

National Aeronautics and
Space Administration



EXPLORATION GROUND SYSTEMS

H I G H L I G H T S

SEPTEMBER 2018

Mobile Launcher Moves to Vehicle Assembly Building



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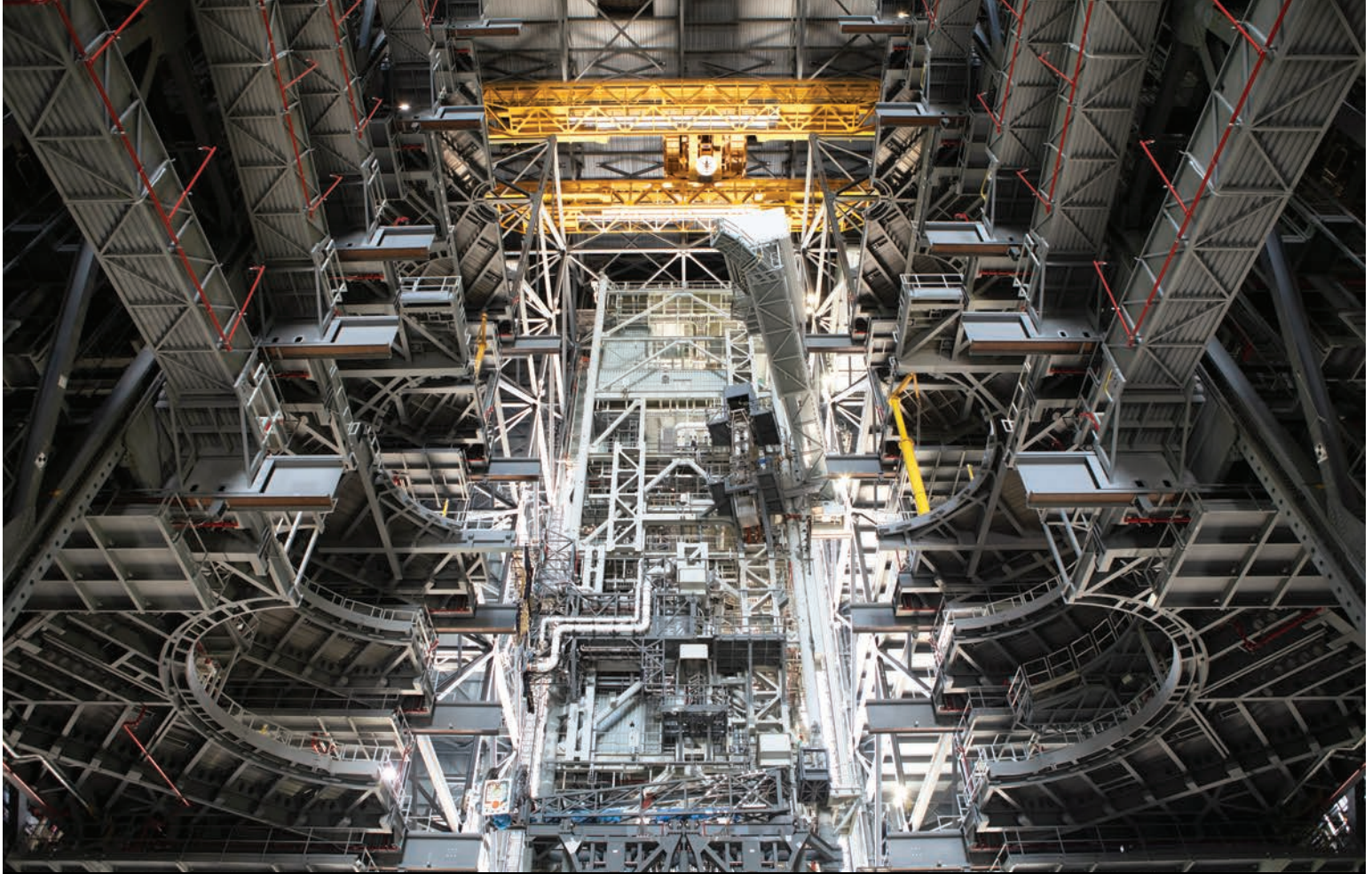
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MOBILE LAUNCHER ON THE MOVE



NASA's mobile launcher is inside High Bay 3 at the Vehicle Assembly Building (VAB) on Sept. 11, 2018, at NASA's Kennedy Space Center in Florida. Photo credit: NASA/Frank Michaux



Cliff Lanham, NASA project manager for the mobile launcher, takes a break to attend the employee event for the mobile launcher move to the Vehicle Assembly Building on Sept. 7, 2018, at NASA's Kennedy Space Center in Florida. The mobile launcher, atop crawler-transporter 2, began its trek from Launch Pad 39B along the crawlerway after undergoing a fit check and several days of systems testing with the pad. This is the first time that the modified mobile launcher made the trip to the pad. Photo credit: NASA/Cory Huston

NASA's mobile launcher, atop crawler-transporter 2, traveled from Launch Pad 39B to the Vehicle Assembly Building at the agency's Kennedy Space Center in Florida, on Sept. 7, 2018. Arriving late in the afternoon, the mobile launcher stopped at the entrance to the VAB.

Early the next day, Sept. 8, engineers and technicians rotated and extended the crew access arm near the top of the mobile launcher tower. Then the mobile launcher was moved inside High Bay 3, where it will spend about seven months undergoing verification and validation testing with the 10 levels of new work platforms, ensuring that it can provide support to the agency's Space Launch System (SLS).

The 380-foot-tall structure is equipped with the crew access arm and several umbilicals that will provide power, environmental control, pneumatics, communication and electrical connections to the SLS and Orion spacecraft. Exploration Ground Systems is preparing the ground systems necessary to launch SLS and Orion on Exploration Mission-1, missions to the Moon and on to Mars.

IN THE DRIVER'S SEAT

CRAWLER DRIVER TAKES MOBILE LAUNCHER FOR TREK TO LAUNCH PAD 39B, VEHICLE ASSEMBLY BUILDING

What does it take to drive one of NASA's crawler-transporters?

"Patience," says Bob Myers, a mechanical systems engineer on the Test and Operations Support Contract and one of six crawler drivers at the agency's Kennedy Space Center in Florida.

Recently, Myers sat in the operator cab of the crawler-transporter known as CT-2, picked up the mobile launcher that will be used to launch NASA's new Space Launch System rocket and moved it slowly and carefully along the crawlerway out to Launch Pad 39B for testing and verification, and then back to the Vehicle Assembly Building, marking the first time the modified mobile launcher has taken such a journey.

"It's a big responsibility," Myers said. "There's a lot of weight on my shoulders, so to speak."

And he's not kidding. The crawler itself weighs about 6 million pounds. Add 10.5 million pounds from the weight of the mobile launcher and its launch umbilicals, and that's 16.5 million pounds, traveling along at about .7 miles per hour on a compacted rock bed.

Once all the crawler systems were activated—a process that takes about 30-45 minutes—Myers pushes a button to start up the crawler and begin moving. The steering wheel is about six to seven inches wide, a far cry from the steering wheel in the supercharged truck he drives. Myers said he just puts his truck into drive and it's already moving faster than the crawler. The crawler uses air brakes to slow or stop, but engineers usually allow it to roll gently to a stop on its own so they do not jerk the payload abruptly.

During the drive, Myers is not alone. At least 30 engineers and technicians are inside or outside the crawler, performing a multitude of tasks to make sure the crawler and mobile launcher are level and everything is operating as it should during the trek to the pad and the Vehicle Assembly Building.

Engineers, construction workers and technicians prepared the crawler for the increased weight of the SLS by upgrading power generators, electrical controls, and the jacking, equalization and leveling cylinders. Manual controls were previously replaced with programmable logic controllers, or computerized controls.

"The crawler has longevity," Myers said. "Upgrades have brought the crawler into the 21st century and made it much easier to drive, but it still feels like a ship on land."

As the center prepares for Exploration Mission-1, and many missions beyond, Myers is looking forward to seeing the SLS and Orion spacecraft stacked on the mobile launcher.

"It will be an honor carrying America's rocket," Myers said. "In a sense, we're carrying America's future."



Bob Myers, a mechanical systems engineer with ERC on the Test and Operations Support Contract, is inside the operator cab of crawler-transporter 2 on the crawlerway at NASA's Kennedy Space Center on Aug. 27, 2018. Photo credit: NASA/Cory Huston



TEAM PREPS FOR ORION UNDERWAY RECOVERY TEST 7

Orion Landing and Recovery team member Pete Ruett, with Jacobs, practices using a winch to prepare for Underway Recovery Test 7 (URT-7) on Sept. 5, 2018, in the heavy equipment yard at NASA's Kennedy Space Center in Florida. Ruett is a handling and access engineer.

During URT-7, the recovery team, including Exploration Ground Systems and the U.S. Navy, will practice recovering a test version of the Orion crew module in the Pacific Ocean, off the coast of California, and guiding it into the well deck of a ship. Over several days, the team will demonstrate and evaluate new recovery processes, procedures, hardware and personnel in open waters.

Orion is the exploration spacecraft designed to carry astronauts to deep space destinations, including the Moon and on to Mars. Orion will have emergency abort capability, sustain the crew during space travel and provide safe re-entry from deep space return velocities.

Photo credit: NASA/Cory Huston

View a video of the mobile launcher, atop crawler-transporter 2, moving along the crawlerway to Launch Pad 39B and then to the Vehicle Assembly Building.

Click on the image
to view the video



NASA astronaut Shannon Walker visits with a future astronaut during an employee event for workers and their guests for the mobile launcher move to the Vehicle Assembly Building (VAB) on Sept. 7, 2018, at NASA's Kennedy Space Center in Florida. The mobile launcher, atop crawler-transporter 2, began its trek from Launch Pad 39B along the crawlerway after undergoing a fit check and several days of systems testing with the pad. This is the first time that the modified mobile launcher made the trip to the pad. Photo credit: NASA/Cory Huston

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