

## International Space Station status report: SS07-05

*by Bend Weekly News Sources*

Two residents of the International Space Station stepped outside their orbital home Wednesday for spacewalk that lasted just under eight hours to begin the connection of recently activated cooling systems to their permanent locations and to conduct other station assembly work.

Wearing U.S. spacesuits, Expedition 14 Commander Mike Lopez-Alegria and Flight Engineer Suni Williams began their spacewalk at 9:14 a.m. CST. After setting up tools and tethers, they moved to the area that connects the Z1 truss to the S0 truss at the middle of the station's large girder-like truss system.

There, in a location known as the "rats' nest," Williams and Lopez-Alegria conducted laborious work in tight quarters to reroute a series of two electrical cables and four fluid quick disconnect lines from the soon-to-be defunct Early External Active Thermal Control System to a permanent cooling system in the Destiny Laboratory.

The cooling loop reconfigured today, known as the Low Temperature Loop (Loop A), removes heat from the station's environmental control systems through a heat exchanger system in the Destiny Laboratory. On the next spacewalk by Lopez-Alegria and Williams on Sunday, a Moderate Temperature Loop (Loop B) rejecting heat from avionics and payloads will be rerouted as well to the permanent system and the heat exchangers in Destiny. The thermal systems officer in Mission Control reported that the reconfiguration of the system was successful.

Lopez-Alegria began the first of a two-step process to route electrical cable harnesses from the Z1 truss' power outlets to the S0 truss. The two wire harnesses strung today will be joined on Sunday by two more harnesses that will be connected from the S0 truss to the Destiny Lab and, in turn, to its forward docking port, Pressurized Mating Adapter-2 (PMA-2).

Once completed, that Station-to-Shuttle Power Transfer System (SSPTS) will enable docked shuttles to draw electrical power from the station to extend their visits to the outpost. SSPTS is scheduled to debut on the STS-118 mission in June, enabling Endeavour to fly for two weeks. Subsequent shuttles will be able to remain aloft for comparable periods.

Lopez-Alegria and Williams then moved on to assist as flight controllers sent commands to retract the starboard heat-rejecting radiator on the P6 truss. It had been used to keep station systems at the correct temperature through the temporary cooling system after the truss was installed in 2000. They helped tie the radiator down with a series of cinches. A second radiator will be retracted during the Sunday spacewalk. A third radiator will be retracted later in the year, the only one of the three radiators on the P6 truss that will be redeployed after the truss is relocated.

The spacewalkers then installed a shroud over the radiator to keep it at the proper temperature for the next few months until it is extended once again. A similar retraction of the aft radiator on the P6 truss will be conducted during Sunday's spacewalk.

With time running out, Lopez-Alegria and Williams moved on to another area of the P6 truss to disconnect and stow one of two fluid lines attached to a large reservoir known as the Early Ammonia Servicer (EAS). The EAS was designed to replenish ammonia to the temporary cooling system on the station in the event of a coolant leak. No longer required, the reservoir will be unbolted and jettisoned during a spacewalk by the Expedition 15 crew this summer. By stowing the fluid lines the crew preserved the ability to reuse the system, if required. The second EAS fluid line will be disconnected and stowed at a later date.

Because a few "flakes" of ammonia were seen floating away from one of the fluid line connector caps, the crew was directed to conduct preventative decontamination measures to "bakeout" their spacesuits once they returned to the Quest airlock prior to the airlock being repressurized.

The spacewalk ended at 5:09 p.m. CST., tying for 5th for the longest spacewalk in history. It was the seventh spacewalk of Lopez-Alegria's career, and the second for Williams. The excursion was the 78th spacewalk in support of station assembly and maintenance and the 50th staged out of the station.

With today's spacewalk, Lopez-Alegria moved into fourth place on the all-time spacewalking list for most time outside an orbiting vehicle ahead of astronaut Joe Tanner with 47 hours and 31 minutes. Lopez-Alegria will become the all-time U.S. record holder for spacewalking time and second on the all-time spacewalking list behind Russian cosmonaut Anatoly Solovyev during the third in the current series of spacewalks on Feb. 8.

Williams is now second on the all-time list for female spacewalkers for total time outside with 15 hours and 26 minutes of spacewalking time. Lopez-Alegria and Williams will have time to relax Thursday and Friday as they prepare spacesuits and tools for the Sunday spacewalk.

<http://www.nasa.gov/station>