Japan's PM reelected
Experts: Ishiba's administration may face increased challenges
WORLD. PAGE 11

Low-altitude flights help to beat traffic woes
BUSINESS. PAGE 14

Ding's comeback
Chinese snooker champion claims first major title since 2019 SPORTS. PAGE 20

香港版
HONG KONG

CHINA DAILY

中国日报

TUESDAY, November 12, 2024

www.chinadailyhk.com HK **$10**

Nation's space shuttle set to improve efficiency, cut costs

By ZHAO LEI in Zhuhai, Guangdong
zhaolei@chinadaily.com.cn

The Aviation Industry Corp of China is a major hardware supplier to the People's Liberation Army Air Force, Navy and Ground Force. And now, it has earned a new client — the China Manned Space Agency.

Inside
Comment, page 9

A reusable cargo spaceplane, one of the company's latest products, has gained the AVIC a contract from the space agency, which runs China's crewed spaceflights.

According to the State-owned defense conglomerate, the Haolong space shuttle, designed by its Chengdu Aircraft Design and Research Institute in Sichuan province, aims to further reduce the cargo transportation costs involved in the operation of China's Tiangong space station.

Zhang Jichao, a deputy general manager of the AVIC, said at a news conference in Zhuhai, Guangdong province, on Monday that the space shuttle's conceptual plan has been finalized and researchers have started the design and production work for the first prototype's components.

"Once put into service, Haolong will be launched by China's commercial carrier rockets to dock with the country's Tiangong space station. After completing its tasks, the shuttle will return to the Earth's atmosphere and make a horizontal landing on a runway like a plane," Zhang said.

"The model features good reusability and can ferry materials back and forth between the space station and Earth," he added.

Zhang said the use of such a spaceplane will significantly cut the time that mission planners now have to wait for between two cargo flights, and reduce the cost of each flight.

Compared with traditional cargo vessels that cannot be reused, the shuttle will be able to bring goods back to Earth, which will greatly facilitate scientific experiments, according to the executive.

Fang Yuanpeng, Haolong's chief designer, said the space shuttle will be about 10 meters long and eight meters wide. It will have two foldable curved wings, a vertical fin and will generate power via solar panels. During its docking with the space station, astronauts can move into it to take materials or store items, he noted.

A model of the spacecraft will be displayed at the 15th China International Aviation and Aerospace Exhibition, which opens on Tuesday in Zhuhai and runs through Sunday.

Currently, China has only one model of cargo spaceship, Tianzhou, which is a product of the China Academy of Space Technology in Beijing. So far, seven Tianzhou vessels have been launched and six of them were used to transport supplies to the Tiangong space station.

Orbiting Earth at a distance of about 400 kilometers, the Chinese space station has three permanent parts — a core module and two science capsules — and is regularly connected to several visiting crew and cargo spaceships.

It has been manned by eight Chinese crews, including the incumbent Shenzhou XIX team. All of the crews' living and work necessities need to be transported by cargo vessels.

Commercial space firm launches first satellite for foreign client

By ZHAO LEI in Zhuhai, Guangdong
zhaolei@chinadailu.com.cn

CAS Space, a Beijing-based rocket maker owned by the Chinese Academy of Sciences, conducted the fifth flight of its Kinetica 1 rocket model on Monday afternoon, transporting 15 satellites, including one built by China for Oman, into space.

It marked the first time that a Chinese commercial space company has launched any satellite for a foreign client. It is also the first time that an Omani satellite has been successfully put into orbit.

The Kinetica 1-Y5 rocket lifted off at 12:03 pm from the Jiuquan Satellite Launch Center in the Gobi Desert and carried the satellites to their preset orbit, the company said in a news release.

The "Y5" in the designation code means it is the fifth in the rocket series.

Among the satellites launched by the rocket, the IRSS-1 was designed and built by the China Academy of Space Technology, a subsidiary of the State-owned space conglomerate China Aerospace Science and Technology Corp, for the Omani space industry startup Oman Lens.

The contract for the satellite's manufacturing and launch service was jointly signed by the China Great Wall Industry, CASC's international business wing, and the Omani company.

The IRSS-1 is equipped with artificial intelligence-enable computing apparatus that can process data and images in orbit, according to its designers.

The satellite is tasked with collecting data and images for land mapping, urban construction planning, forestry resources survey and disaster monitoring for the Middle Eastern nation.

The Kinetica 1 series conducted its debut flight at the Jiuquan spaceport in July 2022, making it the country's largest and most powerful solid-propellant rocket at the time.

The rocket has a length of 30 meters and a liftoff weight of 135 metric tons. It is capable of sending satellites with a combined weight of 1.5 tons to a typical sun-synchronous orbit about 500 kilometers above Earth.

To send the 15 satellites, CAS Space mounted a larger payload fairing, which holds and protects the spacecraft carried by a launch vehicle.

The payload fairings of the four previously launched Kinetica 1 rockets all had the same diameter of 2.65 meters. On the Kinetica 1-Y5, the diameter is 3.35 meters.

As of now, Kinetica 1 rockets have deployed a combined 57 satellites in space, boasting a 100-percent success rate.

CAS Space has begun to develop a new rocket, Kinetica 2, and plans to conduct its maiden flight in September 2025.

The Kinetica 2 will be a medium-lift, liquid-fuel rocket. The 53-meter new model will consist of a multistage core booster, which will have a diameter of 3.35 meters, and two side boosters.

It will have a liftoff weight of 628 tons, a maximum thrust of 766 tons and will be able to transport spacecraft with a combined weight of 7.8 tons to a sun-synchronous orbit or 12 tons to a low-Earth orbit.

After entering service, the Kinetica 2 will be used to transport the Qingzhou-series cargo spacecraft, which is now being developed at the Innovation Academy for Microsatellites of the Chinese Academy of Sciences, to China's Tiangong space station, according to CAS Space.

The Kinetica 1-Y5 rocket blasts off on Monday.
PROVIDED TO CHINA DAILY