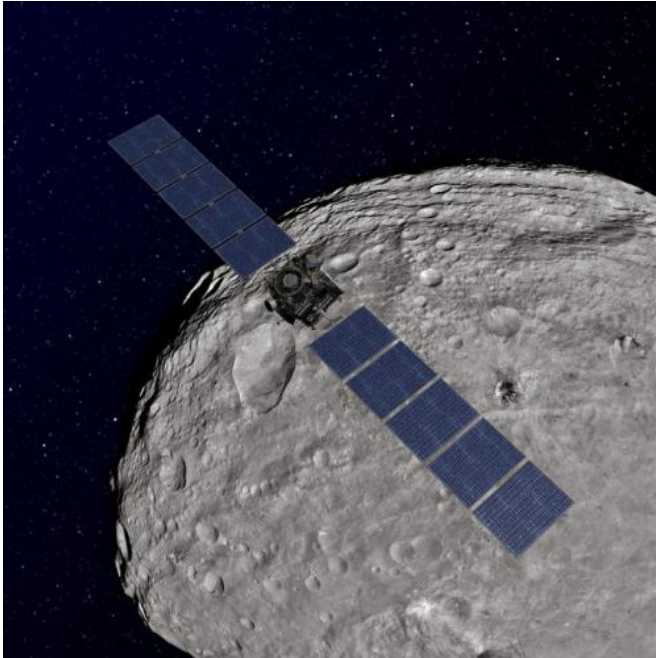


Dawn Engineers Assess Reaction Wheel

14 August 2012



This artist's concept shows NASA's Dawn spacecraft orbiting the giant asteroid Vesta. The depiction of Vesta is based on images obtained by Dawn's framing cameras. Image credit: NASA/JPL-Caltech

Engineers working on NASA's Dawn spacecraft are assessing the status of a reaction wheel -- part of a system that helps the spacecraft point precisely -- after onboard software powered it off on Aug. 8. Dawn's mission is to study the geology and geochemistry of the giant asteroid Vesta and dwarf planet Ceres, the two most massive objects in the main asteroid belt. Dawn is now using its thrusters to point at Earth for communications. The rest of the spacecraft is otherwise healthy.

During a planned communications pass on Aug. 9, the team learned that the reaction wheel had been powered off. Telemetry data from the spacecraft suggest the wheel developed excessive friction, similar to the experience with another Dawn reaction wheel in June 2010. The Dawn team demonstrated during the cruise to Vesta in 2011

that, if necessary, they could complete the cruise to Ceres without the use of reaction wheels.

The spacecraft has been orbiting Vesta since July 15, 2011. Dawn concluded its primary science observations of Vesta on July 25, 2012, and has been spiraling slowly away from the giant asteroid using its ion propulsion system. Ion thrusting was halted to accommodate the reaction wheel investigation, which may briefly delay the escape from Vesta.

"The Vesta mission has been spectacularly successful, and we are looking forward to the exciting Ceres mission ahead of us," said Robert Mase, Dawn project manager, of NASA's Jet Propulsion Laboratory, Pasadena, Calif.

Provided by NASA

APA citation: Dawn Engineers Assess Reaction Wheel (2012, August 14) retrieved 21 June 2021 from <https://phys.org/news/2012-08-dawn-reaction-wheel.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.