

## International Space Station status report: SS07-06

*by Bend Weekly News Sources*

For the second time in four days, two residents of the International Space Station stepped outside for a spacewalk to complete connecting cooling loops from a temporary to a permanent system. This time the excursion lasted just over seven hours.

Wearing U.S. spacesuits, Expedition 14 Commander Mike Lopez-Alegria and Flight Engineer Suni Williams began their spacewalk at 7:38 a.m. CST, a few minutes ahead of schedule. After setting up tools and tethers outside the Quest airlock, 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. This area is known as the "rats' nest."

In these tight quarters, they rerouted 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 Sunday, known as the Moderate Temperature Loop (Loop B), removes heat from the station's avionics systems and payload racks through a heat exchanger system in the Destiny Laboratory. On Jan. 31, Lopez-Alegria and Williams reconfigured a Low Temperature Loop (Loop A) that rejects heat from the station's environmental systems.

On Sunday, the spacewalkers also assisted in the retraction of the aft heat-rejecting radiator on the P6 truss. The radiator had been used since 2000 to keep station systems at the correct temperature through the temporary cooling system. They helped tie the radiator down with a series of cinches. Unlike the starboard radiator, which was retracted Jan. 31, the aft radiator did not require the installation of a protective thermal shroud due to the station's orientation to the sun. During this summer's STS-118 shuttle mission, a third radiator will be retracted, the only radiator on the P6 truss that will be redeployed after the truss is relocated to the far port side of the truss.

Once the radiator was retracted, Lopez-Alegria and Williams completed Wednesday's unfinished task of disconnecting and stowing the second of two fluid lines for the Early Ammonia Servicer, a large tank on the P6 truss that is no longer needed. The EAS was designed to replenish ammonia to the temporary cooling system on the station in the event of a coolant leak. The servicer will be jettisoned during a spacewalk by the Expedition 15 crew this summer.

Lopez-Alegria, at the base of the P6 truss, photographed the starboard solar array and the blanket box into which it folds. Engineers will analyze the photos and finalize plans to retract that array during the STS-117 shuttle mission to the station next month.

After the photographs were taken, Lopez-Alegria and Williams resumed the stringing of electrical cables from the S0 truss to the Destiny Laboratory and to its forward docking port, Pressurized Mating Adapter-2 (PMA-2), to which visiting shuttles dock. The cables provide electricity for the Station-to-Shuttle Power Transfer System (SSPTS). The system will enable docked shuttles to draw electrical power from the station to extend their missions. SSPTS is scheduled to debut during STS-118, enabling Endeavour to fly for two weeks. Three of the six cables were connected Sunday. The others probably will be connected during a spacewalk Thursday, Feb. 8.

Lopez-Alegria removed a sunshade from a data relay box on another pressurized mating adapter that connects the U.S. and Russian segments of the station. Since the shade is no longer needed, it was folded up and brought inside to be discarded either on a future Russian Progress cargo ship or a shuttle mission

Back in the airlock, Lopez-Alegria and Williams did some precautionary decontamination procedures after a few ammonia flakes were seen early in the spacewalk.

The spacewalk ended at 2:49 p.m. as the crew returned to Quest. It was the eighth spacewalk of Lopez-Alegria's career and the third for Williams. He surpassed astronaut Steve Smith to vault into third place on the all-time spacewalking list for most hours spent outside. Williams now holds the record for most spacewalking time by a female. Former astronaut Kathy Thornton previously held that honor. Sunday's spacewalk was the 79th for station assembly and maintenance and the 51st done without a shuttle present.

On Monday, Lopez-Alegria and Williams will recharge batteries and prepare their spacesuits and tools for the next spacewalk set for Thursday morning.