STS-101 EVA

Overview

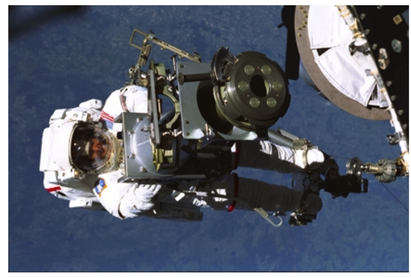
Mission Specialists James Voss and Jeffrey N. Williams will emerge from Space Shuttle Atlantis on Flight Day 4 of the second logistics mission to the International Space Station and make the last planned equipment changes prior to the arrival of the ISS's third element, Russia's Service Module Zvezda.

During the planned 6 1/2 hour space walk, they will complete the assembly of a Russian crane, test the integrity of a U.S. crane, replace a faulty communications antenna, install handrails, set up a camera cable and thus make ready for Zvezda's launch scheduled between July 8-14.

Mission Specialist Mary Ellen Weber will assist the two astronauts in maneuvering around the ISS as she operates the shuttle's robotic arm from inside Atlantis.

When Voss and Williams step from Atlantis' airlock, their first job will be to set up the foot restraints, tethers and other gear essential for safely executing activities in space. Then they can go to work.

First they will head to a workstation fixture on pressurized mating adapter (PMA) -1, the passageway connecting U.S. module Unity and Russian-built control module Zarya. The objects of their attention will be the fixture itself and a small, 209-pound U.S. space-walker-operated crane. Mission Specialists Tamara E. Jernigan and Daniel T. Barry placed it there during the first logistics mission (May 27-June 6, 1999: STS-96/2A.1).



Astronaut Tamara E. Jernigan totes part of Russian-built Strela ("Arrow") crane during first logistics mission STS-96/2A.1

The crane is not mounted to the fixture as tightly as expected. Although it poses no hazard to ISS components, Voss and Williams will inspect it and its fixture to ensure that neither is damaged or otherwise compromised. They will attempt to secure the crane in its housing, or relocate it to another, identical housing elsewhere on Zarya.

The two mission specialists will return to the airlock to get the spare Early Communications antenna and pick up a grapple fixture for the Russian crane Strela. From there they will go to the SPACEHAB Integrated Cargo Carrier (ICC) in the shuttle's cargo bay and obtain the rest of the components and tools required to complete assembly of Strela, begun by Jernigan and Barry on STS-96.

Finishing the assembly job will require about 100 different actions, steps and processes from the time Voss and Williams arrive at the ICC to get the crane's 45-ft telescoping boom to the completion of its assembly at its workstation on PMA-2. Strela, which is an updated version of the crane used on Mir, will be moved to Zarya during the August logistics mission, STS-106/2A.2b.

Next, Voss and Williams will replace an Early Communications (ECOMM) System antenna mounted on the port side of the common berthing mechanism at Unity's forward end-cone. It is one of two used for crew videoconferences, command activities and telemetry backup. The job of swapping out the device is relatively straightforward. It essentially involves disconnecting four cable connectors, releasing the antenna from its mount, installing and reconnecting the new antenna, and checking its alignment.

Only two more tasks remain to be completed: installation of the centerline camera cable and attachment of eight handrails on Unity. The equipment is in a bag Jernigan and Barry left behind for Voss and Williams. Williams will retrieve the bag, then move to the connecting module's starboard side to meet Voss and give him the cable.

Handrails assist space-walking Astronauts in safely maneuvering around Unity

Installation of the cable will simply require that Voss secure it with wire ties to handrails already attached to Unity. Williams at the same time will use a power tool to securely bolt the new handrails to the module's forward, mid- and aft sections. When those tasks are completed, the EVA mission will be accomplished.

EVA Timeline for STS-101 EVA

Time	Event
0:00	Airlock Egress
0:15	EVA Sortie Setup
0:45	OTD Activities
1:30	EVA Sortie Setup continued
1:45	Strela Install
3:45	Early Comm Antenna
4:45	Node Handrail Install - Centerline Camera Cable
5:15	EVA Sortie Cleanup
6:15	Airlock Ingress
6:30	Repress - End of EVA