



STS-122 (24th Space Station Flight)

Atlantis

Pad A:

121st shuttle mission
29th flight of OV-104
67th landing at KSC

Crew:

Steve Frick, commander (2nd shuttle flight)
Alan Poindexter, pilot (1st)
Rex Walheim, mission specialist (2nd)
Stanley Love, mission specialist (1st)
Leland Melvin, mission specialist (1st)
Hans Schlegel, mission specialist (2nd),
represents European Space Agency
Leopold Eyharts, mission specialist (1st),
up to ISS
Daniel Tani, flight engineer, down from
ISS

Orbiter Preps:

OPF Roll-In – July 4, 2007, after ferry-flight from Dryden and arrival July 3
OPF Rollover – Nov. 3, 2007
VAB Rollout – Nov. 10, 2007

Launch:

Feb. 7, 2008, at 2:45 p.m. EST.

The STS-122 mission was twice delayed in December 2007 after false readings occurred in the engine cut-off sensor system while Atlantis' external fuel tank was being filled. Tests revealed that open circuits in the external tank's electrical feed-through connector were the most likely cause. A modified connector, designed with pins and sockets soldered together, was installed for the mission. The sensor system is one of several that protects the shuttle's main



engines by triggering their shut down if fuel runs unexpectedly low.

The launch date was then reset to Feb. 7. The sensor system was flawless during liftoff.

Landing:

Feb. 20, 2008, at 9:07 a.m. EST.

Atlantis landed on Kennedy's Runway 15 after a journey of nearly 5.3 million miles. Main gear touchdown was 9:07:10 a.m. Nose gear touchdown was 9:07:20 a.m. Wheel stop was at 9:08:08 a.m. Mission elapsed time was 12 days, 18 hours, 21 minutes and 44 seconds.

Mission Highlights:

The mission delivered and installed the European Space Agency's Columbus laboratory, whose experiments will be coordinated by a data center to manage the research and collect its results. The Columbus Control Centre is in Oberpfaffenhofen, Germany.

NASAfacts

During docking, one of the five computers on the International Space Station experienced problems with guidance and navigation software. The crew used other computers for the shuttle's rendezvous; only one computer is needed for the rendezvous, with one required for backup.

After docking with the space station, Mission Specialist Leopold Eyharts moved onto the orbiting outpost as the newest Expedition 16 crew member and flight engineer Dan Tani returned to the shuttle in his place.

The first spacewalk was postponed a day due to a medical issue with Mission Specialist Hans Schlegel. It was determined that Mission Specialist Stanley Love would take Schlegel's place on the spacewalk.

Close scrutiny of images of the thermal protection system on Atlantis revealed minor damage to a thermal blanket over the shuttle's right orbital maneuvering system pod. Mission managers eventually cleared the shuttle's thermal protection system for re-entry based on inspections.

Mission managers extended the mission an extra day to continue activation of the Columbus laboratory.

The shuttle and station crews spoke with German Chancellor Angela Merkel, ESA Director General Jean-Jacques Dordain and former astronaut Thomas Reiter, who is now a member of the German Space Agency, DLR.

EVA No. 1 — 7 hours, 58 minutes, Feb. 11.

Love and Mission Specialist Rex Walheim installed a grapple fixture on Columbus in the payload bay and prepared electrical and data connections on the module. Astronauts Leland Melvin, Tani and Eyharts used the space station's robotic arm to grab Columbus, lift it out of the orbiter and move it to the starboard side of the station. Walheim and Love also began work to replace a large nitrogen tank used for pressurizing the station's ammonia cooling system.

EVA No. 2 — 6 hours, 45 minutes, Feb. 13.

Walheim and Schlegel replaced the nitrogen tank and, using the station's robotic arm, placed the spent tank into Atlantis' payload bay. The astronauts then made minor repairs to the Destiny laboratory debris shield and worked on tasks to prepare for the final spacewalk.

EVA No. 3 — 7 hours, 25 minutes, Feb. 15.

Guided by Pilot Alan Poindexter, Walheim and Love transferred the first of two external experiment facilities, called SOLAR, to Columbus for installation. Melvin operated the station's robotic arm for the transfer. The astronauts also retrieved a stored failed gyroscope and moved it into Atlantis' payload bay for return to Earth. They then installed a second experiment onto Columbus, the European Technology Exposure Facility, or EuTEF. Finally, Walheim and Love examined a damaged handrail on the outside of the Quest airlock. They rubbed a tool covered with spacewalk overglove material over it to see if the handrail could be the source of glove abrasions occurring during recent activity outside the station.

All crew members worked to activate and initialize the Columbus laboratory, outfitting it with experiment racks.

Atlantis' propulsion system was used to reboost the station's altitude by about 1.4 miles -- the first reboost of the station using shuttle thrusters since 2002 -- to achieve proper alignment of the station in advance of the March arrival of space shuttle Endeavour on the STS-123 mission.

Hatches between the station and Atlantis were closed at 1:03 p.m. EST on Feb. 17. Atlantis undocked at 4:24 a.m. EST on Feb. 18.

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