

Spacewalking astronauts plug in new cooling pump

August 16 2010, By MARCIA DUNN , AP Aerospace Writer



In a photo made from NASA television, Expedition 24 astronauts Tracy Caldwell Dyson and Douglas Wheelock work outside the space station Monday Aug. 16, 2010 as they prepare to install a cooling pump module, replacing the one that failed. (AP Photo/NASA)

(AP) -- Spacewalking astronauts installed a new ammonia pump to the International Space Station on Monday, accomplishing the urgent cooling-system repairs after more than two weeks of impaired operations in orbit.

Douglas Wheelock slid the bathtub-size pump into place 2 1/2 hours into the spacewalk, his third in just 10 days. He bolted the pump down as Tracy Caldwell Dyson hooked up power cables.

An initial test proved successful. "Sweet," Wheelock exclaimed.

With that hurdle behind them, the spacewalkers then began working on the ammonia fluid lines.

If all the testing proves successful, NASA expects to have the space station's disabled cooling loop back in action by Thursday.

The orbiting lab has been operating on only half its normal cooling capability ever since a crucial ammonia coolant pump failed July 31. It took two [spacewalks](#), but Wheelock and Caldwell Dyson finally removed the broken pump last week.

NASA said a fourth spacewalk eventually will be needed to move the failed pump into a better storage location, but managers are uncertain whether this crew or another will carry out the work.

The pumps - weighing 780 pounds apiece - are needed to drive ammonia through cooling loops and keep equipment from overheating. Four spare pumps were on board; the one installed Monday was the oldest of the bunch. It flew up in 2006.

Engineers are uncertain how and why an electrical short knocked out one of the two prime ammonia pumps two weeks ago. The breakdown left the space station with only one functioning cooling line and forced the six-person crew to turn off unnecessary equipment and halt science research.

NASA said the repair effort is one of the most challenging ever undertaken at the 12-year-old space station. Indeed, the astronauts' work was hampered by a large [ammonia](#) leak that erupted during the first spacewalk on Aug. 7.

A special team of engineers has been working practically nonstop ever since the trouble struck.

The [space station](#) is home to three Americans and three Russians. It's supposed to continue working until 2020, but that will become increasingly difficult to accomplish once NASA's shuttles stop flying next year. Two shuttle missions remain, with a third possible if the White House and Congress sign off on it.

Once the three remaining shuttles are retired, the Russian, European and Japanese space agencies will take over all crew and cargo shipments until NASA has a new rocket ready to go.

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Citation: Spacewalking astronauts plug in new cooling pump (2010, August 16) retrieved 25 April 2024 from <https://phys.org/news/2010-08-spacewalking-astronauts-cooling.html>

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