

Further Tests Designed for Rover's Right-Rear Wheel

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An artist's concept portrays a NASA Mars Exploration Rover on the surface of Mars. Image credit: NASA/JPL/Cornell University

(PhysOrg.com) -- A series of diagnostic tests on Spirit's right-rear wheel on sols 2104 and 2105 (Dec. 3 and 4) investigated stalls that occurred on Sol 2099 (Nov. 28) and earlier. The rover team cannot draw any conclusions at this point, but the results are not encouraging, and further tests are planned.

The recent tests included rotor-resistance tests at three temperatures and a one-radian (about 57 degrees) forward motion test. The resistance tests indicate anomalously high resistance in the motor winding at all three temperatures. However, a curious transition from anomalously low resistance to high resistance was observed very briefly on the very first resistance test.

The resistance remained high for the balance of all the testing. Control measurements on the left-rear wheel showed normal resistance for that actuator motor. For the forward wheel motion test, the right-rear wheel stalled immediately and did not produce any motion.

The plan ahead is to explore a set of hypotheses: possible [motor](#) failure, possible internal gearbox jam, possible external jam (e.g., a rock in the [wheel](#)). Commands being developed for Spirit's activities on sols 2109 and 2110 (Tuesday and Wednesday, Dec. 8 and 9) will include more diagnostics to explore these hypotheses.

Provided by JPL/[NASA](#) ([news](#) : [web](#))

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