

SpaceX readies space station rendezvous

24 May 2012, by Kerry Sheridan



SpaceX's Falcon 9 rocket launches May 22, from Cape Canaveral, Florida. The US company SpaceX prepared for the climax of its Dragon capsule's landmark mission to the International Space Station Thursday with a high-stakes bid to latch on to the orbiting research lab

The US company SpaceX on Friday prepared for the climax of its Dragon capsule's landmark mission to the International Space Station with a high-stakes bid to latch on to the orbiting research lab.

The unmanned, cargo-carrying supply ship aims to become the first privately owned craft to berth with the \$100 billion space station, restoring US access to the space outpost after the shuttle program's end.

Only Russia, Japan and Europe currently have supply ships that can reach the ISS. The United States lost that capacity when it retired its space shuttle fleet in 2011.

Astronauts aboard the ISS are planning to help the berthing operation by reaching out with the station's robotic arm to grab the spacecraft so it can latch on to the Harmony module of the station.

If NASA gives the final go-ahead, expected by

0900 GMT, the grab attempt would begin around 1230 GMT Friday with the docking itself scheduled for around 1530 GMT, according to SpaceX and NASA.

"It is a test flight. We are being cautiously optimistic," said lead mission director John Couluris of SpaceX.

So far, the demonstration flight has been near flawless, according to progress reports from NASA and SpaceX since the capsule blasted off atop the Falcon 9 rocket from Cape Canaveral in Florida on Tuesday.

The launch marked the first time a commercial enterprise has sent its own craft to the orbiting lab and opened what NASA, the White House and SpaceX officials described as a "new era" in spaceflight.

California-based SpaceX hopes that its gumdrop-shaped Dragon capsule will be able to carry astronauts to the ISS in about three years' time. Russia is now the only nation capable of ferrying astronauts there aboard its Soyuz capsules.

In addition, a successful berthing mission opens the way for SpaceX's \$1.6 billion contract with NASA to supply the space station and return cargo to Earth over the coming years.

"After this mission we are on contract for at least 12 more missions to the International Space Station," said Couluris, noting that while Japan and Europe can carry supplies to the ISS, only Russia can return cargo to Earth.

"So we are looking to provide regular services... at a faster rate than some of the other vehicles."

Private space capsule

Commercial spacecraft set to dock with the International Space Station

- ▶ **Launched:**
Tuesday, **May 22**
from Cape Canaveral,
Florida
- ▶ **Rocket:**
Falcon 9 SpaceX
- ▶ **Mission:**
Dock with the ISS and deliver
521 kg of cargo, return to Earth
with a 660 kg load



SPACEX

- \$1.6 billion contract with US space agency NASA
- To provide 12 minimum flights, with option for additional missions for cumulative contract value of \$3.1 billion
- First commercial outfit to send a spacecraft into orbit and back in 2010

Source: SpaceX/Wired AFP

Graphic showing the SpaceX Dragon capsule. US company SpaceX prepared for the climax of its Dragon capsule's landmark mission to the International Space Station with a high-stakes bid to latch on to the orbiting research lab.

On Thursday, the Dragon capsule successfully completed a fly-under of the ISS at a distance of 2.4 kilometers (1.5 miles) as well as several other maneuvers to lay the groundwork for the berthing attempt.

They included an abort demonstration, communications tests, navigation by global positioning system (GPS) technology alone, and a "free-drift demonstration," whereby the capsule's thrusters were all shut down, as they will need to be prior to being grappled by the space station's robotic arm.

"Fly-by today allowed us to check out a lot of systems and retire a lot of risk for tomorrow's flight," Couluris told reporters, but added that engineers expect "a more intense day tomorrow."

SpaceX and a handful of other companies are

using their own funds but are also being helped in their endeavors with seed money from NASA to build cargo and crew capability.

Both SpaceX and NASA have praised their newfound partnership, while insisting that any missteps that may occur are a necessary part of such demonstration missions.

"Everything held up under the scrutiny of really flying in space with Dragon for the first time," said NASA flight director Holly Ridings after Thursday's fly-under.

"To get through this piece of it obviously makes you feel positive, but in terms of the activities tomorrow there are still a lot of really new things that the teams need to perform."

While SpaceX is the first in its field, its competitor Orbital Sciences also has a \$1.9 billion contract with NASA to supply the space station and is scheduled for its first launch attempt later this year.

Meanwhile, SpaceX's billionaire chief executive Elon Musk continued to celebrate the success of the mission, confessing on Twitter that he'd almost missed a key phone call from US President Barack Obama.

"The President just called to say congrats. Caller ID was blocked, so at first I thought it was a telemarketer :)," Musk wrote.

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