

Science

SpaceX's Musk: We'll reuse today's Falcon 9 rocket within 2 months

Plus: Mars plans to be announced in September



A rocket landing and 325,000 Tesla 3's sold – a pretty good week for Musk

9 Apr 2016 at 00:29, [Iain Thomson](#)

SpaceX supremo Elon Musk said his Falcon 9 rocket that made its historic robo-berge landing on Friday will be flying up into space again by June.

"We'll bring the rocket back to Port Canaveral on Sunday and fire it 10 times in a row on the ground," he said. "If things look good then it is qualified for reuse and launch. We're aiming for relaunch around May or June – let's say June to recalibrate timing expectations."

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Speaking at a press conference, the South African-born immigrant said his US biz hopes the relaunch will include a payload from a paying customer, but that "some discussions are needed."

Satellite telco SES has said it wants to use the second-hand rocket but expects a 50 per cent discount. However, SpaceX president [Gwynne Shotwell](#) has said that 30 per cent was more likely.

[Today's landing](#) didn't actually need to be done on water, Musk explained, since the rocket probably had enough propellant to make it back to land. But they wanted to get sea landings sorted with enough propellant to give themselves a good chance.



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It was still pretty dangerous, and Musk said SpaceX estimated there was at least a 33 per cent chance of failure. The ship was pitching about three degrees during the landing, despite its four engines working overtime to keep it in position. The rocket could land in about double that level of pitching, but it would be very difficult, he said.

Right now SpaceX engineers have boarded the ship *Of course I still love you* and are inspecting the first stage of the Falcon 9 rocket that landed. Specially designed metal shoes will be fitted over the landing legs and welded to the deck to hold it steady for the trip back, but heavy winds are expected in the next day.

Once in dock, a crane will attach itself to a hoist point built into the rocket's frame and will lift it to a pallet, whereupon it will be lowered to the horizontal position for transport. Testing will take place at SpaceX's leased launchpad 39a at Cape Canaveral before attempting a relaunch.

SpaceX landed its first rocket on land in November, but that will never fly again. Instead it will be erected outside SpaceX headquarters, once clearance is given by local regulators.

However, initial tests on that rocket showed that the hardware was very resilient, Musk said. Some parts look like they could be reused indefinitely and even the more delicate machinery looks like it could survive 100 launches before needing to be replaced. However, Musk thought 20 flights would be a safe margin for his rockets.

"The goal is to get to the stage where we can reuse a rocket within a few weeks," Musk said. "Rapid reusability is important to be cost-effective, just like an aircraft. You can recycle a 747 that has flown from Los Angeles to London in three hours; you have to get rockets to that point too."

That's going to make a big difference in the cost of launches, he said. Building a rocket costs around \$60m, but fueling it only costs about \$300,000, so the margin cost savings in reusing the first stage is huge.

The next two SpaceX launches are also planned to make water landings Musk said, with the third coming down on land. By the end of the year, the firm hopes to be launching a rocket every two to three weeks.

"We'll know we're succeeding when our launches become boring," Musk joked.

By the end of next year, the Falcon 9 rocket should be carrying live astronauts, he said, since the Dragon 2 capsule was almost complete and testing was going well. SpaceX will do an unmanned test firing before carrying live crew.

Later this year, SpaceX will also loft its Falcon Heavy rocket, which uses 27 Merlin engines to generate five million pounds of thrust. Musk described it as a "heavy pucker factor" event getting that many rockets to work together and having three separation events in the flight, but it was looking all-systems-go at the moment.

The Falcon Heavy is going to be key to SpaceX's long-term plan of getting humans to Mars and beyond. Musk said he will be detailing the company's plan to reach the Red Planet in September at the International Astronautical Conference in Mexico.

"We've got a good approach," he said. "The plans are going to sound crazy, but it should at least be entertaining." @

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