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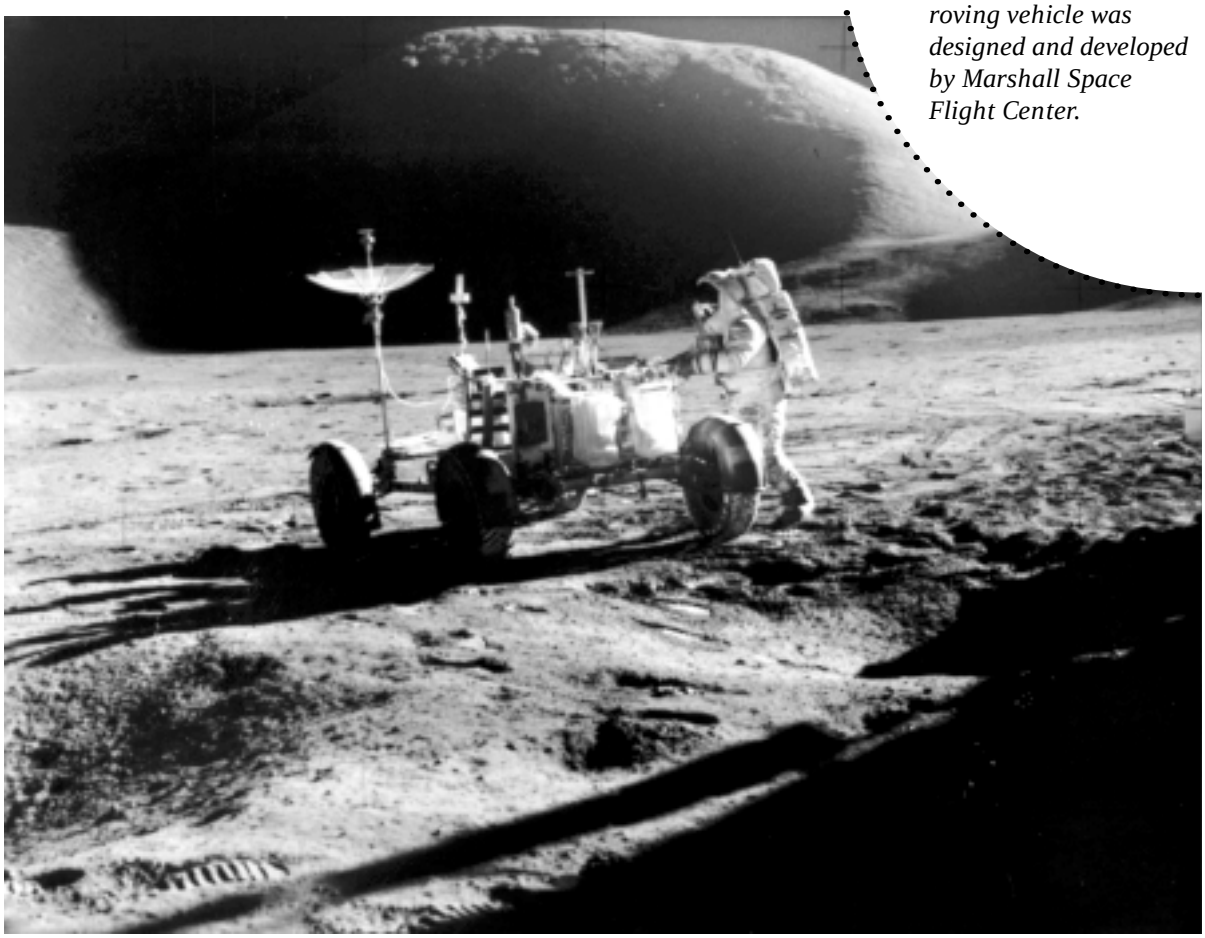
The Lunar Roving Vehicle



Apollo 15 astronaut Jim Irwin on the surface of the Moon with the lunar roving vehicle. A lunar roving vehicle was used on the last three Apollo expeditions to the Moon. The lunar roving vehicle was designed and developed by Marshall Space Flight Center.

As time drew near for the manned lunar landings, NASA decided to provide a lunar roving vehicle that would extend the astronauts' range of exploration and their ability to carry equipment and lunar samples.

By 1969, Marshall was responsible for the design, development, and testing of the new article. The vehicle contrasted with the towering Saturn vehicles. It was a fragile looking, open-space vehicle about 10 feet long with large mesh wheels, antenna

appendages, tool caddies, and cameras. Powered by two 36-volt batteries, it had four one-fourth hp drive motors, one for each wheel. The peculiar vehicle was collapsible for compact storage until needed, when it could be unfolded by hand.

Marshall engineers from the Center's laboratories contributed substantially to the design and testing of the navigation and deployment systems. In fact, the backup manual deployment system developed by Marshall proved more reliable than the automated system and became the primary method of deployment.

The rover was designed to travel in forward or reverse, negotiate obstacles about a foot high, cross crevasses about 2 feet wide, and climb or descend moderate slopes; its speed limit was about 14 km (9 miles) per hour. To assist in development of the navigation system, the Center created a lunar surface simulator, complete with rocks and craters, where operators could test drive the vehicle. The simulator also was used during the mission as an aid in responding to difficulties.

A lunar rover was used on each of the last three Apollo missions in 1971 and 1972 to permit the crew to travel several miles from the landing craft. Outbound, they carried a load of experiments to be set up on the Moon; on the return trip, they carried more than 200 pounds of lunar rock and soil samples. The vehicle performed safely and reliably on each excursion and enhanced the astronauts' work efficiency. It handled as well and steered as easily on the Moon as on Earth.