

STS-92 (5th International Space Station Flight)

Discovery

Pad A

100th Shuttle mission

28th Flight of OV-103

1st Edwards Air Force Base landing since 1996

Crew:

Brian Duffy, Commander (4th Shuttle flight)

Pamela A. Melroy, Pilot (1st)

Leroy Chiao, Mission Specialist (3rd)

William "Bill" S. McArthur, Mission Specialist (3rd)

Peter "Jeff" J.K. Wisoff, Mission Specialist (4th)

Michael E. Lopez-Alegria, Mission Specialist (2nd)

Koichi Wakata, Mission Specialist (2nd)

Orbiter Preps (move to):

OPF Bay 1 – Dec. 27, 1999

VAB – Aug. 24, 2000

Pad 39B – Sept. 11, 2000

Launch:

Oct. 11, 2000, 7:17:00 p.m. EDT. STS-92 was scheduled to launch on Oct. 5, 2000. However, prior to loading cryogenics into the external tank, the mission was delayed when it was noted through film review on the previous mission (STS-106) that the right-hand external tank to orbiter attach bolt failed to retract properly. Following the scrub decision an orbiter liquid oxygen pogo accumulator re-circulation valve located in Discovery's Main Propulsion System failed to respond properly and a decision was made to remove and replace the valve. The launch was rescheduled for Oct. 9. The second launch attempt was postponed prior to tanking due to higher than acceptable winds at the pad preventing fueling of the external tank. The launch was delayed 24 hours and rescheduled for Oct.10. During the planned three-hour hold on the next launch attempt, a ground support equipment pin with a tether, used on access platforms, was observed on the external tank-to-orbiter liquid oxygen feed line during final pad inspections. The launch was postponed at the T-20 minute mark due to potential damage the pin and tether might cause to the orbiter during launch. Launch was rescheduled 24 hours later and occurred without further delay on Oct.11 at 7:17 p.m. EDT.

Landing:

Oct. 24, 2000, 5 p.m. EDT. Runway 22, Edwards Air Force Base, Calif. Rollout distance: 9,090 feet. Rollout time: 1 minute, 15 seconds. Mission duration: 12 days, 21 hours, 40 minutes, 25 seconds. Landed on orbit 202. Logged 5.3 million statute miles. Landing was originally scheduled at KSC on Oct. 22, 2000. However, landing opportunities at KSC were waived due to higher than allowable crosswinds at the SLF. The next landing attempt was scheduled for Oct. 23, but winds remained in excess of limits at KSC. Landing opportunities at Edwards were also waived due to rain showers within 30 miles of the planned runway. Winds were again in excess of limits at KSC on the third day, and, as a result, all KSC opportunities were waived. The Space Shuttle Discovery landed on the first opportunity at Edwards Air Force Base.

Mission Highlights:

STS-92, during its 12-day mission to the International Space Station (ISS), completed all assigned objectives to install the Zenith Z1 Truss and the third pressurized mating adapter (PMA 3) for use as a docking port for subsequent Shuttle missions.

In the afternoon of flight day two, Discovery and her crew completed a successful rendezvous and docking with the International Space Station setting the stage for six days of construction and outfitting.

On flight day three, Japanese Astronaut, Koichi Wakata, deftly maneuvered Discovery's robotic arm to lift the Zenith Z1 Truss from the Shuttle's payload bay and berthed it to a port on the Unity connecting module. Inside Unity, Pilot Pam Melroy and crewmate Jeff Wisoff opened the hatch where the new truss was attached and installed grounding connections between the framework and the Station.

Discovery's five mission specialists, Leroy Chiao, Bill McArthur, Jeff Wisoff, Mike Lopez-Alegria and Koichi Wakata, performed a total of four extravehicular activities (EVA) during the STS-92 mission. They included the following assignments:

1. EVA #1 – 6-hours, 28-minutes – connection of electrical umbilicals to provide power to heaters and conduits located on the Z1 Truss; relocation and deployment of two communication antenna assemblies; and installation of a toolbox for use during on-orbit construction.
2. EVA #2 – 7-hours, 7-minutes – attachment of the PMA 3 to the ISS and preparation of the Z1 Truss for future installation of the solar arrays that will be delivered aboard STS-97 in late November.
3. EVA #3 – 6-hours, 48-minutes – installation of two DC-to-DC converter units atop the Z1 Truss for conversion of electricity generated by the solar arrays to the proper voltage.
4. EVA #4 – 6-hours, 56 minutes – testing of the manual berthing mechanism; deployment of a tray that will be used to provide power to the U.S. Lab; and removal of a grapple fixture from the Z1 Truss. Two small rescue backpacks that could enable a drifting astronaut to regain the safety of the spacecraft were also tested.

On flight day nine, the crew of Discovery shifted their attention to the interior of the ISS as they completed connections for the newly installed Z1 Truss external framework and began transferring equipment and supplies for the first resident crew of the ISS who arrived in November. They also successfully completed testing of the four control moment gyroscopes that will be used to orient the ISS as it orbits Earth.