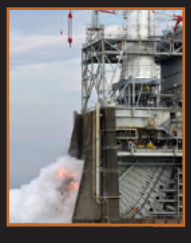
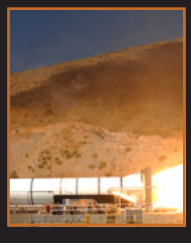
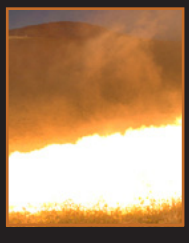
National Aeronautics and
Space Administration

Space Launch System
A New National Capability



Space Launch System: Safe, Affordable and Sustainable

Expanding Capabilities

The U.S. Space Launch System (SLS) will provide an entirely new capability for human exploration beyond Earth orbit. It also will back up commercial and international partner transportation services to the International Space Station. Designed to be flexible for crew or cargo missions, the SLS will be safe, affordable and sustainable, to continue America's journey of discovery from the unique vantage point of space.

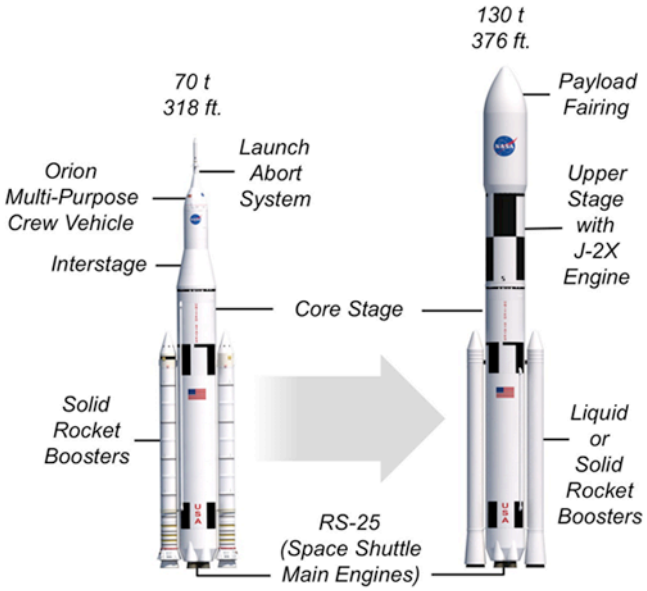
The SLS will take astronauts farther into space than ever before, while engaging the U.S. aerospace workforce here at home. Marshall Space Flight Center is leading the design and development of the rocket system that can take us to the Moon, asteroids, Lagrange points and eventually to Mars.

This launch system will create good-paying American jobs, ensure continued leadership in space and inspire millions around the world. President Obama challenged us to be bold and dream big, and that's exactly what we are doing at NASA.

— Charles Bolden
NASA Administrator

Initial Lift Capability
70 metric tons (t)
More than Double Any Operational Vehicle Today

Crew Configuration
The SLS will transport the Orion Multi-Purpose Crew Vehicle to new destinations beyond Earth orbit, continuing America's human exploration of space.



Evolved Lift Capability
130 t
More than Any Past, Present or Planned Vehicle

Cargo Configuration
The flexible SLS can carry cargo, equipment and science experiments to destinations beyond Earth orbit. This heavy-lift capability will be available to support missions of national importance.

Exploration beyond Earth orbit will be an enduring legacy to future generations, confirming America's desire to explore, learn and progress.

— Todd May
Space Launch System Program Manager

America's new heavy-lift rocket will be more powerful than the Saturn V rocket that carried Apollo astronauts to the Moon. It will take humans farther into space than ever before. To reach the goal of first flight in 2017, work is already underway on the first SLS rocket. The concept selected is based on studies performed by government and industry experts from large and small businesses, as well as the requirements for deep-space exploration.

The SLS will use a liquid hydrogen and liquid oxygen propulsion system, where RS-25 engines in stock will provide the core propulsion and the J-2X engine, now in testing, is planned for use in the upper stage as the vehicle is evolved. Using the same fuel system for the core and the upper stages reduces costs and leverages U.S. state-of-the-art technologies. Five-segment solid rocket boosters, now in testing, will be used for initial flights, while advanced boosters will be competed for the evolved capability.

Leading NASA in rocket propulsion technology, Marshall has been launching spacecraft and explorers into space since the beginning of the U.S. space program. From Apollo to the space shuttle, the center has played a critical role in transporting people, supplies and science experiments into low-Earth orbit.

Engineers at Marshall designed and developed the Saturn V and Space Shuttle Main Engines, external fuel tank and solid rocket boosters. The Marshall team contributes proven experience to lead development of America's new Space Launch System.

Learn more and see the latest news at:

www.nasa.gov/sls

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George C. Marshall Space Flight Center
Huntsville, AL 35812
www.nasa.gov/marshall