

Spacewalking team conquers bolt on 2nd trip out (Update)

September 5 2012, by Marcia Dunn

Spacewalking astronauts triumphed over a stubborn bolt and installed a critical power-switching box at the International Space Station on Wednesday, reviving electrical systems.

"Looks like you fixed the station," Mission Control told the crew on the radio. The problem had cut the amount of electrical power available to the orbiting lab and a variety of equipment had to be turned off.

Engineers on the ground and the astronauts in orbit scrambled over the weekend to devise makeshift tools to clean metal shavings from the socket of the troublesome bolt, after last week's failed effort to plug in the new power-relay unit.

This time, NASA's Sunita Williams and Japan's Akihiko Hoshide were armed with a blue toothbrush, a wire brush and other jury-rigged tools.

The two applied grease to the sticky bolt as well as extra pressure and plain old jiggling. They also brushed and blew away most if not all the metal shavings, debris that was discovered during last Thursday's eight-hour extravaganza, one of the longest spacewalks on record.

Wednesday's outing lasted 6½ hours.

Although the space station remained stable, NASA was in a hurry to get the problem fixed because of the impending departure of the U.S. astronaut who operated the hefty robot arm from inside, Joseph Acaba. He's due to return to Earth in 1½ weeks.

Altogether, the space station has four of these power-switching units, which relay electricity from the eight solar wings. Being down one unit meant the orbiting complex could draw power from only six of those wings.

The power store was further degraded over the weekend when, in an unrelated problem, a tripped circuit breaker prevented full access to yet another solar panel. That left the space station running on just five wings, a vulnerable situation.

Tension mounted in Mission Control as Wednesday's spacewalk approached the four-hour mark and the power-switching unit had yet to be installed. NASA considered calling it quits at that point, but asked the astronauts whether they could keep going, given their progress. Both spacewalkers insisted on pressing ahead.

As Hoshide started to drive the bolt home, Mission Control asked the astronauts to report everything they saw and felt.

"My left hand just fell asleep because my fingers are crossed too long," Mission Control said. "We're holding our breath."

Finally, 4½ hours into the spacewalk, Hoshide reported: "It is locked."

Mission Control burst into applause. Soon afterward, Mission Control confirmed that the power-switching box was firmly in place and working properly.

"It's been like living on the set of Apollo 13 for the past few days," said Mission Control, referring to the 1970 effort to save the three astronauts on the aborted moon mission. "NASA does impossible pretty darn well."

As to how the vexing shavings ended up on the space station, the bolt

was probably damaged when it was installed before launch, said NASA's space station program manager, Mike Suffredini.

It will be a few days before electrical systems are restored 250 miles (402 kilometers) up. And NASA still must contend with the tripped breaker from last weekend; another spacewalk ultimately may be needed. The trouble knocked out one of the eight power channels emanating from the solar wings, a problem that persisted after Wednesday's spacewalk.

"One channel down is not a position you want to be in, but it doesn't send you into really worrying and having to rush out the door," Suffredini said.

Wednesday's spacewalk, meanwhile, earned Williams a place in history. The Navy captain—the lone woman on the crew—is now the world's most experienced female spacewalker with 44 hours spent out in the vacuum over six excursions.

The previous record-holder, Peggy Whitson, sent up congratulations: "You go, girl!"

Williams replied: "Anybody could be in these boots."

More information: NASA:

www.nasa.gov/mission_pages/station/main/index.html

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