



Rocket Roll

Delta IV heavy travels to launch pad for Orion's first flight test

BY LINDA HERRIDGE

The United Launch Alliance (ULA) Delta IV Heavy rocket for Exploration Flight Test-1 rolled out of the Horizontal Integration Facility near Space Launch Complex 37 in the evening Sept. 30, and made the trek to the launch pad at Cape Canaveral Air Force Station in Florida. The rocket was carried to the launch complex by an Elevating Platform Transporter.

Early morning the next day, the nearly 180-foot-tall launch vehicle carefully was lifted into the vertical position using the Fixed Pad Erector and then raised into the Mobile Service Tower on the pad.

"We've been working toward this launch for months, and we're in the final stretch," said Kennedy Space Center Director Bob Cabana. "Orion is almost complete and the rocket that will send it into space is on the launch pad. We're 64 days away from taking the next step in deep-space exploration."

About 15 ULA engineers, technicians and representatives from safety, quality, security and other groups ensured that the launch vehicle arrived safely at the pad.

"This is a tremendous milestone and gets us one step closer to our launch later this year," said Tony Taliencich, ULA's director of East Coast Launch

This close-up view shows the United Launch Alliance Delta IV Heavy rocket for Exploration Flight Test-1 being raised into the vertical position at the pad at Space Launch Complex 37 at Cape Canaveral Air Force Station in Florida on Oct. 1. The Delta IV Heavy is being readied to launch Orion on its first flight test. Liftoff of Orion on the first flight test is planned for December. Photo credit: NASA/Daniel Casper



Operations. “The team has worked extremely hard to ensure this vehicle is processed with the utmost attention to detail and focus on mission success.”

For this rollout, NASA’s Launch Services Program (LSP) participated in ULA’s Component Responsible Engineer Readiness Review in Denver, Colorado, and the Launch Vehicle On Stand Test Readiness Review at the ULA launch site.

“We review launch site processing and preparations to make sure everything that is necessary to proceed with putting the rocket on the pad has been completed,” said Merri Anne Stowe, LSP Fleet Systems Integration Branch. “We serve in an advisory role for the EFT-1 mission. We’re there to help only if issues come up.”

While the Delta IV waits on the launch pad, workers have been busy at several Kennedy facilities preparing the Orion spacecraft for its flight.

On Sept. 11, the Lockheed Martin-built Orion spacecraft, attached to its service module, moved from the Operations and Checkout Building to the Payload Hazardous Servicing Facility. The spacecraft was fueled with ammonia, hydrazine and high-pressure helium ahead of its December flight test.

The spacecraft then was moved to the Launch Abort System Facility on Sept. 28 where the Launch Abort System was installed around Orion.

Orion’s first flight test is scheduled for Dec. 4. During the mission, the spacecraft will travel 3,600 miles in altitude above the Earth and return home at speeds of 20,000 miles per hour. The spacecraft will endure temperatures near 4,000 degrees Fahrenheit. The flight’s goals are to test many of the systems critical to Orion, including the heat shield, the launch abort system and the parachute system.

A team of NASA, Lockheed Martin and U.S. Navy workers, with coordination from the agency’s Ground Systems Development and Operations Program, will retrieve Orion, the forward bay cover and the parachute system after splashdown in the Pacific Ocean.

An uncrewed Orion will launch atop NASA’s Space Launch System on Exploration Mission 1 in 2018. The spacecraft will serve as the exploration vehicle that will carry astronauts to space and provide safe re-entry from deep-space missions.

“There has been a lot of excellent work done to get to this point and it’s exciting to see the hardware coming together at the launch pad,” Stowe said. “I’m looking forward to eventually seeing astronauts launched from Kennedy again.” [SpM](#)

“There has been a lot of excellent work done to get to this point and it’s exciting to see the hardware coming together at the launch pad. I’m looking forward to eventually seeing astronauts launched from Kennedy again.”

– Mary Ann Stowe



The United Launch Alliance Delta IV Heavy rocket for Exploration Flight Test-1 is lifted to the vertical position Oct. 1 at the pad at Space Launch Complex 37 at Cape Canaveral Air Force Station in Florida. Photo credit: NASA/Daniel Casper.