

## **India's Mars Orbiter Passes Crucial Test**

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Space scientists Monday said they had successfully test fired the engine on India's Mars satellite, a crucial maneuver as the country attempts to become the first Asian nation to place a spacecraft into Martian orbit.

The Indian Space Research Organisation said on Twitter that the four-second test firing of its Mangalyaan orbiter's main liquid engine had worked.

The engine has been dormant since December when the satellite left the Earth's gravitational orbit, so ISRO needed to be sure it was still functional.

"The spacecraft is healthy and has completed 98% of its journey to Mars," Koppillil Radhakrishnan, chairman of ISRO, told NDTV.

"This was the penultimate test for ISRO's Mars mission and is a major confidence booster telling the scientists that the liquid is flowing properly," said Ajey Lele, author of "Mission Mars: India's Quest for the Red Planet" and researcher at the Institute for Defence Studies and Analyses, a New Delhi-based think tank.

"The satellite is now traveling at a very high speed of 22 kilometers a second and needs the thrust of the engine to reduce that velocity so that it can enter into Martian orbit," said Mr. Lele.

Now that scientists have verified that the engine is operating smoothly the next and bigger challenge comes on Wednesday when the engine will need to fire for 24 minutes in order to slow the satellite down enough to orbit Mars successfully.

On Monday, U.S. satellite Maven reached Martian orbit.

If India succeeds in doing the same on Wednesday, it will have beaten rivals China and Japan which have both had abortive attempts at reaching the red planet's orbit.

Mr. Radhakrishnan said India would also be the first country in the world to reach Martian orbit at the first try.