

US spacewalkers get ready for orbiting lab repairs

December 21 2013, by Kerry Sheridan



The SpaceX capsule Dragon attached to the Canada Arm at the the International Space Staion (ISS) on March 3, 2013

Two American astronauts are to step out Saturday on the first of three spacewalks to replace a broken cooling pump at the orbiting International Space Station.

The spacewalk is set to begin at 7:10 am (1210 GMT) and last six and a

half hours, NASA said.

UPDATE: [US astronauts begin spacewalk for station repairs](#)

As the ISS spins around the Earth at a speed of five miles (eight kilometers) per second, veteran spacewalker Rick Mastracchio will lead the way, followed by Mike Hopkins, making his first venture outside the global research lab.

From the inside, Japanese astronaut Koichi Wakata will operate the station's 50-foot (15-meter) [robotic arm](#), hoisting Mastracchio and hefty equipment from one section of the lab to another.

"There are quite a bit of arm maneuvers throughout all of these EVAs so I'm sure Koichi will be getting a workout," said lead spacewalk officer Allison Bolinger, using the NASA acronym for spacewalk: extravehicular activity (EVA).

While Mastracchio, 53, soars around with his boots attached to a foot-plate on the robotic arm, Hopkins, 44, will be the designated free-floating astronaut of the day.

The men's first task is to disconnect the ammonia pump, which is about the size of a refrigerator.



Mikhail Tyurin of Roscosmos (Bottom), Flight Engineer Koichi Wakata and Flight Engineer Rick Mastracchio of NASA prior to boarding the Soyuz TMA-11M rocket for launch, November 7, 2013

On the second spacewalk, set for Monday, the astronauts are to remove the pump so it can be replaced with a spare that was already stowed at the ISS.

A third spacewalk is planned for Christmas Day, when the failed pump will be shuttled away and final installations made on its replacement.

However, there is a chance the astronauts will be able to complete all their work in two spacewalks, NASA has said.

If not, the Christmas Day outing would be the first since 1974, when a

pair of NASA astronauts "stepped outside the Skylab space station to retrieve film from a telescope and photograph Comet Kohoutek," the US [space agency](#) said.

The urgent spacewalks were called for this week due to a faulty valve that caused a partial shutdown in the system that regulates equipment temperature at the [space station](#).

Engineers tried to fix the problem from the ground, but eventually decided they needed to replace the ammonia pump.

The six-man crew was never in danger, but NASA wanted to fix the problem sooner rather than later, agency officials said.



People take photographs as Russia's Soyuz TMA-11M spacecraft blasts off from the Russian leased Kazakh Baikonur cosmodrome on November 7, 2013

The spacewalks meant the first regular commercial cargo supply mission by Orbital Sciences' Cygnus craft, which had been planned for earlier in the week, was postponed until next year.

NASA also had to rig up some last-minute contingency gear inside the American-made spacesuits, which have not been used since a helmet water leak nearly drowned a European astronaut in July.

Now the helmets carry an extra absorption pad and a snorkel inside, just in case.

The investigation into the cause of the helmet leak is ongoing. Hopkins will be wearing the suit that had the problem, though its inner water pump has been replaced.

Dina Contella, International Space Station flight director, told reporters on Wednesday the space agency is "confident that this suit is a very clean suit and ready to go."

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