

NASA's Launch Abort System Hardware Drives Cross Country

If you're heading through America's Sunbelt this week, you might look out your car window to see driving alongside you a nearly 45-foot-long (13.7 m) rocket assembly.

The launch abort system pathfinder hit the road on Tuesday from NASA Langley in Hampton, Va., and is on its way to White Sands Missile Range in New Mexico. The pathfinder will support the first flight test of the abort system, called Pad Abort 1. Credit: NASA/Sean Smith



A full-scale mock-up of the launch abort system (LAS) for NASA's Orion crew exploration vehicle began a week-long journey today across the country to be delivered to White Sands Missile Range in New Mexico, where it will help NASA prepare for the first abort system test, known as Pad Abort 1.

The mock-up, also known as the LAS pathfinder, left NASA's Langley Research Center in Hampton, Va., today and hit the road on a large flatbed trailer. Engineers and technicians at Langley designed and fabricated the hardware, which represents the size, outer shape and specific mass characteristics of Orion's abort system.

"The team has been hard at work for the past year designing and fabricating this structure," said Todd Denkins, manager of the Orion Project Office at NASA Langley. "Delivering this hardware is a sign of significant progress, and now we're ready to move on to the next step."

That next step is White Sands Missile Range, and the LAS pathfinder is in route.

During its journey cross country, the LAS pathfinder will stop to visit museums along the way. The rocket assembly will be on display for the public at Adventure Science Center in Nashville, Tenn., Science Museum Oklahoma, Oklahoma City, Okla., The Don Harrington Discovery Center in Amarillo, Texas and the New Mexico Museum of Space History in Alamogordo, N.M.



Once the LAS pathfinder arrives at White Sands, the mock-up will be used to help prepare for the Pad Abort 1 flight test. Ground crews will practice lifting and stacking the launch abort system on the launch pad, which will help ready the ground crew to handle the actual flight test hardware that will be launched later this year.

The LAS pathfinder was fabricated in NASA Langley's hangar. Pictured behind the pathfinder is an Orion crew module simulator that will be assembled with the LAS pathfinder at White Sands to support the Pad Abort 1 flight test.

Credit: NASA/Sean Smith

"Using the LAS pathfinder to practice handling look-alike test hardware will help mitigate risks," said Phillip Brown, manager for the Orion Flight Test Article project at Langley. "When it's time to lift and stack the real flight test hardware for Pad Abort 1, the ground crews will have the training and proficiency needed for performing those procedures."

The 90-second flight for Pad Abort 1 will be an important first step toward demonstrating how NASA is continuing to focus on safety for the next generation of spacecraft. The flight test will help gather information about how NASA's newly-developed launch abort system operates in reality. The system will provide a safe escape route for astronauts in the Orion crew capsule atop the Ares I rocket should there be a problem on the launch pad or in the early stage of the climb to orbit.

The pad abort test will simulate an emergency on the pad. Upon command from a nearby control center, an Orion crew module simulator -- which would sit on top of a rocket for an actual launch -- will be ejected directly from the launch pad by its rocket-propelled launch abort system to about one mile in altitude and nearly one mile downrange.

"This flight test will help verify whether or not our system works," said Kevin Rivers, manager of the Orion Launch Abort System Project Office, located at Langley. "We're working vigorously to ensure that on every manned mission, the launch abort system will be a safe, reliable system that we hopefully never have to use."

Pad Abort 1 is an important milestone in the Constellation Program's flight test campaign. As America's next generation of spacecraft and launch vehicles, the spaceflight system will enable our return to the moon, to establish an outpost there and eventually move beyond to Mars and other more distant places in our solar system.

For more information about Orion, the LAS pathfinder and museum stops, visit:

www.nasa.gov/orion

Emily Outen

NASA Langley Research Center

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