

The Cassini Spacecraft Enters Saturn Orbit With Help From Lockheed Martin- Built Propulsion Module

PRNewswire

JET PROPULSION LABORATORY, Calif.

After nearly seven years in space and 2.2 billion miles on the odometer, NASA's Cassini/Huygens spacecraft arrived at its moment of truth last evening: insertion into orbit around Saturn. Precisely on time, the Cassini propulsion module -- designed and built by Lockheed Martin -- ignited and fired for 96 minutes in a braking maneuver that sufficiently slowed the spacecraft, allowing it to be captured by Saturn's gravity field. Cassini now begins four years of orbital science investigations of the giant ringed planet and its many mysterious moons.

"We couldn't be more pleased for our colleagues at NASA and the Jet Propulsion Laboratory as Cassini reached this important milestone," said James Crocker, vice president, Civil Space, at Lockheed Martin Space Systems Company. "The superb performance of the hardware and the many years of hard work by our team are equally gratifying, and we're proud to play a role in another of NASA's exciting voyages of exploration."

The Cassini spacecraft was launched on a Lockheed Martin-built Air Force Titan IV/Centaur rocket Oct. 15, 1997. The Cassini propulsion module is the largest U.S. planetary spacecraft propulsion system ever built, and was fired 17 times en route to Saturn, and will be ignited approximately 150 more times before the end of the mission. In addition to the propulsion system, Lockheed Martin Space Systems Company designed and built the three radioisotope thermoelectric generators (RTGs) that power spacecraft systems and the Descent Imager/Spectral Radiometer (DISR) instrument on the Huygens probe.

The second largest planet in our solar system, after Jupiter, Saturn serves as a natural laboratory to better understand the formation of our Solar System five billion years ago, as the planet and its rings are a close analog to the disc of gas and dust surrounding the nascent Sun that formed the planets. Detailed knowledge of the dynamics of interactions among Saturn's elaborate rings and numerous moons will provide valuable data for understanding how each of the solar system's planets evolved.

The study of Titan, Saturn's largest moon, is one of the major goals of the mission. Although it is believed to be too cold to support life, haze-covered Titan may preserve, in deep-freeze, many of the same chemical compounds that preceded life on Earth. Cassini will execute 45 flybys of Titan, coming as close as approximately 590 miles (950 km) above the surface. This will permit high-resolution mapping of the moon's surface with an imaging radar instrument, which can see through the opaque haze of Titan's upper atmosphere.

Late this year, Cassini will release the wok-shaped Huygens probe on its journey toward Titan. It will make the most distant descent by a robotic probe ever attempted on another

object in the solar system. Early in 2005, after a 20-day ballistic freefall, Huygens will enter Titan's atmosphere. It will deploy parachutes and begin 2.5 hours of intensive scientific observations. The Huygens probe will transmit data to the Cassini spacecraft, which will relay the information back to Earth.

JPL designed, developed and assembled the Cassini orbiter. The European Space Agency managed the development of Huygens and is in charge of operations of the probe from its control center in Darmstadt, Germany. The Italian Space Agency provided the high-gain antenna, much of the radio system and elements of several of Cassini's science instruments. JPL manages the overall program for NASA's Office of Space Science, Washington, D.C.

Lockheed Martin Space Systems Company is one of the major operating units of Lockheed Martin Corporation. Space Systems designs, develops, tests, manufactures and operates a variety of advanced technology systems for military, civil and commercial customers. Chief products include a full-range of space launch systems, including heavy-lift capability, ground systems, remote sensing and communications satellites for commercial and government customers, advanced space observatories and interplanetary spacecraft, fleet ballistic missiles and missile defense systems.

Headquartered in Bethesda, Md., Lockheed Martin employs about 130,000 people worldwide and is principally engaged in the research, design, development, manufacture and integration of advanced technology systems, products and services. The corporation reported 2003 sales of \$31.8 billion.

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