

# NASA orders urgent spacewalk repairs at station

December 17 2013, by Marcia Dunn

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This May 23, 2010 image provided by NASA shows the International Space Station with the Earth in the background. The image was photographed by an STS-132 crew member on space shuttle Atlantis after the station and shuttle began their post-undocking relative separation. On Tuesday, Dec. 17, 2013, NASA decided to schedule a series of urgent spacewalks to fix a broken cooling line at the International Space Station. The first is scheduled for Saturday, Dec. 21, 2013. (AP Photo/NASA)

NASA has ordered up a series of urgent spacewalks to fix a broken

cooling line at the International Space Station, a massive repair job that could stretch to Christmas Day.

Station managers decided Tuesday to send two American astronauts out as soon as possible to replace a pump with a bad valve. The task will require two and possibly three spacewalks on Saturday, Monday and next Wednesday—Christmas Day.

"The next week will be busy with space walks so not much tweeting from here," NASA astronaut Rick Mastracchio said from space via Twitter soon after the decision was announced.

The spacewalks are taking priority over the launch of a supply ship from Virginia. The commercial delivery had been scheduled for this week, but is now delayed until at least mid-January.

U.S.-led spacewalks have been on hold since July, when an Italian astronaut almost drowned because of water that leaked into his helmet.

NASA hopes to wrap up the pump swap in two spacewalks and not have to do a third on Christmas Day. Astronauts have ventured outside of their spaceship on Dec. 25 only once, way back in 1973 during Skylab, America's first [space station](#). Shuttle astronauts finished a series of spacewalks on the Hubble Space Telescope on Christmas Eve 1999.

Half of the space station's cooling system shut down last Wednesday, forcing the six-man crew to turn off all nonessential equipment, including some science experiments. Because of the valve failure, one of the two cooling lines became too cold.

The cooling system, which runs ammonia through the lines, is critical for dispelling heat generated by on-board equipment.

While the astronauts are safe and comfortable, NASA wants the system back up to full strength, in case of another failure that could leave the orbiting outpost even more vulnerable than it is right now.

Flight controllers tried in vain to fix the valve remotely, then came up with a plan to use another valve to regulate the temperature. Some success was reported, and for a while, engineers thought the space station could limp along with this short-term solution. But on Tuesday, managers opted for spacewalks right now. Spare pumps are on board.

This is the same pump— a bulky 780-pound (354-kilogram) bundle— that was replaced by spacewalking astronauts in 2010. Three spacewalks were needed then. The lessons learned may enable Mastracchio and astronaut Michael Hopkins to finish the job more quickly.

Mastracchio, a veteran spacewalker, and Hopkins, a first-time space flier, trained for just such a repair before rocketing into orbit. They have been prepping all week, just in case of just such a decision.

"Have not looked out the window in 4 days," Mastracchio said in a tweet. "Too busy building space suits. Where did I put my gloves?"

The investigation into last summer's suit mishap continues; the problem is believed to be linked to a component in the [cooling system](#) for the suit. Other suits will be used for the upcoming [spacewalks](#).

Orbital Sciences Corp., meanwhile, will stand down from its planned Thursday night launch of its Cygnus cargo ship from Wallops Island, Virginia.

The station crew includes three Russians and one Japanese, aside from the two Americans. An unrelated Russian spacewalk planned for Dec. 27 remains on track.

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