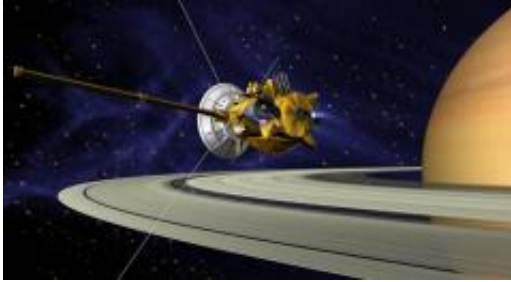


Cassini Thruster Swap Planned

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Artst concept of Cassini spacecraft. Image credit: NASA/JPL

(PhysOrg.com) -- The Cassini spacecraft will swap to a backup set of propulsion thrusters in mid-March due to degradation in the performance of the current set of thrusters.

The thrusters are used for making small corrections to the spacecraft's course, for some attitude control functions, and for making angular momentum adjustments in the reaction wheels, which also are used for attitude control.

The current set of eight thrusters, referred to as branch A, has been in use since Cassini's launch more than 11 years ago. The redundant set, branch B, is an identical set of eight thrusters.

Propulsion engineers began to see a lower performance from one of the thrusters on branch A in October. A second branch A thruster is also now showing some degraded performance.

An extensive review with the propulsion system contractor, Lockheed Martin Space Systems, Denver, Colo., the thruster manufacturer, Aerojet, Sacramento, Calif., and propulsion experts at NASA's Jet Propulsion Laboratory, Pasadena, Calif., was completed last week. The recommendation was made to swap to side B as soon as is practical.

Mid-March is the earliest practical opportunity to make the swap. This allows time for the team to properly test and prepare the sequence of commands that will be sent to the spacecraft. Science planners have identified a period where no high-priority science will be lost during the switch, which will be done over a seven-day window. It also is a time when no navigation maneuvers are required to maintain the spacecraft's trajectory.

The swap involves commanding a latch valve to open hydrazine flow to the B side, and powering on some thruster control electronics. No pyrotechnic devices are involved in the swap, and the action is fully reversible if necessary.

Almost all Cassini engineering subsystems have redundant backup capability. This is only the second time in Cassini's 11 years of flight that the engineering teams have gone to a backup system. The backup reaction wheel was brought online a few years ago and is currently functioning as one of the three prime wheels.

Cassini successfully completed its four-year planned tour and is now in extended mission operations.

More information on the mission is available at: saturn.jpl.nasa.gov and www.nasa.gov/cassini .

Provided by JPL/NASA

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