



Space Launch System

RL10 Engine

Proven, Reliable Space Propulsion

During the Artemis I uncrewed test flight, a single liquid hydrogen and liquid oxygen-fed RL10B-2 engine producing 24,750 pounds (110kN) of thrust will serve as the main propulsion for the Interim Cryogenic Propulsion Stage (ICPS) that will send the Orion spacecraft to the Moon.

The rocket engine was developed by Pratt & Whitney in the late 1950s and was first flown in 1963. Since then, more than 500 RL10 engines have flown to space. The RL10 is manufactured by Space Launch System (SLS) lead contractor Aerojet Rocketdyne in West Palm Beach, FL, and they have provided upper stage propulsion to launch hundreds of satellites and have sent spacecraft to explore every planet in the solar system. With Artemis, an updated version of the RL10 will send people farther away from Earth than humans have ever traveled.

The first three Artemis missions will include an ICPS single RL10 configuration atop the SLS Block 1 rocket. As the rocket evolves to a more powerful Block 1B configuration, it will fly with the Exploration Upper Stage (EUS) that will use four RL10C-3 engines to send Orion and large cargos to the Moon. The four RL10 engines on EUS provide more than 97,000 pounds (431kN) of thrust, which will allow the rocket to send 40 percent more mass to the Moon.



A single RL10 engine will provide nearly 25,000 pounds of thrust and serve as the main propulsion for the ICPS that will fly atop the SLS rocket Block 1 in support of each of the first three Artemis missions.



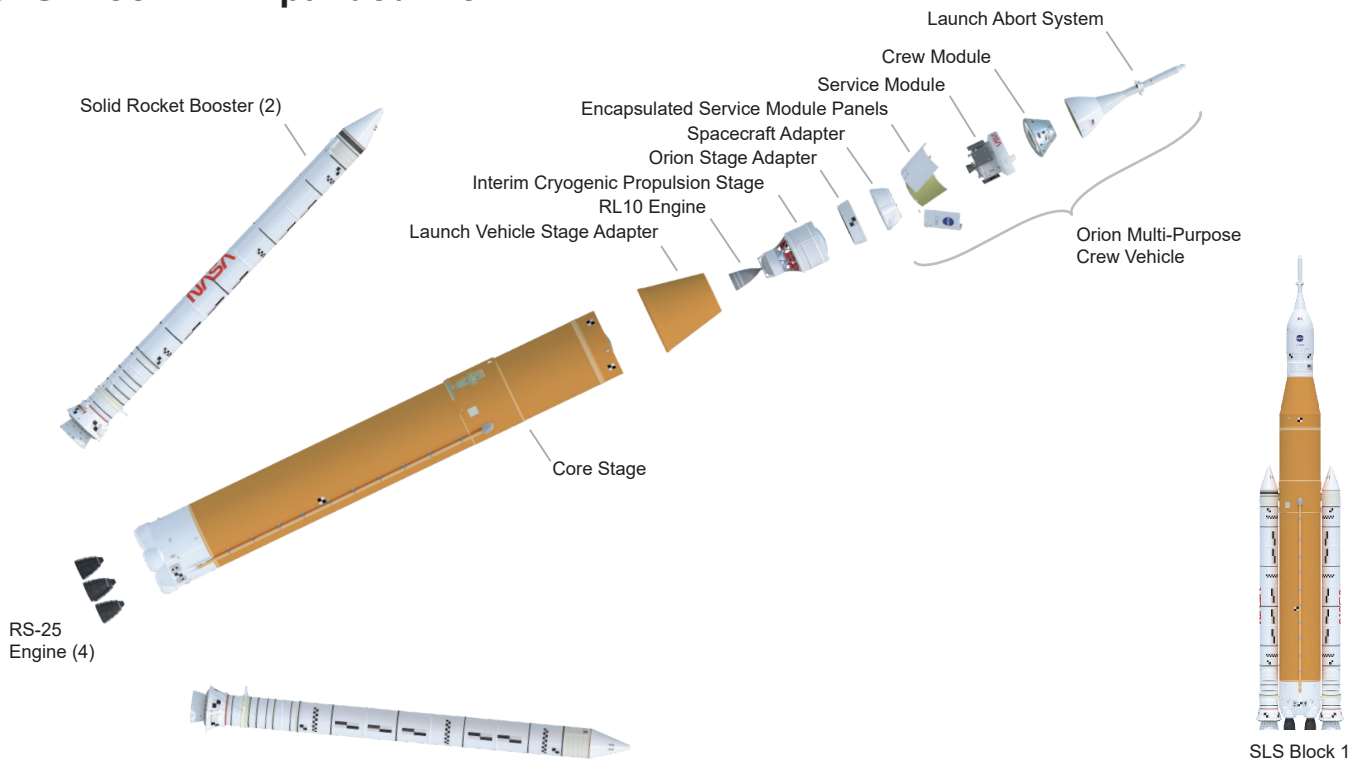
The Space Launch System ICPS mates with the launch vehicle stage adapter atop the SLS core stage in the Vehicle Assembly Building at NASA's Kennedy Space Center in Florida. The ICPS will fire its RL10 engine to send the Orion spacecraft to the Moon.

NASAfacts

RL10 Engine

	RL10B-2	RL10C-3
Launch Vehicle	SLS Block 1 Interim Cryogenic Propulsion Stage (ICPS) – 1 engine	SLS Block 1B Exploration Upper Stage (EUS) – 4 engines
Thrust	24,750 lbf	24,340 lbf
Weight	664 lbs	508 lbs
Fuel	Liquid hydrogen	Liquid hydrogen
Oxidizer	Liquid oxygen	Liquid oxygen
Length	86.5" (stowed) 163.5" (deployed)	124.3"
Nozzle Diameter	84.5"	73"

SLS Block 1 - Expanded View



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