CRS-8 Dragon Resupply Mission

Mission Overview

SpaceX's Falcon 9 rocket will launch the Dragon spacecraft to low Earth orbit to deliver critical cargo to the International Space Station (ISS) for NASA.

Official SpaceX CRS-8 mission patch

SpaceX is targeting an afternoon launch of its eighth Commercial Resupply Services mission (CRS-8) from Space Launch Complex 40 at Cape Canaveral Air Force Station, Fla. The instantaneous launch window opens on April 8th at 4:43pm ET, and a backup launch window opens at 4:20pm ET on April 9th. Dragon will be deployed about 10 minutes after liftoff and attach to the ISS about two days later.

Following stage separation, the first stage of the Falcon 9 will attempt an experimental landing on the "Of Course I Still Love You" droneship in the Atlantic Ocean.

Dragon Spacecraft

The Dragon spacecraft will be filled with about 7,000 pounds of critical supplies and payloads for the space station crew, including materials to support dozens of the approximately 250 science and research investigations that will occur during Expeditions 47 and 48. Dragon's unpressurized trunk will carry the approximately 3,100 pound Bigelow Expandable Activity Module, or BEAM, that will attach to the space station and demonstrate expandable in-space habitat technology.

SpaceX CRS-8 is the eighth of up to 20 missions to the International Space Station that SpaceX will fly for NASA under the CRS contract. In January 2016, NASA announced that SpaceX's Falcon 9 launch vehicle and Dragon spacecraft have been selected to resupply the space station through 2024 as part of the second Commercial Resupply Services contract award. Under the CRS contracts, SpaceX has restored an American capability to deliver and return significant amounts of cargo, including live plants and animals, to and from the orbiting laboratory. A version of Dragon is also being developed for astronaut transport to and from the ISS.

ISS Capture

About two days after launch, International Space Station crew members will use the station's 57.7-foot (17.6-meter) robotic arm to reach out and capture the Dragon spacecraft and attach it to the station.

Return Flight

Dragon will return to Earth after just over a month stay at the ISS. Approximately five hours after Dragon leaves the station, it will conduct its deorbit burn, which lasts up to 10 minutes. It takes about 30 minutes for Dragon to reenter the Earth's atmosphere and splash down in the Pacific Ocean off the coast of California.

For more information about the mission and payloads, visit www.nasa.gov/spacex.

Mission Timeline (all times approximate)

COUNTDOWN

Hour/Min/Sec	Events
- 00:38	Launch Conductor takes launch readiness poll
- 00:35	RP-1 (rocket grade kerosene) and liquid oxygen (LOX) loading underway
- 00:10	Falcon 9 begins engine chill prior to launch
- 00:07	Dragon to internal power
- 00:02	Range Control Officer (USAF) verifies range is go for launch
- 00:01:30	SpaceX Launch Director verifies go for launch
- 00:01	Command flight computer to begin final prelaunch checks
- 00:01	Pressurize propellant tanks
- 00:00:03	Engine controller commands engine ignition sequence to start
00:00:00	Falcon 9 liftoff

LAUNCH AND DRAGON DEPLOYMENT (all times approximate)

Hour/Min/Sec	Events
00:01:11	Max Q (moment of peak mechanical stress on the rocket)
00:02:30	1st stage main engine cutoff (MECO)
00:02:34	1st and 2nd stages separate
00:02:41	2nd stage engine starts
00:04	1st stage boostback burn begins
00:07	1st stage entry burn begins
00:08	1st stage landing burn begins
00:10	2nd stage engine cutoff (SECO)
00:10:30	Dragon separates from 2nd stage
00:12	Dragon's solar arrays deploy
02:20	Dragon's Guidance, Navigation and Control bay door opens

Launch Facility

Space Launch Complex 40 (SLC-40), Cape Canaveral Air Force Station, Fla.
SpaceX's SLC-40 at Cape Canaveral Air Force Station is a world-class launch site that builds on a strong heritage. The site at the north end of the Cape was used for many years to launch Titan rockets, among the most powerful rockets in the U.S. fleet. SpaceX took over the facility in May 2008.

The center of the complex is composed of the concrete launch pad and flame exhaust duct. Surrounding the pad are four lightning towers, propellant storage tanks, and the integration hangar. Before launch, Falcon 9's stages and payload are housed inside the hangar. The Dragon spacecraft is mated to the Falcon 9 inside SLC-40's hangar on the transporter erector. The rocket and payload are then rolled out from the hangar to the launch pad on fixed rails and lifted to a vertical position prior to launch.

Resources

SpaceX Contact | John Taylor, Director of Communications, 310-363-6703, media@spacex.com.
Photos | High-resolution photos will be posted at flickr.com/spacex.
Webcast | Approximately 20 min before launch, SpaceX's webcast will be live at spacex.com/webcast.