



CREW-1 MISSION

MISSION OVERVIEW

SpaceX and NASA are targeting Sunday, November 15 for Falcon 9's launch of [Dragon's first operational crew mission \(Crew-1\)](#) to the International Space Station (ISS) from historic Launch Complex 39A (LC-39A) at NASA's Kennedy Space Center in Florida. The instantaneous launch window opens at 7:27 p.m. EST on November 15, 00:27 UTC on November 16. Following stage separation, SpaceX will attempt to land Falcon 9's first stage on the "Just Read the Instructions" droneship, which will be stationed in the Atlantic Ocean.

As part of the Commercial Crew Program, NASA astronauts [Mike Hopkins](#), [Victor Glover](#), [Shannon Walker](#), and JAXA astronaut [Soichi Noguchi](#) will fly aboard Dragon on its first six-month operational mission to the ISS.

Following Dragon's second demonstration mission (Demo-2), NASA [certified](#) SpaceX for operational crew missions to and from the space station. Crew-1 is the first of three scheduled Dragon flights over the course of 2020 and 2021.

The return of human spaceflight to the United States with one of the safest, most advanced systems ever built is a turning point for America's future space exploration, and it lays the groundwork for missions to the Moon, Mars, and beyond.

WEBCAST

The launch webcast will go live about 4 hours before liftoff. Tune in [here](#) to watch live.

THE ASTRONAUTS



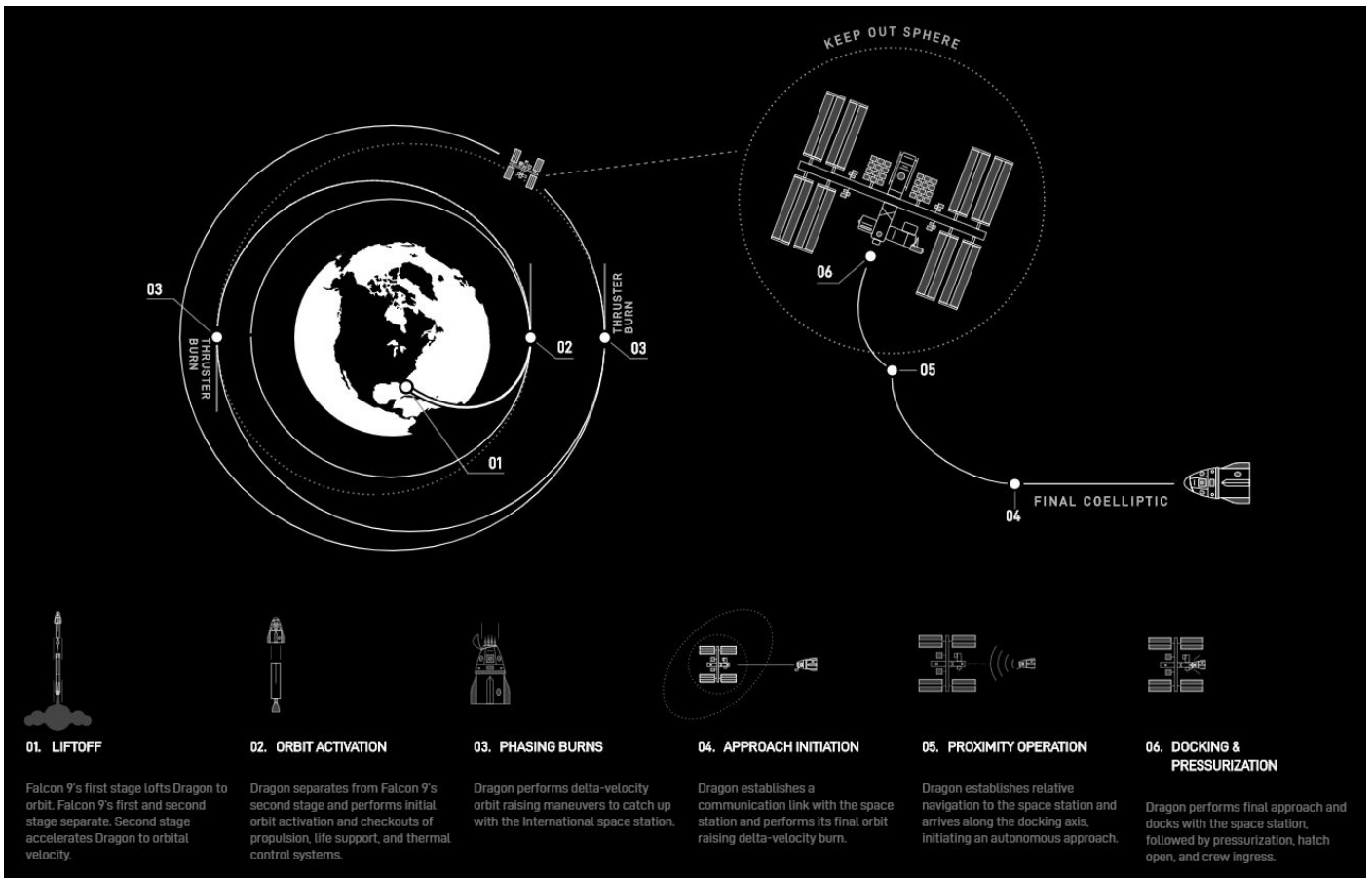
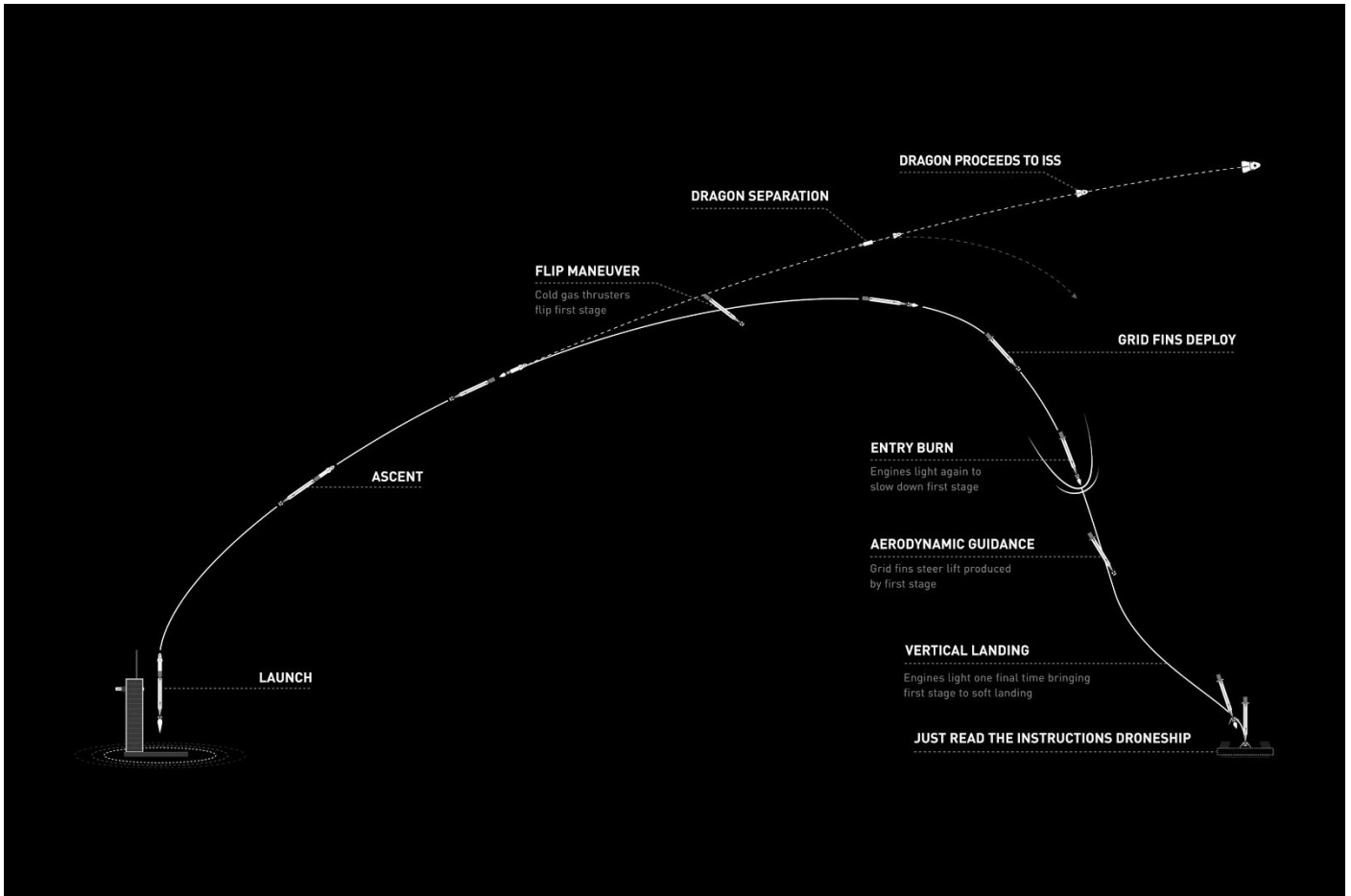
Mike Hopkins

Victor Glover

Shannon Walker

Soichi Noguchi

MISSION PROFILE



01. LIFTOFF

Falcon 9's first stage lofts Dragon to orbit. Falcon 9's first and second stage separate. Second stage accelerates Dragon to orbital velocity.



02. ORBIT ACTIVATION

Dragon separates from Falcon 9's second stage and performs initial orbit activation and checkouts of propulsion, life support, and thermal control systems.



03. PHASING BURNS

Dragon performs delta-velocity orbit raising maneuvers to catch up with the International space station.



04. APPROACH INITIATION

Dragon establishes a communication link with the space station and performs its final orbit raising delta-velocity burn.



05. PROXIMITY OPERATION

Dragon establishes relative navigation to the space station and arrives along the docking axis, initiating an autonomous approach.



06. DOCKING & PRESSURIZATION

Dragon performs final approach and docks with the space station, followed by pressurization, hatch open, and crew ingress.

MISSION TIMELINE (ALL TIMES APPROXIMATE)

COUNTDOWN

Hr/Min/Sec	Event
- 00:45:00	SpaceX Launch Director verifies go for propellant load
- 00:42:00	Crew access arm retracts
- 00:37:00	Dragon's launch escape system is armed
- 00:35:00	RP-1 (rocket grade kerosene) loading begins
- 00:35:00	1st stage LOX (liquid oxygen) loading begins
- 00:16:00	2nd stage LOX loading begins
- 00:07:00	Falcon 9 begins engine chill prior to launch
- 00:05:00	Dragon transitions to internal power
- 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 DEPLOYMENT

Hr/Min/Sec	Event
00:00:58	Max Q (moment of peak mechanical stress on the rocket)
00:02:37	1st stage main engine cutoff (MECO)
00:02:40	1st and 2nd stages separate
00:02:48	2nd stage engine starts
00:07:29	1st stage entry burn
00:08:50	2nd stage engine cutoff (SECO-1)
00:08:59	1st stage landing burn
00:09:29	1st stage landing
00:12:03	Dragon separates from 2nd stage
00:12:48	Dragon nosecone open sequence begins