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# CHINA DAILY

香港版  
HONG KONG

TUESDAY, June 25, 2024

中國日報

www.chinadailyhk.com HK \$10

## Reusable carrier rocket passes the 'hop test'

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China Aerospace Science and Technology Corp, the nation's leading space contractor, conducted a major technological test on Sunday, bringing the company closer to its goal of building the nation's first reusable carrier rocket.

The State-owned conglomerate said in a news release that one of its subsidiaries, the Shanghai Academy of Spaceflight Technology, used an experimental rocket to perform a "hop test" — in which a rocket lifts off and then makes a controlled vertical landing — at the Jiquan Satellite Launch Center in northwestern China's Gobi Desert.

During the six-minute "vertical takeoff and vertical landing" test, the experimental rocket reached a height of approximately 12 kilometers and then descended to softly land at a designated point.

CASC said it was the most sophisticated VTVL test ever done by a Chinese experimental reusable craft, and verified several crucial



The reusable rocket is hoisted onto its launchpad at Jiquan Satellite Launch Center on Saturday. PROVIDED TO CHINA DAILY

technologies that will be used in the scheduled maiden flight of a reusable rocket next year.

The craft used in the test had a diameter of 3.8 meters and was propelled by three liquid oxygen-methane engines, it added.

The hop test is an important step in the research and development of any reusable rocket because it

allows designers to assess the performance of reusable engines and the rocket's ability to land safely.

"The major difference between expendable rockets and reusable ones is that the engines on the reusable ones can be reignited multiple times during a flight and can be reused, while those on conventional rockets can only burn once and

are disposable," said Wang Yanan, chief editor of Aerospace Knowledge.

"In addition, another key to building a reusable rocket is that you must be able to control the descent process of the rocket, and that requires a lot of technologies."

In addition to the Shanghai academy, another CASC subsidiary — the China Academy of Launch Vehicle Technology in Beijing — is also developing reusable rockets.

Jiang Jie, a top rocket scientist at the China Academy of Launch Vehicle Technology, said that a reusable space transportation system will substantially improve China's capability of reaching Earth's orbit and developing space resources. It will also help to reduce safety risks created by launch activities, lower launch costs and inject momentum into space technology, she added.

Besides State-owned players, two private Chinese enterprises have conducted hop tests of their own methane-fueled experimental craft.