



STS-71 ATLANTIS



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NASA'S SHUTTLE FLEET

A Space Shuttle consists of an orbiter, an external tank, and two solid rocket boosters. It is 184.2 feet in height, with a gross liftoff weight of about 4,500,000 pounds and a total liftoff thrust of 7,700,000 pounds. This thrust decreases during the two minutes the solids burn, to about 3,000,000 pounds during the last 20 seconds. After the solids are discarded, the orbiter engines burn for 6½ more minutes and take the vehicle on to near-orbital velocity.

The delta-winged orbiter resembles an airplane and is about the size of a DC-9 jetliner. The four orbiters in service are Columbia, Discovery, Atlantis and Endeavour. Only the orbiters have names.

A Space Shuttle orbiter is 122.17 feet in length, with a wingspan of 78.06 feet. The three main engines each produce 375,000 pounds of thrust at sea level and 470,000 pounds in the vacuum of space. The cargo bay is 60 feet in length and 15 feet in diameter. The Space Shuttle could launch a Greyhound bus into orbit.

After the boosters separate from the Shuttle they descend by parachute to a watery landing. They are retrieved by two specially designed ships and returned to Kennedy Space Center for refurbishment and eventual reuse.

After the orbiter's three main engines shut down the external tank is jettisoned, breaks up in the atmosphere, and falls into the Indian Ocean. It is the only major Shuttle component that is not reused.

The orbiter uses its smaller maneuvering system engines, supplied by on-board propellants, to enter orbit; performs its mission; and uses these engines again to slow the vehicle and return through the atmosphere to land as an unpowered glider.

More than 200 significant modifications have been made to the orbiter fleet since 1986. One of these was a crew escape system. It allows the crew members to bail out if the orbiter is in level flight within the atmosphere, but cannot reach a safe runway.

The Space Shuttle will be the primary launch vehicle for the United States for the remainder of this century.