



NROL-108 Launch Press Kit



NATIONAL RECONNAISSANCE OFFICE



NROL-108

The National Reconnaissance Office (NRO) is proud to partner with SpaceX on our second launch aboard a Falcon 9 launch vehicle. The NROL-108 mission will launch from NASA's Kennedy Space Center, Florida, and carry a national security payload designed, built and operated by the agency. NROL-108 supports NRO's overall national security mission to provide intelligence data to the United States' senior policy makers, the Intelligence Community and Department of Defense.



The NROL-108 mission patch shows a gorilla beating its chest in front of a green background with the tagline "Peace Through Strength". The NRO chose this theme because gorillas are peaceful animals but can be fierce when necessary. Like the gorilla, this mission is constantly vigilant and ready to defend its own, demonstrating NRO's commitment to protecting U.S. warfighters, interests, and allies.

NRO Mission

The National Reconnaissance Office (NRO) is an Intelligence Community element and Department of Defense organization responsible for developing, acquiring, launching and operating America's reconnaissance satellites, as well as operating associated data processing facilities in support of national security. Using NRO data, the National Security Agency, National Geospatial-Intelligence Agency, and other NRO mission partners produce intelligence products for the President, Congress, national policymakers, warfighters, and civil users. The NRO uses a variety of satellites to meet these mission needs—from small sats to more traditional, larger satellites. This approach allows the NRO to pursue a hybrid overhead architecture designed to provide global coverage against a wide range of intelligence requirements, carry out research and development efforts, and assist emergency and disaster relief efforts in the U.S. and around the world.



Rocket & Launch Facts

The SpaceX Falcon 9 is a reusable, two-stage rocket powered by liquid oxygen and rocket-grade kerosene. Falcon 9 is the world's first orbital class reusable rocket—reusability allows SpaceX to reflly the most expensive parts of the rocket, which in turn drives down the cost of space access. Following stage separation for NROL-108, SpaceX will land Falcon 9's first stage on Landing Zone 1 at Cape Canaveral Air Force Station, Florida. The Falcon 9 stands at 70 m (229.6 ft) tall, 3.7 m (12 ft) diameter, weighs 549,054 kg (1,207,920 lb), and can lift 22,800 kg (50,265 lb) to Low Earth Orbit and 8,300 kg (18,300 lb) to Geosynchronous Transfer Orbit.



SpaceX designs, manufactures and launches advanced rockets and spacecraft. The company was founded in 2002 to revolutionize space technology, with the goal of reducing space transportation costs to enable the colonization of Mars. SpaceX has developed several launch vehicles, the Starlink satellite constellation, the Dragon cargo spacecraft, and flown humans to the International Space Station on the Crew Dragon Demo-2.

Engine

The liquid-propelled Merlin engine powers the Falcon propulsion system. The engine features a reliable turbopump design with a single shaft for the liquid oxygen pump, the fuel pump, and the turbine. The engine uses a gas generator cycle instead of the more complex staged combustion cycle. The regeneratively cooled nozzle and thrust chamber use a milled copper alloy liner that provides large heat flux margins. A pintle injector provides inherent combustion stability.

First Stage

The Falcon first stage is designed to survive atmospheric entry and to be recovered, handling both the rigors of the ascent portion of the mission and the loads of the recovery portion. Stage recoverability also provides a unique opportunity to examine recovered hardware and assess design and material selection.

Second Stage

The Falcon second-stage and Falcon Heavy side-boosters restraint, release, and separation systems use pneumatic devices that provide low-shock release and positive force separation over a comparatively long stroke. The pneumatic system allows for acceptance and functional testing of the actual flight hardware, which is not possible with a traditional explosives-based separation system.



Graphic credit: SpaceX



Site Info

Launch Complex 39A

NROL-108 will launch from Launch Complex 39A (LC-39A) at NASA's Kennedy Space Center (KSC), Florida. Originally constructed in the 1960s, LC-39A was the launch site for 11 Saturn V Apollo missions, including Apollo 11, the first

Moon landing. The pad was also the launch site for 82 space shuttle missions, including the first shuttle launch, the final servicing mission for the Hubble Space Telescope, and the final shuttle mission. After the space shuttle was retired in 2011, NASA began the process of transforming KSC from a historically government-only launch facility into a multi-user spaceport for both government and commercial use. In 2014, SpaceX

signed a property agreement with NASA for use and operation of the launch complex for 20 years. SpaceX has since modified the facility to meet its needs, including building a horizontal processing hangar at the base of the pad to perform final vehicle integration. The first SpaceX launch from the pad was the CRS-10 mission for NASA launched on a Falcon 9 on Feb. 19, 2017.



Launch Pad 39A at NASA's Kennedy Space Center in Florida undergoes modifications to adapt it to the needs of SpaceX's Falcon 9 and Falcon Heavy rockets. Photo Credit: NASA



Recent Successes

The combination of commercial capabilities, technological advancements, and government-developed systems provides opportunities to expand the supplier base, improve performance, reduce cost, and enhance resiliency.

-Dr. Chris Scolese, Director, National Reconnaissance Office (NRO)

NROL-108 will be the NRO's sixth launch of 2020 and will carry a national security payload designed, built and operated by the agency.

The NRO recently collaborated with United Launch Alliance (ULA), Space Force's Space and Missile Systems Center, and the 45th Space Wing to launch the NROL-44 mission earlier this month on a Delta IV Heavy rocket

from Cape Canaveral Air Force Station. NRO collaborated with these same partners in November 2020 to launch our NROL-101 mission on an Atlas V launch vehicle, also from Cape Canaveral Air Force Station.

The NRO collaborated with NASA, Northrop Grumman, and Mid-Atlantic Regional Spaceport in July 2020 on our first dedicated launch out of NASA's Wallops Flight Facility in Virginia. NROL-129 carried a classified payload designed, built and operated by the NRO, and it launched aboard a Northrop Grumman Minotaur IV rocket.

The NRO for the first time in 2020 launched with Rocket Lab from the Mahia Peninsula, New Zealand. In January 2020, NRO collaborated with Rocket Lab and the New Zealand Space Agency to launch NROL-151, our first dedicated mission from New Zealand and our first launch under the NRO's Rapid Acquisition of a Small Rocket (RASR) contract, announced in April 2018. RASR enables NRO to explore new opportunities for launching small satellites through a streamlined, commercial approach. In June 2020, we again

collaborated with Rocket Lab to launch the "Don't Stop Me Now" mission, carrying three payloads designed, built, and operated by NRO, also procured under the RASR contract.



NROL-129 launches out of NASA's Wallops Flight Facility, Virginia, on July 15, 2020.

Visit <https://www.nro.gov/News/Press-Releases/> to view the latest launch press releases.



Future Launches

- The next NRO launch from Vandenberg Air Force Base will be NROL-82, currently indefinite on range.
- The next launch from NASA Wallops is scheduled for 2nd Qtr CY2021
- The next launch from New Zealand is scheduled for 2nd Qtr CY2021



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NROL-44 pictured on a Delta IV Heavy on Space Launch Complex-37 at Cape Canaveral Air Force Station, Florida. Photo credit: ULA