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## Chinese company tests reusable rocket

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A leading Chinese commercial space company launched the country's first reusable rocket on Wednesday, with the spacecraft's second-stage booster managing to enter its designated orbit, despite the attempt to recover its first-stage booster remaining unsuccessful.

The ZQ 3 Y1 carrier rocket — a gigantic vessel designed and manufactured by Beijing-based LandSpace and primarily made of stainless steel — blasted off at noon from its launch service tower at the Jiuquan Satellite Launch Center in northwestern China. The code name Y1 signifies that the rocket is the first in the ZQ 3 series.

After a short flight, the rocket's second-stage booster reached its preset orbital position, but the first-stage booster burst into a fireball over a designated recovery site in Minqin county in Gansu province, about 390 kilometers from the launch site.

The mission verified the overall plan for the testing, launch and flight of the ZQ 3 model, and demonstrated the compatibility of interfaces between various systems, according to LandSpace.

It successfully obtained critical technical data during the flight, laying a solid foundation for optimizing the rocket's design, enhancing its overall reliability, and realizing recovery, the company said.

Technical specifications from LandSpace show that the ZQ 3 Y1 is 66.1 meters tall and 4.5 meters wide, and weighs nearly 560 metric tons when fully fueled. With a liftoff thrust of over 750 tons, it is capable of transporting heavy satellites to low-Earth or sun-synchronous orbits.

The rocket was propelled by LandSpace's own methane engines — the first stage had nine TQ 12A engines, creating the major lift for the rocket, while the second stage had a TQ 15A engine. Compared with traditional types of rocket

engines that can function only once, a methane engine is reusable and more environment-friendly.

The rocket's propellant tanks are constructed with stainless steel, which features good strength, resistance to high temperatures and corrosion, and a very competitive cost. There were four grid fins and four landing legs on the vessel, which were meant to allow the first-stage booster to make a soft landing.

LandSpace has invested a considerable amount of resources in the research and development of ZQ 3, as the company wants to use the reusable model to compete for lucrative launch service contracts, an opportunity created by China's grand plan of establishing a massive internet satellite network.

In July 2023, LandSpace conducted the world's first orbital mission of a methane-propelled carrier rocket when it launched the ZQ 2 rocket. To date, the ZQ 2 and its modified variant have made a total of six launches.