

ORION SPACECRAFT

SAFE, RELIABLE HUMAN TRANSPORT TO DEEP SPACE

LOCKHEED MARTIN
We never forget who we're working for®

SAFE TRANSPORT FOR HUMAN EXPLORATION OF DEEP SPACE

Lockheed Martin is the prime contractor building Orion, NASA's first spacecraft designed for long-duration, human-rated, deep space exploration. Orion will transport humans to interplanetary destinations beyond low Earth orbit, such as asteroids, the moon and eventually Mars—and return them safely back to Earth.

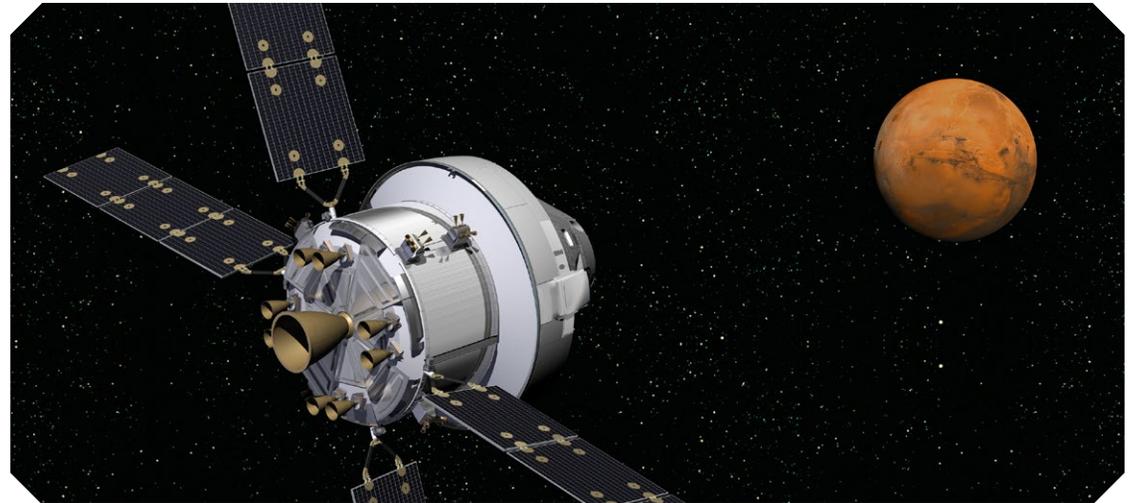
During Orion's first test flight, Exploration Flight Test-1 (EFT-1), systems critical to the safety of future astronauts were tested and validated in the environment of space. EFT-1 provided over 500 gigabytes of data reflecting vehicle performance in the areas of separation events, guidance and navigation, thermal protection, crew environmental control and radiation protection. This data is currently influencing the design of future spacecraft and is reducing overall mission risks and costs for later Orion flights.



EFT-1 Launch

ORION'S ADVANCED DESIGN

- 30% more habitable volume than Apollo, which allows for the transport and safe return of up to four astronauts to deep space and back to Earth
- Launch Abort System immediately pulls the crew out of harm's way in the event of an emergency on the launch pad or during ascent
- Computer systems and software can withstand exposure to intense radiation
- Redundant yet dissimilar systems prevent the risk of single-point failures
- Friction-stir welding of the pressure vessel prevents leaks, improves strength and reduces mass
- Life support system recycles air, detects and recovers from hazardous situations, and is capable of clearing heat, moisture and odors generated during physical activity, allowing crews to exercise
- Spacecraft structure protects from micrometeoroid strikes
- Crew module environmental control system protects astronauts from extreme temperature changes, sound and vibration
- Functions such as Guidance and Navigation are automated to free astronauts for other tasks



The Lockheed Martin Orion program office is based in Houston, Texas, near NASA's Johnson Space Center. The team includes subcontractors and small businesses in 45 states across the country.