

Shenzhou-6 Mission In Final Preparation For Possible Launch On October 13

October 6 2005

The Shenzhou-6 mission is in final preparation with the integration of the spacecraft to its launcher this week at the launch site, and the expected arrival of the six-crew candidates from Beijing.

As most people in China still enjoy the weeklong holiday following National Day celebrations on Oct. 1, personnel at JSLC only got a little time off from their busy prelaunch work schedule.

Rollout of the CZ-2F launcher, with Shenzhou-6 on board, will take place shortly after the end of the weeklong holiday ending Oct. 7, Wen Wei Po said on Sept. 29.

Liftoff of the much-anticipated Shenzhou-6 mission (SZ-6, Shenzhou means "Divine Vessel" or "Magic Vessel") would take place no earlier than October 13, according to Wen Wei Po who first reported the possible launch date on Sept. 25. Other Chinese media reports have since widely quoted the launch date.

The Hong Kong-based pro-Beijing newspaper said that "relevant departments are preparing for a launch on October 13", the opening of the launch window, but could delay the liftoff "based on the situation at the [launch] site". This includes the workflow of the launch preparation, and weather conditions there and downrange.

Aerospace experts also told the newspaper that the launch of SZ-6 was originally planned for last year. But officials postponed it to this year to

"better prepare the mission".

China launched its first yuhangyuan ("astronaut") Yang Liwei on the historic SZ-5 mission atop the Changzheng-2F (Long March-2F) launcher from the Jiuquan Satellite Launch Centre (JSLC) in Inner Mongolia on October 15, 2003 at 9 a.m. Beijing Time (0100 UTC).

The mission ended with a successful landing in Inner Mongolia the following day at 6:23 a.m. Beijing Time (2223 UTC October 15), 21 hours 23 minutes after the liftoff.

The successful mission earned China the elite status of being the third nation to launch its own people into space.

Wen Wei Po also quoted eyewitnesses at JSLC as saying that SZ-6 looked similar to SZ-5, except that a "transition segment" was visible at the top of the SZ-6 stack, attached to one end of the Orbital Module.

The newspaper said that after separating from the Descent Module at the end of the nominal mission, the Orbital Module would remain in space for an extended mission to further carry out a series of science experiments. The Orbital Module "could also serve as a target space vehicle for future docking".

It is not clear if the SZ-6 Orbital Module would indeed be used as a docking target for SZ-7.

On Aug. 10 Yang Liwei said at a news conference in Fuzhou, capital of Fujian Province, that the SZ-9 mission would be the first attempt to perform an orbital docking with the SZ-8 Orbital Module. He said that SZ-7, which had been proposed for a 2007 launch, would see the first extravehicular activity.

Mission Information Sketchy

Although Chinese space officials have remained silent on many aspects of the mission, Wen Wei Po and Ta Kung Pao have started to publish mission preparation reports since last month based on information from unidentified sources.

The pattern of information disclosure is similar to that prior to the launch of SZ-5.

Back then, the two Hong Kong newspapers had released information, some fairly reliable, before the official announcement in key newspapers and news agencies in China. For example, Wen Wei Po was the first media outlet to reveal the identity of the three yuhangyuans in the final stage of competition for the momentous place on SZ-5 - one day before Chinese space officials made the announcement .

Three and a half weeks ago on Sept. 9, Wen Wei Po broke the news that the two-person SZ-6 mission would be 119 hours long. The launch and landing would occur during daylight hours to enhance the safety of the two yuhangyuans.

Ta Kung Pao reported on Sept. 25 that SZ-6 would be expected to touch down at the primary landing site near the town of Siziwang Qi in the central region of Inner Mongolia. Siziwang Qi is about 80 km north of Hohhot, the capital of Inner Mongolia. The alternate landing site for SZ-6 is JSLC to the west.

The report said that in recent days a large contingent joined the small recovery team that usually stationed there. The larger recovery unit rehearsed with a mock Descent Module that clearly looked different from the real Shenzhou capsule.

Leaders of the recovery unit also visited local residents to disseminate information on the return and recovery of SZ-6 and safety measures.

The launch campaign entered a heightened state since July. Wen Wei Po said on Sept. 8 that there was a sudden increase in personnel, mostly from Beijing and Shanghai, in July and August at JSLC. A report in Ta Kung Pao on Aug. 30 further corroborated that the Dongfeng ("East Wind") Aerospace City was closed to tour groups as of late August.

The Dongfeng Aerospace City is where many personnel, and their families, who are associated with the Chinese space program and military program live. The city, with JSLC as the best known nearby facility, is located along the shore of the lower reaches of the Hei River ("Black River") called Ruoshui River ("Little Water River"), in the area near Ejin Qi in Inner Mongolian Autonomous Region.

After the successful mission of SZ-5, China partially opened the aerospace city to tourism. Last year 15,700 tourists visited the city and brought in nearly RMB 8.7 million (USD 1.08 million) in revenue.

The launcher that would send SZ-6 into space arrived at JSLC by mid-September. In a report on Sept. 17, witnesses told Wen Wei Po that the CZ-2F launcher arrived from Beijing by rail in segments under heavy security. The segments are stacked vertically in the huge Vertical Assembly and Testing Building (VATB), the equivalent of the famed Vehicle Assembly Building (VAB) at Kennedy Space Center.

A report in Ta Kung Pao on Monday (Oct. 3) wrote that security at both the launch center and the landing site became exceptionally tight. Entry to JSLC has been restricted to personnel related to the launch, with the roads leading to the launch centre sealed off to everyone else.

Before Oct. 1 personnel who were not involved in the SZ-6 mission were

asked to leave the Dongfeng Aerospace City. Motels and hotels have all been reserved for other SZ-6 mission personnel who arrive from out of town.

Reporters who have received permission to visit JSLC would not be able to enter the launch center without a military escort. To reach JSLC the Ta Kung Pao reporter took an almost three-hour ride from the city of Jiuquan in Gansu Province in a white license plate military vehicle, which apparently is the only kind of vehicle that could enter the launch center.

At 35 km outside the Aerospace City is the first checkpoint. Except military vehicles with the special permit, all other vehicles and passengers would go through security checks here. At the entrance to the city is the second checkpoint. After another round of security checking, the reporter and the military vehicle could finally enter the city.

The reporter saw that the CZ-2F launch pad was empty and the high bay doors of VATB were shut tight.

Businesses near the launch center had also been inspected for dangerous and explosive material. JSLC security forces, local government personnel, armed police, and People's Liberation Army (PLA) share the responsibility of the security maintenance and inspection.

The level of security is even more intense at the landing sites, with PLA guarding every single access point to the landing centers.

Not only is the movement of people under restriction, information transmission from JSLC is also severely curtailed. Reporters have to submit their written reports for official inspection and clearance before filing them.

However, the Ta Kung Pao reporter found out that even when the report cleared the official examination, there was nowhere in JSLC that reporters could transmit their stories. At the Dongfeng Technology Information Inquiry Center, 20 of the 30 computers were in operation. But these computers were available only to technicians at the aerospace city to go on the Internet.

Science Payload Mostly Under Wrap

During the SZ-6 mission the two yuhangyuans would doff the 10-kg spacesuits that they would wear during ascent. They would also open the access hatch to enter the Orbital Module to perform science experiments.

On SZ-5 Yang Liwei did not take off his spacesuit or enter the Orbital Module, although he did unstrap from the seat to experience weightlessness inside the Descent Module.

Very little information, however, has been released on the experiments. So far the only science payloads that are confirmed to ride on SZ-6 are plant seeds and 40 grams of sperm specimens from the nationally protected Rongchang pig species from the Chongqing area. The purpose of sending seeds and sperm samples into space is to study possible genetic changes as a result of exposure to cosmic radiation.

But the public relations office of Rongchang County told Ta Kung Pao in a report on Sept. 30 that the pig sperm samples were cancelled from the SZ-6 payload manifest, for reasons that remained unclear.

Qi Faren, the Chief Designer of Shenzhou, revealed in an interview with Wen Wei Po on March 5 this year that other areas of scientific studies on board SZ-6 would include medical experiments, human cell growth, human kinematics, and nutrition. There will also be equipment installed

for remote sensing observations.

Mission Crew Undecided

Similar to the SZ-5 mission, space officials will decide the two-person crew in the final hours before launch. Beijing Sci-Tech Report said on Sept. 28 that the final decision would be made at T minus 5 hours on launch day. However, the Sept. 30 Wen Wei Po report contradicted the decision timeline. The newspaper said that the final decision would come at 18 hours before launch.

All 14 yuhangyuans, including Yang Liwei, began intensive training in March 2004. Based on personality and work coordination, space officials paired the 14 yuhangyuans in seven groups of two for the entire course of training.

More than a year later three pairs of yuhangyuan advanced to more specific training related to the SZ-6 mission. Huang Chunping, the first Commander-in-Chief of the launch system of the Chinese Manned Space Program, said on July 3 that the final six candidates had been selected.

When asked whether Yang was among the final six candidates, Huang did not disclose any name. But he said that he would like to see other yuhangyuans to fly on SZ-6.

Huang gave his reason: "At the same time the nation trains 14 outstanding yuhangyuans, this huge resource should not be wasted. Besides, the previous spaceflight experience of Yang Liwei is a precious experience for all of China. Why not engraving the names of other yuhangyuans in the Chinese spaceflight history?"

As late as Aug. 11 Yang confirmed that he would definitely participate

in the SZ-6 mission. But observers speculated that Yang would only participate as a trainer, according to a report in Ta Kung Pao on Aug. 2.

The speculation was based on the observation that Yang was scheduled to make public appearance in many activities even as the launch of SZ-6 was approaching.

Then during his visit to various functions in Nanjing on Sept. 17, Yang said in a speech that he would not fly on SZ-6.

"First of all I had to undergo selection and training of yuhangyuans, the workload and task in this area was heavier. Secondly I had carried out a space mission, I would like to give other yuhangyuans more development opportunities," said Yang.

In fact the contribution of Yang to SZ-6 was a trainer and leader of the yuhangyuan corps, according to an unnamed source that Wen Wei Po quoted on Sept. 20.

For his contribution to the Chinese manned space program, the Central Military Commission of the Armed Forces and the General Armament Department of the PLA recently promoted Senior Colonel Yang Liwei to the position of deputy head of the Aerospace Medical Engineering Research Institute in Beijing.

The research institute is located within the Beijing Aerospace City, where part of the spaceflight training takes place. The institute is a core unit of the manned space program with work centered on medical monitoring and protection of yuhangyuans, and setting the medical requirements for the engineering design of the Shenzhou spacecraft.

All six SZ-6 crew candidates are in quarantine and final training at the Beijing Aerospace City. According to Wen Wei Po, in the final days of

September the three yuhangyuan teams were at JSLC for a final full dress rehearsal. Ta Kung Pao said on Sept. 30 that all the candidates would leave for JSLC for final preflight preparation after National Day.

Although space officials have not made the final decision on which pair of yuhangyuans would ride on SZ-6, Ta Kung Pao published on Sept. 8 that Nie Haisheng and Zhai Zhigang are the leading candidates.

Unidentified sources told the newspaper that this pair of yuhangyuan, who were also in the final round of competition for the single seat on SZ-5 two years ago, had shown the greatest conditions and confidence among the three pairs of finalists.

Chinese media widely circulated the Ta Kung Pao report of the Nie-Zhai combination. With no official information, Wen Wei Po said that even the younger brother of Zhai claimed that his sibling partnered with Nie.

But some aerospace analysts in China were not convinced that the two yuhangyuans were indeed in the same team, according to news from Wen Wei Po on Sept. 30.

On the following day (Oct. 1) Wen Wei Po published the identity of the third yuhangyuan who was said to be a leading candidate too among the final group of six. The newspaper said that local residents widely circulated a rumour in Suzhou, Jiangsu Province, that its acclaimed pilot Fei Junlong was among the final candidates.

A day later (Oct. 2) Wen Wei Po reported that residents in Wuhan, capital of Hubei Province, also claimed that its famous "son" Nie Haisheng was a leading candidate. Wen Wei Po speculated that the Nie-Fei team might go into space instead.

Rumours, confusion, mysteries abound, if all goes well the world will know more about the SZ-6 mission next week.

Copyright 2005 by Space Daily, Distributed United Press International

Citation: Shenzhou-6 Mission In Final Preparation For Possible Launch On October 13 (2005, October 6) retrieved 9 April 2024 from <https://phys.org/news/2005-10-shenzhou-mission-october.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.