

## Astronauts wrap up successful spacewalk to fix station (Update 4)

December 24 2013, by Kerry Sheridan

---



In this image taken from video provided by NASA, astronauts Rick Mastracchio, top, and Michael Hopkins work to repair an external cooling line on the International Space Station on Monday, Dec. 24, 2013, 260 miles above Earth. The external cooling line—one of two—shut down Dec. 11. The six-man crew had to turn off all nonessential equipment, including experiments. (AP Photo/NASA)

Two NASA astronauts wrapped up successful repairs at the International Space Station on Tuesday after a rare Christmas Eve spacewalk to fix an equipment cooling system.

Americans Rick Mastracchio, 53, and Mike Hopkins, 44, floated outside the orbiting lab for seven and a half hours to replace an ammonia pump whose internal control valve failed on December 11.

"We have a pump that is alive and well," said NASA commentator Rob Navias on the US space agency's live television feed after a successful jumpstart test on the newly installed pump module, a bulky piece of gear the size of a refrigerator.

NASA said later Tuesday, after further checks, the pump was "considered fully functional."

"It will take some time to fully reintegrate" the space station's cooling system, NASA said on its web site, adding it expected that process to be completed by the next day.

Meanwhile, electrical systems depending on the newly repaired system—which had been turned off or switched to a backup—would be restored to normal over the next several days, it added.

Despite recent concerns about leaking spacesuits, neither astronaut reported any problems during the spacewalk.

The suits "have functioned perfectly and have been bone dry throughout the course of today's spacewalk," Navias said.

Hopkins, making his second career spacewalk, rode a 57-foot (15-meter) robotic arm, operated from inside the station by Japanese astronaut Koichi Wakata.

With his boots affixed to the Canadian-made arm, Hopkins grasped the bulky pump module as Wakata maneuvered him over to its installation location.

Then Mastracchio, who was making his eighth career spacewalk, helped push the module into its slot and the pair began affixing it in place.

Five electrical connections and four fluid connections followed, and a brief test, like a jumpstart, was done to test the pump's connections and electronics.

The team made swift work of a first spacewalk on Saturday, disconnecting and pulling out the old cooling pump that regulates the temperature of equipment at the orbiting space lab.

They managed to complete what had been seen as almost two days' work in a single outing that lasted just five and a half hours.

Orchestrating the spacewalks from inside the station's Destiny laboratory was Wakata of the Japan Aerospace Exploration Agency.

Wakata arrived at the space station in November for a half-year stay as part of the six-member international crew.

In March, he will become the first Japanese commander of the space station, NASA said.

First Christmas Eve spacewalk in 14 years

Mastracchio was meanwhile wearing a different spacesuit than the one he donned on Saturday, a backup that was stored at the station and was resized to fit him over the weekend.

On Saturday, a "small amount of water" entered his suit's cooling system in the station airlock after he finished the spacewalk, NASA said.

But the US space agency said the problem was not related to the water leak in a helmet that cut short Italian astronaut Luca Parmitano's spacewalk in July and risked drowning him.

NASA is still investigating what went wrong in that case.

As a backup measure, the astronauts are now outfitted with emergency snorkels in their spacesuits and extra pads to absorb any leaking water in their helmets.

NASA officials have said the suits, which were designed 35 years ago, are safe, and stressed that Saturday's problem did not put Mastracchio in any danger.

NASA said the last time astronauts embarked on a Christmas Eve spacewalk was 14 years ago, when space shuttle Discovery astronauts Steve Smith and John Grunsfeld stepped out to install upgrades and new insulation on the Hubble Space Telescope.

On Wednesday, the six-man crew at the station will be off duty to enjoy a quiet Christmas, NASA said.

On Friday, Russian cosmonauts Oleg Kotov and Sergey Ryazansky will embark on a spacewalk to install a pair of high-fidelity cameras on the Zvezda service module and do maintenance on the Russian segment of the station.

© 2013 AFP

Citation: Astronauts wrap up successful spacewalk to fix station (Update 4) (2013, December 24)

retrieved 24 April 2024 from

<https://phys.org/news/2013-12-astronauts-rare-christmas-eve-spacewalk.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.