SpaceX aims for historic rocket launch, landing (Update)

December 21 2015

This photo obtained from SpaceX on December 20, 2015 shows the Falcon 9 rocket on December 16, 2015

SpaceX aims to make history Monday by landing its most powerful Falcon 9 rocket in an upright position after launch, a key step toward making rockets as reusable as airplanes.

The takeoff from Cape Canaveral, Florida is planned for 8:29 pm (0129

GMT Tuesday), marking SpaceX's first launch since an explosion six months ago destroyed the rocket and its cargo destined for the International Space Station.

After the rocket delivers its payload of satellites into orbit, SpaceX will aim to land the first stage of the Falcon 9—which is the long, towering portion of the rocket—at a former US Air Force rocket and missile testing range that was last used in 1978.

"If successful, this test would mark the first time in history an orbital rocket has successfully achieved a land landing," SpaceX said in a statement.

The California-based company headed by Internet tycoon Elon Musk is striving to revolutionize the rocket industry, which currently loses many millions of dollars in jettisoned machinery and sophisticated rocket components after each launch.

Instead of discarding rocket parts as debris, SpaceX is trying to guide the rocket's first stage back to Earth for an upright, controlled landing within 10 minutes after launch, so that it could be used again on a future mission.

Several attempts to land the Falcon 9's first stage on a floating ocean platform have failed—with the rocket either colliding with the autonomous drone ship or tipping over.

But SpaceX has insisted that each attempt has helped engineers come closer to perfecting the technique.

A launch attempt Sunday night was postponed, Musk said, because Monday gave a 10 percent more favorable chance at a successful landing.

High stakes

The stakes are high for SpaceX, which has a $1.6 billion contract with NASA to supply the astronauts living at the International Space Station over numerous back-and-forth trips with its Dragon cargo ship.

SpaceX is also competing with Boeing to build crew spaceships to ferry astronauts to low-Earth orbit as early as 2017, a capacity the United States has not had since the retirement of the space shuttle program in 2011.

In the interim, the world's astronauts have paid Russia for rides aboard its Soyuz spacecraft.

A faulty strut—a piece of support hardware—was blamed for the June rocket explosion of the Falcon 9 about two minutes after launch, destroying hundreds of millions of dollars in cargo and equipment.

The company has taken steps to fix that problem and has also made the newest version of the Falcon 9 about 30 percent more powerful than previous iterations, Musk has said.

Adding to the competitive nature of the commercial space industry, Amazon founder Jeff Bezos's rocket company Blue Origin announced last month it had successfully landed its New Shepard rocket after a suborbital flight.

Analysts say SpaceX's feat is harder to accomplish because the Falcon 9 flies higher in altitude.

While it is important to SpaceX to stick the landing, the primary goal of the mission is to deliver 11 satellites to low-Earth orbit for ORBCOMM, a global communications company.

SpaceX warned residents of central Florida that they may hear a sonic boom when the rocket returns since it will be traveling faster than the speed of sound.

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