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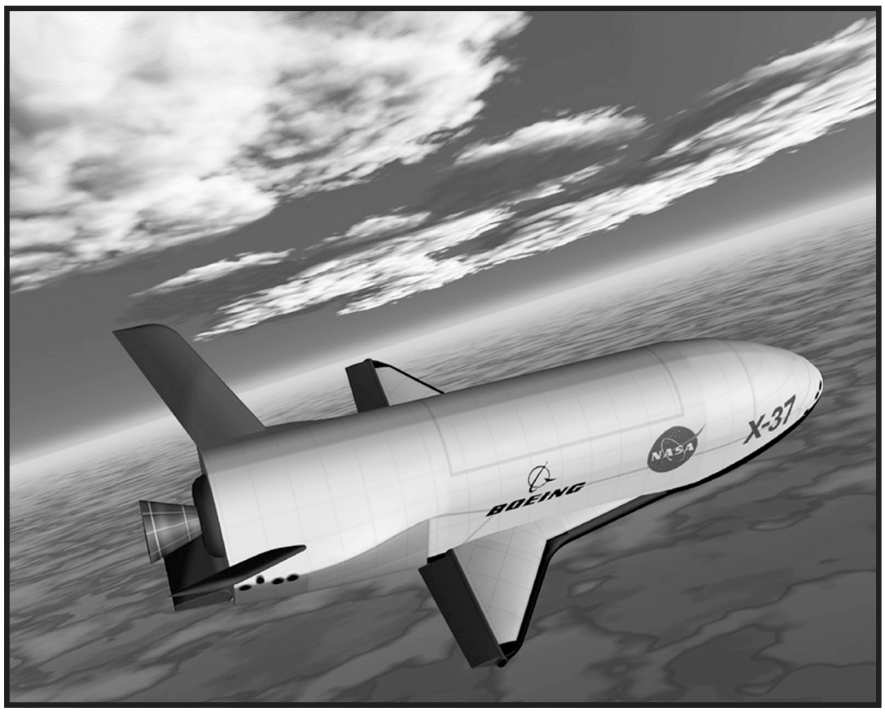
X–37 Demonstrator To Test Future Launch Technologies in Orbit and Reentry Environments



NASA's X–37 is an advanced technology flight demonstrator, which will help define the future of space transportation – pushing technology into a new era of space development and exploration at the dawn of the new century.

The X–37, a reusable launch vehicle, is designed to operate in both the orbital and reenty phases of flight. The robotic space plane will play a key role in NASA's effort to dramatically reduce the cost of putting payloads into space.

Capable of being ferried into orbit by the Space Shuttle or an expendable launch vehicle, the X–37 will operate at speeds up to 25 times the speed of sound and test technologies in the harsh environments of space and atmospheric reentry.

The X–37 will demonstrate dozens of advanced airframe, avionics and operations technologies that can support various launch vehicle and spacecraft designs. A major focus of the X–37 will seek improvement of today's spacecraft thermal protection systems. The systems now in use are fragile and expensive to maintain.

In December 1998, NASA selected The Boeing Company of Seal Beach, Calif., for negotiations that led in July 1999 to the award of a four-year cooperative agreement to develop the X–37. Total value of the cooperative agreement, including government and Boeing contributions, is about $173 million with an approximate 50/50 sharing arrangement. The government share includes $16 million from the U.S. Air Force to demonstrate additional technologies needed to improve future military spacecraft.

The X–37 is 27.5 feet long – about half the length of the Shuttle payload bay – and weighs about 6 tons. Its wingspan is about 15 feet, and it contains an experiment bay 7 feet long and 4 feet in diameter.

The X–37's on-orbit propulsion is provided by the AR-2/3, a high reliability engine with a legacy stretching back to the 1950s. Hydrogen peroxide and JP-8, a grade of kerosene commonly used as jet fuel, will propel the X–37 engine. Less toxic, more environmentally friendly and more compact than today's rocket propellants, JP-8 and hydrogen peroxide have applications for operational vehicles that could succeed the flight demonstrator.

The X–37's shape is a 120 percent scale derivative of the Air Force's X-40A, also designed and built by Boeing, which was released from a helicopter and glide-tested in 1998.

The X-40A, which lacks the X–37's advanced thermal protection materials, rocket engine, experiment bay and other spacecraft systems, is to be released from a U.S. Army Chinook helicopter in a series of free flight tests in 2001 to reduce technical risk before flight testing the X–37.

Assembly, integration and checkout of the X–37 are planned at Boeing facilities in Palmdale and Seal Beach, Calif., in 2001 and 2002. Unpowered atmospheric tests are planned for 2002 at Edwards Air Force Base, Calif. The first orbital test flight is planned for 2003.

After the X–37 is deployed, it will remain in orbit up to 21 days, performing a variety of experiments before reentering the atmosphere and landing on a conventional runway. Several locations are being studied for the landing site.

The X–37 government team, led by NASA's Marshall Space Flight Center in Huntsville, Ala., also includes NASA's Ames Research Center, Mountain View, Calif.; Kennedy Space Center, Fla.; Goddard Space Flight Center, Greenbelt, Md.; Langley Research Center, Hampton, Va.; Dryden Flight Research Center and the U.S. Air Force Flight Test Center, both at Edwards Air Force Base.

The X–37 industry team is led by The Boeing Co. of Seal Beach. Boeing facilities participating in the program are located in Seattle; St. Louis; Palmdale and Huntington Beach., Calif.

Flight demonstrators, like the X–37, have a critical role in demonstrating technologies that cannot be validated on the ground. NASA is pursuing, through the Space Launch Initiative, technologies that will enable the Agency to achieve its goals of enabling safe, reliable, affordable access to space in the future.

The X–37 project is part of NASA's new innovative business strategy to dramatically reduce the cost of space transportation. For the first time, NASA will be able to readily test and validate new, state-of-the-art space transportation technologies in flight.

The Space Transportation Directorate at the Marshall Space Flight Center manages the X–37 project. For more information on Marshall's space transportation programs, visit its Web site at http://stp.msfc.nasa.gov

For more information and electronic images on the X–37 and other Marshall Center activities, contact the Marshall Media Relations Office at (256) 544–0034 or visit Marshall's News Center on the Web at:

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