Orion flight marks 'milestone' for US space program: NASA

December 5 2014, by Kerry Sheridan

The US space agency's Orion capsule circled the Earth twice before plunging into the ocean Friday in a flawless test flight that NASA called a "significant milestone" in the journey to Mars.

The mission was the first in more than four decades of a new US spacecraft intended to carry humans to the Moon or beyond.

The unmanned vessel soared into space at 7:05 am (1205 GMT) atop a United Launch Alliance Delta IV Heavy rocket that rumbled and roared as it climbed into the pastel skies over the Florida coast at sunrise, leaving a plume of smoke in its wake.

"It was just a blast to see how well the rocket did," said Orion program manager Mark Geyer, after technical issues with the rocket and wind gusts delayed the first launch attempt Thursday.

"Being near a launch—a rocket that big—you can feel it."

The four-and-a-half hour flight was "picture-perfect" and "a significant milestone for America's space program," said NASA commentator Rob Navias.

It tested crucial systems like the heat shield and parachute splashdown. NASA engineers will carefully study the data it collected in the days and weeks to come to see how the capsule withstood the stress of space flight.

Live video images from the spacecraft showed stunningly high views of Earth as well as the capsule's dramatic return to the Pacific Ocean.

A trio of NASA astronauts watched on large televisions at Kennedy Space Center and bumped fists when Orion splashed down, as the packed press room erupted in cheers.

"We have kind of turned a corner from the post shuttle period and it is nice to see the new vehicle up in space," said astronaut Rex Walheim, still grinning after the successful test.

"It has got a lot of pieces of the puzzle to go yet but we are making tremendous progress," he told AFP.

The United States has been unable to send astronauts to the International Space Station since the shuttle program ended in 2011 after three decades, leaving no option but to pay Russia to carry astronauts on its Soyuz capsules at a cost of $71 million per seat.

Peak height

The spacecraft made two loops around the Earth, first orbiting about as high as the International Space Station, which circles at an altitude of about 270 miles (430 kilometers).

Then, a second stage engine burn propelled the spacecraft higher than any vessel meant to carry people since the Apollo 17 moon mission in 1972.

About three hours into the flight, at 10:11 am (1511 GMT), the spacecraft reached its peak height of 3,604 miles above the Earth.

Four hours 24 minutes after launch, the spacecraft floated back to Earth,

aided by a trio of parachutes, before plunging into the waters 600 miles to the west of Baja California, to be retrieved by the US Navy.

An analysis of sophisticated sensors on the capsule should let NASA know how the heat shield performed and if the temperature inside remained survivable for a potential crew.

The spacecraft's exterior heated to 4,000 degrees Fahrenheit (2,200 Celsius) during its re-entry to Earth's atmosphere at a velocity of 20,000 miles per hour.

Future missions

Potential future missions for Orion, which can fit four people at a time, include a trip to lasso an asteroid and a journey to Mars by the 2030s.

"I think it's a big day for the world, for people who know and love space ," said NASA administrator Charles Bolden.

NASA has already spent $9.1 billion on Orion and the powerful rocket meant to propel it with crew on board, the Space Launch System (SLS).

Another unmanned test flight is slated for 2018. The first Orion test flight with a crew on board is scheduled for 2021, when total costs are projected to reach $19 to $22 billion.

Citation: Orion flight marks 'milestone' for US space program: NASA (2014, December 5) retrieved 25 June 2024 from https://phys.org/news/2014-12-orion-flight-milestone-space-nasa.html