

2008 **Crew of STS Mission 124 (International)**

The crew of STS 124:

Mark Kelly, Commander NASA Astronaut

Kenneth Ham, Pilot, NASA Astronaut

Karen Nyberg, Mission Specialist, NASA Astronaut

Ronald Garan, Mission Specialist, NASA Astronaut

Michael Fossum, Mission Specialist, NASA Astronaut

Akihiko Hoshide, Mission Specialist, JAXA Astronaut

Gregory Chamitoff, ISS Flight Engineer, NASA Astronaut

International Space Station (ISS) Assembly Mission 1J/A along with the Increment 17:

Sergei Volkov, Commander, RSA Cosmonaut

Oleg Kononenko, Flight Engineer, RSA Cosmonaut

Garrett Reisman, Flight Engineer, NASA Astronaut

The success of the STS-124/Increment 17 mission was extremely significant in the assembly sequence of the International Space Station with the addition of the largest laboratory, Kibo, the Japanese Pressurized Module (JPM) and the relocation of the Japanese Logistic Module (JLP). This new laboratory will contribute greatly to the future of human space flight operations.

Justification: The STS-124 mission began with a successful launch on 31 May, 2008. The inspection of Discovery's thermal protection heat shield was conducted differently than on previous flights since they were unable to carry the Orbiter Boom Sensor System (OBSS) in the payload bay with the Japanese Pressurized Module (JPM) Kibo, since it was the largest module ever loaded in the shuttle at 37 foot and 32,000 lb. As a result, on the second day of the flight normally reserved for OBSS inspection, the end effector camera on the shuttle's robotic arm was employed to capture initial imagery of Discovery's heat resistant tiles. The OBSS was retrieved by the Space Station's Canadarm2 on the fourth day, during the first of three spacewalks by Fossum and Garan, and handed back to the shuttle's robotic arm. The OBSS was then be brought back to Earth to be reflown on subsequent shuttle missions.

Following docking with the ISS, the Shuttle crew used the Space Station's Canadarm2 to lift the mission's primary cargo, the Kibo module from its berth in the payload bay and maneuvered it for installation on the left side of the Harmony module. The

Candarm2 robotically detached the JLM from the top port of Harmony during the mission and reattached to the top port of Kibo to serve as a storage depot. Internally, the JPM was activated, along with eight science racks and control equipment were then transferred to the JPM. The second and third spacewalks by Fossum and Garan were in support of the JPM and JLM installations. Located on the outside of the JPM is a robotic manipulator system was also activated for the first time. Karen Nyberg became the first astronaut to operate all three robotic arms in orbit.

The STS-124 mission was completed with a nominal landing at Kennedy Space Center in Florida on 14 June 2008, returning Expedition crewmember Garrett Reisman to earth, with a flight duration of 15 days. This outstanding mission is highly deserving of the Komarov Diploma.