Troubled space probe, launched by Japan, to return to Earth in June

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Hayabusa, a space probe plagued with problems since it was launched in 2003, will enter a flight path in a few weeks that will bring it back to Earth in June, the Japan Aerospace Exploration Agency said.

The probe, which visited a near-Earth asteroid, is orbiting the sun at a distance slightly different from Earth's orbit. The probe's rockets have been gradually changing this orbit. JAXA said the probe's current path would bring it between the Earth and the moon. Further rocket firings will put the probe on a path for an Earth encounter, which will happen in June.

Hayabusa has four rocket engines, but only one has been functioning properly since November, with the remaining three malfunctioning over the course of the probe's mission. The probe needs at least two engines to maneuver back to Earth, and many thought the probe would be forever lost in space.

But JAXA managed to bypass the electronic circuits of two malfunctioning engines to get one of the offline engines to provide thrust. The agency designed this circuit bypass system as an emergency fallback.

The two engines have fired smoothly since the fix and Hayabusa is now only 310,000 kilometers (167,386.6 nautical miles) from its targeted orbital path -- a distance closer than between Earth and the moon, which is about 380,000 kilometers (205,183.58 nautical miles).

If the remainder of Hayabusa's mission goes according to plan, the last rocket firings will be in late March, after which the laws of gravity will guide the probe into the Earth's atmosphere and a landing in the Australian desert in June.