



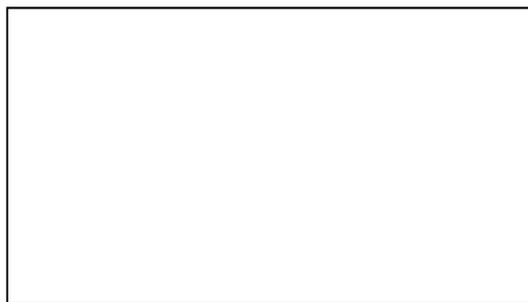
## VULCAN SUCCESSFULLY LAUNCHES USSF-87

A United Launch Alliance (ULA) Vulcan rocket will deliver national security spacecraft directly to geosynchronous orbit for the U.S. Space Force Space Systems Command on the USSF-87 mission. Liftoff will occur from Space Launch Complex-41 at Cape Canaveral Space Force Station in Florida.

**Launch Date and Time:** Feb. 12 at 4:22 a.m. EST (0922 UTC)

**GO Vulcan! GO Centaur! GO USSF-87!**

### LAUNCH BROADCAST



### LIVE UPDATES

Last Updated: Feb 12 17:45

Feb 12 17:45

#### Vulcan successfully achieves geosynchronous orbit

United Launch Alliance's Vulcan rocket today successfully launched national security spacecraft into geosynchronous orbit, including a 'neighborhood watch' mission to patrol the strategic high ground of space.

Despite the solid rocket motor performance anomaly, the Vulcan booster and Centaur performed nominally and delivered the spacecraft directly to the intended orbit.

[Learn more!](#)



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@ulalaunch

#VulcanRocket #USSF87

## MISSION OVERVIEW

A Vulcan Centaur VC4S rocket, with four solid rocket boosters, will launch a multi-manifest national security payload directly to geosynchronous orbit more than 22,000 miles (35,000 km) above Earth. The USSF-87 payload includes the Geosynchronous Space Situational Awareness Program (GSSAP) system that will improve our ability to rapidly detect, warn, characterize and attribute disturbances to space systems in the geosynchronous environment. This will be the second National Security Space Launch (NSSL) mission on a Vulcan rocket.

## LAUNCH VEHICLE

### Payload Fairing

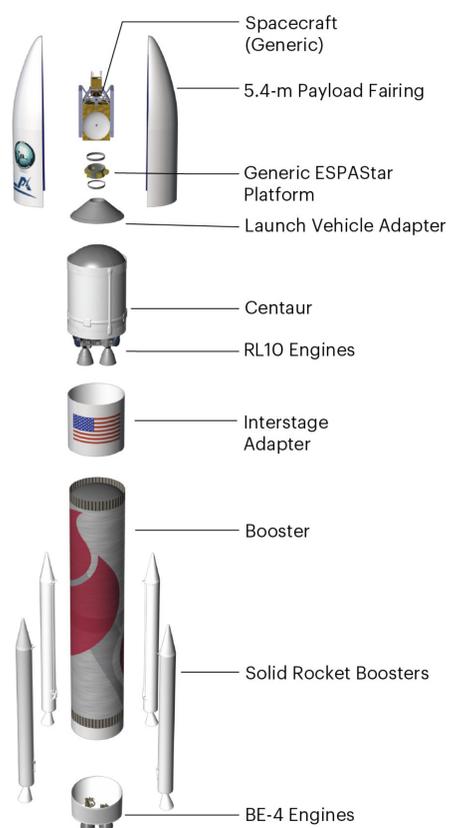
The spacecraft is encapsulated in a 17.7-ft- (5.4-m-) diameter payload fairing (PLF), a sandwich composite structure made with a vented aluminum-honeycomb core and graphite-epoxy face sheets. The bisector (two-piece shell) PLF encapsulates the spacecraft. The payload attach fitting (PAF) is a similar sandwich composite structure creating the mating interface from spacecraft to second stage and payload fairing. The PLF separates using a debris-free horizontal and vertical separation system with spring packs and frangible joint assembly. The payload fairing is available in the 51-ft (15.5-m) standard configurations.

### Centaur V

The Centaur V second stage is 17.7 ft (5.4 m) in diameter and 41.4 ft (12.6 m) in length. Its propellant tanks are pressure-stabilized and constructed of corrosion-resistant stainless steel. Centaur is a cryogenic vehicle, fueled with liquid hydrogen and liquid oxygen, powered by two RL10C-1-1A engines, each producing 23,825 pounds (106 kilo-Newtons) of thrust. The cryogenic tanks are insulated with a combination of multilayer insulation (MLI) blankets, radiation shields and spray-on foam insulation (SOFI). A fault-tolerant avionics system is mounted on an aft equipment shelf. The payload attach fitting (PAF) provides structural and electrical interfaces with the spacecraft and is mounted to the Centaur V Launch Vehicle Forward Adapter (LVFA).

### Booster

The booster is 17.7 ft (5.4 m) in diameter and 109.2 ft (33.3 m) in length. The booster's tanks are structurally rigid and constructed of orthogrid aluminum barrels, spun-formed aluminum domes with a common bulkhead. The liquefied natural gas (LNG) / methane fueled booster will be powered by a pair of BE-4 engines, each producing 550,000 pounds (2,400 kN) of sea level thrust. Four graphite epoxy motor (GEM) 63XL solid rocket boosters (SRBs) generate the additional power required at liftoff, with each providing 459,600 lbs (2,044 kN) of thrust. The Centaur avionics system, provides guidance, flight control and vehicle sequencing functions during the booster and Centaur phases of flight.



## FLIGHT PROFILE

### SPACE LAUNCH COMPLEX-41 // PROCESSING

Space Launch Complex-41, the East Coast home of the Vulcan and Atlas V rockets at Cape Canaveral Space Force Station in Florida, employs a "clean pad" concept of operations to ready launch vehicles and payloads for ascent into space. The rocket elements are assembled atop a Vulcan Launch Platform (VLP) inside the Government Vertical Integration Facility (VIF-G) located adjacent to the launch pad. The platform and fully stacked Vulcan rocket then travel by rail approximately 1,800 feet northward from the VIF to the pad for the final countdown, fueling and liftoff. Complex 41 was constructed by the U.S. Air Force in the 1960s for the Titan rocket program.

- 1. Segment Ready Storage (SRS) Facility**  
Solid Rocket Booster (SRB) Processing & Staging
- 2. Advanced Spaceflight Operations Center (ASOC)**  
Launch Control Center & Mission Director's Center
- 3. Delta Operations Center (DOC)**  
Interstage Adapter (ISA) & Centaur V Processing and Staging
- 4. Spacecraft Processing Facility**  
Spacecraft Processing, Testing & Encapsulation
- 5. Vertical Integration Facility (VIF-G)**  
Launch Vehicle Integration & Testing, Spacecraft Mate & Integrated Operations

## PRODUCTION

- 1. Magna, UT**  
Solid Rocket Booster Fabrication at Northrop Grumman
- 2. Denver, CO**  
ULA Headquarters & Design Center Engineering
- 3. Decatur, AL**  
Booster Fabrication & Final Assembly, Centaur Tank Fabrication & Final Assembly
- 4. Decatur, AL**  
5.4-m Payload Fairing Fabrication at Beyond Gravity
- 5. Huntsville, AL**  
BE-4 Engine Fabrication at Blue Origin
- 6. West Palm Beach, FL**  
RL10C-1-1A Engine Fabrication at Aerojet Rocketdyne

## MEDIA // DOWNLOADS

### FLICKR ALBUM