



The Falcon 1 launch demonstrated not just a launch vehicle, but the company's openness and real-time ability to deal with problems. (credit: SpaceX)

Subscribe

Enter your email address below to be notified when new articles are published:

subscribe

[our privacy policy](#)

Getting there

by Derek Webber

Monday, March 26, 2007

On March 20, the cameras showed us, from three different angles, the Falcon 1 vehicle at the ready on the tiny Omelek Island at Kwajelein Atoll. Blue sky, palm trees moving in the equatorial breeze, liquid oxygen (LOX) streaming from the vehicle, an occasional sea bird in camera shot. Launch control had declared “Everything green for launch”, and we watched as the countdown went five, four, three, two, one, all the way to zero. Lots of steam, and then the call “Terminal count abort”. It was 5:05pm California time, and it looked like the launch was off for the day.

This is where the true magic began. No panic, just the calm voice of launch control, talking the launch team through the procedures to “safe” the vehicle. The launch tower was re-erected, the tanks were depressurized, and the LOX and RP1 fuel were drained back to 50%, while the launch site camera panned the launcher support structure looking for damage. Thirty minutes after the launch abort, the fuel loading was underway again. The countdown clock restarted just 50 minutes after the launch abort, recycled to T-16 minutes. The tension mounted again, until 6:10 pm California time—just over an hour after the initial abort—when Falcon 1 climbed up and away and the

countdown clock went positive. The live webcast continued now via the onboard camera, looking back down the length of the first stage. The vehicle and the trajectory looked rock solid as the Earth retreated. First the stages separated, then the fairings fell away too, back down towards the Pacific way below, where we could see the atoll rings of the Marshall Islands. Then we started to see some oscillations and the telemetry was lost at T + 5 minutes, when the vehicle had attained 300 kilometers altitude.

As had been the case at Mojave in June 2004 for the first flight into space of SpaceShipOne, this flight was highly significant in a number of ways that indicate a future in space very different from the experience during the first half-century of space flight. First of all, the technical and management

The consequence has been to remove any possible doubt that we are now on our way into orbit, and that US-based orbital space tourism will follow the coming satellite launches and ISS COTS supply missions.

achievement itself deserves recognition. This vehicle, and its launch, was the product of a small, young team at a startup company that did not even exist before 2001. They designed and built Falcon 1 from scratch as a low-cost launcher. On only its second test flight it flew into space and achieved what historically would have taken governments and major prime manufacturers a score of launches to deliver.

Secondly, this was a very public demonstration. The live webcast and the on-board camera gave access in real time to the general public. Elon Musk has made no secret about where he's ultimately going, and he has shown his willingness to take us along with him for the ride.

Thirdly, the recycle/restart decision was extraordinary. It was conducted in the full awareness of the public visibility, and was conducted with calm professionalism. The outcome is a validation of the high level of confidence that characterizes the SpaceX management and procedures.

So, the consequence has been to remove any possible doubt that we are now on our way into orbit, and that US-based orbital space tourism will follow the coming satellite launches and ISS COTS supply missions. Of course, there is still much to be done, starting with figuring out what caused the fixed frequency, increasing amplitude second stage oscillations at loss of signal (it looked like fuel sloshing to me, and now since we were all there, we can all have an opinion!). But now we know for sure that this team will be able to fix it.

The demonstrated one-hour turn around capability of this vehicle, on this isolated miniature island with its small but dedicated launch team, was salutary. Meanwhile, backed by the full resources at the Kennedy Space Center, the Space Shuttle Atlantis takes a month to trundle back and forth to its pad to recover from hailstone damage.



Derek Webber is Director of Spaceport Associates.

[Home](#)