Orion spaceship set for new tests in Colorado

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Engineers attach a collar to the escape vehicle on the Orion spacecraft at the Lockheed Martin facility in Denver on Friday, Aug. 12, 2011. They will use it to move the assembled craft to the testing chamber at left where it will be submitted to vibration testing. (AP Photo/Ed Andrieski)

(AP) -- A spaceship that could carry the next wave of astronauts to an asteroid or beyond is being prepared for a new round of tests at a Lockheed Martin facility near Denver.

Engineers have attached a launch-abort system to the nose of the capsule and will subject the combined spacecraft to a series of experiments to see if it can withstand the rigors of blastoff, Lockheed Martin said

Friday.

The launch-abort system, essentially a rocket attached to the nose of the capsule, could lift the capsule off its booster rocket and carry it to safety if a problem developed before or during launch.

Lockheed Martin, of Bethesda, Md., is building the capsule, called the Orion Multi-Purpose Crew Vehicle, under a $7.5 billion NASA contract issued in 2006.

The capsule was originally part of President George W. Bush's $100 billion program to return astronauts to the moon, called Constellation. President Barack Obama canceled the program last year, saying the U.S. would concentrate on developing new rocket technology instead.

Obama then revived the Orion portion of the program amid criticism that his plan lacked details and put U.S. space leadership at risk.

Orion doesn't yet have a destination. NASA has said it could service the space station in low Earth orbit or take four astronauts on more distant missions of up to 21 days. Lockheed Martin officials have said Orion could explore the far side of the moon, land humans on asteroids or take them to one of the moons of Mars, where they could control robotic instruments on the surface.

In the next round of tests, the capsule and launch-abort system will be subjected to sound vibrations at a Lockheed Martin facility in Waterton Canyon south of Denver.

The 55-foot-tall assembly will be lifted by a crane into a tall, elevator shaft-like chamber. Inside, more than a dozen horns powered by compressed nitrogen will create a thunderous low-pitch noise at 150 decibels. That will trigger vibrations like the ones generated by a launch

or deployment of the abort system.

"It sounds like a freight train and a tornado all at once," Lockheed Martin's Paul Sannes.

Instruments on the capsule and abort system will tell engineers how well they hold up.

The abort system was successfully tested in May 2010 at White Sands Missile Range, N.M. An Orion mock-up was rocketed about a mile into the air at speeds of about 450 mph in just 2.5 seconds. The capsule then deployed parachutes and floated to the ground.

It landed about a mile north of the launch site.

After the vibration tests are finished, the spacecraft will be taken to the NASA Langley Research Center in Hampton, Va., for landing tests. It would land in the ocean.

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