

# Return to Flight Milestone Provides for Station Resupply, Science

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The module that will deliver food, clothing, spare parts and research equipment to the International Space Station is being prepared for the Space Shuttle Return to Flight mission. The Italian-built Multi-Purpose Logistics Module, Raffaello, has been filled with cargo at NASA's Kennedy Space Center (KSC), Fla., and will fly on the Space Shuttle Discovery mission, designated STS-114, targeted for launch in May.

Raffaello will carry a total of 12 large containers, known as "racks," to the Space Station. Included in its cargo is the Human Research Facility (HRF-2), which will expand the Station's capability to support human life sciences research. Already on the Station, a similar facility, HRF-1, has gotten good use since it was installed into the Destiny module in May 2001. The HRF has been conducting research with instruments that include an ultrasound unit measuring bone loss and a gas analyzer system.

"This is a significant milestone for the Space Station," said Bill Gerstenmaier, ISS Program Manager. "With Raffaello's supply transport capabilities we will be in a better posture onboard Station after this first Shuttle mission. Raffaello will also deliver a unique biomedical research capability with the HRF-2 that will help us learn more about humans living in space."

Returning the Space Shuttle to flight and completing the International Space Station are the first steps in the Vision for Space Exploration, a stepping-stone strategy toward new exploration goals.

Using the Station to study human endurance and adaptation in space and to test new technologies and techniques, NASA will prepare for the longer journeys to the moon, Mars and beyond.

Biomedical instrumentation launching aboard HRF-2 includes a pulmonary function system to be used in conjunction with exercise equipment to obtain measurements of aerobic capacity and cardiac output; a refrigerated centrifuge used to separate biological substances of differing densities; a space linear acceleration mass measurement device to determine the on-orbit mass of crewmembers; and an upgraded workstation used for data handling and storage.

Scientific data generated by the HRF will provide insight into how Space Station crewmembers adapt to long-duration spaceflight and assist in developing procedures to ensure crew health for longer journeys through the solar system.

The first of the supply racks was installed in Raffaello at KSC on March 4 and the HRF-2 rack was installed on March 8. The rack installation is expected to be completed within the next week.

KSC and NASA's prime contractor for ISS element processing, The Boeing Company, prepared the racks for installation. The HRF Project is managed by NASA's Johnson Space Center and implemented by Lockheed Martin in Houston. Raffaello was built by the Italian Space Agency for NASA under a cooperative space agreement.

Source: NASA

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