

2015 PULITZER PRIZE WINNER

# DAILY BREEZE

## El Segundo-made satellite set for launch will improve military communications

By [Sandy Mazza](#), *Daily Breeze*

POSTED: 12/06/16, 7:09 PM PST | UPDATED: 8 HRS AGO



The U.S. Air Force's eighth Wideband Global SATCOM (WGS) satellite, encapsulated in a 5-meter payload fairing, is mated to a Delta IV booster at Cape Canaveral Air Force Station's Space Launch Complex (SLC)-37.

A Delta IV Medium rocket set to deliver a \$425 million Boeing satellite built in El Segundo to orbit Wednesday night will upgrade the U.S. military's core communications technology to make it easier for troops on the ground to communicate and share data.

The locally made satellite will be ferried outside the Earth's atmosphere from Cape Canaveral with the rocket's first-stage engine, which also was built in Los Angeles County — at Aerojet Rocketdyne's Canoga Park facility.

"There is enormous demand from the war-fighter for broadband communications," said Rico Attanasio, director of MILSATCOM programs for Boeing. "This is very much a military satellite with flexible routing and shapable X-band coverage to combat enemy interference. Wideband communication is vitally important to executing missions that protect people of the United States."

This is the eighth satellite deployed since 2007 in the Wideband Global SATCOM constellation, which forms the backbone of communications for the U.S. military and its allies. The ninth will launch in March, followed by a 10th and final member of the group in 2018.

United Launch Alliance, a partnership between The Boeing Co. and Lockheed Martin that competes for government contracts with Hawthorne-based SpaceX, is making the delivery on behalf of the U.S. Air Force.

ULA held a monopoly on government-backed space deliveries until SpaceX successfully lobbied in recent years to share the workload. While ULA has a 100 percent successful launch rate, it reportedly charges more than four times what SpaceX does per launch and its business practices are under investigation by the Department of Defense.

ULA would not disclose the cost of this launch. The company just celebrated its 10th anniversary and debuted a website, [rocketbuilder.com](http://rocketbuilder.com), that allows users to order rockets online.

SpaceX is preparing to return to flight Dec. 16, less than four months after an [explosion destroyed its rocket and the payload during a test launch on Sept. 1](#) at Cape Canaveral. It was the company's second rocket destroyed during the launch process in two years.

## NEW TECHNOLOGY

Attanasio said this newest Boeing communications satellite will double the bandwidth available to U.S. military troops and allies around the globe.

"With this satellite, we transitioned to next-generation, application-specific integrated circuit (ASIC) technology by IBM that improved our processing ability on board the spacecraft," Attanasio said. "We were able to open up more availability of routes of information, providing more available bandwidth to the user."

The satellite was built at Boeing's Satellite Development Center in El Segundo, the world's largest satellite factory. It was then trucked to Florida and loaded onto the nose of the 200-foot-tall Delta IV rocket.

Meanwhile, the nearly 15,000-pound engine that will release the rocket from the Earth's atmosphere was entirely built at Aerojet Rocketdyne's Canoga Park facility. It was then shipped to a NASA facility in Mississippi for testing and final assembly before being driven to Florida to meet its payload on the launch pad.

## WORLD'S LARGEST HYDROGEN-FUELED ENGINE

Aerojet Rocketdyne's RS-68A engine will harness the power of 17 million horses to thrust the 74,500-pound rocket through the Earth's atmosphere sometime between 9:53 p.m. and 10:42 p.m. Pacific time despite anticipated heavy cloud cover over Cape Canaveral Air Force Station in Florida.

The RS-68A, which has been in use for three years, is the world's largest hydrogen-fueled engine, said Peter Cova, senior director for the company's Space Launch Systems sector.

"The engine generates power equivalent to that of nearly 11 Hoover Dams," Cova said. "To generate that much power, the engine consumes about a ton of the propellants per second. That's equivalent to five tanker-trailers per minute or more than a few swimming pools."

Liquid hydrogen pairs with liquid oxygen to power the booster engine, which detaches from the second stage of the rocket at the edge of outer space. The payload is carried into orbit by the second stage and then moves into position using battery power.

Aerojet Rocketdyne officials declined to disclose the cost of the Delta IV engine but said they've recently made it less expensive, as pressure continues to mount on ULA to make launches cheaper.

"We've incorporated an affordability road map," Cova said. "In this day and age, our customer wants performance and reliability, but they also want affordability. Aerojet Rocketdyne works very hard to deliver all three along with 100 percent mission success."

[Click here for full article.](#)