NASAfacts

STS-116

International Space Station Gets Staying Power

Space Shuttle *Discovery* and its crew will undertake one of the most challenging missions to date in the construction of the International Space Station. STS-116, which is designated as flight 12A.1 in the station assembly sequence, will also include the first station crew rotation by a shuttle mission in four years.

STS-116's construction work will focus on the installation of the Port 5 (P5) integrated truss segment and efforts to reconfigure and redistribute the power generated by the station's U.S. solar arrays. The crew will perform three spacewalks and use the shuttle and station robotic arms to assist.

The STS-116 crew will bring online electricity generated by a second giant set of solar panels that was added to the station during STS-115 in September. The electrical power available to the station's systems will be almost doubled.

Launch and Docking

Discovery will launch from Kennedy Space Center, Fla., to begin a two-day trip to the station. On flight day 2, the crew will prepare for docking and conduct shuttle heat shield inspections. Docking is slated for flight day 3. The shuttle crew then will spend a week at the orbital outpost conducting spacewalks, transferring cargo and working with the station's Expedition 14 crew.

Launch will mark the start of *Discovery*'s 33rd flight into space and the 117th in the history of the shuttle program. STS-116 will be the 20th shuttle flight to the orbital outpost.

The Crew

The STS-116 crew is a mixture of veterans and first-time space travelers.

STS-116's commander is Mark Polansky. His first spaceflight in 2001 was as pilot on STS-98, which delivered the U.S. Destiny Laboratory module to the station. Polansky, a former U.S. Air Force pilot, joined NASA as an aerospace engineer in 1992 and became an astronaut candidate in 1996.

Pilot William Oefelein will make his first trip into space during STS-116. He is a commander in the U.S. Navy and became an astronaut candidate in 1998. Oefelein has accumulated 3,000 hours flying time in more than 50 aircraft.

Robert Curbeam will make his third trip into space as a mission specialist and lead spacewalker during STS-116. The Navy captain joined NASA in 1994 and was a member of the STS-85 crew in 1997 and flew to the station with Polansky on STS-98. Curbeam is an experienced spacewalker with more than 19 hours during three excursions.

Mission Specialists Joan Higginbotham, Nicholas Patrick, Christer Fuglesang and Sunita Williams all will make their first flights into space. European Space Agency (ESA) astronaut Thomas Reiter will join the STS-116 crew as a mission specialist when Williams replaces him as a member of the Expedition 14 crew.

Higginbotham's career at NASA began nine years before she was selected as an astronaut candidate in 1996. She supported 53 space shuttle launches at Kennedy Space Center in different engineering and management roles.

Patrick joined NASA in 1998 as an astronaut candidate. He received a doctorate in mechanical engineering from the Massachusetts Institute of Technology and is an experienced pilot.

Fuglesang is a member of the ESA astronaut corps and has a doctorate in experimental particle physics. He has extensive training at NASA and with the Russian Federal Space Agency (Roskosmos).

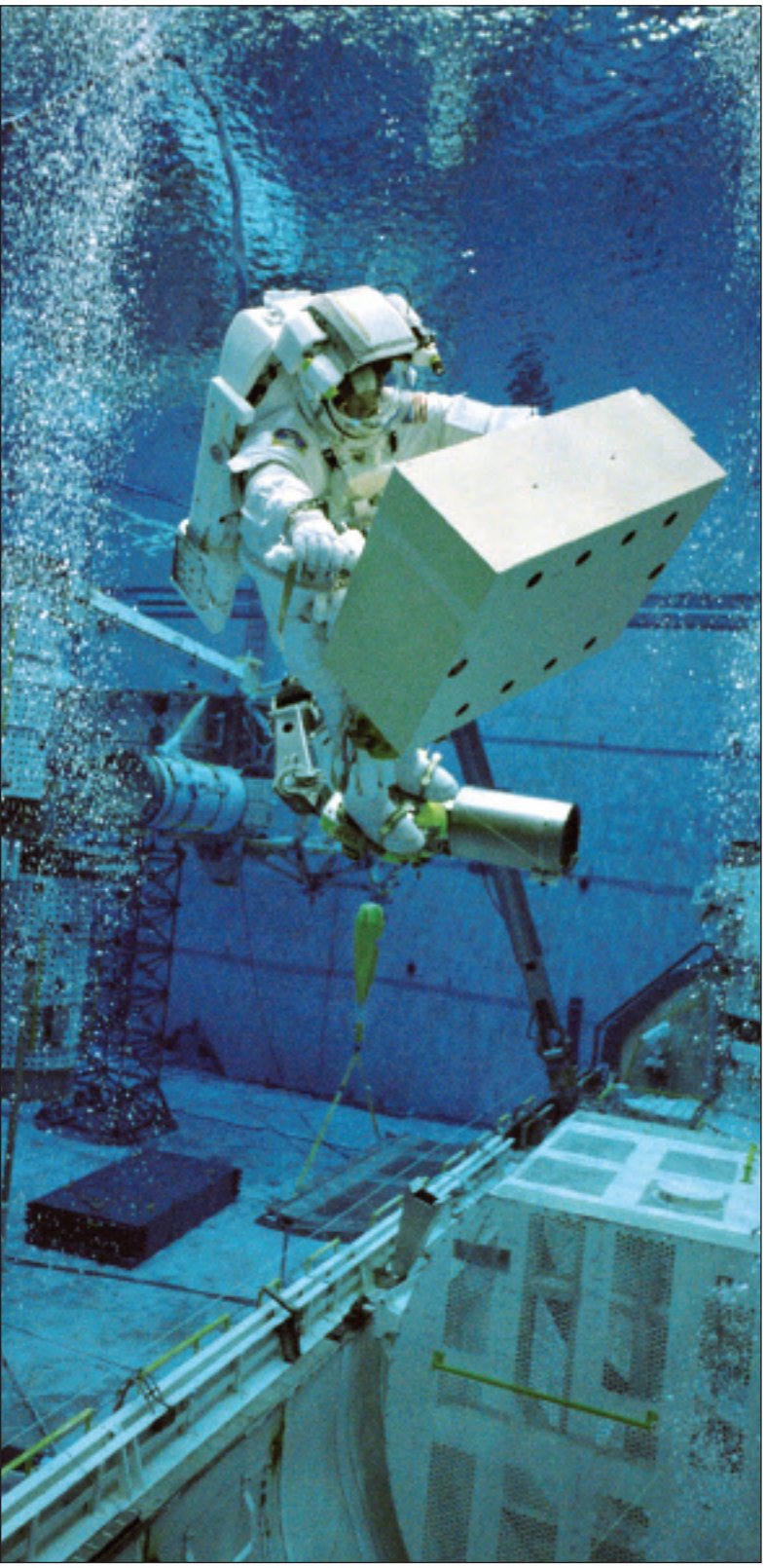
Williams will be the NASA science officer aboard the station when she becomes a member of the Expedition 14 crew shortly after *Discovery* docks. She also is scheduled to join Expedition 15 during her six-month stay on the station. Williams is a commander in the Navy and was selected as an astronaut candidate in 1998.

Reiter became a member of the Expedition 13 crew in July and the Expedition 14 in September. He is the first ESA astronaut to live aboard the station. Reiter previously spent 179 days on the Russian Mir space station in 1997-98.

Cargo

The P5 truss spacer will ride to the station inside *Discovery*'s payload bay and be attached to the P4 truss segment on flight day 4. It also will provide an attachment point for the P6 and its set of solar arrays during a future assembly mission.

The P5 truss contains cables that one day will transmit data and power between the P6 Photovoltaic Module and the other segments of ISS. P3/P4 was added to the space station during STS-115 in September. The P5 will be part of the Integrated Truss Structure, which eventually will span 356 feet.



STS-116 Quick Facts

Mission	STS-116 (117th flight)
Shuttle	*Discovery* (33rd flight)
Station Assembly	12A.1 (20th shuttle flight)
Duration	12 days
Launch Site	Kennedy Space Center, Fla.
Landing Site	Kennedy Space Center, Fla.
Commander	Mark Polansky
Pilot	William Oefelein
Mission Specialists	Robert Curbeam Joan Higginbotham Nicholas Patrick Christer Fuglesang Sunita Williams (to station) Thomas Reiter (from station)
Primary Payload	P5 Truss Pressurized Logistics Module (SPACEHAB)
Spacewalks	Three Flight day 4 (Curbeam, Fuglesang) Flight day 6 (Curbeam, Fuglesang) Flight day 8 (Curbeam, Williams)

A small pressurized logistics module (SPACEHAB) will ride to the station inside the payload bay also. The pressurized module—measuring 10 feet long, 14 feet wide and 11 feet high—will be filled with about 5,800 pounds of station supplies and research equipment, and an Integrated Cargo Carrier that holds spare parts and equipment.

Spacewalks

The STS-116 crew is slated to conduct three spacewalks. Curbeam will perform all three, teaming with Fuglesang during the first two and Williams for the third. All three spacewalks, or Extravehicular Activities, will be staged out of the station's Quest Airlock.

Curbeam and Fuglesang will conduct the first spacewalk on flight day 4 to assist with the installation of P5 to P4. They will finalize the installation with power, heater and data cable connections.

The mission's second spacewalk is set for flight day 6. Curbeam and Fuglesang once again will team to redirect part of the power channel by routing primary power through the Main Bus Switching Units, which have been stored outside the station since 2002.

On flight day 8, Curbeam and Williams will finalize the power reconfiguration.

Undocking and Landing

Discovery is slated to undock on flight day 10. The STS-116 crew will conduct final inspections of the orbiter's heat shield, deploy three small technology-demonstration satellites and prepare for landing. The satellites will be mounted inside canisters in the payload bay.

Landing is scheduled to take place at the Shuttle Landing Facility at KSC on flight day 13.

For more detailed information about the STS-116 mission, please visit **www.nasa.gov** or **www.shuttlepresskit.com**.

National Aeronautics and Space Administration

Lyndon B. Johnson Space Center
Houston, Texas 77058

www.nasa.gov

FS-2006-11-031-JSC