

SpaceX working to fix Dragon capsule's thrusters (Update 2)

March 1 2013, by Marcia Dunn



The Falcon 9 SpaceX rocket lifts off from launch complex 40 at the Cape Canaveral Air Force Station in Cape Canaveral, Fla., Friday, March 1, 2013. The rocket is transporting the Dragon capsule to the International Space Station containing more than a ton of food, tools, computer hardware and science experiments. (AP Photo/John Raoux)

A commercial vessel carrying a ton of supplies for the International

Space Station [ran into thruster trouble](#) shortly after liftoff Friday, and flight controllers scrambled to fix the problem.

SpaceX founder Elon Musk said three of the four sets of thrusters on the company's unmanned Dragon capsule did not immediately kick in, delaying the release of the solar panels.

Dragon's twin solar wings swung open two hours later than planned as SpaceX worked to bring up the idled thrusters and keep the capsule on track for a planned Saturday arrival at the space station. The company said in a statement that a fuel valve was at fault, and that two sets of thrusters were needed before the Dragon could begin the series of maneuvers needed to get to the space station.

The Dragon is equipped with 18 thrusters, divided into four sets, and can maneuver adequately even with some unavailable.

The problem cropped up following Dragon's separation from the rocket upper stage, nine minutes into the flight. The liftoff was right on time and appeared to go flawlessly; the previous Falcon launch in October suffered a single engine failure that resulted in the loss of a communications satellite that was hitching a ride on the rocket.

This is the first major trouble to strike a Dragon in orbit. Two similar capsules, launched last year, had no problem getting to the orbiting lab.

More than 1 ton of space station supplies is aboard this Dragon, including some much-needed equipment for air purifiers.

SpaceX has a \$1.6 billion contract with NASA for 12 deliveries to restock the space station, and hopes the venture will lead to transporting astronauts there in a few years. A company-sponsored demo mission kicked everything off last May.



In a photo provided by NASA, the SpaceX Falcon 9 rocket, with its Dragon spacecraft onboard, is seen shortly after it was erected at Launch Complex 40 at the Cape Canaveral Air Force Station in Florida on Friday, March 1, 2013. Launch of the second SpaceX Commercial Resupply Services mission is scheduled for later Friday morning. (AP Photo/Nasa, Bill Ingalls)

Launch controllers applauded and gave high-fives to one another, once the spacecraft safely reached orbit. The successful separation of the Dragon from the rocket was broadcast live on NASA TV; on-board cameras provided the unique views nine minutes into the flight.

Then the trouble struck, and the coverage ended.

The California-based SpaceX, run by the billionaire who helped create PayPal, is in charge of the flight, until it gets near the space station. Then NASA calls the shots. NASA flight controllers in Houston offered help with the thruster problem as they monitored the space station.

The space station and its six-man crew were orbiting 250 miles (400 kilometers) above the Atlantic, just off the New England coast, when the Falcon soared. Astronauts are to use a hefty robot arm to draw the Dragon in and dock it to the station.

SpaceX tucked fresh fruit into the Dragon for the station residents; the apples and other treats are straight from the orchard of an employee's family. Also on board: 640 seeds of a flowering weed used for research, mouse stem cells, protein crystals, astronaut meals and clothing, trash bags, air-purifying devices, computer parts and other gear.

NASA's deputy administrator, Lori Garver, said using commercial providers is more efficient for the space agency. It's part of a long-term program, she noted, that has NASA spending less money on low-Earth orbit and investing more in deep-space missions. That's one reason why the space shuttles were retired in 2011 after the station was completed.

The goal is to have SpaceX, or Space Exploration Technologies Corp., and other private firms take over the job of ferrying astronauts to and from the space station in the next few years.

SpaceX—so far the leader of the pack—is aiming for a manned Dragon flight by 2015.



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Competitor Orbital Sciences Corp. has yet to get off its Virginia launch pad. The company plans to launch a free-flying test of its Antares rocket and Cygnus supply ship in April, followed by a demo run to the space station in early summer. Then the so-called operational supply runs can begin.

Russia, Japan and Europe regularly make station deliveries as well, and Russia is the only option for astronaut rides. But only the Dragon is designed to bring back substantial amounts of research and used merchandise.

This Dragon is scheduled to spend more than three weeks at the space station before being cut loose by the crew on March 25. It will parachute into the Pacific with more than a ton of medical samples, plant and cell specimens, Japanese fish and old machinery, and used spacewalking gloves and other items.

SpaceX plans to launch its next Dragon to the station in late fall.

More than 2,000 guests jammed the Cape Canaveral launch site Friday morning to watch the Falcon take flight. It wasn't much of a show because of all the clouds.

More information: SpaceX: www.spacex.com/
NASA: www.nasa.gov/mission_pages/station/main/index.html

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