

Spirit Nears Home Plate

February 7 2006

Spirit continues to make progress toward "Home Plate," a conspicuous circular feature scientists hope to investigate before the Martian winter, in search of layered rock outcrops that may provide additional information about the geology of the "Columbia Hills."

During the past week, the rover has driven nearly 100 meters (328 feet), and has still had time to do some targeted remote sensing. Spirit is currently just less than 170 meters (560 feet) from Home Plate.

During the past week, engineers noticed some anomalies in dynamic braking on two of the steering motors, similar to previous events on Spirit. Based on analysis and testing, they were able to continue the drive without incident.

Sol-by-sol summaries

Sols 730 and 731 (Jan. 22 and 23, 2006): The weekend plan included a 10.8-meter (35.4-foot) drive to the crest of "Lorre Ridge." Spirit acquired targeted pre-drive and post-drive images. The rover spent most of Sunday recharging the battery to allow a longer drive on Monday.

Sol 732: Spirit drove 40 meters (131 feet), using a combination of commanded and autonomous navigation along with a parallel obstacle-check sequence to keep from getting too close to potential hazards. The rover acquired a pre-drive image of a target called "FuYi." After the drive, the panoramic camera and navigation camera acquired forward-looking mosaics. The next morning, Spirit acquired rear-looking images

with the navigation camera and forward-looking mosaics with the panoramic camera using two more filters.

Sol 733: Spirit completed an autonomous drive of approximately 40 meters (131 feet). Just before beginning autonomous navigation, Spirit experienced a dynamic brake error in the left front and right rear steering actuators, at which point engineers halted the drive.

On the surface, this appeared to be similar to dynamic brake anomalies experienced on sols 265 (Oct. 1, 2004) and 277 (Oct. 13, 2004), which involved the right front and left rear steering motors. Analysis and testing at the time indicated that the problem was consistent with a delayed contact on the status relay. The rover engineering team sent a command to ignore the relay status, and since then, the rover has driven (with all steering motors enabled) without incident.

In the meantime, the team determined that it was safe to continue driving, but without using the left front and right rear steering motors.

Sol 734: Spirit drove approximately 9 meters (30 feet) autonomously. Engineers conducted the same diagnostic tests they ran following the sol 265 incident in the testbed, to verify that the procedures worked with the current flight software. While awaiting dynamic brake diagnostics, they disabled Spirit's left front and right rear steering motors and allowed Spirit to drive only where they could clearly see the surrounding terrain and it was not necessary to steer around any obstacles.

Sol 735 (Jan. 27, 2006): Planned activities included a short, autonomous drive with the left front and right rear steering motors disabled, following a short diagnostic activity to characterize the behavior of the dynamic brakes and the dynamic brake relay switch.

Odometry:

As of sol 735, Spirit's total odometry was 6,279.01 meters (3.9 miles).

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