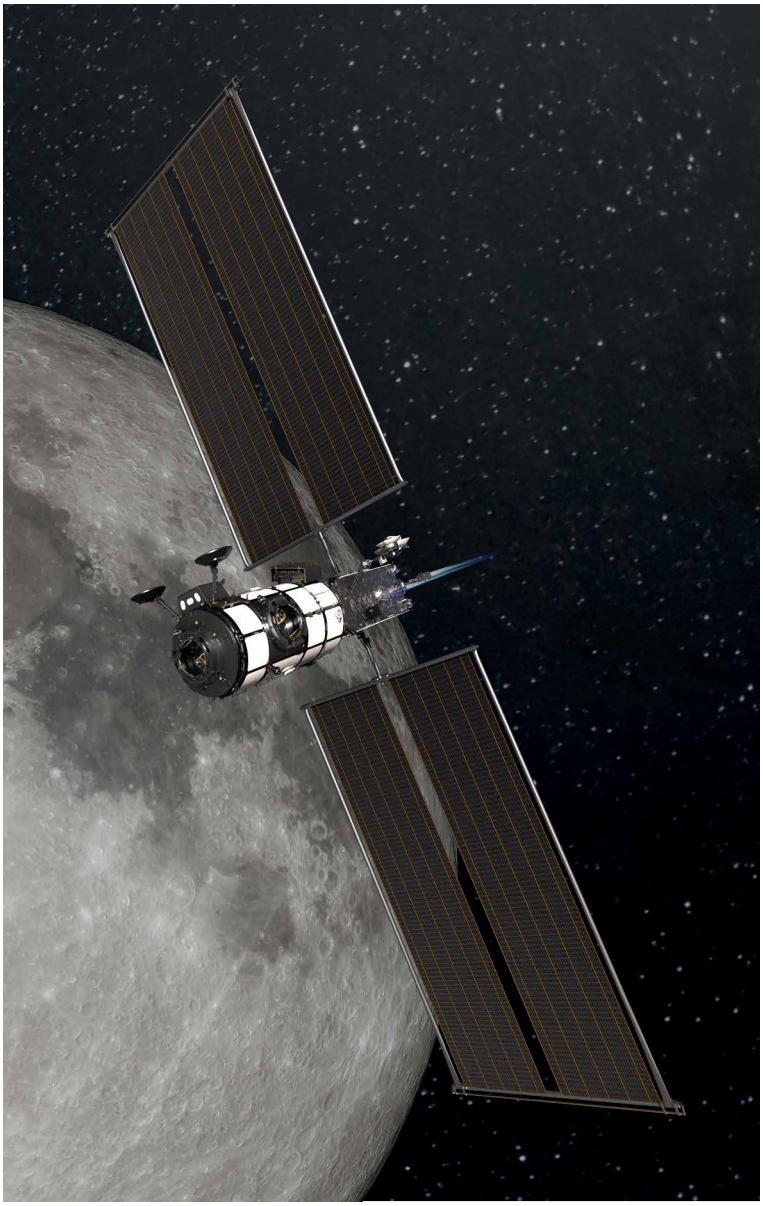
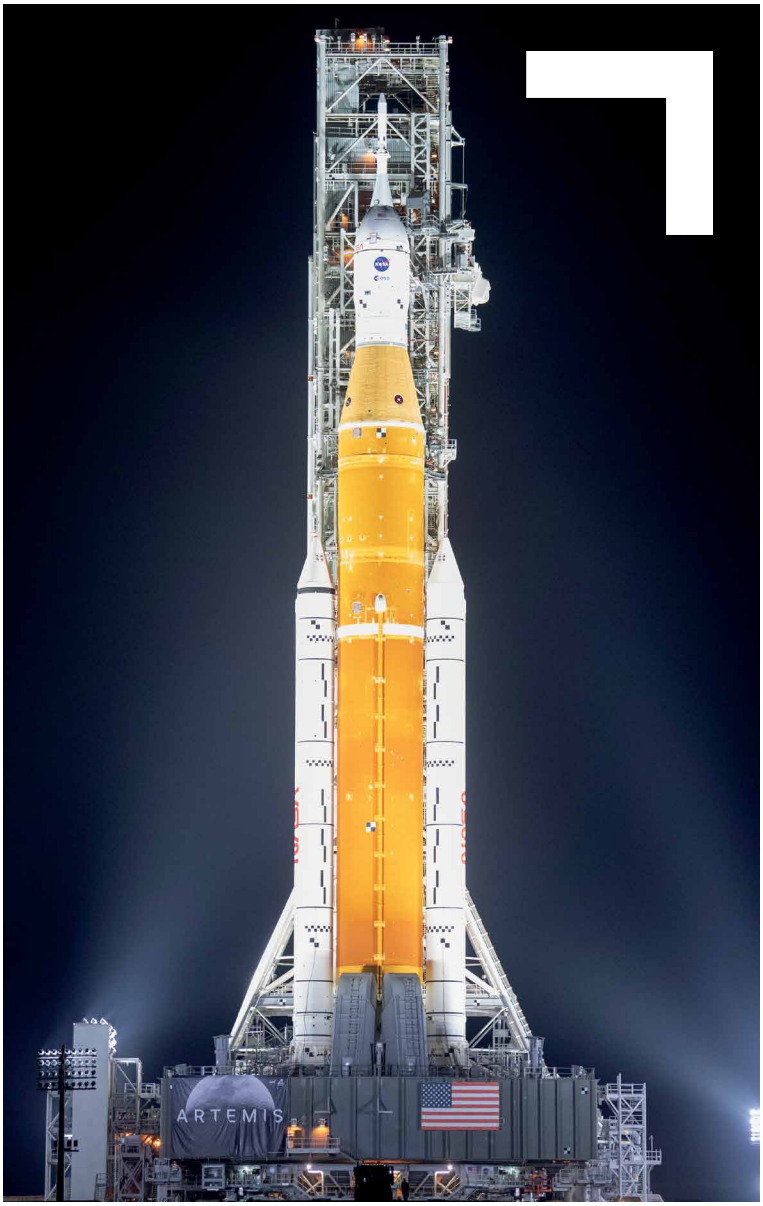




NORTHROP GRUMMAN'S NASA ARTEMIS CAMPAIGN CONTRIBUTIONS

Providing Critical Capabilities to Help NASA Return to the Moon and Explore Deep Space and Mars

From the first lunar lander and the space shuttle boosters, to supplying the International Space Station with vital cargo, Northrop Grumman has pioneered new products and ideas that have been put into orbit, on the moon, and in deep space for more than 50 years.

NORTHROP GRUMMAN

As an integral part of NASA's Artemis campaign, we are building on our heritage with new innovations to enable NASA to return humans to the moon, with the ultimate goal of human exploration of Mars.

SPACE LAUNCH SYSTEM AND LAUNCH ABORT SYSTEM

The Northrop Grumman-manufactured twin five-segment solid rocket boosters contribute 75% of the Space Launch System (SLS) rocket's thrust at launch to take crew and cargo to the moon. Northrop Grumman also produces the launch abort motor and attitude control motor for the Orion spacecraft's Launch Abort System, designed to ensure astronaut safety during launch and ascent, atop the SLS rocket.

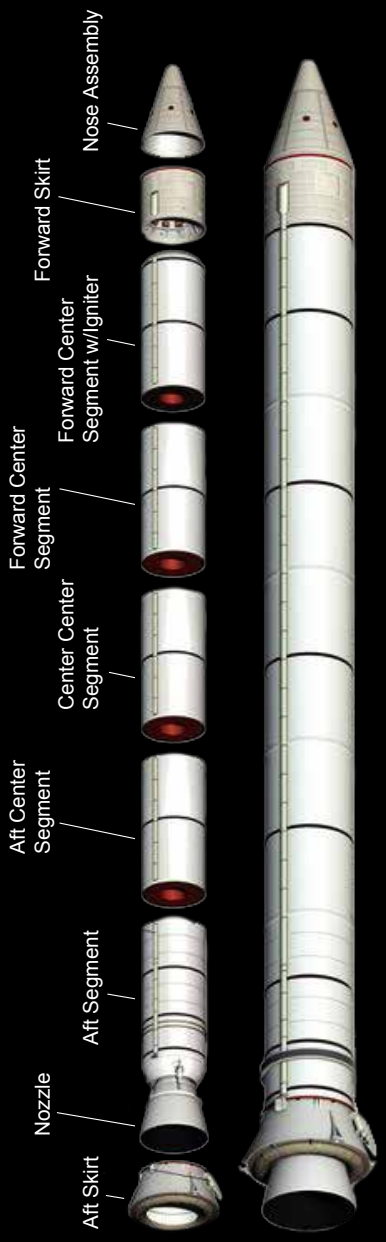
HABITATION AND LOGISTICS OUTPOST

Northrop Grumman is constructing the Habitation and Logistics Outpost (HALO), the first living space for NASA's lunar Gateway, which will be humanity's first permanent home in deep space. HALO's extensive capabilities will support crew activities that, in conjunction with Gateway, enable sustained operations around the moon, human exploration of the lunar surface, and future missions to Mars.

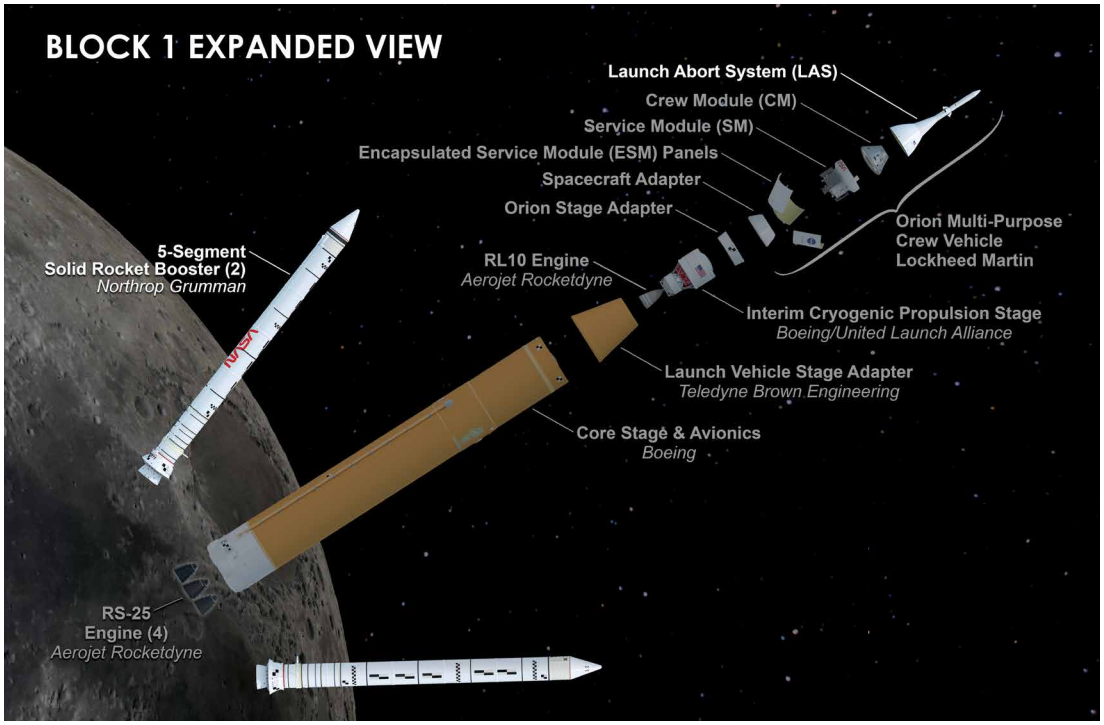
HALO will provide a comfortable, habitable living space that includes science operations, mission sortie preparations, communication with ground and lunar assets, and space for physical exercise equipment. A critical part of the Artemis architecture, HALO's instruments will study the radiation environment to help NASA understand what it will take to send humans to Mars. The HALO design leverages extensive human factors testing to provide efficient usage of space, logical crew interfaces, organized cargo stowage, and readily accessible and maintainable equipment.

BOOSTERS

The 177-foot-tall twin solid rocket boosters weigh 1.6 million pounds each and contribute 3.6 million pounds of thrust each at launch to propel the Space Launch System rocket from the pad and out of Earth's atmosphere.

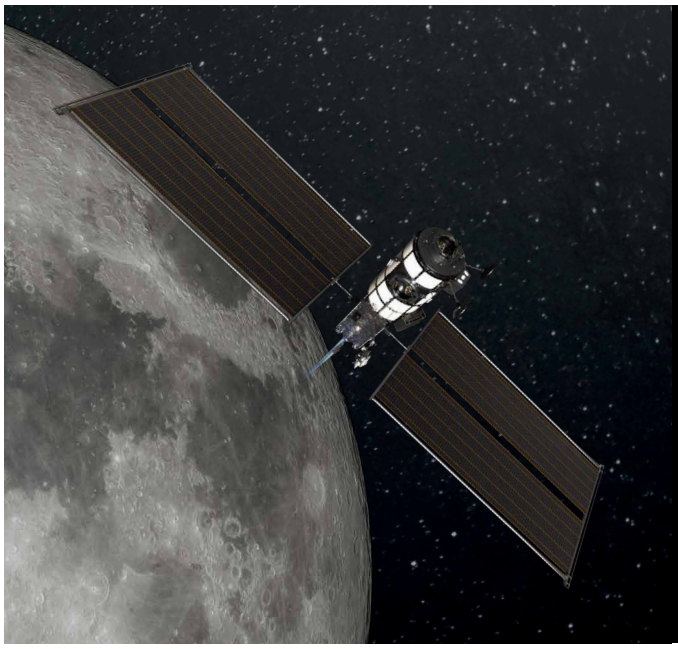


BLOCK 1 EXPANDED VIEW



LAUNCH ABORT SYSTEM

Northrop Grumman manufactures the attitude control motor and abort motor for the Orion spacecraft's Launch Abort System, the three-motor system designed to increase astronaut safety on pad and through ascent. The 17-foot-tall abort motor provides about 400,000 lbs of thrust, going from zero to 400 mph in 2 seconds. The attitude control motor's eight valves exert up to 7,000 lbs of steering force to steer the crew module away from hazards and reorient for parachute deployment.



HALO

Northrop Grumman is building the Habitation and Logistics Outpost (HALO) for NASA's lunar Gateway, a staging point for sustained lunar surface exploration and critical part of the agency's Moon to Mars Architecture. HALO will serve as both a crew habitat and docking station for future modules of Gateway and visiting crew spacecraft, as well as vehicles navigating between Earth and the moon. It will be Gateway's hub for communications, avionics, power and fuel.

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