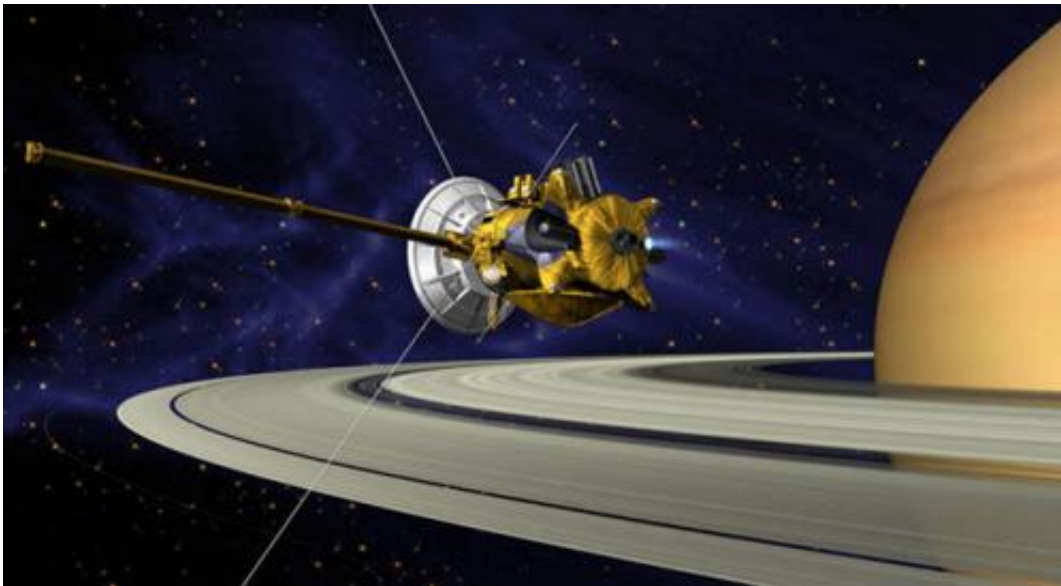


# Cassini prepares for its biggest remaining burn

August 8 2014

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This is an artists concept of Cassini during the Saturn Orbit Insertion (SOI) maneuver, just after the main engine has begun firing. Credit: NASA/JPL

(Phys.org) —NASA's Cassini spacecraft will execute the largest planned maneuver of the spacecraft's remaining mission on Saturday, Aug. 9. The maneuver will target Cassini toward an Aug. 21 encounter with Saturn's largest moon, Titan.

The main engine firing will last about a minute and will provide a change in velocity of 41 feet per second (12.5 meters per second). This is the largest maneuver by Cassini in five years. No other remaining maneuver

comes close, in the amount of propellant it will consume and the amount by which it will change the spacecraft's velocity. By contrast, the smallest maneuvers Cassini routinely executes are about 0.4 inches (10 millimeters) per second.

The large size of the Aug. 9 burn is needed to begin the process of "cranking down" Cassini's orbit, so that the spacecraft circles Saturn nearer to the plane of the rings and moons. Previously, with each Titan flyby, mission controllers adjusted the spacecraft's orbit to be increasingly inclined, carrying Cassini high above Saturn's polar regions. The upcoming [maneuver](#) starts reversing that trend, making the orbit increasingly close to the equator.

Although Cassini has occasionally performed similar large propulsive maneuvers during its decade in the Saturn system, Titan itself has proven to be the workhorse for steering Cassini around Saturn. It is not uncommon for the spacecraft to receive a gravitational assist, or boost, from Titan that rivals or exceeds the 96-minute engine burn Cassini performed in 2004 to insert itself into Saturn orbit.

The Cassini mission recently celebrated a decade studying Saturn, its rings, moons and magnetosphere.

Provided by NASA

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