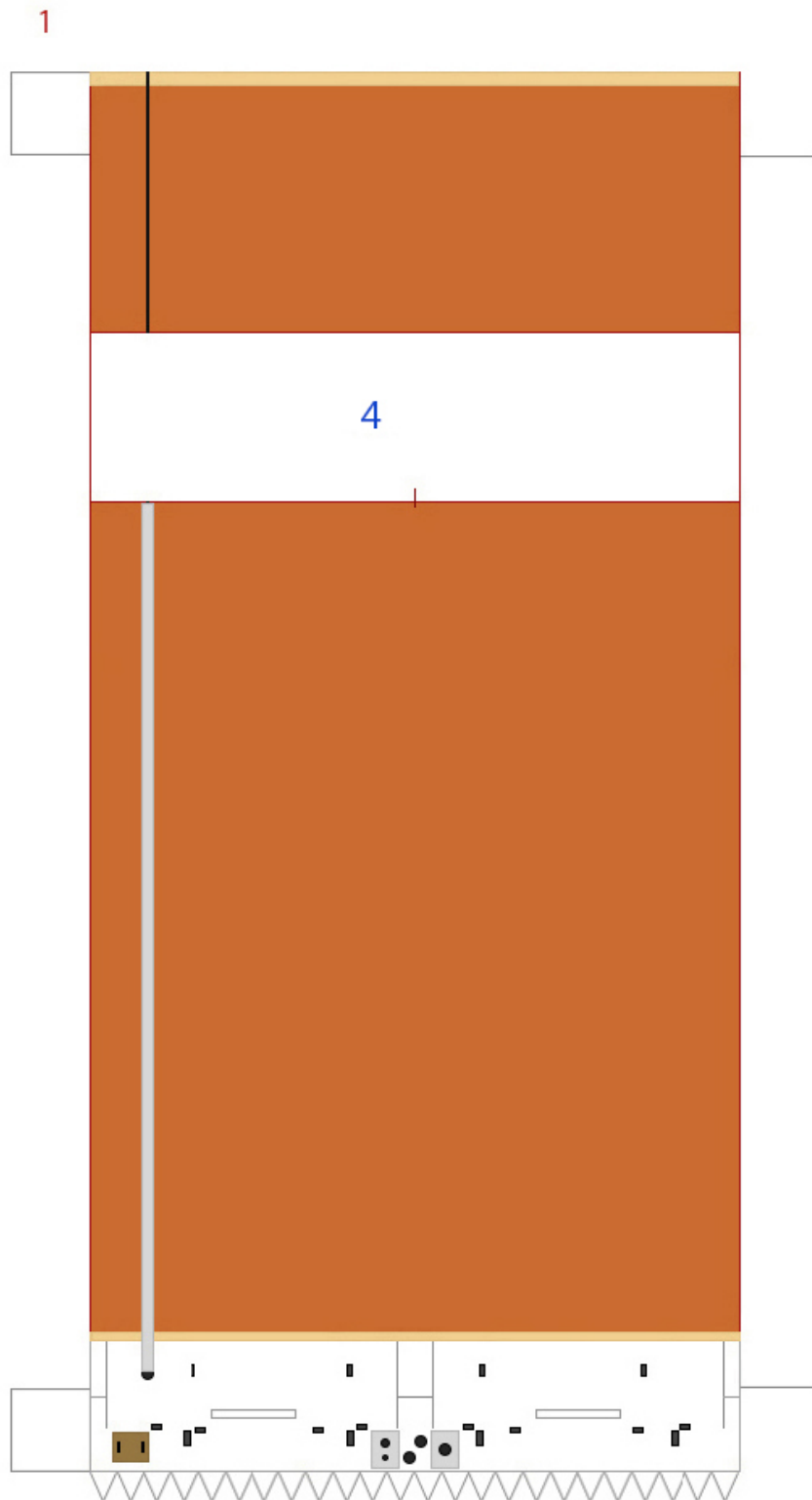
The Space Launch System's Core Stage will be 8.4 meters (28 ft) in diameter and use four RS-25 engines. Initial flights will use modified RS-25D engines left over from the Space Shuttle program; later flights are expected to switch to a cheaper version of the engine not intended for reuse. The stage's structure will consist of a modified Space Shuttle external tank with the aft section adapted to accept the rocket's Main Propulsion System (MPS) and the top converted to host an interstage structure.

Blocks 1 and 1B of the SLS will use two five-segment Solid Rocket Boosters (SRBs), which are based on the four-segment Space Shuttle Solid Rocket Boosters. Modifications for the SLS included the addition of a center booster segment, new avionics, and new insulation which eliminates the Shuttle SRB's asbestos and is 860 kg (1,900 lb) lighter. The five-segment SRBs provide approximately 25% more total impulse than the Shuttle SRB and will not be recovered after use.

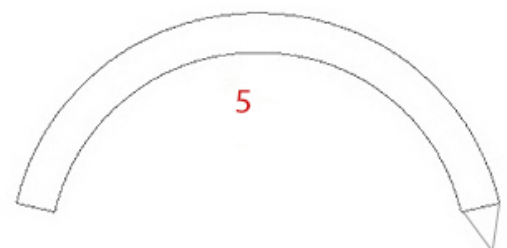
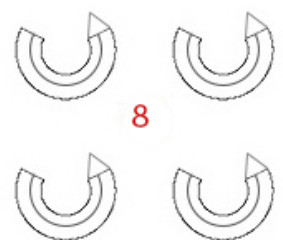
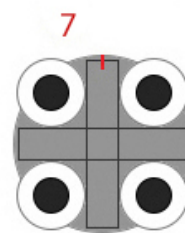
In mid-November 2014, construction of the first SLS rocket began using the new welding system in the South Vertical Assembly Building at NASA's Michoud Assembly Facility, where the Core Stage will be assembled. The SLS will have the ability to tolerate a minimum of 13 tanking cycles due to launch scrubs and other launch delays before launch. The assembled rocket is to be able to remain at the launch pad for a minimum of 180 days and can remain in stacked configuration for at least 200 days without destacking.

In January 2015, NASA began test firing RS-25 engines in preparation for use on SLS. Tests continued throughout Spring of 2015. Further testing was conducted in 2016 and 2017.

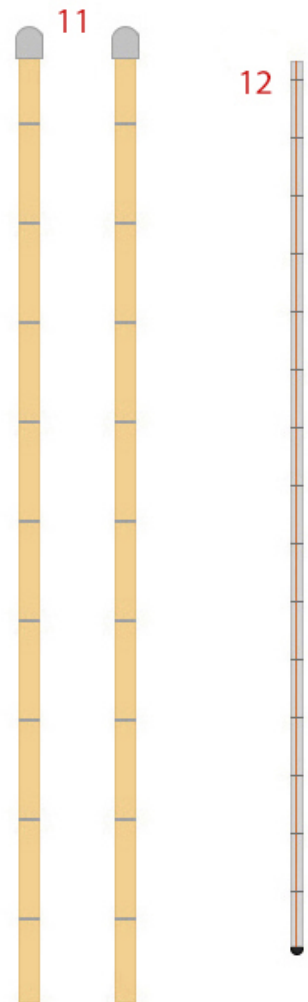
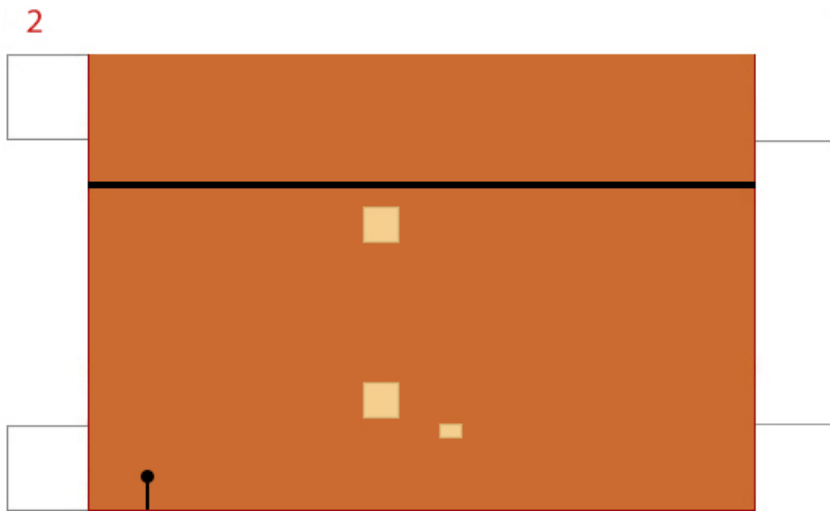
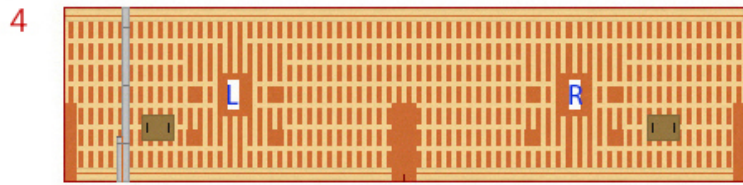




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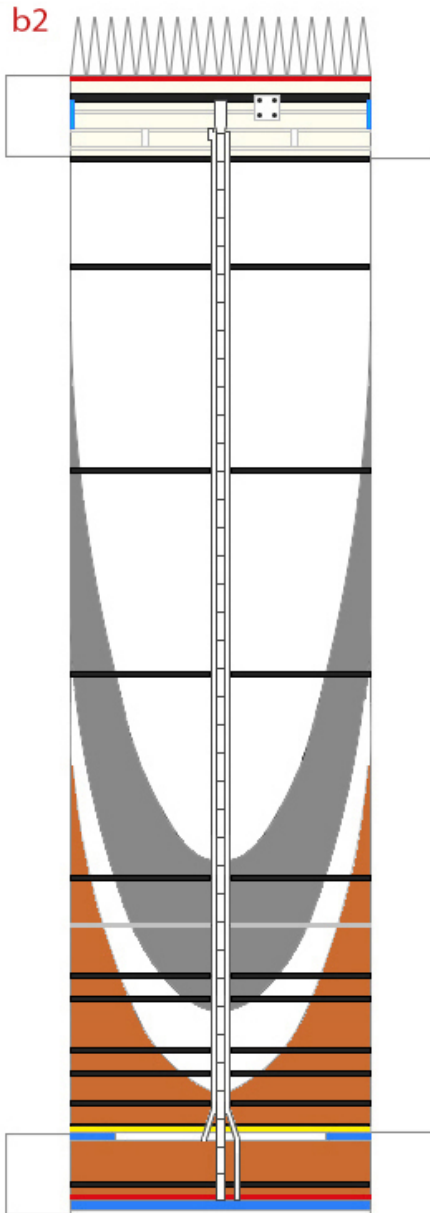
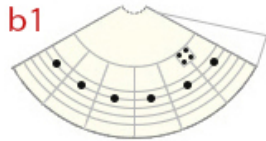
SLS (Space Launch System) Block 1B Core



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of cardstock

SLS (Space Launch System) Block 1B

Left Booster

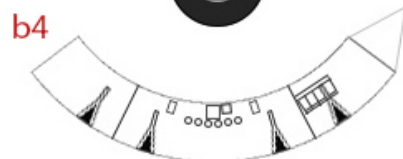


b6

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b7

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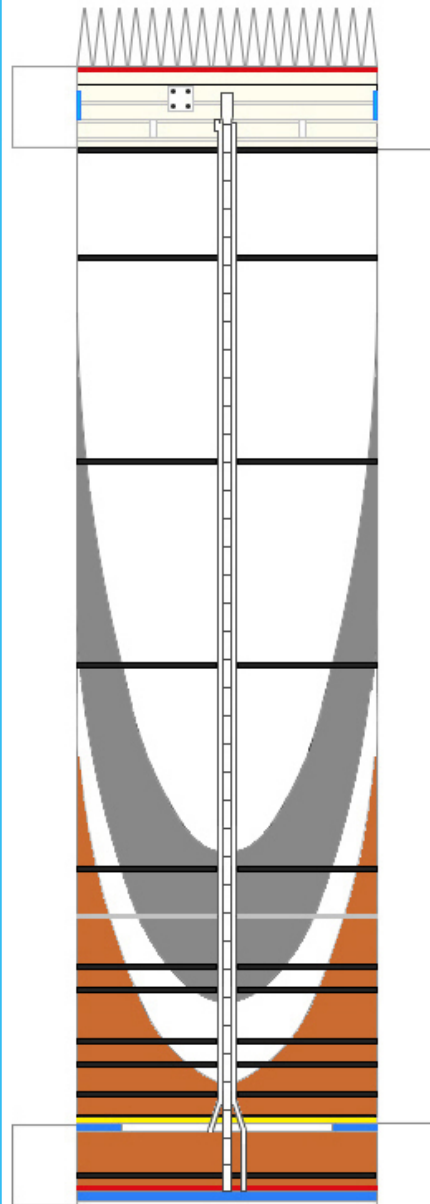
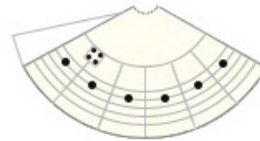


b5



Color back grey

Right Booster



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Glue to two
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cardstock

 *Spare
Glue to two
(2) layers of
cardstock



Color back grey

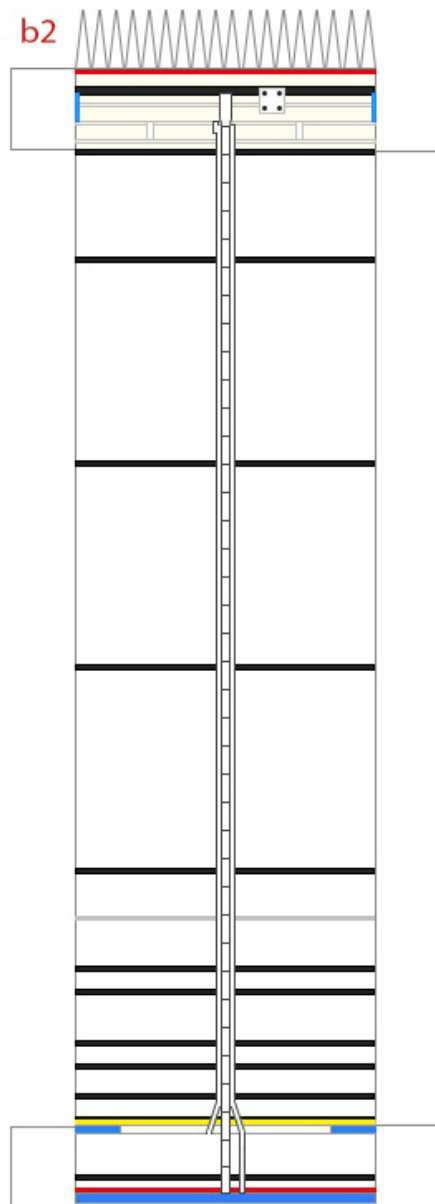


Left Booster

b1



b2



b6



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b7



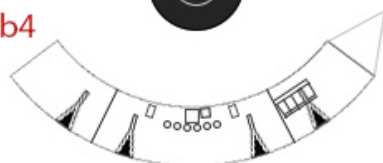
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b3



b4

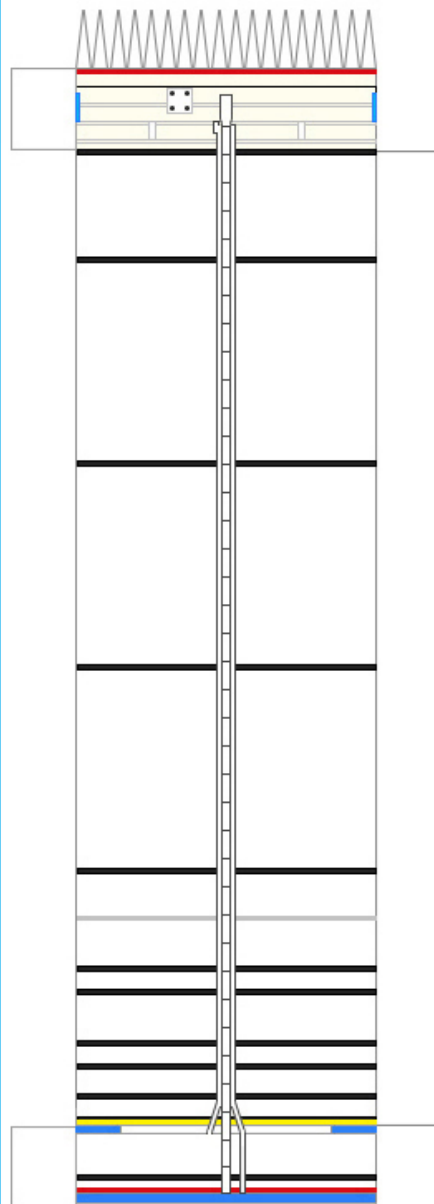
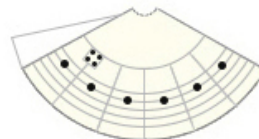


b5



Color back grey

Right Booster



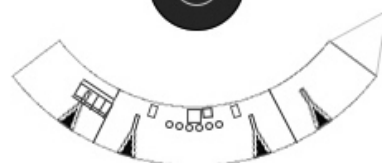
**Spare*

Glue to two
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**Spare*

Glue to two
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cardstock



Color back grey