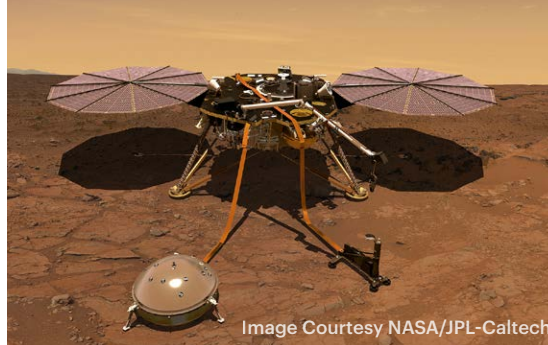


MISSION

A United Launch Alliance (ULA) Atlas V 401 rocket will deliver the InSight spacecraft to an interplanetary trajectory to Mars. Liftoff will occur from Space Launch Complex-3 at Vandenberg Air Force Base, California.

NASA's InSight (Interior Exploration using Seismic Investigations, Geodesy and Heat Transport) mission will place a single geophysical lander



on Mars to study its deep interior. The two-year InSight mission seeks to understand the evolutionary formation of rocky planets, including Earth, by investigating the interior structure and processes of Mars. InSight will also investigate the dynamics of Martian tectonic activity and meteorite impacts, which could offer clues about such phenomena on Earth.

Part of NASA's Discovery Program, InSight builds on the proven technologies of NASA's Mars Phoenix lander. The reuse of this technology, developed and built by Lockheed Martin Space, provides a low-risk path to Mars.

In addition to InSight, this mission includes two CubeSats which will launch from dispensers mounted on the aft bulkhead carrier on the Atlas V Centaur second stage. The Mars Cube One (MarCO) CubeSats, designed and built by the Jet Propulsion Laboratory, will be the first to travel interplanetary. The small Mars-bound satellites provide a real-time communication relay to cover the entry, descent and landing of InSight on Mars.

LAUNCH VEHICLE

Payload Fairing (PLF)

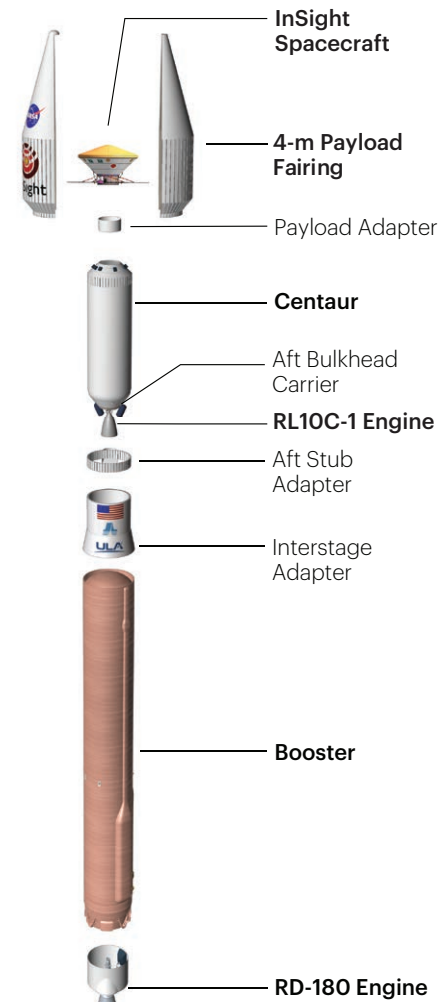
The spacecraft is encapsulated in the 4-m (14-ft) diameter large payload fairing (LPF). The LPF is a bisector (two-piece shell) fairing consisting of aluminum skin/stringer construction with vertical split-line longerons. The vehicle's height with the LPF is approximately 189 ft.

Centaur

The Centaur second stage is 10 ft in diameter and 41.5 ft in length. Its propellant tanks are constructed of pressure-stabilized, corrosion-resistant stainless steel. Centaur is a cryogenic vehicle, fueled with liquid hydrogen and liquid oxygen, powered by an RL10C-1 engine producing 22,900 lb of thrust. The cryogenic tanks are insulated with a combination of helium-purged blankets, radiation shields and spray-on foam insulation (SOFI). The Centaur forward adapter (CFA) provides structural mountings for the fault-tolerant avionics system and structural and electrical interfaces with the spacecraft.

Booster

The booster is 12.5 ft in diameter and 106.5 ft in length. The booster's tanks are structurally rigid and constructed of isogrid aluminum barrels, spun-formed aluminum domes and intertank skirts. Booster propulsion is provided by the RD-180 engine system (a single engine with two thrust chambers). The RD-180 burns RP-1 (Rocket Propellant-1 or highly purified kerosene) and liquid oxygen and delivers 860,200 lb of thrust at sea level. The Centaur avionics system, provides guidance, flight control and vehicle sequencing functions during the booster and Centaur phases of flight.



ATLAS V



The Atlas V 401 rocket has become the workhorse of the Atlas V fleet, delivering about half of all Atlas V missions to date. In its more than 15 years of service, the 401 has launched a diverse set of missions including national security, science and exploration, commercial and International Space Station resupply.

First Launch: Aug. 21, 2002
Launches to date: 37

Performance to GTO:
4,750 kg (10,470 lb)
Performance to LEO-Reference:
9,800 kg (21,600 lb)

MISSION SUCCESS

With more than a century of combined heritage, United Launch Alliance is the nation's most experienced and reliable launch service provider. ULA has successfully delivered more than 125 satellites to orbit that provide critical capabilities for troops in the field, aid meteorologists in tracking severe weather, enable personal device-based GPS navigation and unlock the mysteries of our solar system.

MISSION OVERVIEW

ATLAS V INSIGHT



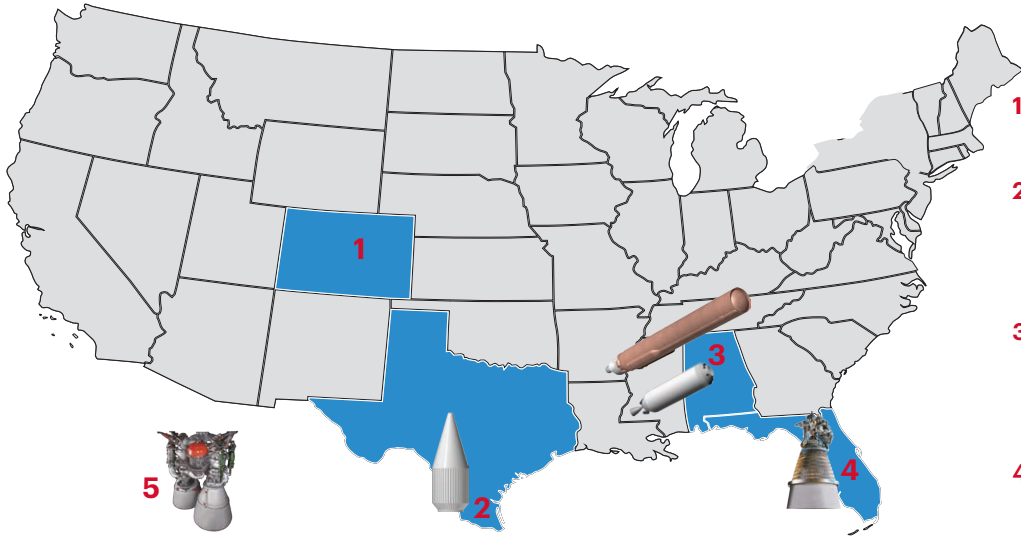
IMAGE CREDIT: NASA/JPL-CALTECH/CORNEIL/ASU



ulalaunch.com

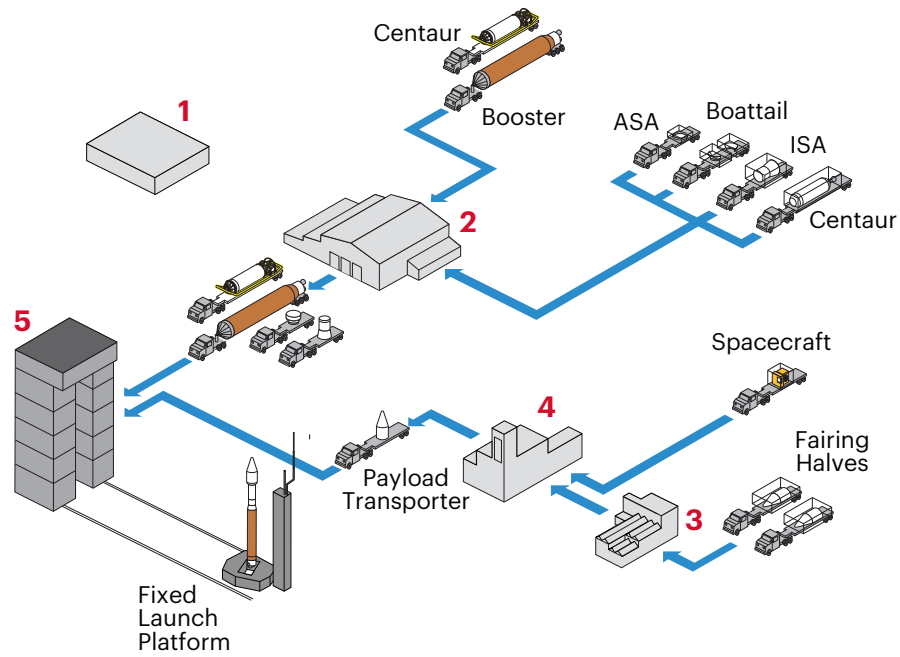
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PRODUCTION



- 1 Denver, CO**
ULA Headquarters & Design
Center Engineering
- 2 Harlingen, TX**
Payload Fairing, Payload
Adapter, Booster
Adapter & Centaur Adapter
Fabrication
- 3 Decatur, AL**
Booster Fabrication & Final
Assembly, Centaur Tank
Fabrication & Centaur Final
Assembly
- 4 West Palm Beach, FL**
RL10C-1 Engine Fabrication
at Aerojet Rocketdyne
- 5 Khimki, Russia**
RD-180 Engine Fabrication at
NPO Energomash

SPACE LAUNCH COMPLEX-3 PROCESSING



- 1 Remote Launch Control Center (RLCC)**
Launch Control Center &
Mission Director's Center
- 2 Operations Center**
Receiving & Inspection
- 3 Building 8337**
PLF/Adapter Receiving &
Inspection
- 4 Spacecraft Processing Facility**
Spacecraft Processing, Testing
& Encapsulation
- 5 Mobile Service Tower**
Launch Vehicle Integration &
Testing, Spacecraft Mate &
Integrated Operations

FLIGHT PROFILE

