



# CREW DRAGON LAUNCH ESCAPE DEMONSTRATION

SpaceX is targeting Saturday, January 18 for an in-flight test of Crew Dragon’s launch escape capabilities from Launch Complex 39A (LC-39A) at NASA’s Kennedy Space Center in Florida. This test, which does not have NASA astronauts onboard the spacecraft, is intended to demonstrate Crew Dragon’s ability to reliably carry crew to safety in the unlikely event of an emergency on ascent.

The four-hour test window opens at 8:00 a.m. EST, or 13:00 UTC. Backup test opportunities with the same four-hour launch window opening at 8:00 a.m. EST, or 13:00 UTC, are available on Sunday, January 19 and Monday, January 20.

## WEBCAST

Launch webcast will go live about 20 minutes before liftoff at [spacex.com/webcast](https://www.spacex.com/webcast)

## PHOTOS

High-resolution photos will be posted at [flickr.com/spacex](https://www.flickr.com/spacex)

SpaceX designed Crew Dragon to be one of the safest human spaceflight systems ever built. To date, the company has completed more than 700 tests of Crew Dragon’s SuperDraco engines, which will power the spacecraft away from Falcon 9 and carry crew to safety at any point during ascent or in the unlikely event of an emergency on the launch pad. In May 2015, SpaceX completed a pad abort demonstration of Crew Dragon.

In March 2019, SpaceX completed an end-to-end test flight of Crew Dragon without NASA astronauts onboard, making Dragon the first American spacecraft to autonomously dock with the International Space Station and safely return to Earth.

For this test, Falcon 9’s ascent trajectory will mimic a Crew Dragon mission to the International Space Station to best match the physical environments the rocket and spacecraft will encounter during a normal ascent. However, SpaceX has configured Crew Dragon to intentionally trigger a launch escape after Max Q, the moment of peak mechanical stress on the rocket.

Following Crew Dragon’s separation, Falcon 9 is expected to aerodynamically break up offshore over the Atlantic Ocean. Expected breakup time will vary due to a number of factors, including winds and expected minor variations in vehicle attitudes and positions, but could occur shortly after separation or upon reentry from Earth’s upper atmosphere. In either scenario, a dedicated team of SpaceX Falcon 9 recovery personnel will be staged and ready to begin recovering debris immediately after breakup.

SpaceX’s in-flight demonstration of Crew Dragon’s launch escape capabilities is designed to provide valuable data toward NASA certifying the spacecraft to begin carrying astronauts to and from the International Space Station.



## LAUNCH FACILITY

Falcon 9 will launch Crew Dragon from Launch Complex 39A (LC-39A) at NASA's Kennedy Space Center in Florida. Learn more about SpaceX launch facilities at [spacex.com/about](https://www.spacex.com/about)

## SPACE X CONTACT

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## MISSION TIMELINE (all times approximate)

### COUNTDOWN

Min/Sec	Event
- 45:00	SpaceX Launch Director verifies go for propellant load
- 37:00	Dragon launch escape system is armed
- 35:00	RP-1 (rocket grade kerosene) loading begins
- 35:00	1st stage LOX (liquid oxygen) loading begins
- 16:00	2nd stage LOX loading begins
- 07:00	Falcon 9 begins engine chill prior to launch
- 05:00	Dragon transitions to internal power
- 01:00	Command flight computer to begin final prelaunch checks
- 01:00	Propellant tank pressurization to flight pressure begins
- 00:45	SpaceX Launch Director verifies go for launch
- 00:03	Engine controller commands engine ignition sequence to start
- 00:00	Falcon 9 liftoff

### DRAGON SEPARATION AND SPLASHDOWN

Once the launch escape sequence begins, approximately 90 seconds after liftoff, Falcon 9's first stage Merlin engines will shut down and Crew Dragon's SuperDraco thrusters will begin their firing sequence. The launch vehicle and spacecraft will separate, and Crew Dragon's SuperDracos will burn to completion.

After Crew Dragon's SuperDracos shutdown, the spacecraft will passively coast to apogee, the highest point in its arc. Near apogee, Crew Dragon's trunk will separate and the smaller Draco thrusters will re-orient the spacecraft for reentry and parachute deploy. When the appropriate conditions are met, Dragon's drogue and main parachutes will sequence to provide for a soft landing in the Atlantic Ocean near SpaceX Dragon recovery teams.

For this test, SpaceX will be flying Crew Dragon's upgraded Mark 3 parachutes on the spacecraft – one of the most advanced parachute systems in the world. In total, SpaceX has completed over 80 tests of its parachute system, including 10 multi-parachute tests of the upgraded Mark 3 system.

Splashdown is expected to occur about 10 minutes after liftoff.

As part of the Dragon recovery operation, Air Force Detachment-3 personnel will work with the SpaceX recovery team to observe Crew Dragon and practice their initial approach to the spacecraft in the open ocean, mimicking an actual rescue operation before the SpaceX team recovers Crew Dragon for return to Cape Canaveral.