

Spirit Mars Rover: Unexpected Wheel-Test Results

December 15 2009



Diagnostic tests were run on Spirit's right-rear wheel and right-front wheel on Sol 2013 (Dec. 12, 2009). Image Credit: NASA/JPL-Caltech (Click Enlarge for animation)

(PhysOrg.com) -- Diagnostic tests were run on Spirit's right-rear wheel and right-front wheel on Sol 2013 (Dec. 12, 2009).

The right-rear wheel, which stalled during a drive two weeks earlier, continued to show no motion in the latest tests and exhibited very high resistance in the motor winding. The right-front wheel, which stopped operating on Sol 779 (March 13, 2006), surprised engineers by indicating normal resistance and turning slightly during a resistance test for that wheel.

Small motion is expected during an electrical resistance test for an operating actuator, but the right-front actuator was expected to be non-

operational. The right-front wheel was last checked just after its apparent failure in 2006 and at that time indicated an open circuit. Although no clear theory for failure had been established, the [failure](#) was generally regarded as permanent. It is important to remember that the Sol 2013 test of the right-front [wheel](#) was only a rotor resistance test, and no conclusions can be drawn at this point without further testing.

The plan for Spirit on [Sol](#) 2116 (Dec. 15) is to command a drive. This drive will further investigate functionality of the right-front and right-rear wheels. The results are expected Wednesday.

Provided by JPL/NASA

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