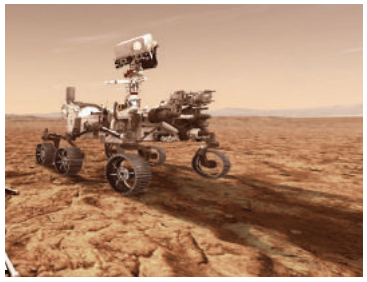
n a 7-month journey to Mars.
from Space Launch Complex-41
al Air Force Station, Florida.

ission with its Perseverance
ASA's Mars Exploration Pro-
n effort of robotic exploration
. A team from the Jet Propulsion
uilt the spacecraft. The Perse-
l seek signs of ancient life and
soil samples for possible return



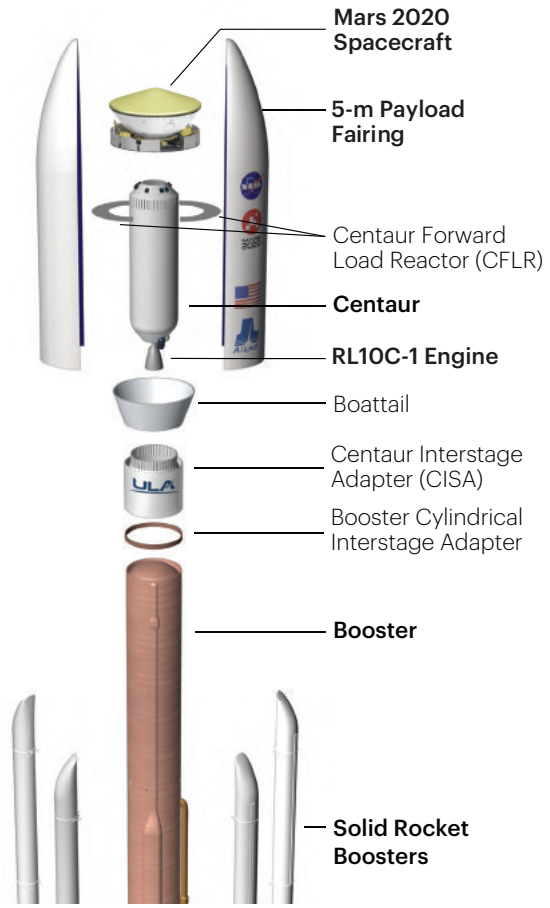
PLF)
encapsulated in a 5-m (17-ft)
ayload fairing. The 5-m PLF
nposite structure made with a
-honeycomb core and graph-
eets. The bisector (two-piece
ulates both the Centaur and
vehicle's height with the 5-m
oximately 60 m (197 ft).

ond stage is 3 m (10 ft) in diame-
.5 ft) in length. Its propellant
e-stabilized and constructed of
nt stainless steel. Centaur is a
, fueled with liquid hydrogen
, powered by an RL10C-1 en-
01.9 kilo-Newtons (22,900 lb) of
enic tanks are insulated with a
elium-purged blankets, radia-
spray-on foam insulation (SOFI).
ard adapter (CFA) provides
ings for the fault-tolerant avion-
ructural and electrical interfac-
ecraft.

3 m (12.5 ft) in diameter and
in length. The booster's tanks
gid and constructed of isog-
rels, spun-formed aluminum
ank skirts. Booster propulsion is
RD-180 engine system (a single
thrust chambers). The RD-180
et Propellant-1 or highly purified
uid oxygen and delivers 3.83
360,200 lb) of thrust at sea lev-
ket boosters (SRBs) generate the

soil, and prepare for future human missions. Perseverance rover will carry seven primary instruments: MASTCAM-Z, Mars Environmental Dynamics Analyzer (MEDA), Mars Oxygen ISRU Experiment (MOXIE), Planetary Instrument for X-ray Lithochemistry (PIXL), Radar Imager for Mars' Subsurface Experiment (RIMFAX), Scanning Habitable Environments with Raman & Luminescence for Organics & Chemicals (SHERLOC), and SuperCam. Also, the Mars helicopter, Ingenuity, will ride to Mars attached to the belly of the rover. The helicopter is a technology demonstration to test the first powered flight on Mars.

Mars 2020 and the Perseverance rover are scheduled to arrive at Mars in February 2021. The mission duration is at least one Mars year (about 687 Earth days). ULA and its heritage vehicles have launched every U.S. led mission to Mars. Mars 2020 will continue the legacy started by earlier missions to provide NASA and JPL with crucial knowledge and understanding of the red planet.



ATLAS V

One of the most powerful rockets in the Atlas V fleet, the 541 configuration, with four solid rocket boosters, provides the optimum performance to precisely deliver a range of mission types. In addition to three national security and two weather satellites, an Atlas V 541 rocket launched NASA's Curiosity rover on its 10-month, 354 million-mile journey to the surface of Mars.

First Launch: Nov. 26, 2011
Launches to date: 6

Performance to GTO: 8,290 kg (18,270 lb)
Performance to LEO-Reference: 17,410 kg (38,400 lb)

MISSION SUCCESS

With more than a century of combined heritage, ULA is the world's most experienced and reliable launch service provider. ULA has successfully delivered more than 135 missions to orbit that provide Earth observation capabilities, enable global communications, unlock the mysteries of our solar system and support life-saving technology.

Solid Rocket Booster Fabrication at Aerojet Rocketdyne

2 Denver, CO
ULA Headquarters & Design Center Engineering

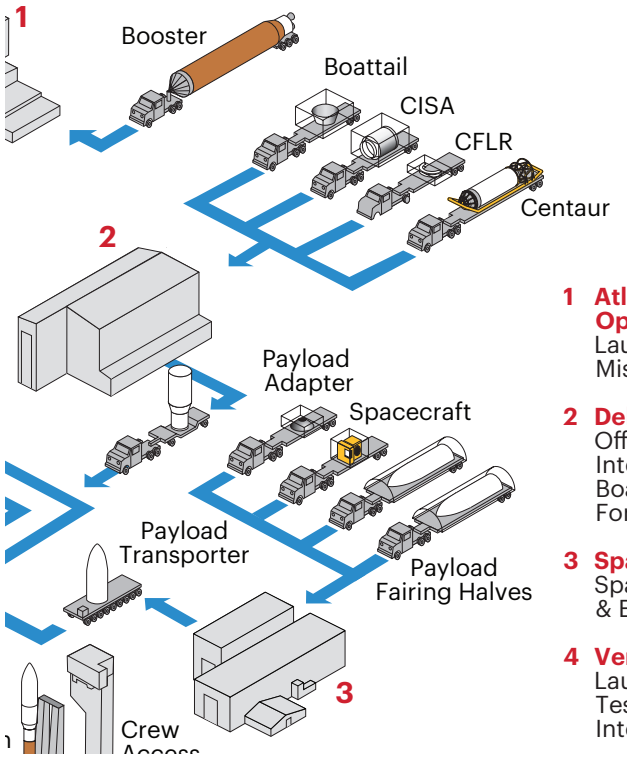
3 Harlingen, TX
Payload Adapter, Booster Adapter & Centaur Adapter Fabrication

4 Decatur, AL
Booster Fabrication & Final Assembly, Centaur Tank Fabrication & Final Assembly

5 West Palm Beach, FL
RL10C-1 Engine Fabrication at Aerojet Rocketdyne

6 Khimki, Russia
RD-180 Engine Fabrication at NPO Energomash

7 Zurich, Switzerland
5-m Payload Fairing Fabrication at RUAG Space

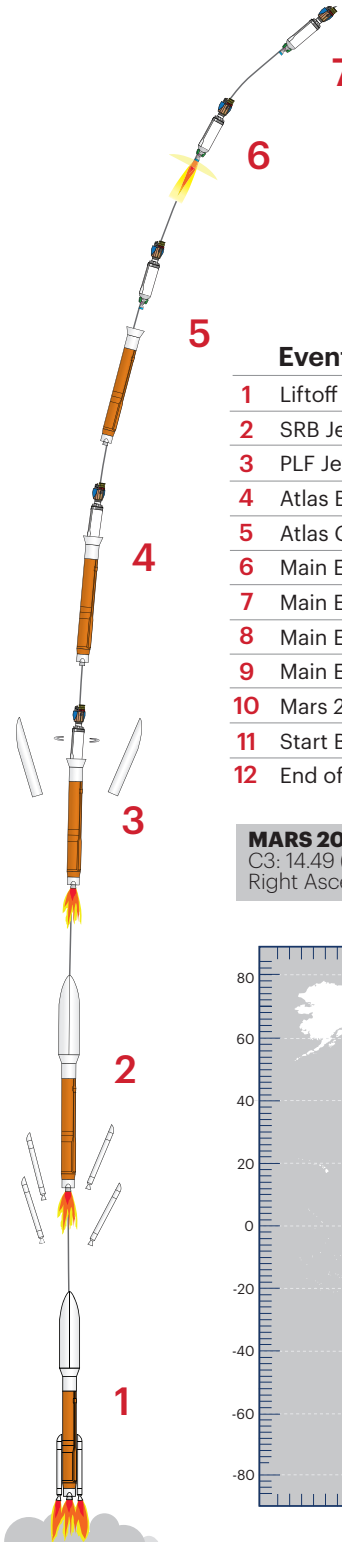


1 Atlas Spaceflight Operations Center (ASOC)
Launch Control Center & Mission Director's Center

2 Delta Operations Center
Offline Vertical Integration (OVI): Interstage Adapters, Centaur, Boatail, Base Module and Centaur Forward Load Reactor Deck

3 Spacecraft Processing Facility
Spacecraft Processing, Testing & Encapsulation

4 Vertical Integration Facility
Launch Vehicle Integration & Testing, Spacecraft Mate & Integrated Operations



	Event	Time (hr:min:sec)
1	Liftoff (Thrust to Weight > 1)	00:00:01.1
2	SRB Jettison	00:01:49.3
3	PLF Jettison	00:03:27.6
4	Atlas Booster Engine Cutoff (BECO)	00:04:22.1
5	Atlas Centaur Separation	00:04:28.1
6	Main Engine Start (MES1)	00:04:38.1
7	Main Engine Cutoff (MECO1)	00:11:27.9
8	Main Engine Start (MES2)	00:44:59.5
9	Main Engine Cutoff (MECO2)	00:52:50.1
10	Mars 2020 Separation	00:57:32.8
11	Start Blowdown	01:23:52.8
12	End of Mission	01:57:12.8

MARS 2020 Orbit at Separation
C3: 14.49 (km^2/s^2) | Declination (J2000): 35.32 (deg)
Right Ascension (J2000): 13.93 (deg)