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Nation's mightiest rocket engine tested successfully

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Engineers in China's space industry conducted a key test of the country's most powerful liquid-propellant rocket engine on Saturday, a step forward in the development of a super-heavy carrier rocket.

Developed by the Academy of Aerospace Propulsion Technology in Xi'an, Shaanxi province, the 500-metric-ton thrust engine's first ignition test took place at the academy's testing facility in a Xi'an suburb. It was a "complete success," the academy said in a news release.

The achievement is an important breakthrough in the research and development of the engine, which is four times mightier than China's strongest rocket engine, which has a thrust of 120 tons.

The engine consumes liquid oxygen and kerosene and has the largest thruster chamber of any staged combustion rocket engine in the world, according to designers.

Wang Yanan, editor-in-chief of Aerospace Knowledge magazine, said such a large, powerful rocket engine must incorporate a state-of-the-art design, sophisticated components and reliable manufacturing techniques that can only be made by a great space power such as China.

"This kind of engine is a must-have if you want to send astronauts beyond low-Earth orbit and deploy probes to deep space," he said, noting only the United States and the former Soviet Union had developed and built heavy-lift rocket engines.

Space officials have said the new

engine is expected to be the main propulsion on the Long March 9 rocket, a model under research and development that will be used to send Chinese astronauts to the moon.

Upon its completion, the Long March 9 will likely become one of the world's largest and mightiest launch vehicles.

The super-heavy rocket is now under research and development at the China Academy of Launch Vehicle Technology in Beijing and is expected to enter service around 2030.

The rocket will be 93 meters tall with a liftoff weight of 4,140 tons and a thrust of 5,760 tons. The diameter of its core stage will be about 10 meters, according to designers at the Beijing academy.

The craft will be so powerful that it will be able to transport spacecraft with a combined weight of 140 tons to a low-Earth orbit hundreds of kilometers above the ground, and will also be capable of deploying spaceships weighing up to 50 tons to the moon for lunar expeditions.

Once the Long March 9 enters operation, its carrying capacity will be more than five times that of the Long March 5 — currently the most powerful Chinese rocket.

The Wenchang Space Launch Center in Hainan province has planned to construct new testing and support facilities as well as a new launchpad for the super-powerful rocket.

The Long March 9 will be crucial to realizing the nation's ambitious plans of landing its astronauts on the moon and sending large robotic spacecraft to deep space.