STS-101 PAYLOADS
International Space Station Assembly Flight 2A.2a

The doors of the payload canister open in the Payload Changeout Room at Launch Pad 39A to reveal the SPACEHAB Double Module (bottom) and Integrated Cargo Carrier.

The top priority of the docked phase of the mission is to replace four of six 800-ampere power-producing batteries in Zarya which are no longer operable, and its associated electronics for proper current regulation.

Zarya will receive additional new equipment including four cooling fans, three fire extinguishers, 10 smoke detectors and an on-board computer. A suspect radio frequency power distribution box in Unity used as part of the early S-band communications system will be replaced during the time Atlantis is linked to the new international facility.

The crew plans to transfer almost one ton of equipment from a double Spacehab module housed at the rear of Atlantis' cargo bay into Zarya and Unity for use by the Expedition One crew later this year. Those logistical items include personal clothing and hygiene gear, medical and exercise equipment, computer equipment and printers, hardware for the eventual setup and activation of the station's Ku-band communications system and a centerline camera for Unity's common berthing mechanisms to which other International Space Station components will be mated. Four large bags of water will also be brought from Atlantis into the International Space Station for later use.

Cargo Bay

SPACEHAB
The SPACEHAB double module is a pressurized, mixed-cargo carrier, which supports various quantities, sizes and locations of experiment hardware. It augments the orbiter middeck by providing a total cargo capacity of up to 4,536 kilograms (10,000 pounds) with the ability to accommodate powered payloads.

For STS-101, SPACEHAB will carry logistics and maintenance cargo for the International Space Station. More than 2,223 kilograms (4,900 pounds) of Russian and United States supplies -- clothing, personal hygiene articles, health care supplies, exercise equipment, food, TV and movie equipment, a fire detection and suppression system, computers and sensors -- will be transferred to the station.

Also, SPACEHAB is carrying a commercial payload, the Self-Standing Drawer--Morphological Transition and Model Substances.

Integrated Cargo Carrier
The SPACEHAB Integrated Cargo Carrier is used to accommodate and support the transfer of exterior cargo from the shuttle to the space station. On STS-101, the ICC will carry three cargoes: parts of the Russian Strela crane, the Space Integrated Global Positioning System/Inertial Navigation System Orbital Attitude Readiness payload and the SPACEHAB-Oceaneering Space System box.

Strela is a Russian crane that will be mounted on Zarya. Some of Strela's components are already at the station. STS-101 will deliver the boom, ring and extension to complete the crane assembly.

The Space Integrated Global Positioning System/Inertial Navigation System Orbital Attitude Readiness payload, or SOAR, is designed to be the space station's primary global positioning source and the crew return vehicle's primary navigation source.

The SPACEHAB-Oceaneering Space System box, or SHOSS, is a trunk mounted on the ICC. On STS-101, it will contain space-walking tools and logistics items to be transferred and stowed in Unity.

The BioTube Precursor Experiment
The BioTube Precursor Experiment will test newly developed technologies involved in the BioTube magnetic field apparatus, a device for growing seeds in microgravity that will be flown on STS-107. This precursor experiment will evaluate the MFA's water delivery system and seed germination substrates. The flight will also demonstrate seedling growth as a function of temperature in the limited volume of the sealed growth chambers.

Space Experiment Module 6
Ten passive experiments will fly on STS-101 as part of NASA's Space Experiment Module program, which is managed by the Goddard Space Flight Center's Wallops Flight Facility in Virginia. The SEM program is an educational initiative to increase access to space for students in kindergarten through the university level. The experiments are sponsored by students in the United States and Argentina.

Mission to America's Remarkable Schools
This life sciences payload, sponsored by the NASA's Kennedy Space Center, contains 20 experiments from schools across the United States. The projects include seeds of various types reflown from SEEDS I and II as well as regionally important seed varieties such as lettuce and spinach.

Each experiment is placed in a 2-inch-diameter PVC tube inside a Complex Autonomous Payload/Getaway Special canister. The CAP/GAS is positioned in space shuttle cargo bay 13.

In-Cabin

HTD1403 Micro Wireless Instrumentation System (Micro WIS) HEDS Technology Demonstration
HTD1403 will demonstrate the operational utility and functionality of the Micro WIS on orbit, initially in the crew cabin of the shuttle and then on the International Space Station.

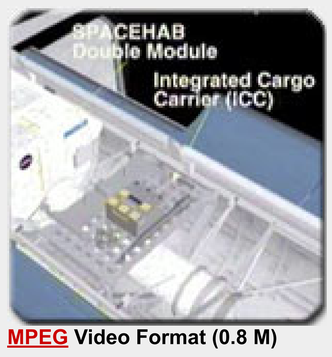
The Micro WIS consists of autonomous, tiny sensors for data acquisition. Two versions have been developed -- a sensor/transmitter and a sensor/recorder.

One of the objectives of this HTD is to obtain meaningful real-time measurements for use in the orbiter's environmental control and life support system, or ECLSS, operations. This breakthrough in miniaturization means significant cost, weight and power savings for current and future space vehicles and ground test facilities and should revolutionize system design of future spacecraft.

What is a payload?

The formal designation as a "payload" indicates that the experiment will be accorded top priority in crew time and energies during the entire flight, along with all other experiments carrying the same "payload" designation.

Atlantis Payload Bay



MPEG Video Format (0.8 M)

Related Links

- STS-101 Shuttle Presskit
- STS-101 Gallery Videos
- STS-101 Gallery Images
- Kennedy Space Center Electronic Photo File
- SPACEHAB
- Goddard Space Flight Center