

NASA is stacking the Artemis II rocket, implying a simple heat shield fix

A good sign

The readiness of the Orion crew capsule, where the four Artemis II astronauts will live during their voyage around the Moon, is driving NASA's schedule for the mission. Officially, Artemis II is projected to launch in September of next year, but there's little chance of meeting that schedule.

At the beginning of this year, NASA officials ruled out any opportunity to launch Artemis II in 2024 due to several technical issues with the Orion spacecraft. Several of these issues are now resolved, but NASA has not released any meaningful updates on the most significant problem.

This problem involves the Orion spacecraft's heat shield. During atmospheric reentry at the end of the uncrewed Artemis I test flight in 2022, the Orion capsule's heat shield eroded and cracked in unexpected ways, prompting investigations by NASA engineers and an independent panel.

NASA's Orion heat shield inquiry ran for nearly two years. The investigation has wrapped up, two NASA officials said last month, but they declined to discuss any details of the root cause of the heat shield issue or the actions required to resolve the problem on Artemis II.

These corrective options ranged from doing nothing to changing the Orion spacecraft's reentry angle to mitigate heating or

physically modifying the Artemis II heat shield. In the latter scenario, NASA would have to disassemble the Orion spacecraft, which is already put together and is undergoing environmental testing at Kennedy Space Center. This would likely delay the Artemis II launch by a couple of years.

In August, NASA's top human exploration official told Ars that the agency would hold off on stacking the SLS rocket until engineers had a good handle on the heat shield problem. There are limits to how long the solid rocket boosters can remain stacked vertically. The joints connecting each segment of the rocket motors are certified for one year. This clock doesn't actually start ticking until NASA stacks the next booster segments on top of the lowermost segments.

However, NASA waived this rule on Artemis I when the boosters were stacked nearly two years before the successful launch.

A NASA spokesperson told Ars on Wednesday that the agency had nothing new to share on the Orion heat shield or what changes, if any, are required for the Artemis II mission. This information should be released before the end of the year, she said. At the same time, NASA could announce a new target launch date for Artemis II at the end of 2025, or more likely in 2026.

But because NASA gave the "go" for SLS stacking now, it seems safe to rule out any major hardware changes on the Orion heat shield for Artemis II.

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