JPL Minimal Mars Architecture
Notional Vehicle Configurations

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SLS Block 2 Launch Concepts for Minimal Architecture
all 8.4 m fairings except for lander

Earth departure configuration for lander (from HEO)

TEI and boost stage cargo launch
Launch #1

TransHab resupply cargo launch
Launch #2

Lander using backshell as payload fairing
Launch #3

Docking kit for EUS to use as departure stage
Launch #4

MOI stage and TransHab launch to HEO
Launch #5

Orion with crew
Launch #6
Notional Crewed Mars Transit Vehicle Configuration

Earth departure configuration for crew

Earth/Mars transit configuration
Notional SEP Tug Cargo Flight Configurations

Pre-decisional. For discussion purposes only.
Crewed Mars Descent/Ascent Vehicle Concept

- Orion
- Descent/Ascent Vehicle

Crew transfer to Descent/Ascent Vehicle in High Mars Orbit (HMO)

MAV Ascent to Low Mars Orbit (LMO)

MAV boost phase from LMO to HMO

Crew transfer from MAV in HMO

Landed Configuration

Humans to Mars

Pre-decisional. For discussion purposes only.
EDL Concept for 10 m Blunt Body Lander

Entry

Peak Heating

Hypersonic Aeromaneuvering

Jettison Backshell

Abort to orbit capability

Supersonic Retro-Propulsion

Heatshield jettison

Powered Descent

Ground Acquisition

Touchdown

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