

Spacewalking astronauts encounter bolt trouble

May 22 2011, By MARCIA DUNN , AP Aerospace Writer



This image taken from NASA television shows astronauts Andrew Feustel, top, and Mike Fincke exiting the hatch on the International Space Station at the start of the second spacewalk early Sunday May 22, 2011. Feustel and Fincke will add five pounds of ammonia to the space station's coolant system. The spacewalkers also will lubricate a large joint that rotates the space station's solar wings on the left side. (AP Photo/NASA)

A spacewalking astronaut ran into trouble Sunday while trying to lubricate a joint in the life-sustaining solar power system of the International Space Station, losing one bolt and getting a washer stuck in a crevice.

Mike Fincke, one of NASA's most experienced spacemen, had to settle for a partial lube job, after the bolts holding down covers on the massive

joint started popping off unexpectedly.

"Bummer," said his spacewalking partner, Andrew Feustel.

The two men went into overtime, though, to do what they could. They managed to lubricate four sections of the joint, two fewer than planned, and reinstall three covers. The fourth cover was brought back inside because of all the loose bolts.

Their spacewalk - the second of four planned for shuttle Endeavour's final space station visit - went 1 1/2 hours longer than planned. It lasted more than eight hours and set the record for the sixth longest in history.

"You guys earned your pay for the day," astronaut Gregory Chamitoff radioed from inside. The [spacewalkers](#) joked about getting paid, saying their reward was being outside watching the world spin by.

The spacewalk started out well in the wee hours as Fincke and Feustel quickly topped off a leaky radiator line.

[Ammonia](#) is extremely hazardous, and the two did their best to avoid contaminating their spacesuits while replenishing the system with 5 pounds of the substance. Some frozen ammonia flakes floated toward Feustel as well as a small icy chunk, but he didn't think any of it got him.

Fincke moved on to preventive maintenance on the joint that rotates the [solar wings](#) on the left side of the space station. He was removing his first cover when a bolt popped out and got away from him. He caught it with his gloved hand, no easy task for something so small. But another bolt ended up floating away, and a washer got stuck between the cover and an attachment.

Mission Control worried the washer might get into the gears of the joint.

Fincke was advised to use "gentle backhand sweeping motions" to get the washer away from the gears, and the astronaut said he'd try to coax it out with a pin. He provided no further report, but the lead spacewalk officer in Mission Control, Allison Bolinger, later assured reporters he likely took care of it.

Mission Control said the washers might be bent and flimsy from previous repair efforts.

"Sorry you're having such a hard time with those bolts, buddy," Feustel called out to Fincke.

"Yeah, man, I was being really careful, too," Fincke replied.

After deliberating, flight controllers instructed Fincke to remove four covers from the joint rather than six, to lubricate the mechanisms inside.

Another bolt popped out and almost got away, but Fincke caught it. "He gets the golden glove award for another catch," Mission Control radioed. In all, Fincke managed to catch three of four loose bolts.

To his relief, the remaining covers came off much more easily.

Fincke and Feustel used grease guns to squirt the dark lubricant onto the gears, then turned to other tasks as the joint was rotated to spread the grease. They returned for more lubricating once the motion stopped, after assuring Mission Control that they had the energy to continue.

[NASA](#) wants to periodically lubricate the joint to keep it functioning properly in the years ahead. An identical joint on the opposite side of the space station had to be fixed a few years back after jamming.

Bolinger said it's uncertain when the latest lube job would be completed,

but noted it would not be during Endeavour's mission.

The circular joints - 10 feet in diameter - turn the space station's solar wings toward the sun, like the paddle wheels of a boat. Each set of wings measures 240 feet from tip to tip. The panels collect sunlight and convert it into electrical power that's used to run equipment aboard the outpost, including the life support.

This is the next-to-last shuttle mission and the final spacewalks of the program scheduled, meant to leave the space station in the best condition possible for the next decade. The 30-year shuttle era will end in July with the flight of Atlantis.

This was Fincke's seventh spacewalk and Feustel's fifth. They praised one another as they headed out the hatch.

"It's an honor to be walking, spacewalking with a Hubble spacewalker," Fincke told Feustel, part of the 2009 Hubble repair team.

"It's an honor to be walking with the man with the most time in space," Feustel replied. Fincke will become the most traveled American in space by next weekend, surpassing the current record of 377 days aloft.

On Monday, three of the six space station residents will head home in their Russian Soyuz capsule after a five-month mission. In a unique photo op, the departing crew will photograph Endeavour parked at the space station.

Then on Wednesday, Fincke and Feustel will venture back out for spacewalk No. 3.

Endeavour, under the command of Mark Kelly, husband of wounded Rep. Gabrielle Giffords, will remain at the orbiting outpost for another

week. Landing is scheduled for June 1.

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Citation: Spacewalking astronauts encounter bolt trouble (2011, May 22) retrieved 19 September 2024 from <https://phys.org/news/2011-05-spacewalking-astronauts-encounter.html>

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