CRS-16 Dragon Resupply Mission

MISSION OVERVIEW

SpaceX is targeting Wednesday, December 5 for an instantaneous launch of its sixteenth Commercial Resupply Services mission (CRS-16) at 1:16 p.m. EST, or 18:16 UTC, from Space Launch Complex 40 (SLC-40) at Cape Canaveral Air Force Station, Florida. Dragon will separate from Falcon 9's second stage about 10 minutes after liftoff and attach to the space station on Saturday, December 8.

An instantaneous backup launch opportunity is available on Friday, December 7 at 12:28 p.m. EST, or 17:28 UTC.

The Dragon spacecraft that will support the CRS-16 mission previously supported the CRS-10 mission in February 2017. Following stage separation, SpaceX will attempt to recover Falcon 9's first stage on Landing Zone 1 (LZ-1) at Cape Canaveral Air Force Station, Florida.

Official SpaceX CRS-16 Mission Patch

DRAGON SPACECRAFT

Dragon will be filled with more than 5,600 pounds of supplies and payloads, including critical materials to directly support more than 250 science and research investigations that will occur onboard the orbiting laboratory.

CRS-16 is the sixteenth of up to 20 missions to the International Space Station that SpaceX will fly for NASA under the first CRS contract. In January 2016, NASA announced that SpaceX's Falcon 9 launch vehicle and Dragon spacecraft were selected to resupply the space station through 2024 as part of a second Commercial Resupply Services contract award. Under the CRS contracts, SpaceX has restored the United States' capability to deliver and return significant amounts of cargo, including live plants and animals, to and from the orbiting laboratory. A variant of the Dragon spacecraft, called Crew Dragon, is being developed for U.S-based crew transport to and from the space station.

ISS CAPTURE

On Saturday, December 8, International Space Station crew members will use the station's 57.7-foot (17.6-meter) robotic arm to capture the Dragon spacecraft and attach it to the orbiting laboratory.

RETURN FLIGHT

Dragon will return to Earth with about 4,000 pounds of cargo after an approximately five-week stay at the International Space Station. About five hours after Dragon leaves the space 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 Baja California.

SPACEX

MISSION TIMELINE (ALL TIMES APPROXIMATE)

COUNTDOWN

Hour/Min/Sec	Events
- 00:38:00	SpaceX Launch Director verifies go for propellant load
- 00:35:00	RP-1 (rocket grade kerosene) loading underway
- 00:35:00	1st stage LOX (liquid oxygen) loading underway
- 00:16:00	2nd stage LOX loading underway
- 00:07:00	Falcon 9 begins engine chill prior to launch
- 00:01:00	Command flight computer to begin final prelaunch checks
- 00:01:00	Propellant tank pressurization to flight pressure begins
- 00:00:45	SpaceX Launch Director verifies go for launch
- 00:00:03	Engine controller commands engine ignition sequence to start
00:00:00	Falcon 9 liftoff

LAUNCH, LANDING AND DRAGON DEPLOYMENT

Hour/Min/Sec	Events
00:00:58	Max Q (moment of peak mechanical stress on the rocket)
00:02:23	1st stage main engine cutoff (MECO)
00:02:26	1st and 2nd stages separate
00:02:33	2nd stage engine starts
00:02:39	1st stage boostback burn begins
00:06:35	1st stage entry burn begins
00:08:17	1st stage landing
00:08:51	2nd stage engine cutoff (SECO)
00:09:51	Dragon separates from 2nd stage
00:11:00	Dragon's solar arrays deploy
02:20:00	Dragon's Guidance, Navigation and Control bay door opens

LAUNCH FACILITY

Space Launch Complex 40 at Cape Canaveral Air Force Station, Florida

SpaceX's SLC-40 at Cape Canaveral Air Force Station is a world-class launch site that builds on a strong heritage. The site, located at the north end of Cape Canaveral Air Force Station, was used for many years to launch Titan rockets, among the most powerful 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 diverter system. 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 on the transporter erector inside SLC-40's hangar. The rocket and payload are then rolled out from the hangar to the launch pad and lifted to a vertical position prior to launch.

RESOURCES

SpaceX Contact | James Gleeson, Communications Director, 202-649-2633, media@spacex.com.
Photos | High-resolution photos will be posted at flickr.com/spacex.
Webcast | Launch webcast will go live about 20 minutes before liftoff at spacex.com/webcast.