

NASA's Next Mars Spacecraft Arrives in Florida for Final Checkout

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A large spacecraft destined to be Earth's next robotic emissary to Mars has completed the first leg of its journey, a cargo-plane ride from Colorado to Florida in preparation for an August launch. NASA's Mars Reconnaissance Orbiter is an important next step in fulfilling NASA's vision of space exploration and ultimately sending human explorers to Mars and beyond.

Image: Workers roll one of two containers with the Mars Reconnaissance Orbiter equipment into the Payload Hazardous Servicing Facility, Kennedy Space Center.

The spacecraft's prime mission will run through 2010. During this period, the project will study Mars' composition and structure, from atmosphere to underground, in much greater detail than any previous orbiter. It will also evaluate possible sites for future martian landings and will serve as a high-data-rate communications relay for surface missions.

"Great work by a talented team has brought Mars Reconnaissance Orbiter to this milestone in our progress toward a successful mission," said Jim Graf of NASA's Jet Propulsion Laboratory, Pasadena, Calif., project manager for the mission.

The spacecraft arrived at Kennedy Space Center's Shuttle Landing Facility on April 30 aboard a C-17 cargo plane and was taken to the Payload Hazardous Servicing Facility to begin processing. It was built near Denver by Lockheed Martin Space Systems. Launch is scheduled for Aug. 10 at 7:53:58 a.m. EDT (4:53:58 a.m. PDT), at the opening of a two-hour launch window.

The spacecraft will undergo multiple mechanical assembly operations and electrical tests to verify its readiness for launch. A test this month will verify the spacecraft's ability to communicate through NASA's Deep Space Network tracking stations. A June test will check the deployment of the spacecraft's high gain communications antenna. Another major deployment test will check out the spacecraft's large solar arrays.

In July, the spacecraft will be filled with hydrazine fuel for the "Mars orbit insertion" engine burn, which will be used to reduce the velocity of the spacecraft and place it in orbit around Mars. The fuel also will be used for attitude-control propellant. On July 26 the Mars Reconnaissance Orbiter will be encapsulated in the Atlas V fairing prior to being moved to its launch site on Cape Canaveral Air Force Station.

The Lockheed Martin Atlas V arrived at Cape Canaveral Air Force Station aboard an Antonov cargo plane on March 31 and was taken to the high bay at the Atlas Spaceflight Operations Center. The Atlas booster will be transported in May to the Vertical Integration Facility at Space Launch Complex 41 to be erected. The Centaur upper stage will be transported to that facility for hoisting atop the booster in June.

Prelaunch preparations will include a "wet dress rehearsal" in July, during which the Atlas V will be rolled from the Vertical Integration Facility to the launch pad on its mobile launch platform. The vehicle will be fully fueled with RP-1, liquid hydrogen and liquid oxygen, and the team will perform a simulated countdown. The Atlas V will then be rolled back into the Vertical Integration Facility for final launch preparations.

The Mars Reconnaissance Orbiter will be transported from the Payload Hazardous Servicing Facility at Kennedy Space Center to the Vertical Integration Facility on July 29. It will be hoisted atop the launch vehicle to join the Atlas V for the final phase of launch preparations. The spacecraft is scheduled to undergo a functional test on August 1, followed by a final week of launch vehicle and spacecraft closeouts.

Source: NASA

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