

# Falcon 9 explodes during AMOS-6 static fire test

 [nasaspaceflight.com/2016/09/falcon-9-explodes-amos-6-static-fire/](https://nasaspaceflight.com/2016/09/falcon-9-explodes-amos-6-static-fire/)

September 1, 2016 by Chris Gebhardt

SpaceX has suffered a failure during the static test fire of the Falcon 9 rocket that was to help haul the AMOS-6 satellite to geostationary orbit later this week. The rocket suffered an unspecified failure in the second stage's LOX tank during the test early on Thursday. Fire crews are currently putting out fires at the SLC-40 pad location.



## AMOS-6 static fire:

The road to the static fire began months ago with the overall construction of first stage F9-S1-029 at SpaceX's manufacturing facility in Hawthorne, California.

Following initial build, the stage was shipped by road and security escort to the company's test facility in McGregor, Texas, [where it underwent a full duration acceptance static fire of about 1 minute on 5 August 2016](#).

Following the test fire, engineers confirmed the vehicle's system and engine health before wrapping the stage in a protective shroud and transporting it between 20-21 August to the Cape Canaveral Air Force Station.



After arriving at the Cape, the stage was moved into the Horizontal Integration Facility (HIF) at SLC-40, where it underwent post receiving inspections and preparations for integration with the second stage.

Following mating operations with the second stage and AMOS-6 payload, the Falcon 9 moved to the pad via the Transport Erector (TE) on Thursday morning.

The goal of the static fire is to provide a dress rehearsal for the launch team, culminating in a three second firing of all nine of the first stage Merlin 1D engines to validate the health of the rocket.

The data is then fed into a post-firing review which is then presented to the Launch Readiness Review (LRR) that officially sets the launch date.

However, Thursday's test suffered a major failure, with initial reports of buildings shaking followed by images of a dark plume of smoke rising above the SLC-40 pad area.

It became clear the Falcon 9 had exploded on the pad. However, the reason for the failure is currently unknown.

"SpaceX can confirm that in preparation for today's static fire, there was an anomaly on the pad resulting in the loss of the vehicle and its payload," noted a company statement. "Per standard procedure, the pad was clear and there were no injuries."



Fire crews were soon on site and began to put out the fires, which showed the Horizontal Integration Facility (HIF), lightning protection system towers and TE were still intact following the explosion.

SpaceX later released an additional statement, citing the time of the failure was around 9:07am Eastern, claiming the fault originating in the second stage LOX tank, during propellant loading.

While also confirming no injuries were reported, the company will now begin a root cause evaluation into the failure via a data review.

#### **AMOS-6 satellite:**

The primary payload for what was to be the 29th flight of the Falcon 9 rocket was AMOS-6, an earth communications satellite – primarily built by Israel Aerospace Industries (IAI) and operated by Space Communication Ltd (Spacecom) – that is part of the Spacecom AMOS (Affordable Modular Optimised Satellite) series of satellites.

It had a planned mission duration of 15 years.

AMOS-6 weighed 5,500 kg (12,100 lbs), had a total power generating capability of 10 kW, and was designed to replace the aging AMOS-2 satellite.

AMOS-6 was destined for a geostationary orbit, placed at 4° West with a perigee of 35,785 km (22,235 mi) and an apogee of 35,800 km (22,245 mi).

Overall, AMOS-6 was to be the second satellite in the AMOS 4000 platform – the second generation of AMOS satellites – after AMOS-4.

Moreover, AMOS-6 was to be the first in the AMOS series to make use of electric propulsion for station keeping operations in its geostationary orbit; however, its orbit raising maneuvers following its release from the second stage of the Falcon 9 would still have been conducted via traditional, chemical-based propulsion.



AMOS-6 was equipped with 36, 43 Ku band coverage and 36, 43 Ka band coverage – as well as two S-band transponders.

The satellite was originally contracted to launch in 2015; however, Spacecom later announced that launch would not take place until mid-2016.

Subsequently, in October 2015, Facebook and Eutelsat entered into an agreement with Spacecom to lease 18 of AMOS-6's 36 Ka-band spot-beams for broadband capability beginning 1 January 2017 through September 2021 for a fixed price of \$95 million (USD) over the life of the contract.

The contracts was to serve for spot-beam coverage of sizeable portions of Sub Saharan Africa, significant portions of Europe, and portions of the Middle East (including Israel, Jordan, portions of western Iraq, and a majority of Syria) for Facebook's internet.org initiative – which aims to provide affordable access to internet services.

(Images via SpaceX, SpaceCom, NASA webcams and [USLaunchReport.com](http://USLaunchReport.com)).

