

MISSION

A United Launch Alliance Delta IV Heavy rocket will launch the NROL-44 mission for the National Reconnaissance Office (NRO). Liftoff will occur from Space Launch Complex-37 at Cape Canaveral Air Force Station, Florida.

When the United States needs eyes and ears in critical places where no human can reach – be it over the most rugged terrain or through the most hostile territory – it turns to the NRO. The NRO is the U.S. government agency tasked with designing, building, launching and maintaining America's intelligence satellites. Whether creating the latest innovations in

satellite technology, contracting with the most cost-efficient industrial suppliers, conducting rigorous launch schedules, or providing the highest-quality products to our customers, the NRO never loses focus on who they are working to protect: our nation and its citizens.

Beginning in 1961 to declassification to the public in 1992, the NRO has worked tirelessly to provide the best reconnaissance support possible to the Intelligence Community and Department of Defense.



LAUNCH VEHICLE

Payload Fairing (PLF)

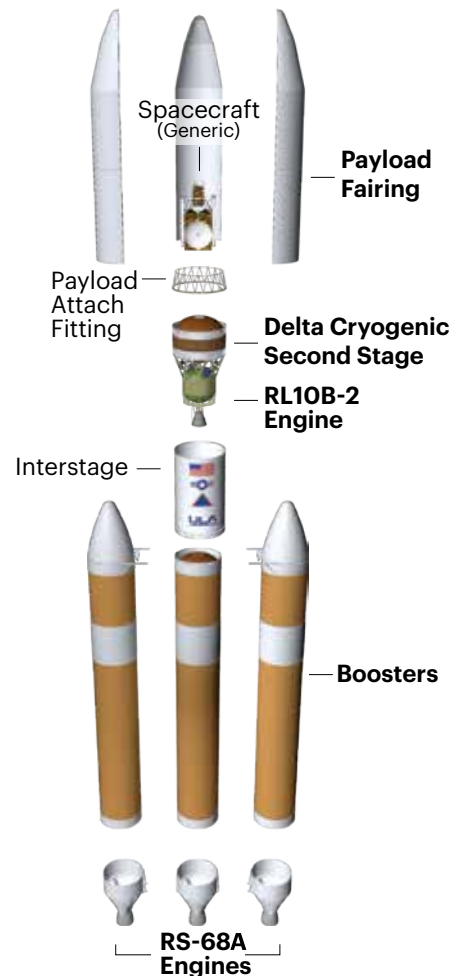
The PLF is a metallic trisector (three-piece shell), 5-meter diameter fairing. The PLF encapsulates the spacecraft to protect it from the launch environment on ascent. The vehicle's height, with the 19.8-m (65-ft) long PLF, is approximately 71.6 m (235 ft).

Delta Cryogenic Second Stage (DCSS)

The DCSS propellant tanks are structurally rigid and constructed of isogrid aluminum ring forgings and spun-formed aluminum domes. It is a cryogenic liquid hydrogen/liquid oxygen-fueled vehicle, with a single RL10B-2 engine that produces 110.1 kilo-Newtons (24,750 lbs) of thrust. The DCSS cryogenic tanks are insulated with a combination of spray-on and bond-on insulation, and helium-purged insulation blankets. An equipment shelf attached to the aft dome of the DCSS liquid oxygen tank provides the structural mountings for vehicle electronics.

Boosters

The Delta IV booster tanks are structurally rigid and constructed of isogrid aluminum barrels, spun-formed aluminum domes and machined aluminum tank skirts. Booster propulsion is provided by three liquid hydrogen and liquid oxygen-burning RS-68A engines. Each RS-68A engine produces 312.3 kilo-Newtons (702,000 lbs) of thrust for a combined total liftoff thrust of more than 2.1 million pounds. Booster cryogenic tanks are insulated with a combination of spray-on and bond-on insulation and helium-purged insulation blankets. The DCSS flight computer controls all phases of flight.



DELTA IV

With three common booster cores, the Heavy is the largest in the Delta IV fleet and is the nation's proven heavy lifter, delivering high-priority missions for the U.S. Air Force, National Reconnaissance Office and NASA. The Delta IV Heavy also launched NASA's Orion spacecraft on its historic Exploration Flight Test (EFT-1) in 2014.

First Launch: Dec. 21, 2004
Launches to date: 11

Performance to GTO: 14,210 kg (31,330 lb)
Performance to LEO-Reference: 28,370 kg (62,540 lb)

MISSION SUCCESS

With more than a century of combined heritage, ULA is the world's most experienced and reliable launch service provider. ULA has successfully delivered 140 missions to orbit that provide Earth observation capabilities, enable global communications, unlock the mysteries of our solar system and support life-saving technology.

MISSION OVERVIEW

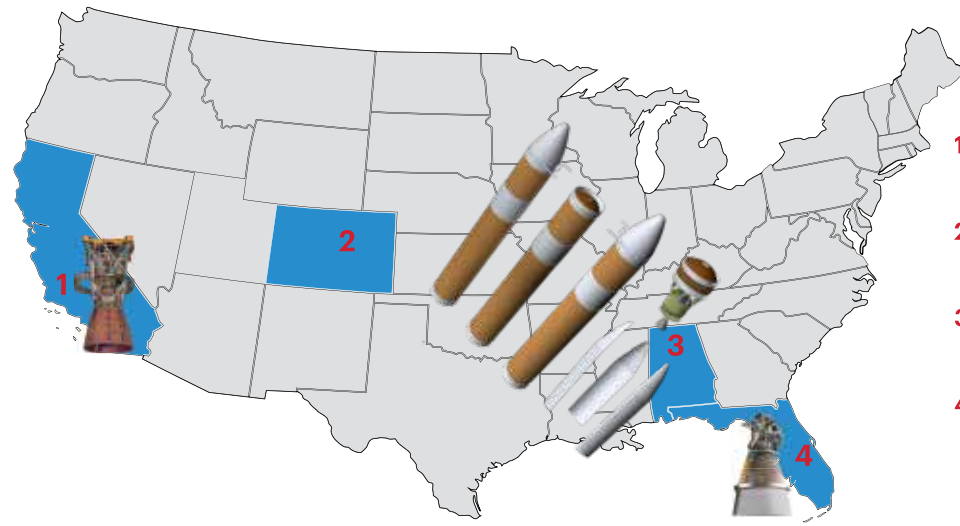
DELTA IV HEAVY NROL-44



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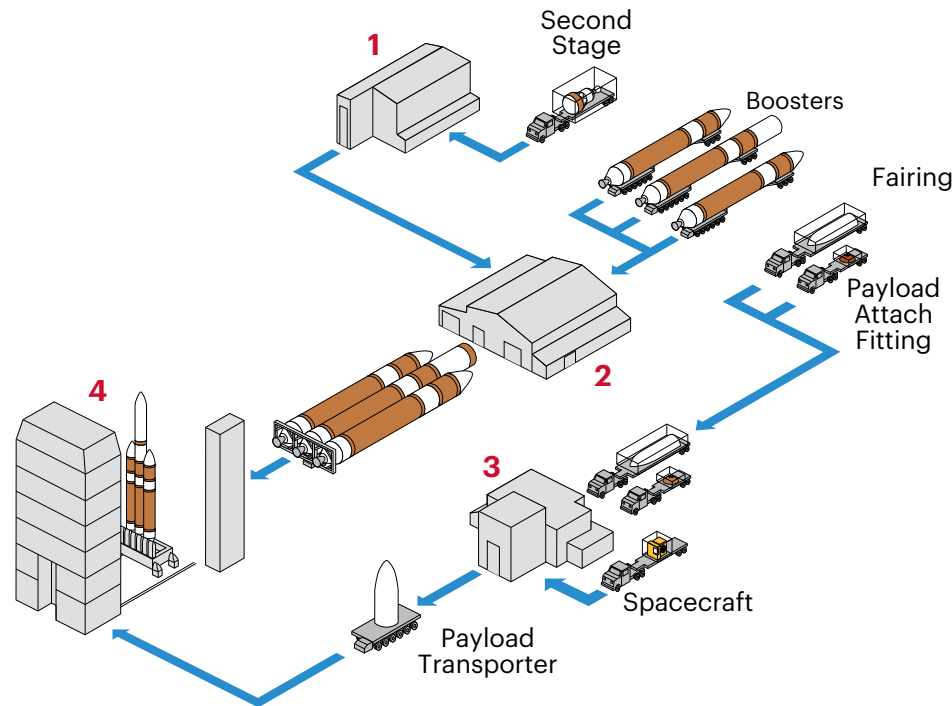
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PRODUCTION



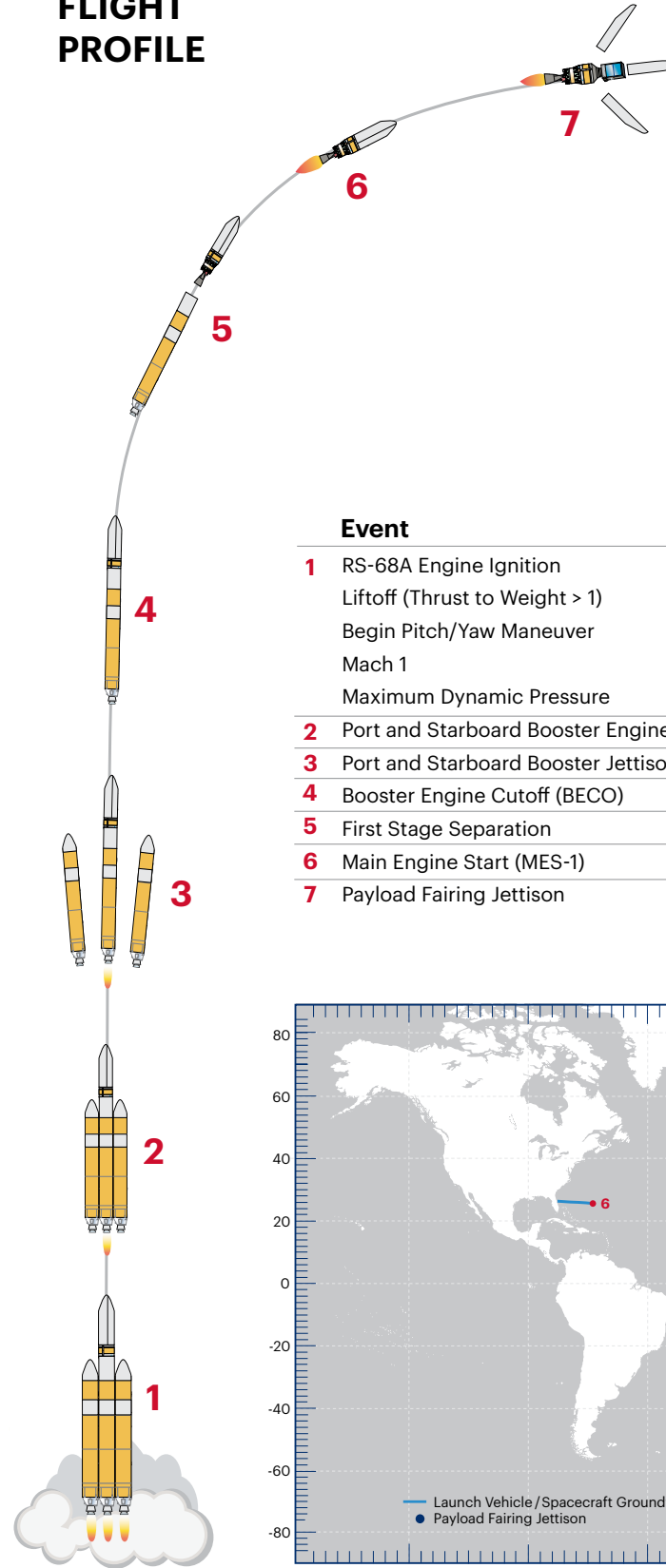
- 1 Canoga Park, CA**
RS-68A Engine Fabrication at Aerojet Rocketdyne
- 2 Denver, CO**
ULA Headquarters & Design Center Engineering
- 3 Decatur, AL**
Booster, Payload Fairing and Second Stage Fabrication
- 4 West Palm Beach, FL**
RL10 Engine Fabrication at Aerojet Rocketdyne

SPACE LAUNCH COMPLEX-37 PROCESSING



- 1 Delta Operations Center**
Mission Director's Center & Second Stage Processing
- 2 Horizontal Integration Facility**
Receiving, Inspection & Vehicle Integration
- 3 Spacecraft Processing Facility**
Spacecraft Processing, Testing & Encapsulation
- 4 Mobile Service Tower**
Launch Vehicle Integration & Testing, Spacecraft Mate & Integrated Operations

FLIGHT PROFILE



Event	Time (hr:min:sec)
1 RS-68A Engine Ignition	-0:00:05.0
Liftoff (Thrust to Weight > 1)	0:00:00.0
Begin Pitch/Yaw Maneuver	0:00:09.4
Mach 1	0:01:18.4
Maximum Dynamic Pressure	0:01:19.9
2 Port and Starboard Booster Engine Cutoff	0:03:56.0
3 Port and Starboard Booster Jettison	0:03:58.1
4 Booster Engine Cutoff (BECO)	0:05:36.3
5 First Stage Separation	0:05:42.8
6 Main Engine Start (MES-1)	0:05:55.8
7 Payload Fairing Jettison	0:06:37.8

