

Upper stage engine ready for testing at NASA's Stennis Space Center

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NASA's new J-2X rocket engine, which could power the upper stage of the nation's future heavy-lift launch vehicle, is ready for its first round of testing. The fully assembled engine was installed Saturday in the A-2 Test Stand at the agency's Stennis Space Center in Mississippi.

Beginning in mid-June, the engine will undergo a series of 10 test firings that will last several months.

"An [upper stage](#) engine is essential to making space exploration outside low-Earth orbit a reality," said Mike Kynard, manager of the J-2X upper stage engine project at NASA's [Marshall Space Flight Center](#) in Huntsville, Ala. "The J-2X goes beyond the limits of its historic predecessor and achieves higher thrust, performance, and reliability than the J2. We are thrilled to have the engine in the test stand to validate our assumptions about engine performance and reliability."

The test stand, which supported the space shuttle main engine project, has been modified to accommodate the J-2X engine's different shape. In addition to the structural, electrical and plumbing modifications, a new engine start system was installed and control systems were upgraded on the stand. The liquid oxygen and liquid [hydrogen transfer](#) lines that dated back to the 1960s were replaced.

Fueled by liquid oxygen and [liquid hydrogen](#), the J-2X engine will generate 294,000 pounds of thrust in its primary operating mode to propel a spacecraft into low-Earth orbit.

By changing the mixture ratio of [liquid oxygen](#) to liquid hydrogen, the J-2X can operate in a secondary mode of 242,000 pounds of thrust required to power a spacecraft from [low-Earth orbit](#) to the moon, an asteroid or other celestial destination. The J-2X can start and restart in space to support a variety of mission requirements.

"We are excited to have a new engine in the A-2 Test Stand," said Gary Benton, manager of the J-2X engine testing project at Stennis.

"Installation of the J-2X engine marks the beginning of the third major rocket engine test project on this historic stand."

The A-2 Test Stand originally was used to test Saturn V rocket stages for NASA's Apollo Program. In the mid-1970s, the stand was modified from Apollo Program parameters to allow testing of space shuttle main engines.

Provided by JPL/NASA

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