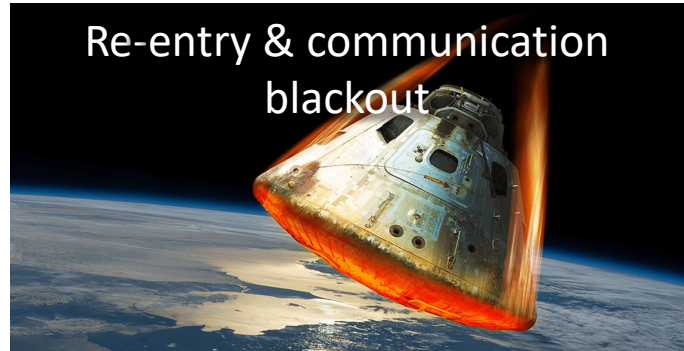




One of the most dangerous parts of the mission is when the spacecraft returns to Earth and re-enters the atmosphere.	At T-0 the five big first stage <i>Saturn V</i> rocket engines light and the <i>spacecraft-stack</i> slowly lifts off. Once above the launch tower, control of the spacecraft switches from <i>Kennedy Space Centre, Florida</i> to <i>Mission Control in Houston</i> .	When ready, the <i>lunar module</i> will undock and separate from the <i>command and service module</i> . At this point, the single spacecraft becomes two, with different callsigns to identify them.
The launch vehicle is made up of three separate rocket-stages. Staging occurs twice during launch as one rocket-stage stops and another fires up.	When ready, the third rocket stage re-ignites to accelerate the spacecraft beyond Earth orbit and begin its four-day journey to the Moon.	On the way to the Moon, the crew <i>command and service module</i> separates, rotates 180°, and pulls the <i>lunar module</i> away from the now used up third stage rocket.
Following <i>lunar module</i> extraction, the spacecraft is placed into a slow continuous roll for the journey to the Moon so that all sides of the spacecraft are heated by the Sun equally.	Upon reaching the Moon, the <i>service module engine</i> fires to slow the spacecraft into lunar orbit.	After separating from the main spacecraft, the <i>lunar module</i> fires its <i>descent engine</i> to control its descent to the lunar surface.
As they reach the surface of the Moon, the astronauts fly the spacecraft manually before turning the <i>descent engine</i> off and dropping onto the lunar surface.	On leaving the Moon, the lower part of the <i>lunar module</i> becomes a launch pad for the upper part. The <i>descent engine</i> re-ignites to launch and reunite the moonwalkers with their crewmate back in lunar orbit.	The <i>service propulsion system engine</i> relights one last time to accelerate the spacecraft out of lunar orbit and onto the journey home.

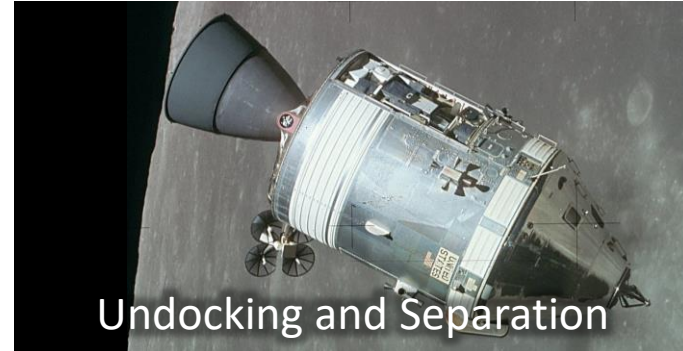
Re-entry & communication  
blackout



Launch



Undocking and Separation



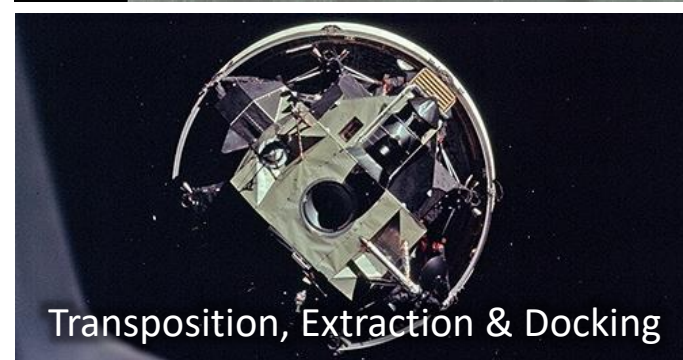
Staging



Trans-lunar injection (TLI)



Transposition, Extraction & Docking



Passive thermal control (BBQ mode)



Lunar orbit insertion



Powered descent



Landing on the  
Moon

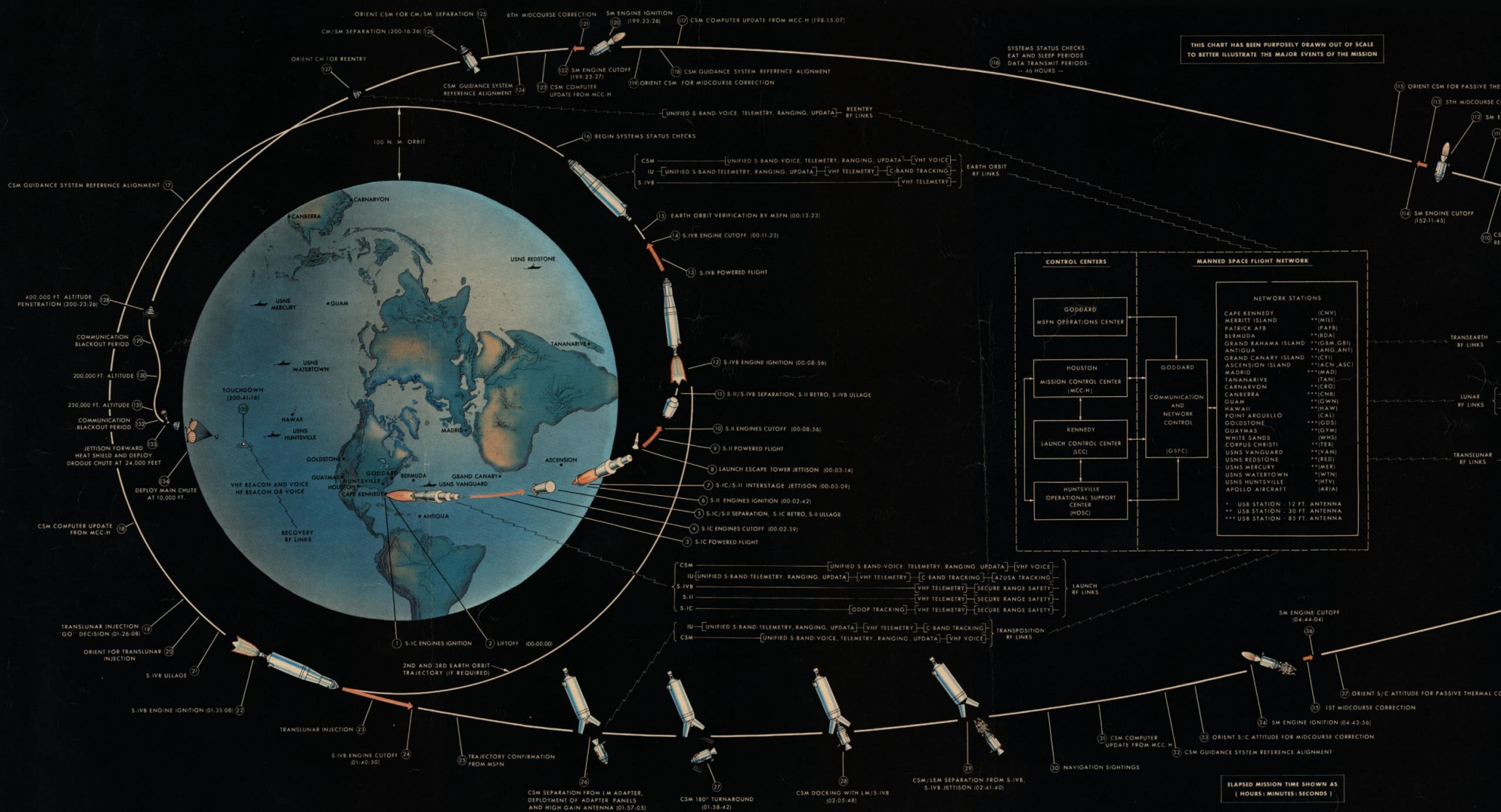


Lunar module ascent



Trans-Earth injection (TEI)





CHECKS-  
PERIODS-  
PERIODS