NASA aims to launch Discovery shuttle Feb 24

January 11 2011, by Kerry Sheridan

NASA said Tuesday it will aim to launch the space shuttle Discovery on February 24, after engineers found a way to shore up cracks on the external fuel tank that have delayed its final liftoff.

NASA engineers have been working since November to figure out why cracks were emerging on the 22-foot-long U-shaped aluminum brackets, called stringers, on the shuttle's external fuel tank.

According to shuttle program manager John Shannon, the same problem may have existed on the fuel tank, ET-136, that flew in May 2010 with the shuttle Atlantis, a mission that ended without incident.

"It is likely that we flew ET-136 with some of these cracks," Shannon said, adding that NASA was not entirely certain but "we might have had a crack or two in those stringers."

Shannon said engineers performed exhaustive tests and found that the complex problem was not solely attributable to material quality or flaws that took root during assembly, but some combination of both.

He described the dilemma as "low risk" but at the same time, "hard to quantify."

In the end, engineers agreed that installing small metal strips, called radius blocks, on to the stringers would reinforce their strength.

"It is very hard to tell where your assembly stresses are, you can't really tell that by X-ray, so what we decided was we could get rid of the whole discussion by putting in these things called radius blocks," Shannon said.

"It is a very simple, elegant fix to the problem," he said.

"We are on the road to bringing this tank to 100 percent."

The work that is currently being done to fix the stringers should be complete by January 23, Shannon said.

"I'm very confident that we finally got it figured out."

Mike Suffredini, International Space Station Program manager, said the launch date was not fixed but should be workable for later next month.

"We think we can support a launch date of the 24th of February," he said.

"There is still some work to do to finalize all of this planning we've done over the past several days."

Discovery has been plagued by setbacks since its latest attempt to launch was scratched on November 5 when technicians found a hydrogen leak and later a series of long cracks on the shuttle's external fuel tank.

The Discovery has launched into space 38 times, and NASA aims to retire the shuttle after its final and 39th voyage.

Discovery's 11-day mission with its all-American crew of six is to deliver a pressurized logistics module called "Leonardo" to the ISS, which will be permanently attached to the space station to provide more storage space.

The shuttle will also bring Robonaut 2, the first human-like robot in space and a permanent addition to the orbiting space station, as well as spare parts.

Two space walks, for maintenance work and component installation, are scheduled.

Discovery is the oldest in the remaining three-shuttle fleet.

The three US shuttles -- the other two are Atlantis and Endeavour -- are due to become museum pieces once the final shuttle mission takes place.

Then, the Russian Soyuz spacecraft -- a modernized version of which recently dropped off three fresh crew members to the ISS, doubling the crew to six -- will for several years be the only vehicle for transporting humans into space.

Another shuttle, Endeavour, is set to take off in April in what will be the last shuttle launch scheduled for the US program, though a final launch could take place in the summer before the entire fleet is retired for good.

NASA officials declined to answer questions about the Endeavour launch, which is to be led by astronaut Mark Kelly.

Kelly's wife, US lawmaker Gabrielle Giffords, is recovering from a gunshot to the brain after a political meeting in Tucson, Arizona.

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