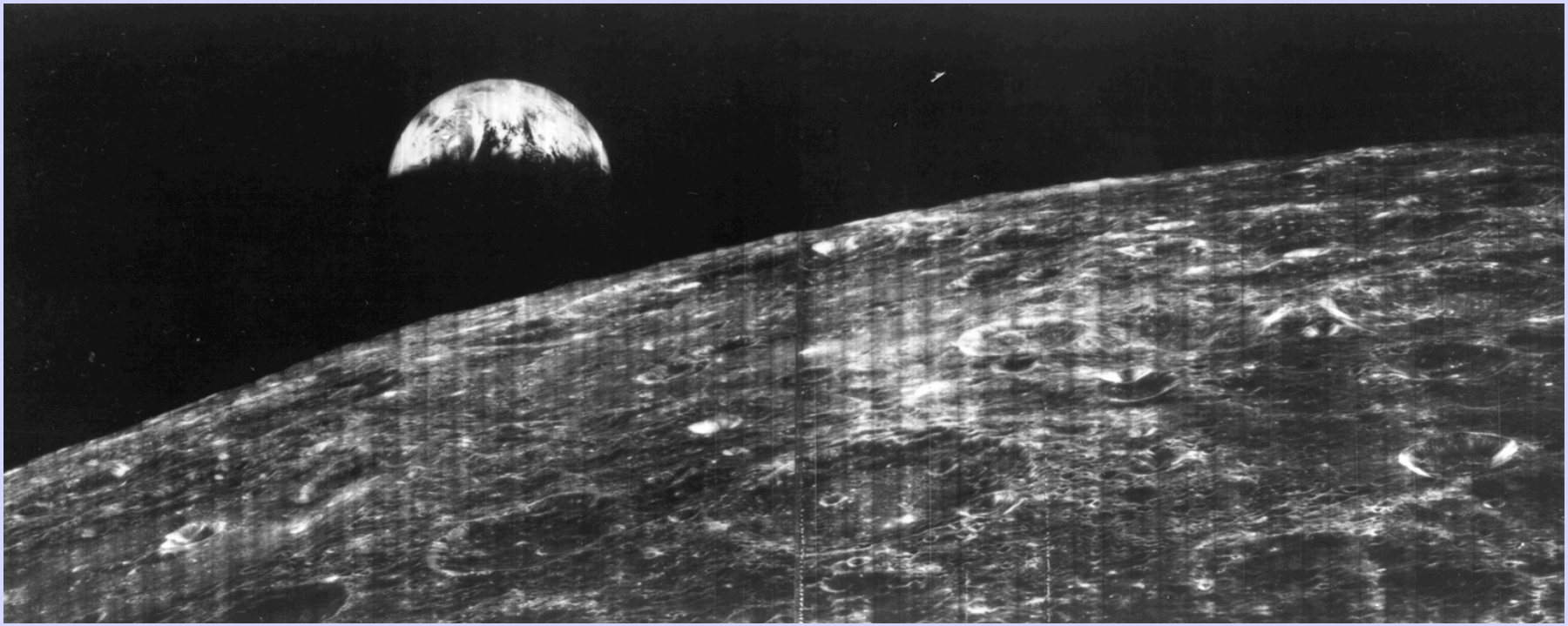
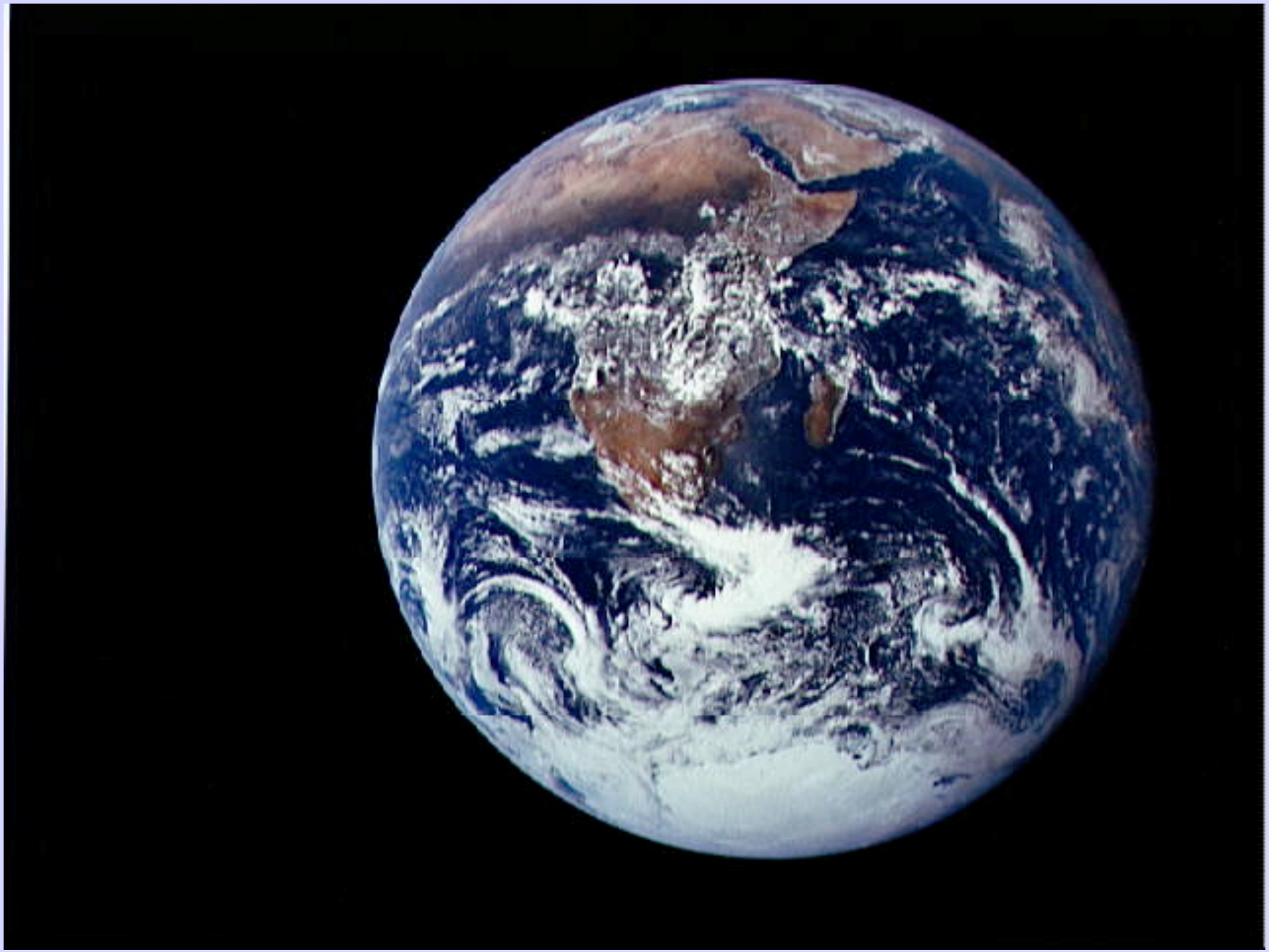
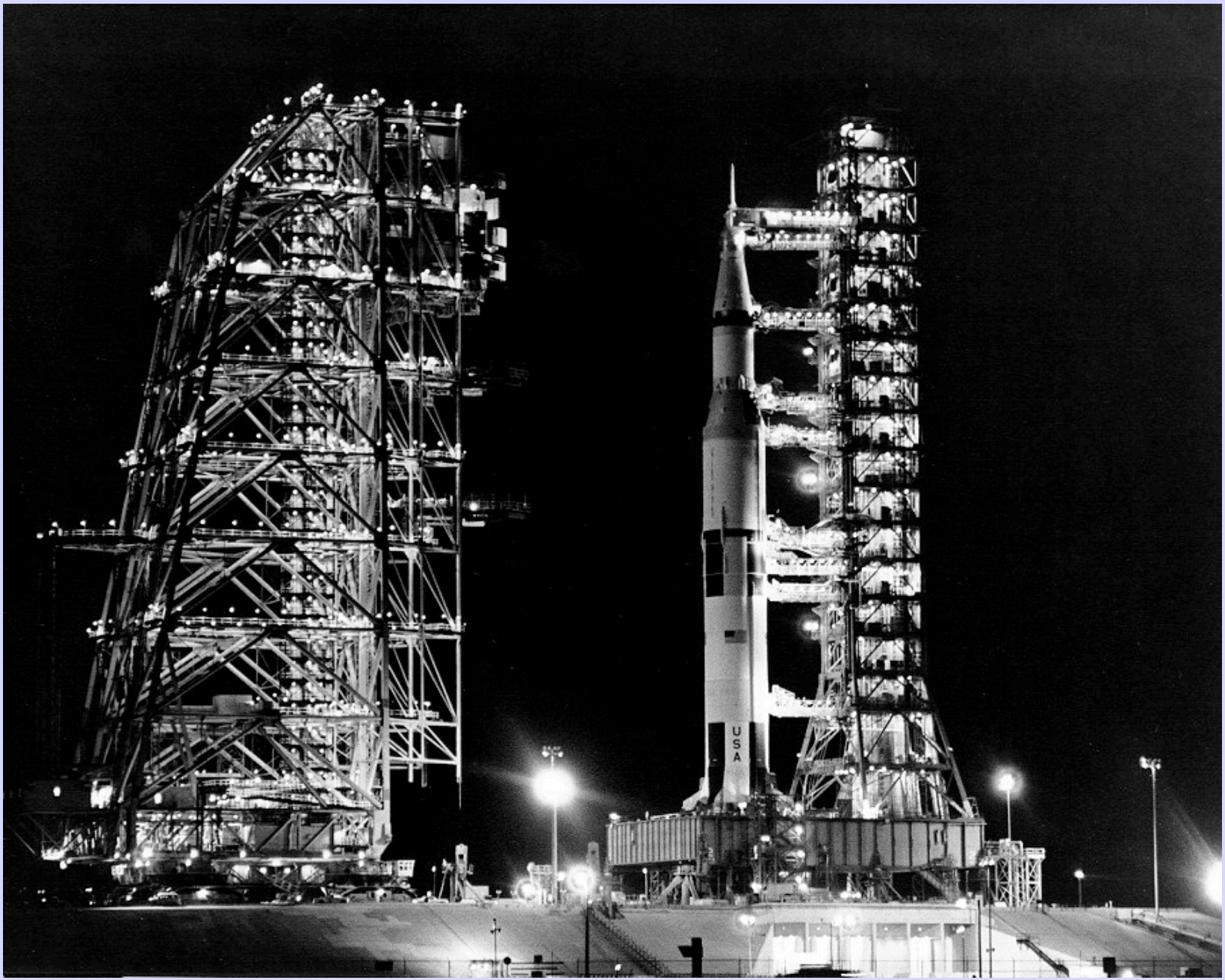
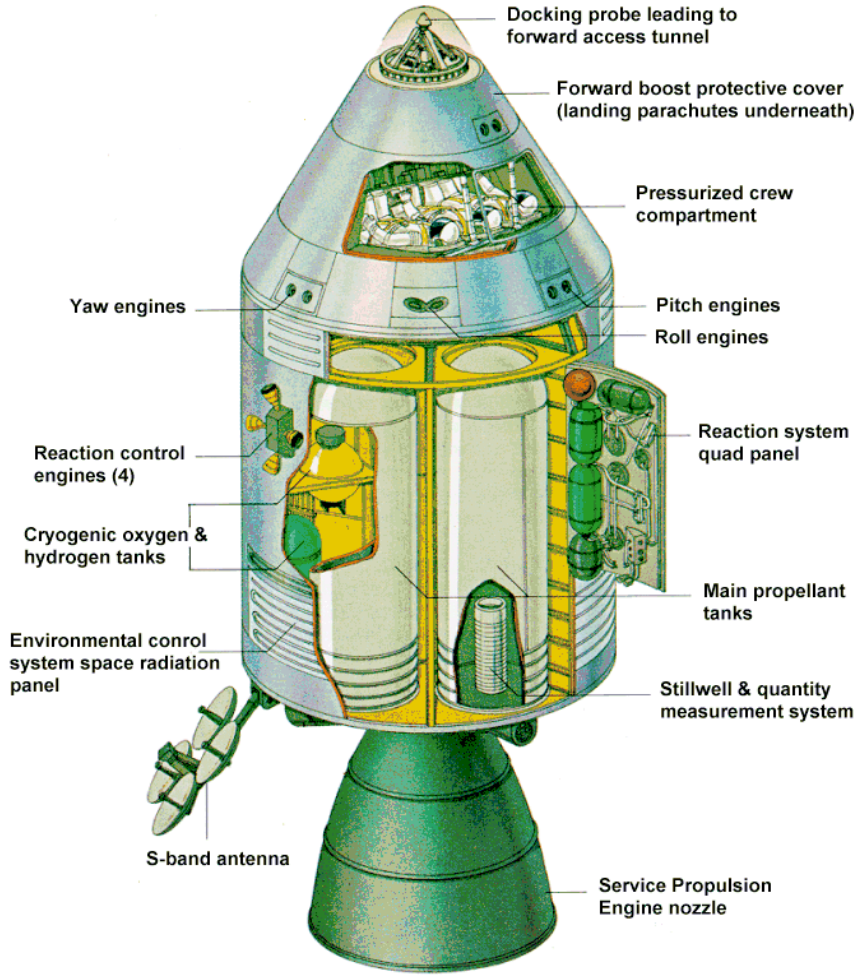





USA

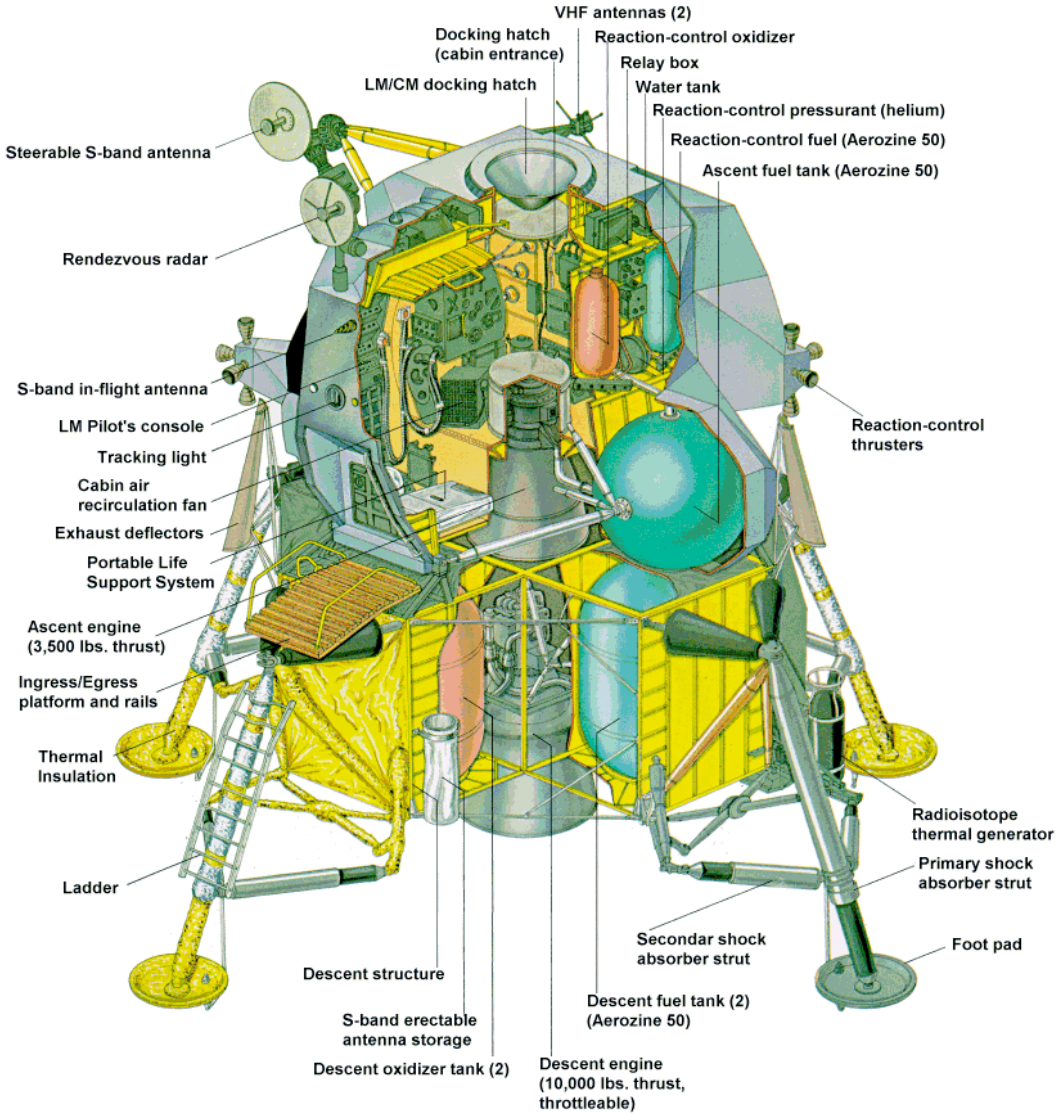
# Apollo Command and Service Modules




## Apollo CSM Facts

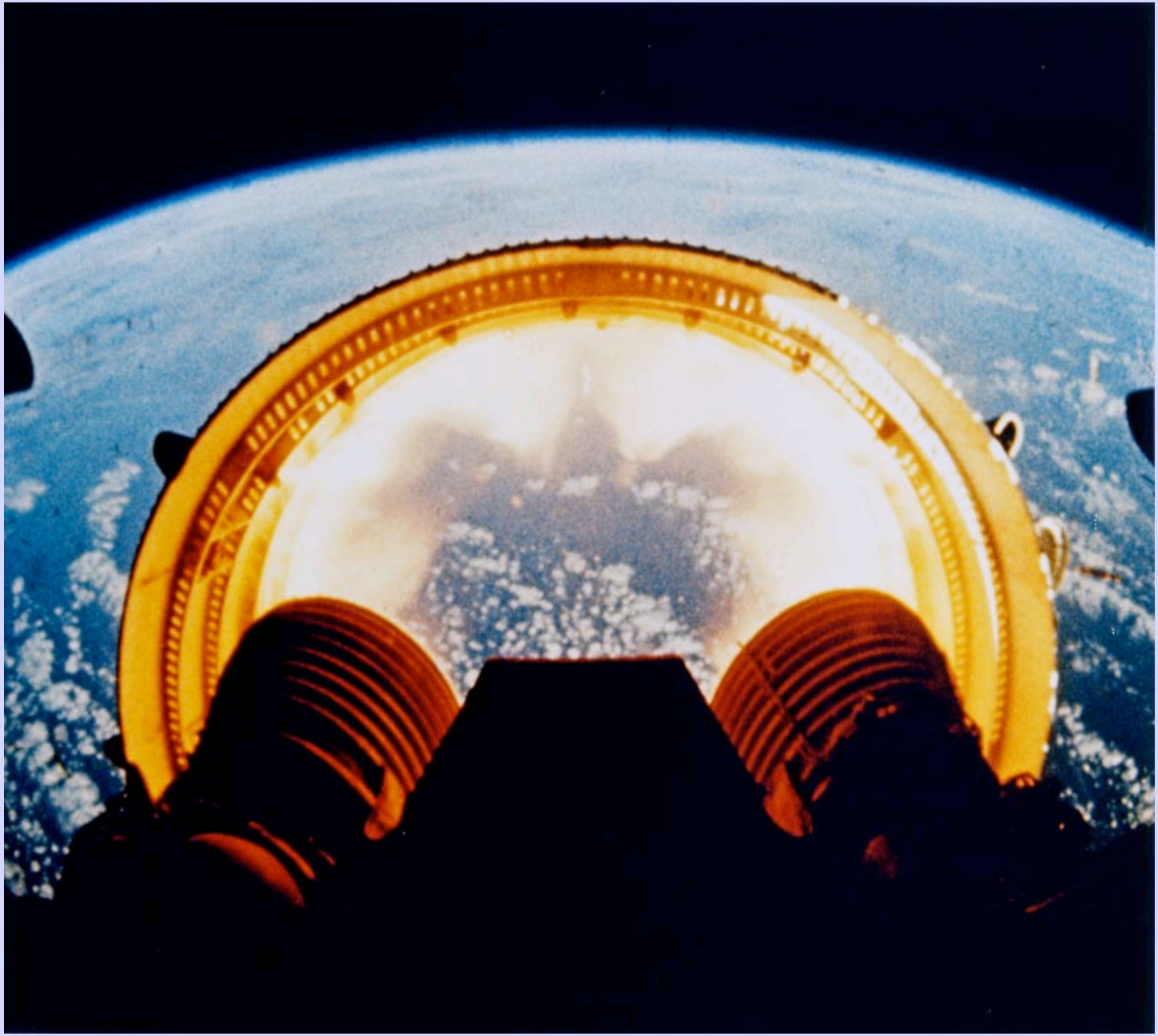
The Apollo Command Module was 10.6 ft. tall and 12.8 ft. at its maximum diameter, and typically weighed 13,090 lbs. with astronauts. The Service Module was 24.3 ft. tall and 12.8 ft. in diameter and weighed 54,074 lbs.. The Service Propulsion System engine delivered a thrust of 20,500 lbs..

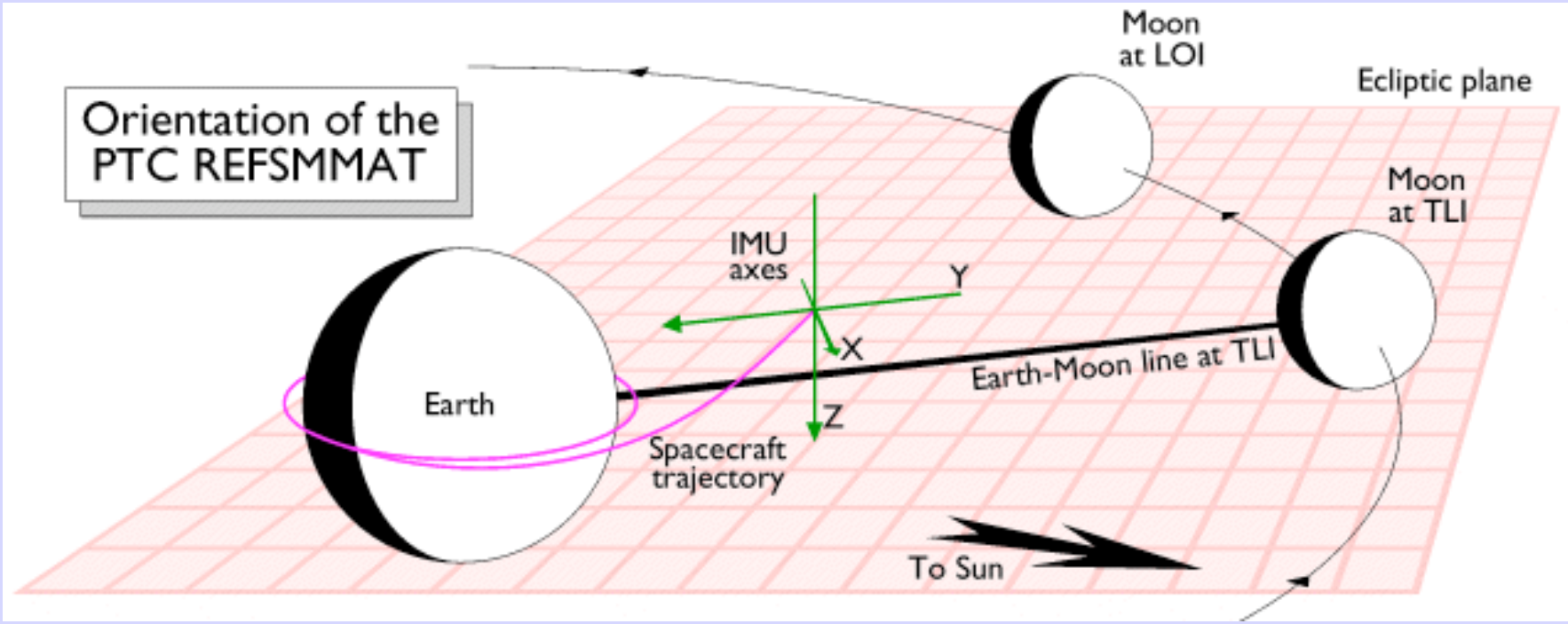
# Apollo Lunar Module

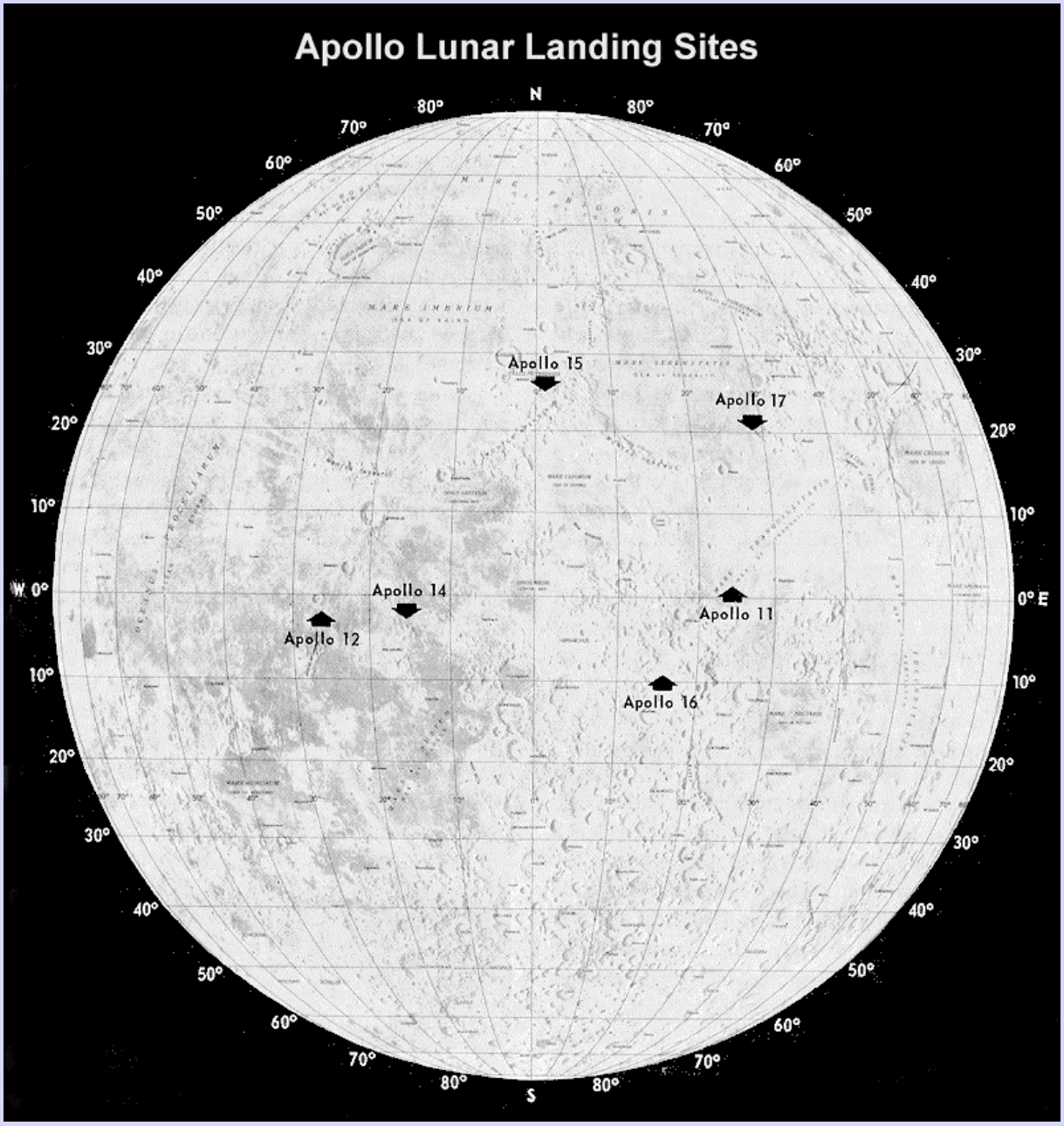


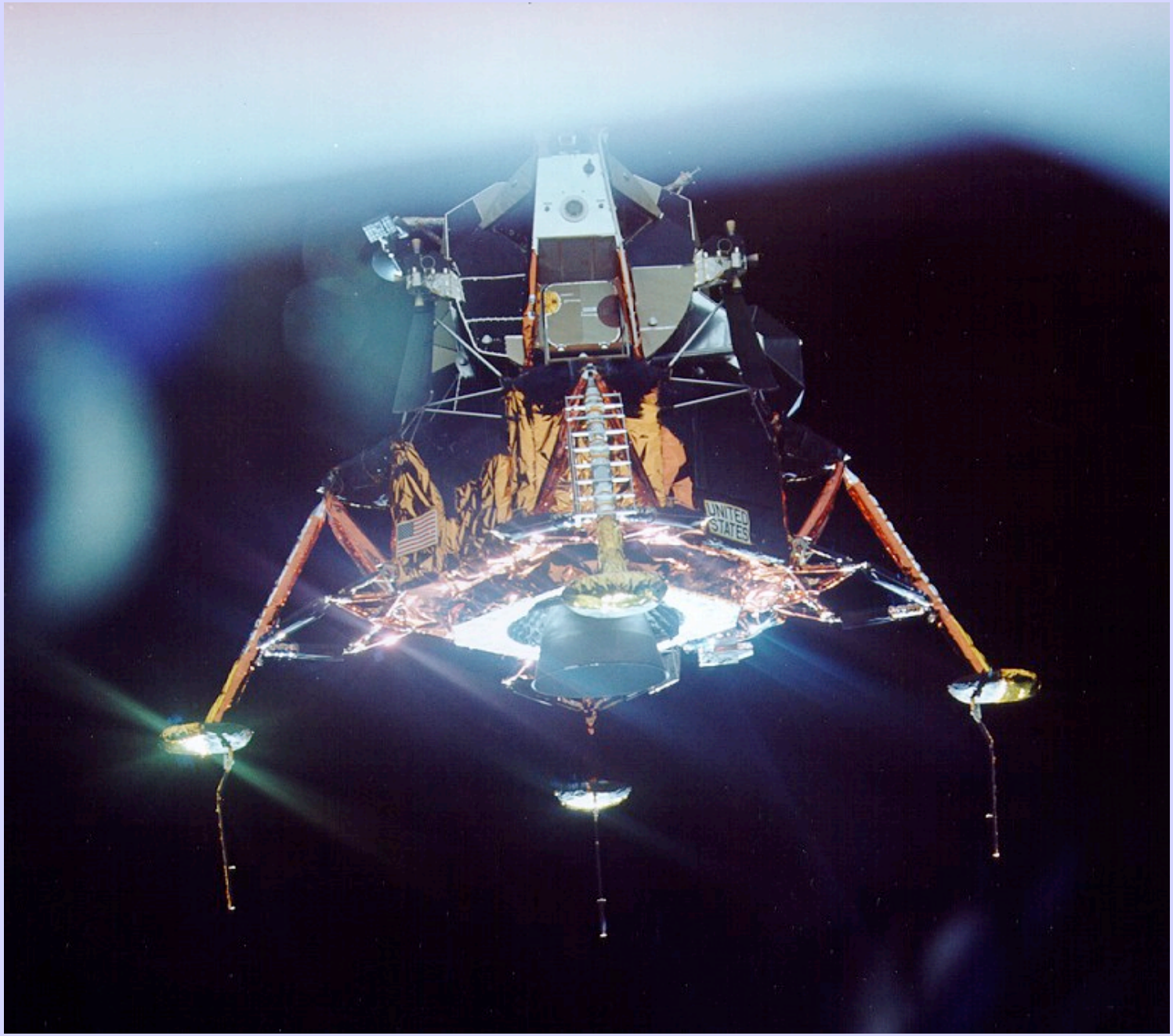

**The lunar module was 23 ft. tall and had a launch weight of 33,205 lbs.**
**(The Apollo 17 J-Series lunar module weighed 36,244 lbs.)**

NASA

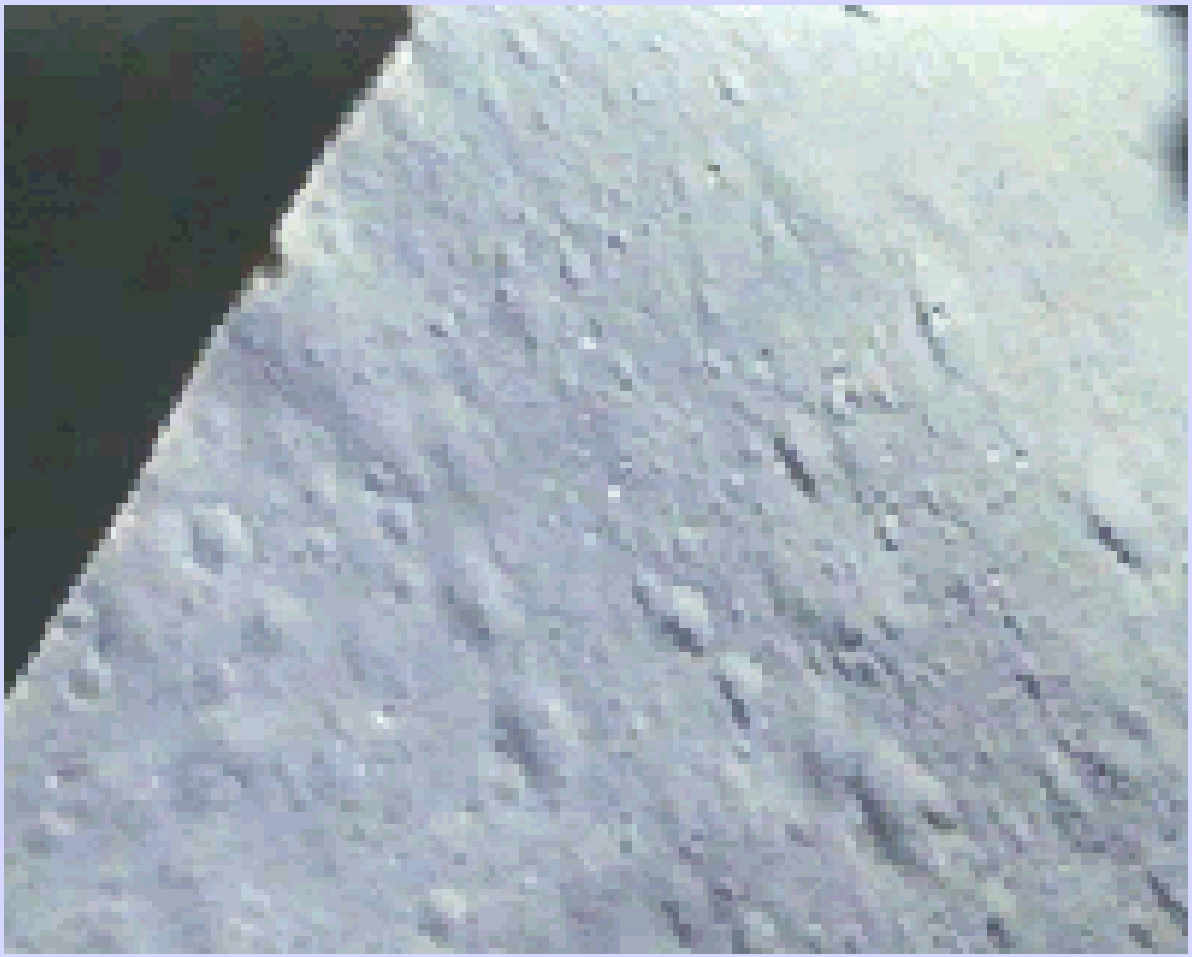



Orientation of the PTC REFSMMAT
Moon at LOI
Ecliptic plane
Moon at TLI
IMU axes
Y
X
Z
Earth
Earth-Moon line at TLI
Spacecraft trajectory
To Sun


Apollo Lunar Landing Sites
N
S
W 0°
0° E
80°
70°
60°
50°
40°
30°
20°
10°
Apollo 15
Apollo 17
Apollo 14
Apollo 12
Apollo 11
Apollo 16

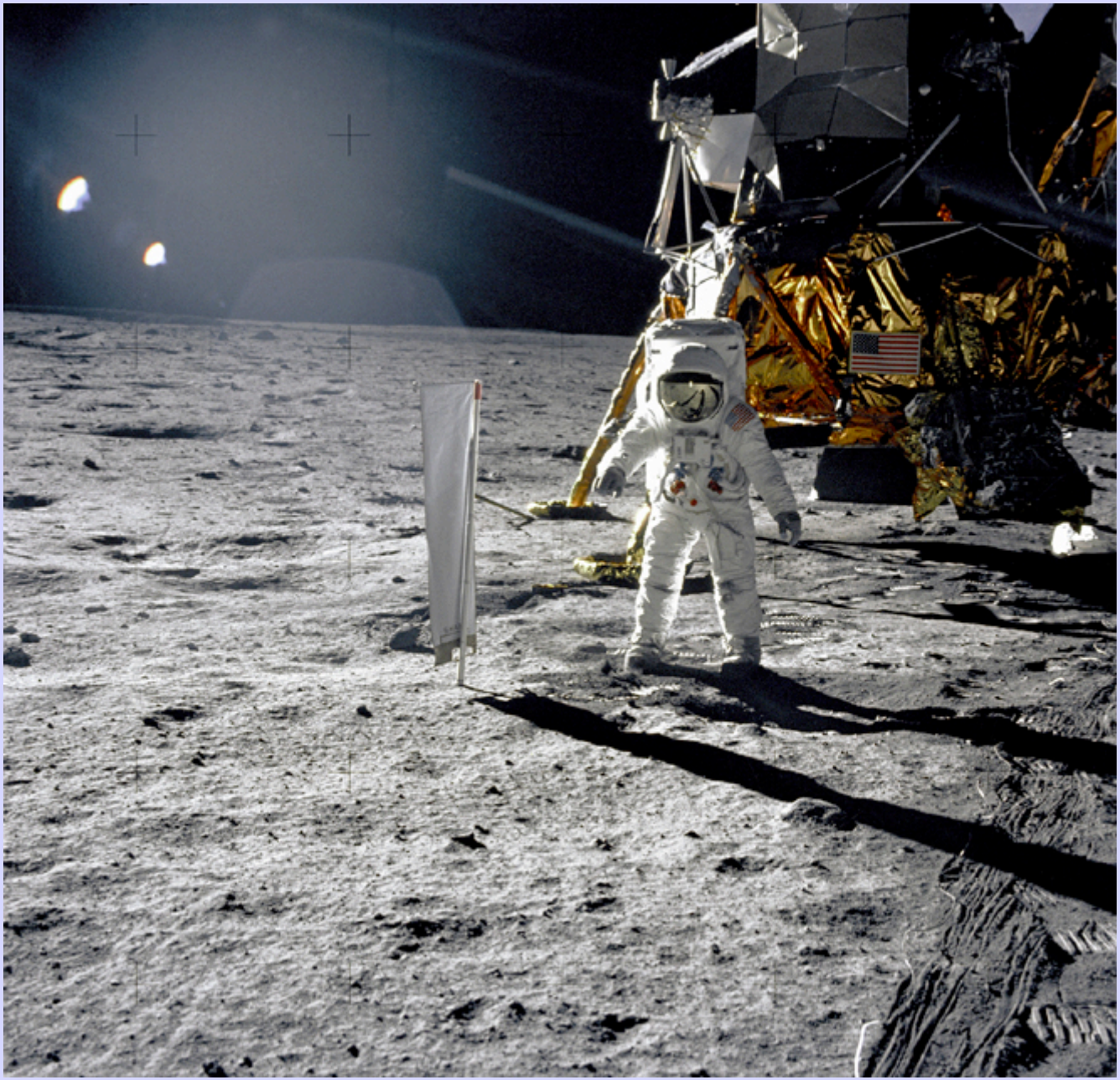

UNITED
STATES

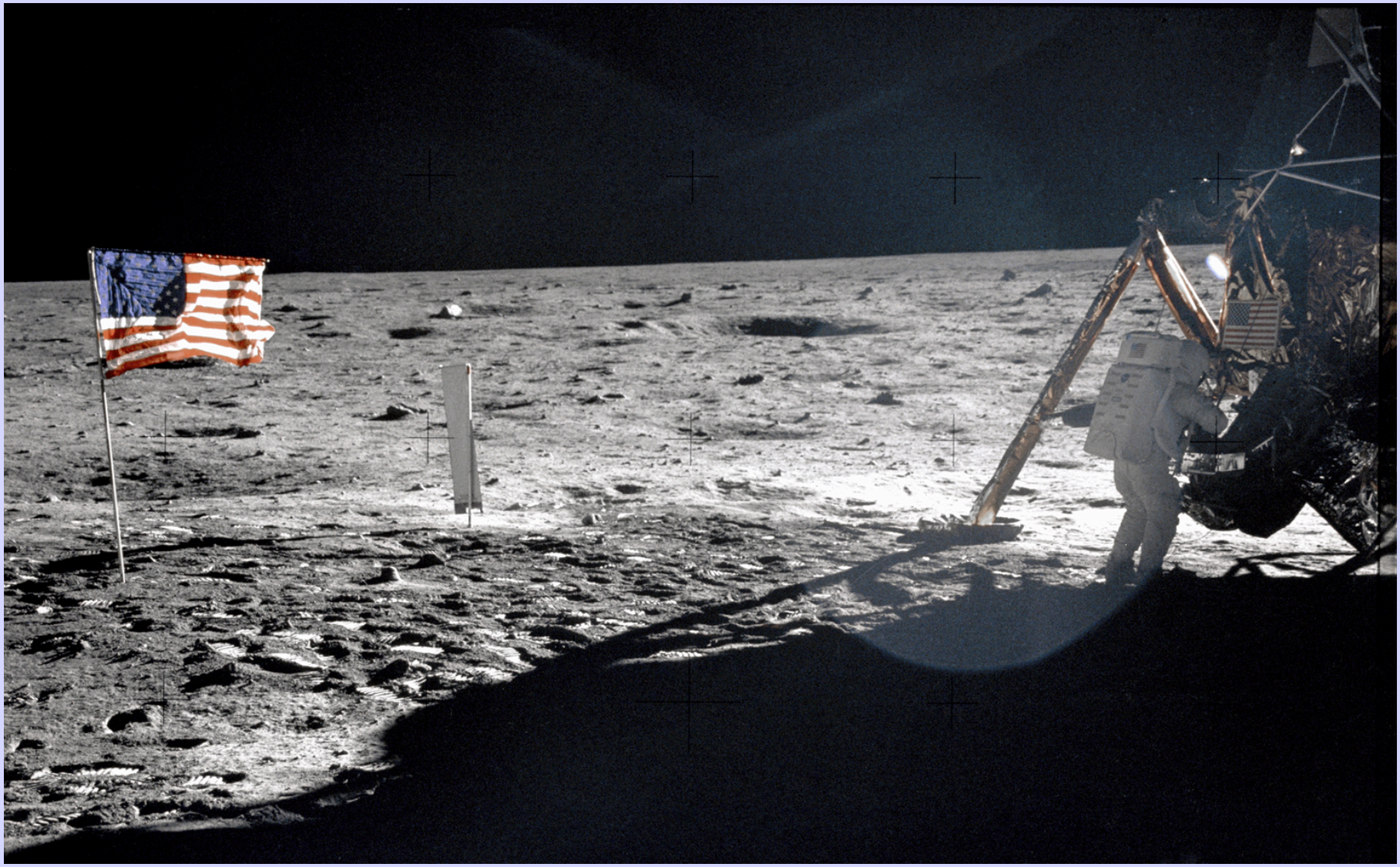
# Apollo 16 Lunar Landing



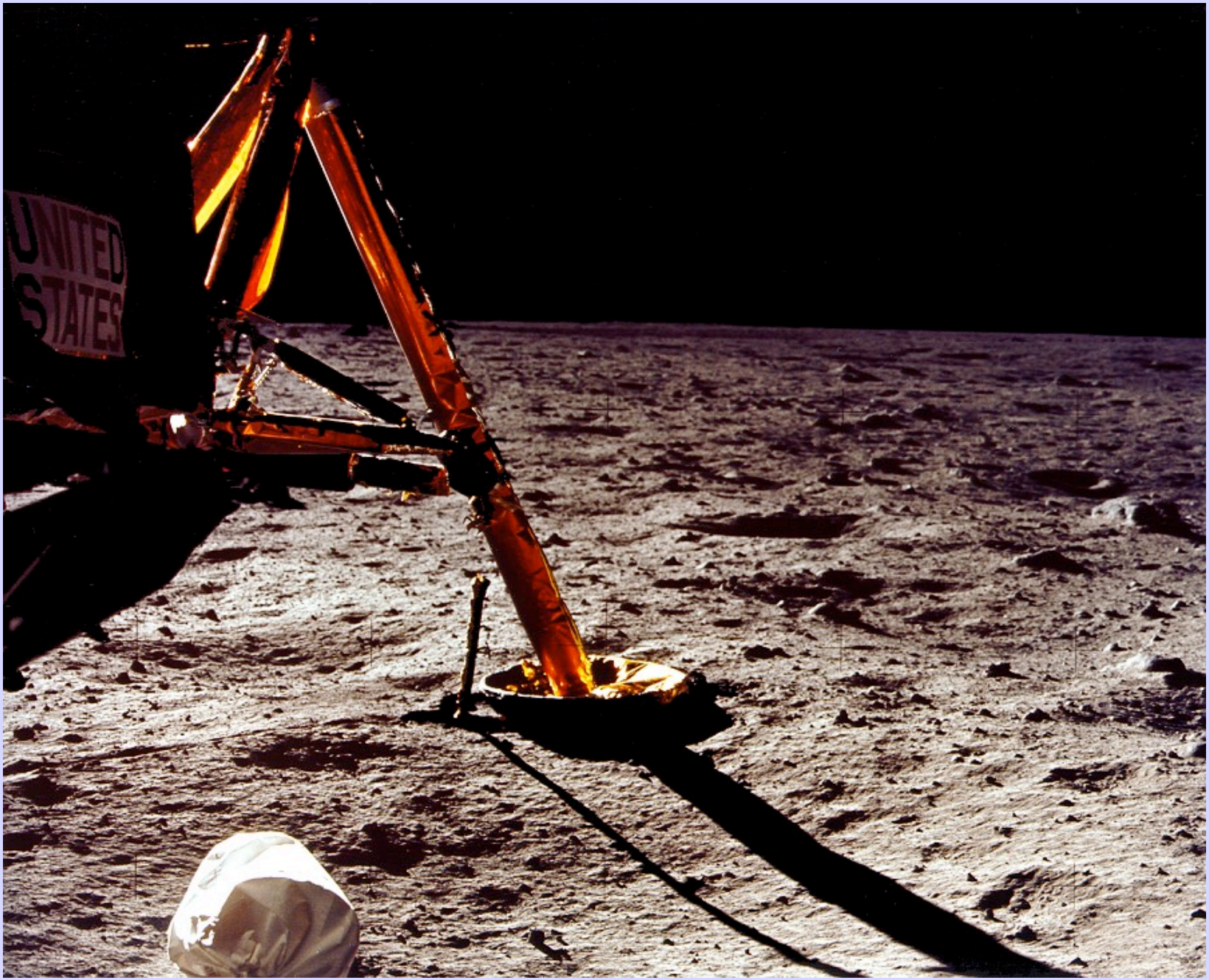
# Apollo 12 Lunar Landing

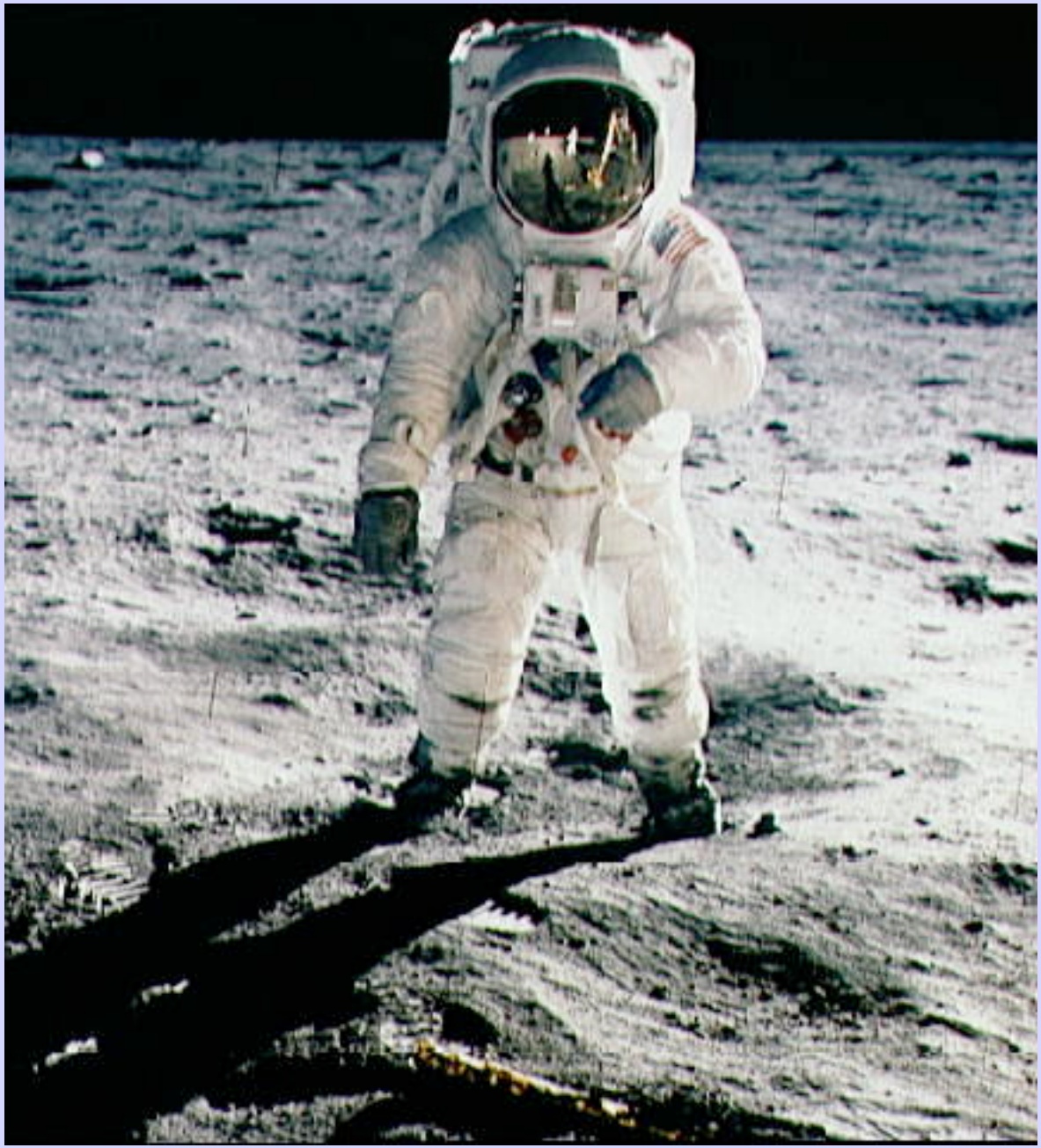
# Apollo 14 Lunar Landing

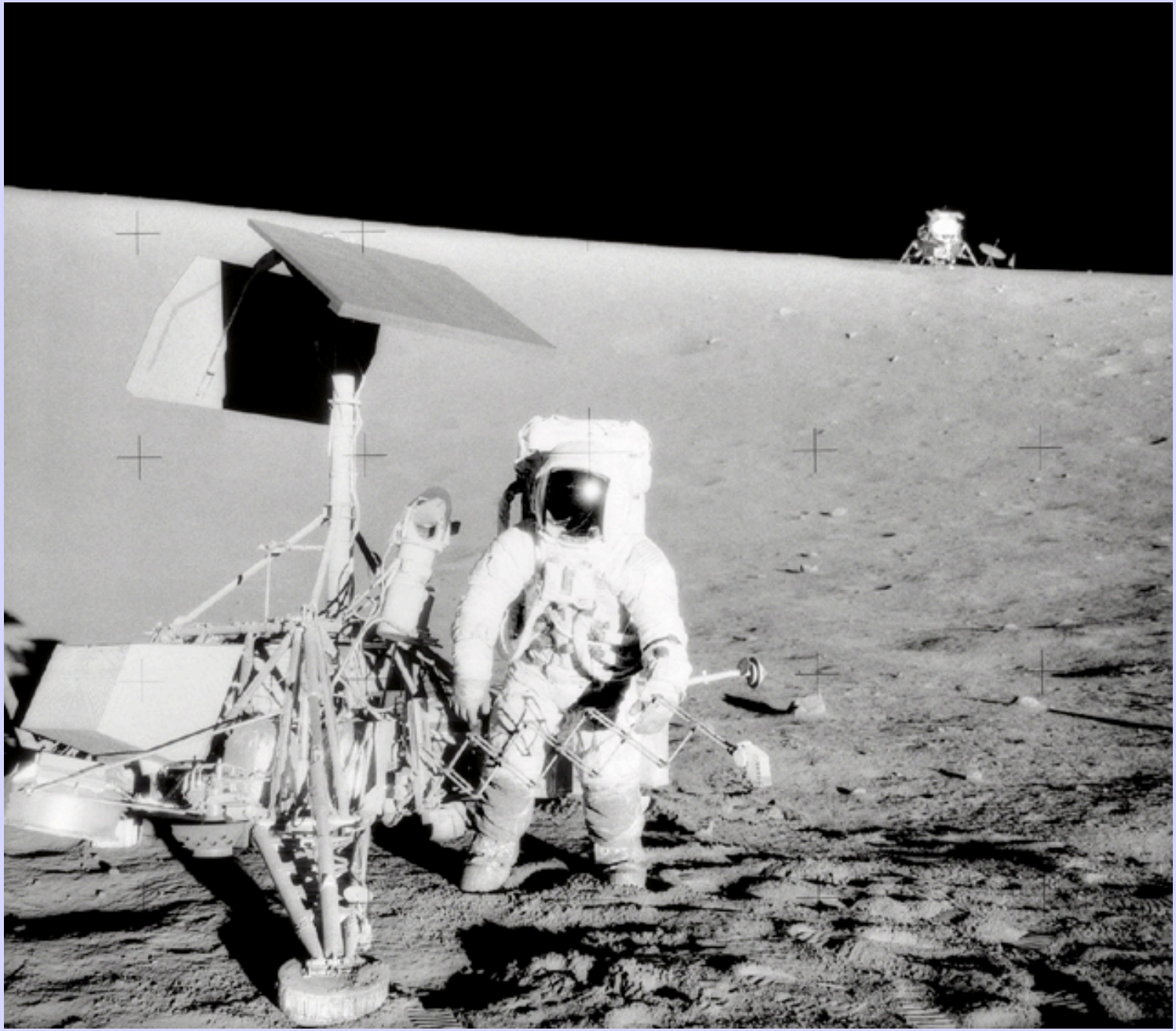


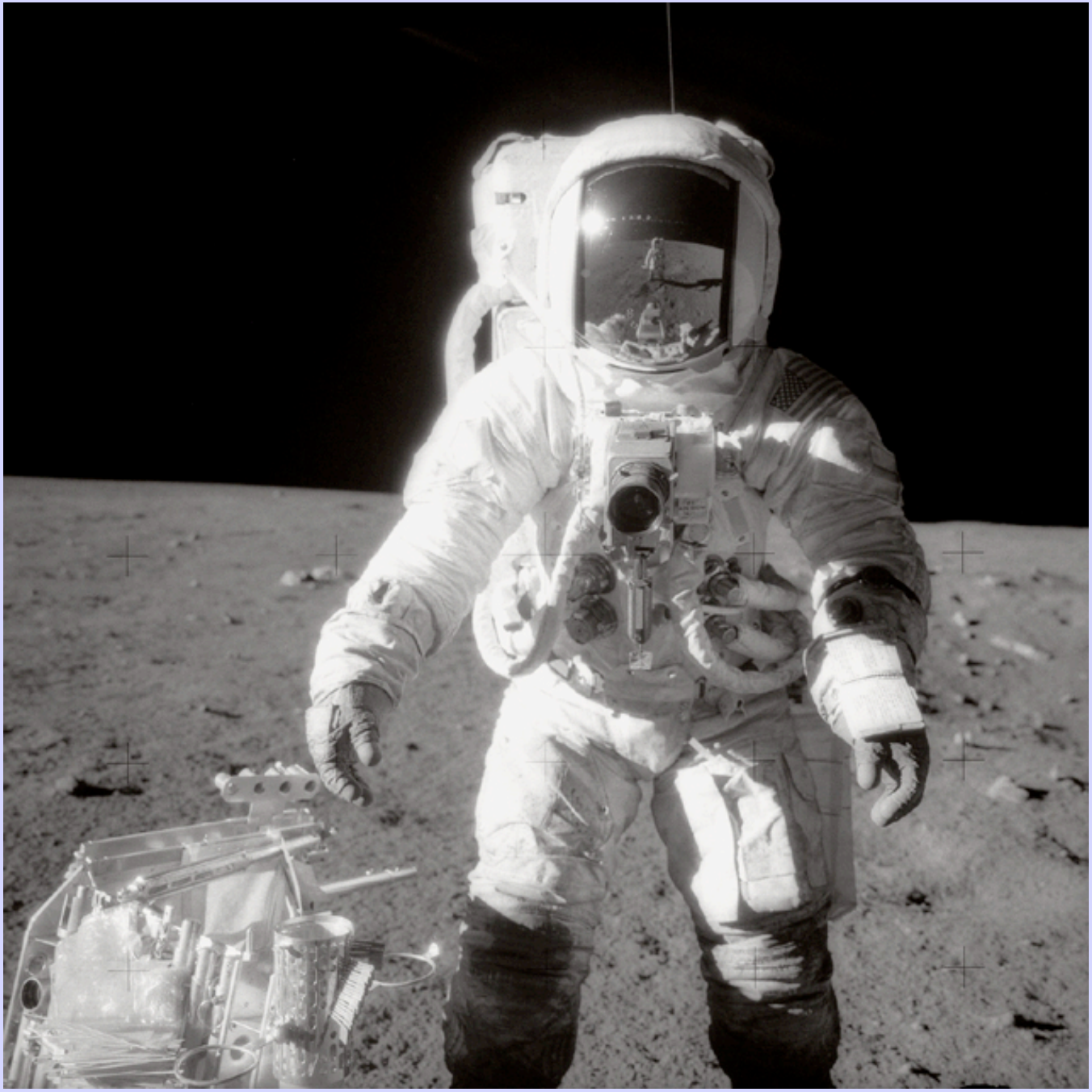


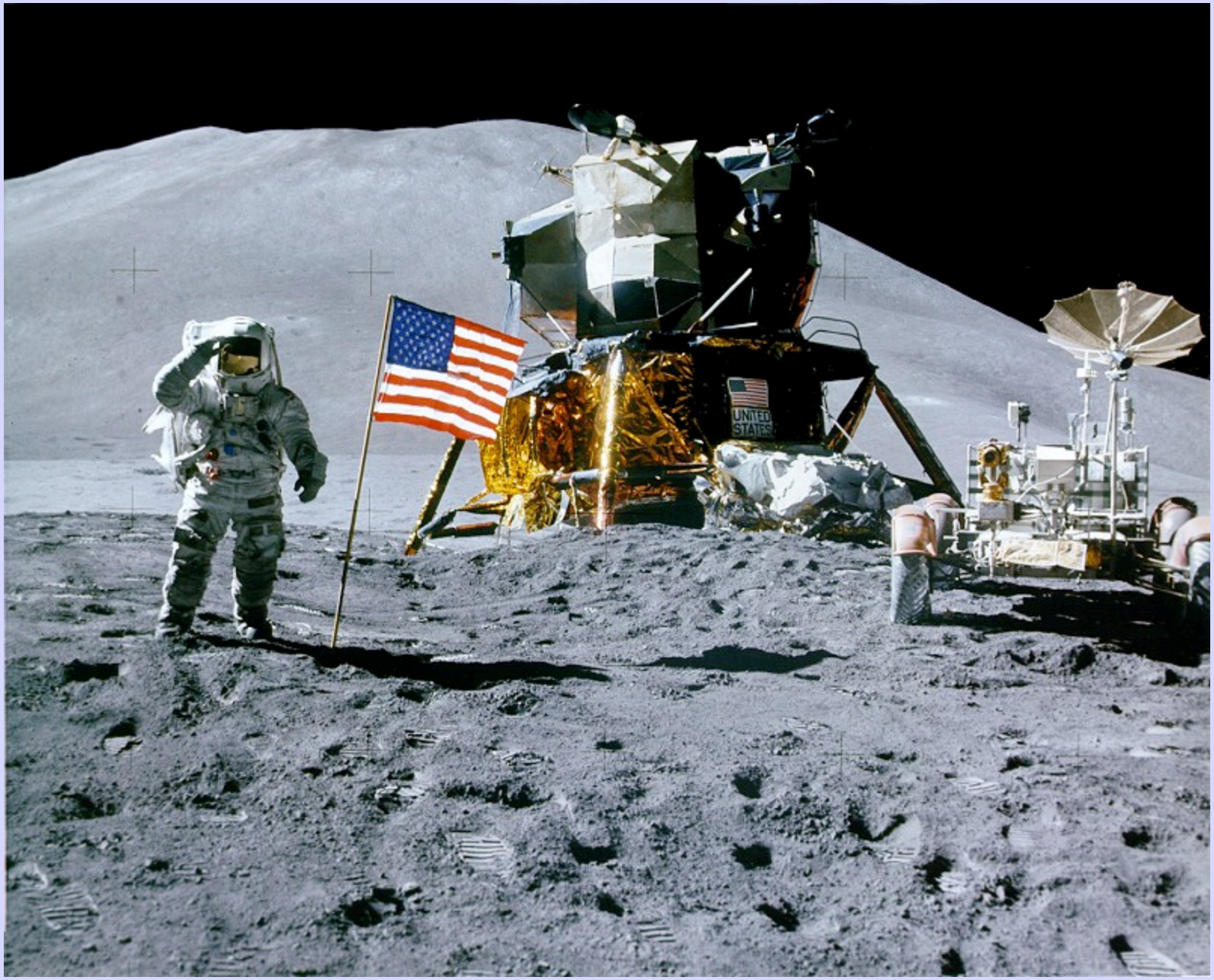
UNITED
STATES


UNITED
STATES





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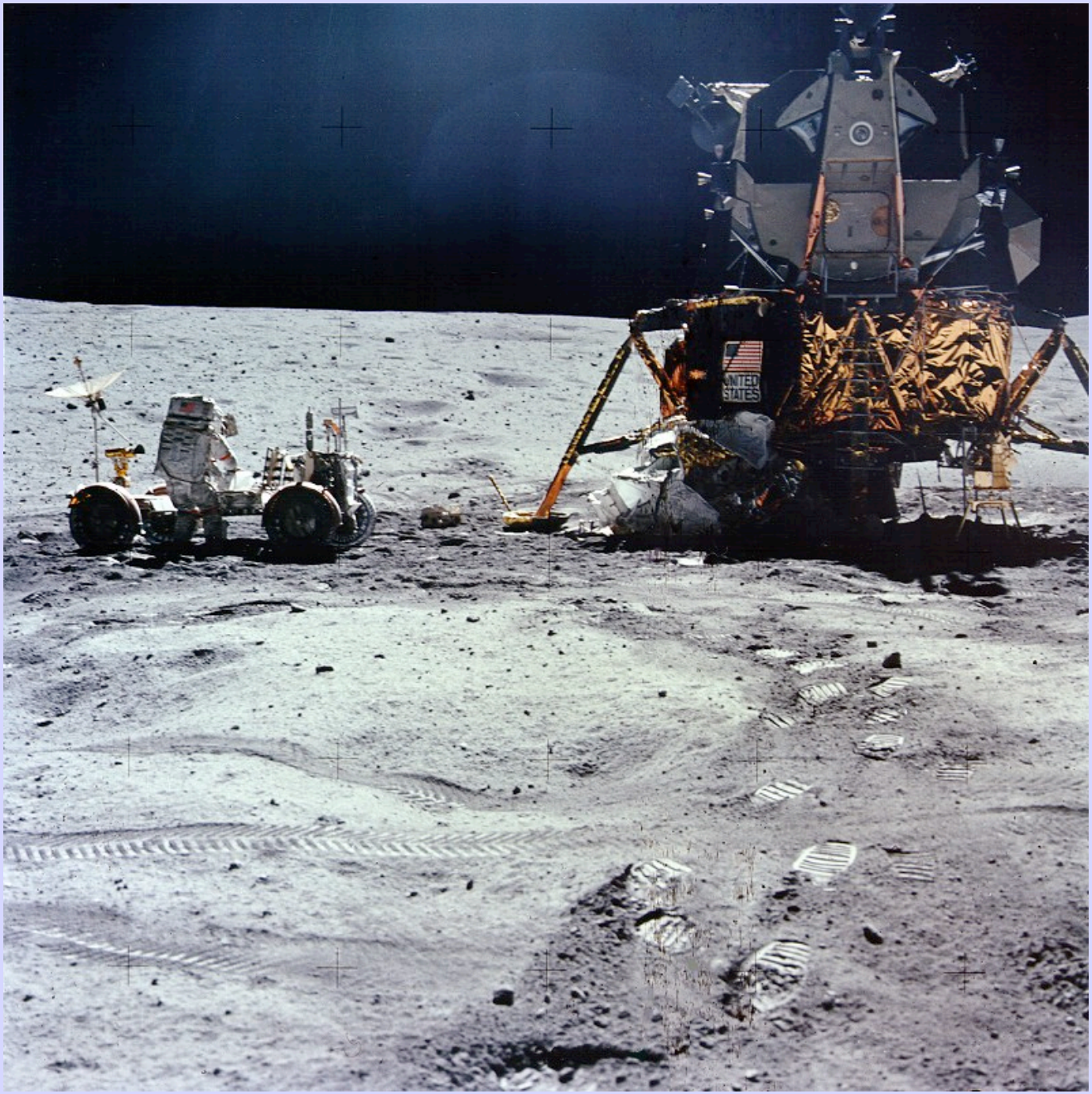
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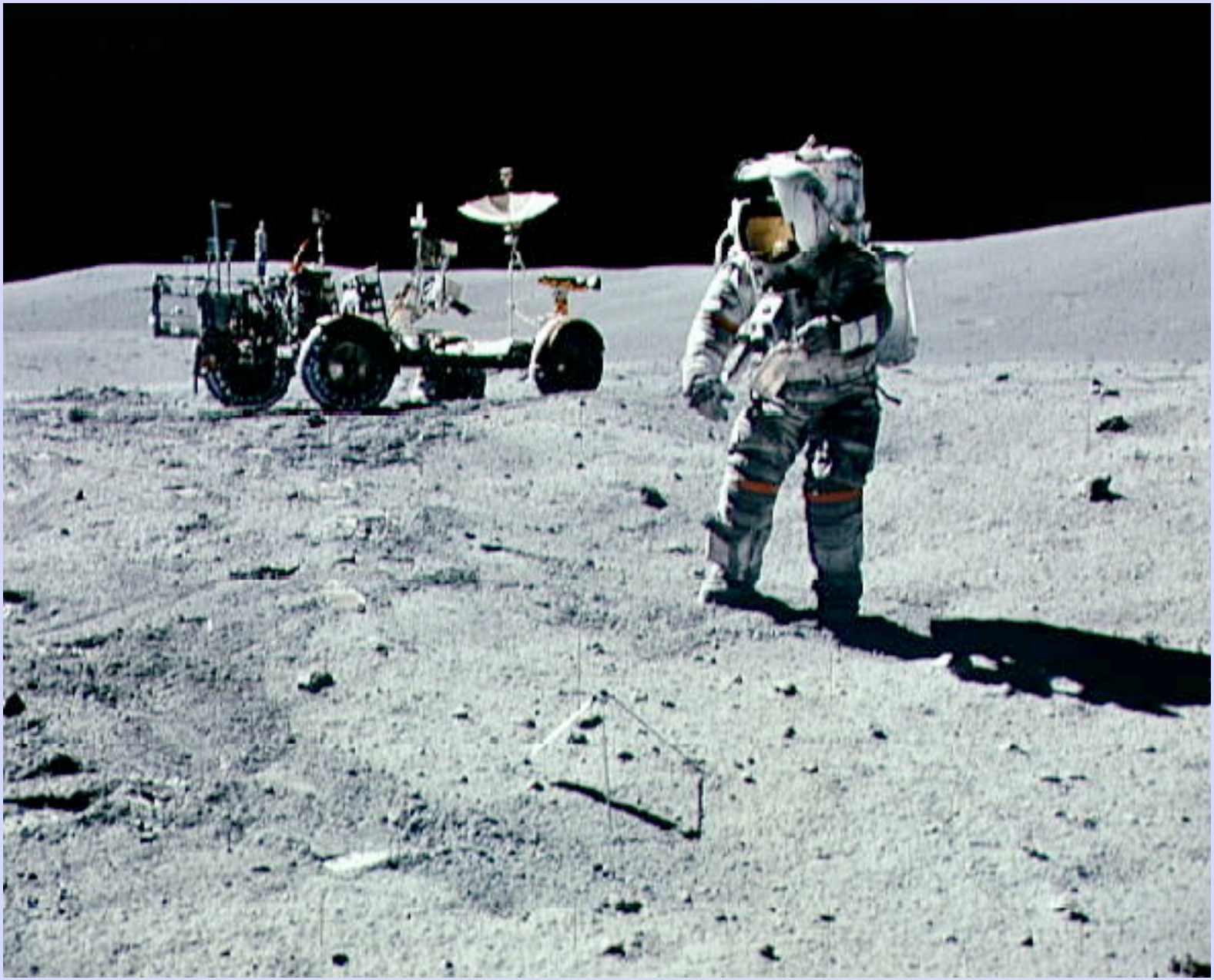
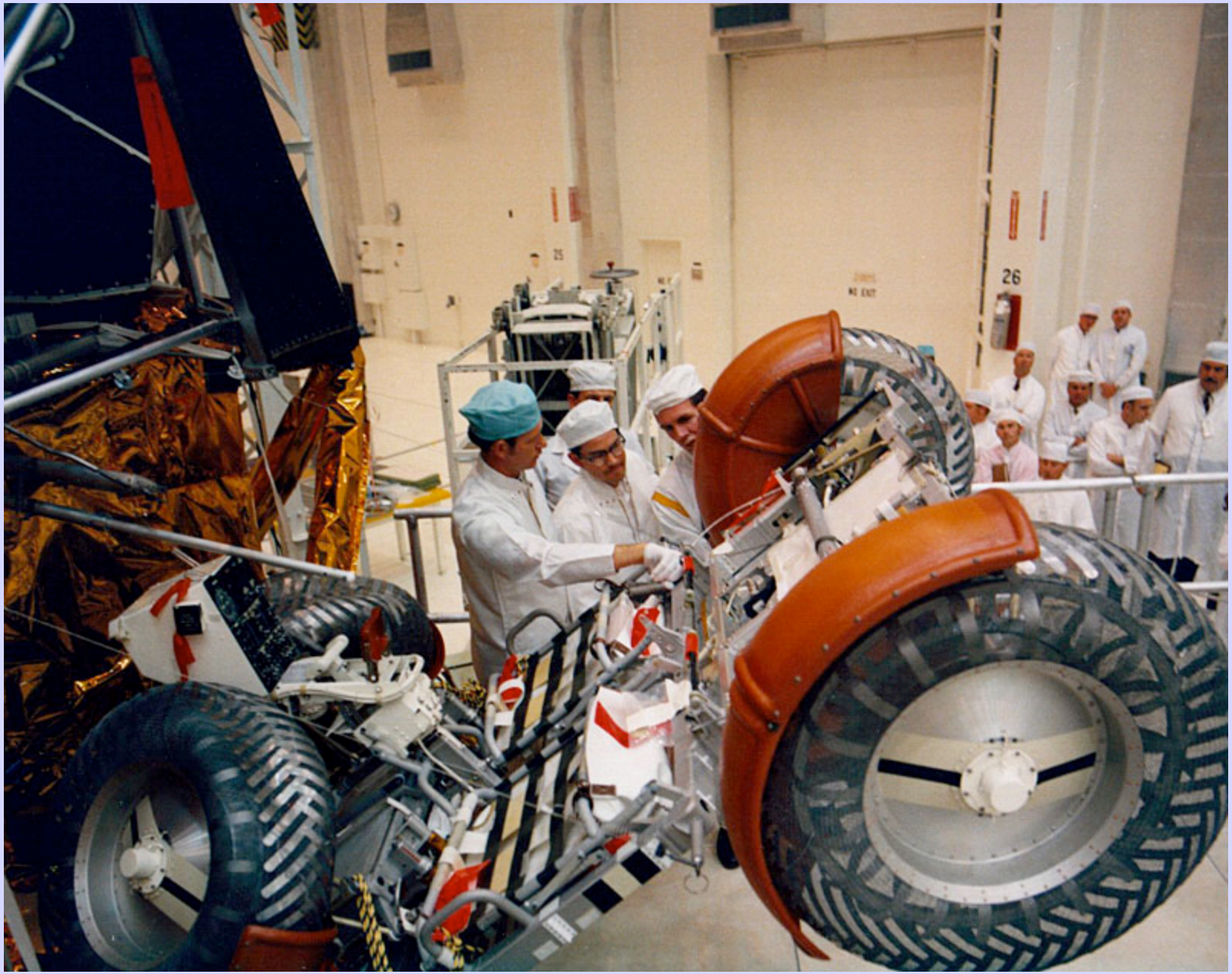
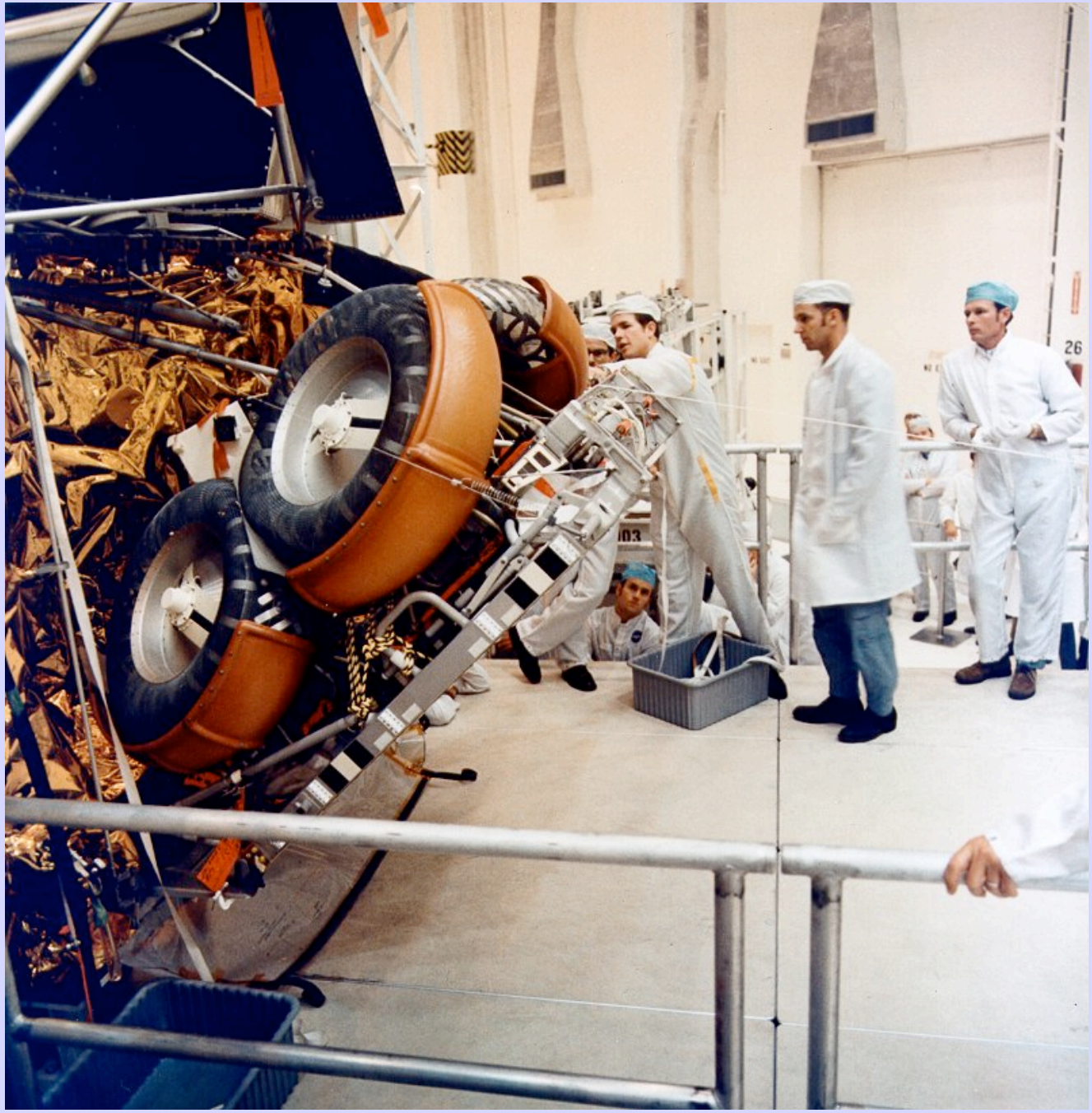
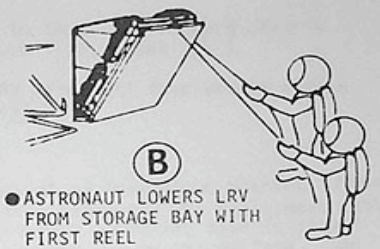



26



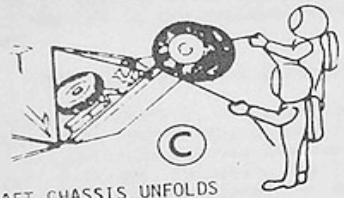
A

- LRV STOWED IN QUADRANT
- ASTRONAUT REMOVES INSULATION BLANKET, OPERATING TAPES
- ASTRONAUT REMOTELY INITIATES AND EXECUTES DEPLOYMENT



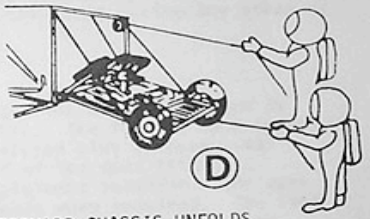
B

- ASTRONAUT LOWERS LRV FROM STORAGE BAY WITH FIRST REEL



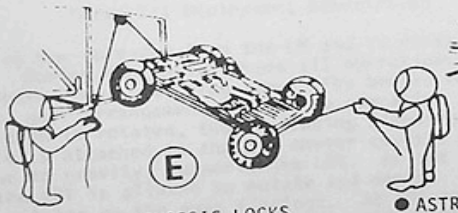
C

- AFT CHASSIS UNFOLDS
- REAR WHEELS UNFOLD
- AFT CHASSIS LOCKS IN POSITION



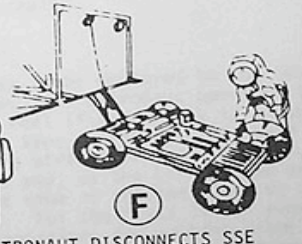
D

- FORWARD CHASSIS UNFOLDS
- FRONT WHEELS UNFOLD



E

- FORWARD CHASSIS LOCKS IN POSITION. ASTRONAUT LOWERS LRV TO SURFACE WITH SECOND LEVEL



F

- ASTRONAUT DISCONNECTS SSE
- ASTRONAUT UNFOLDS SEATS, FOOTRESTS, (FINAL STOP)

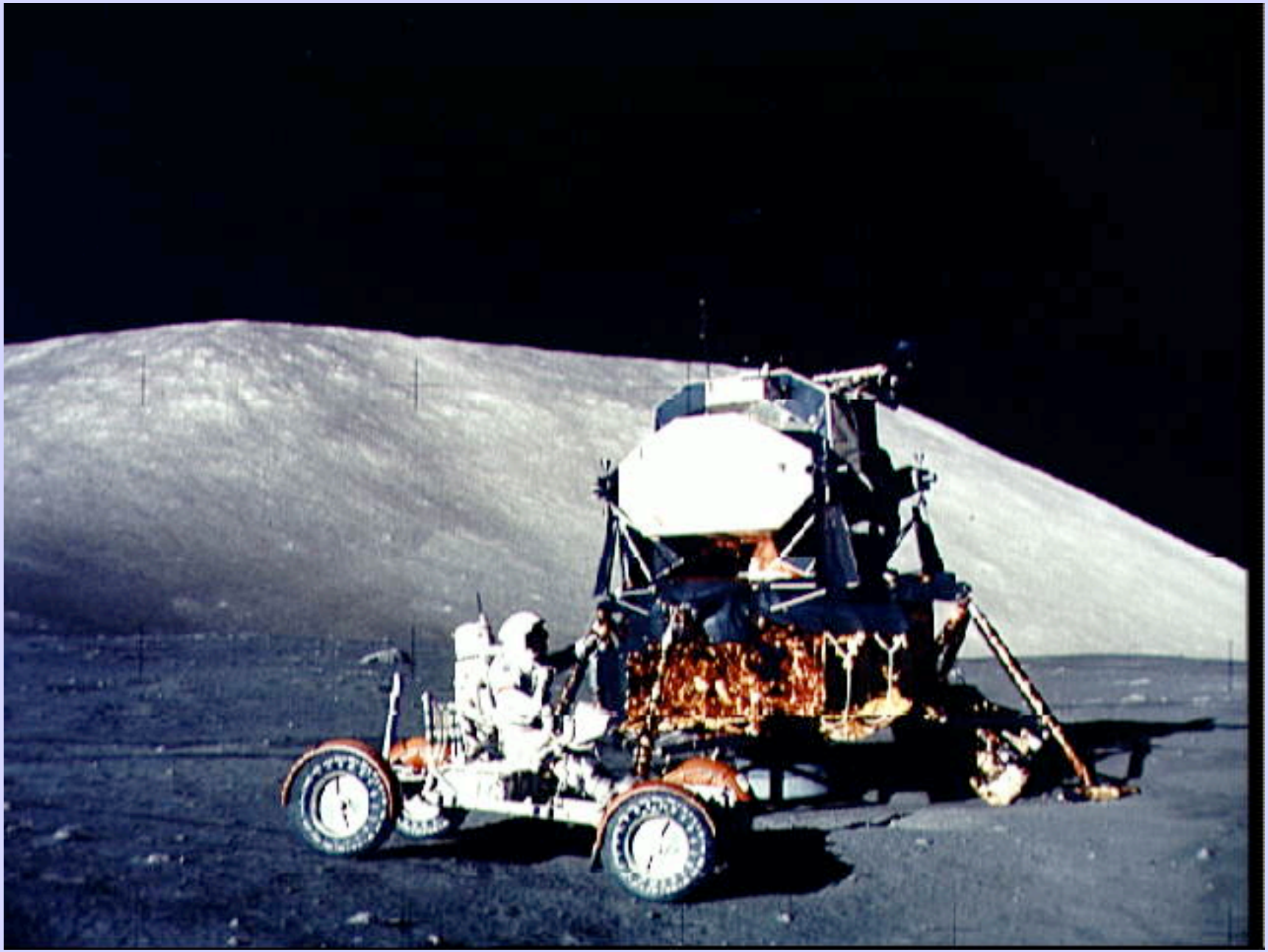
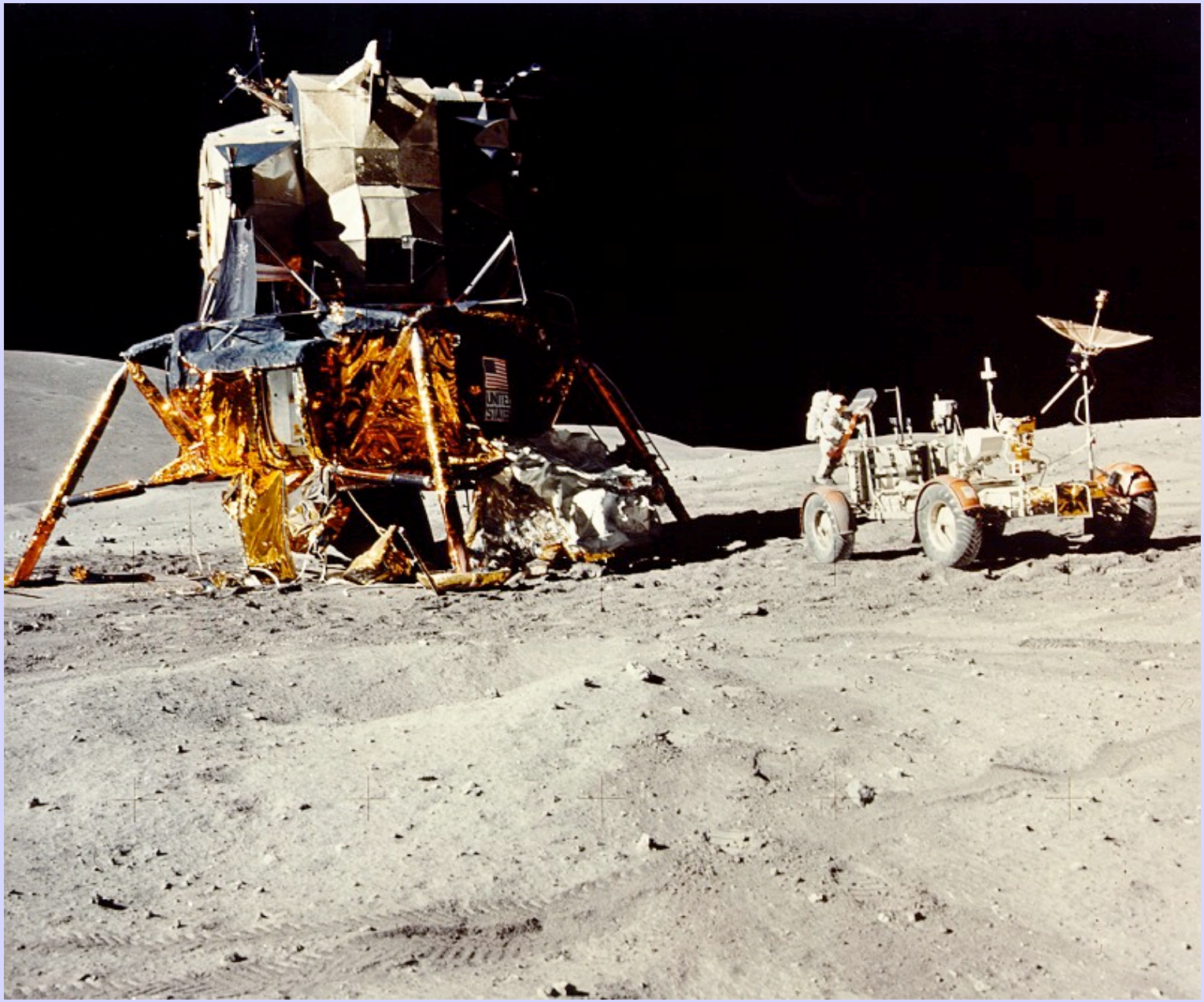
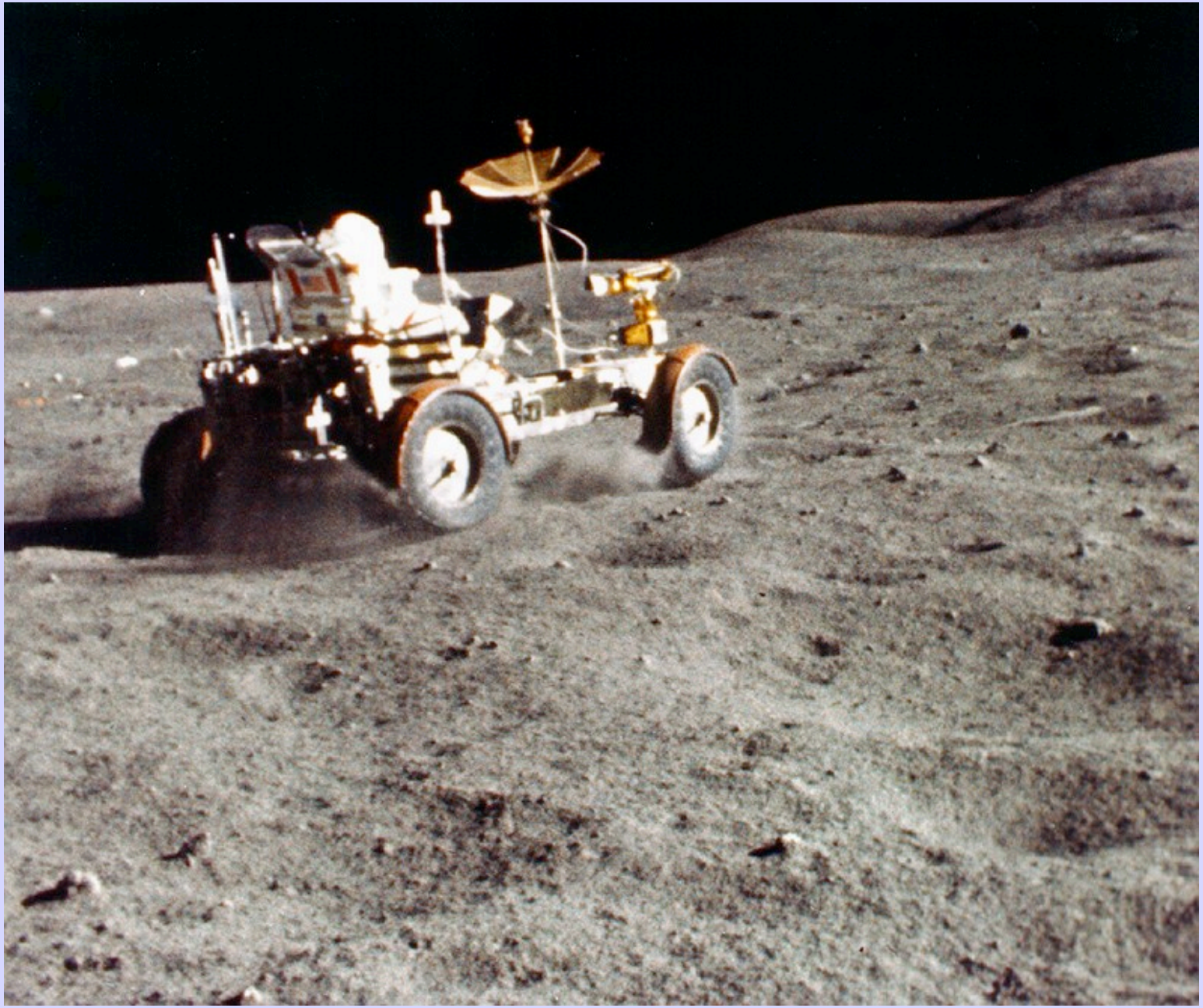
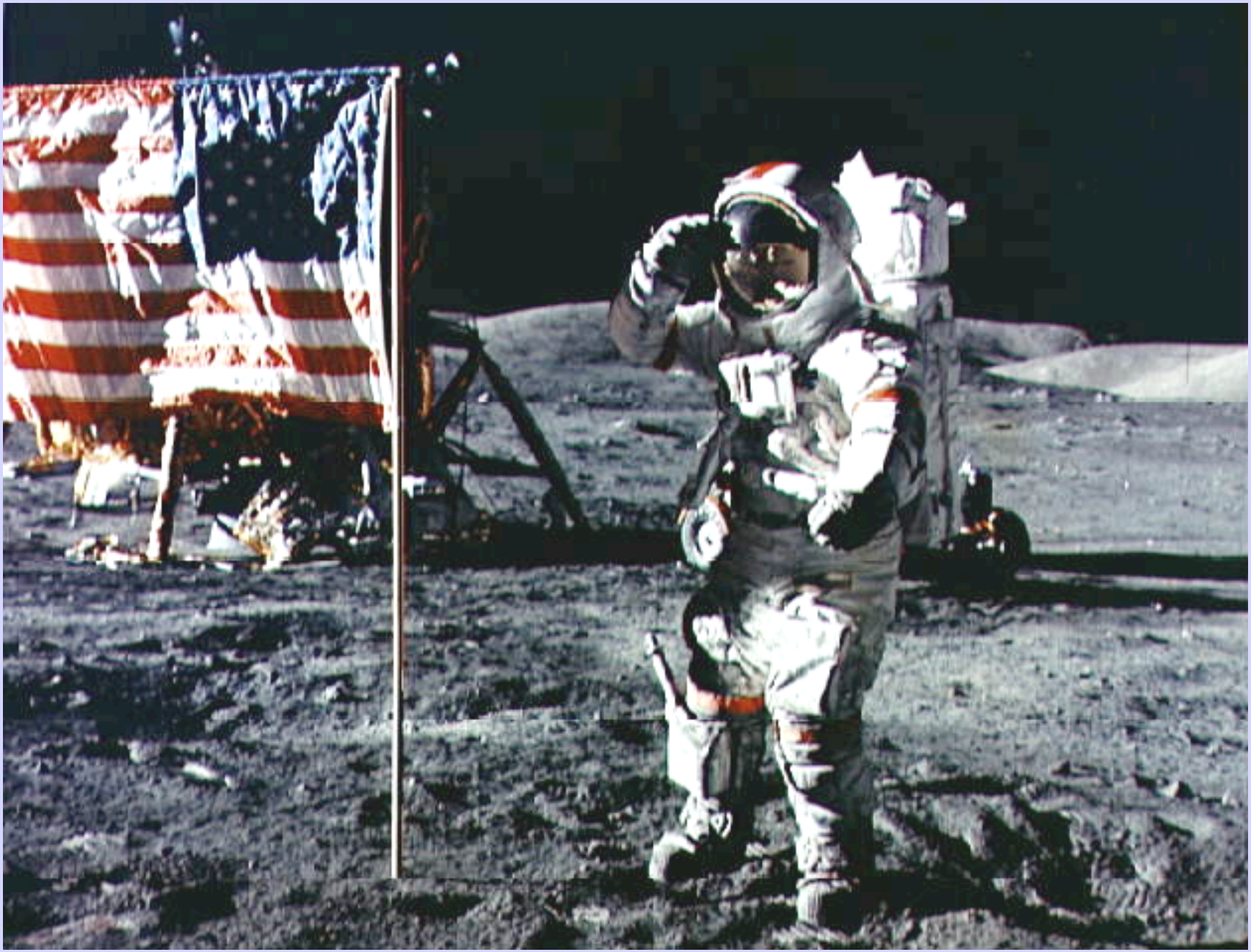
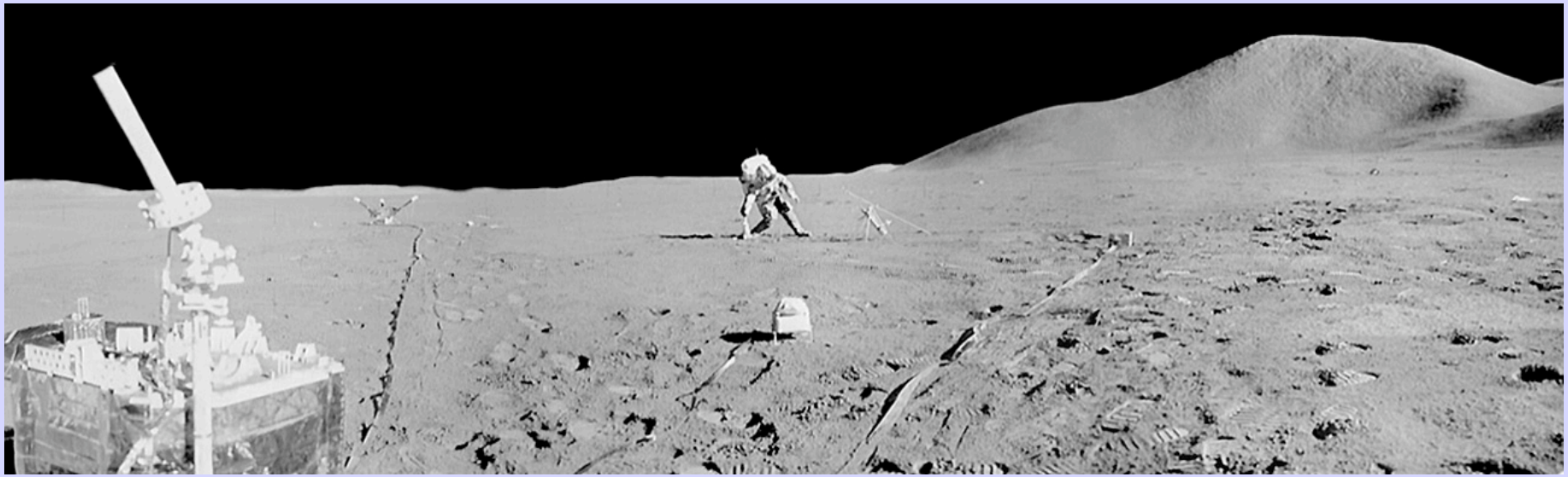
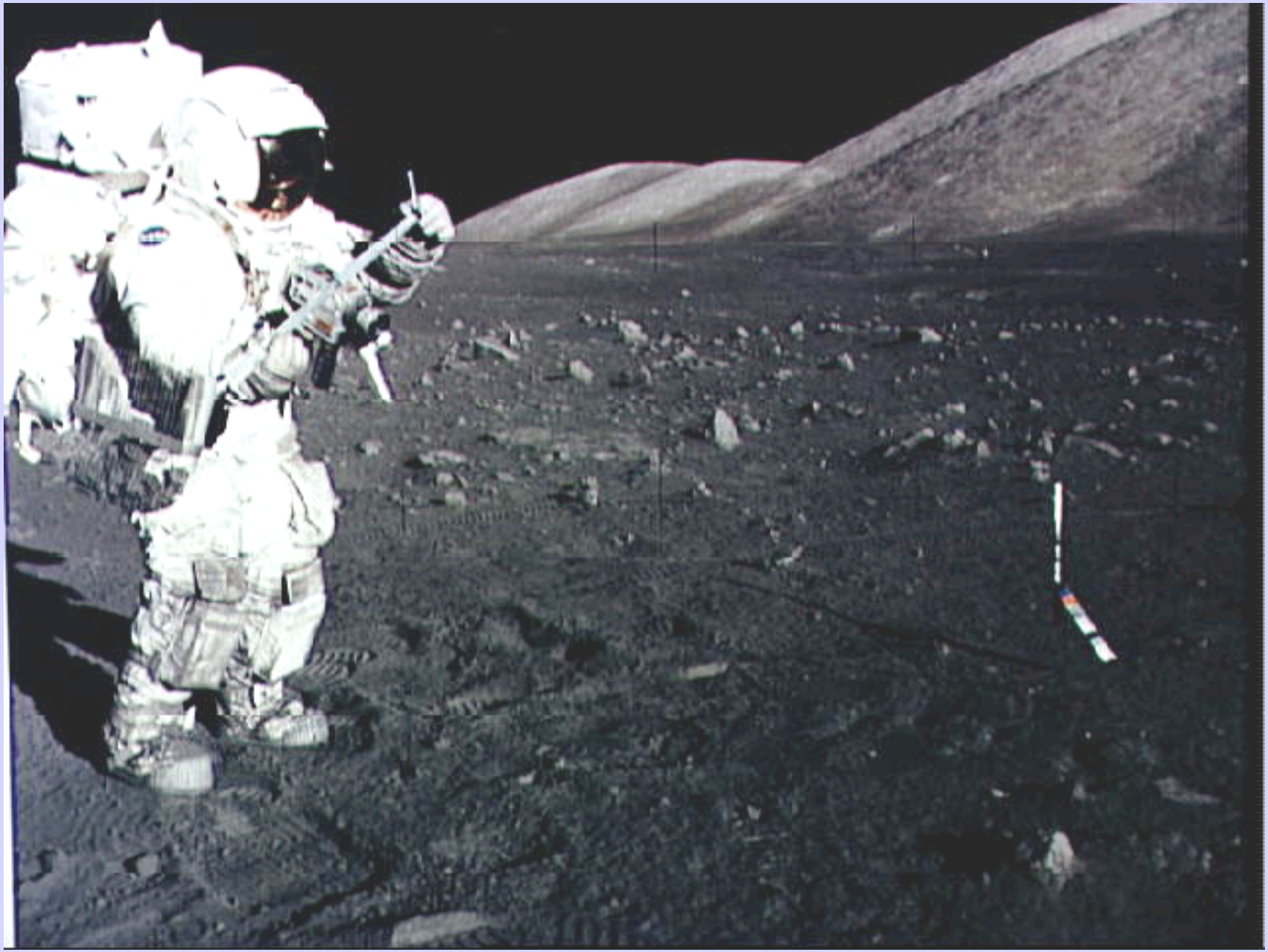
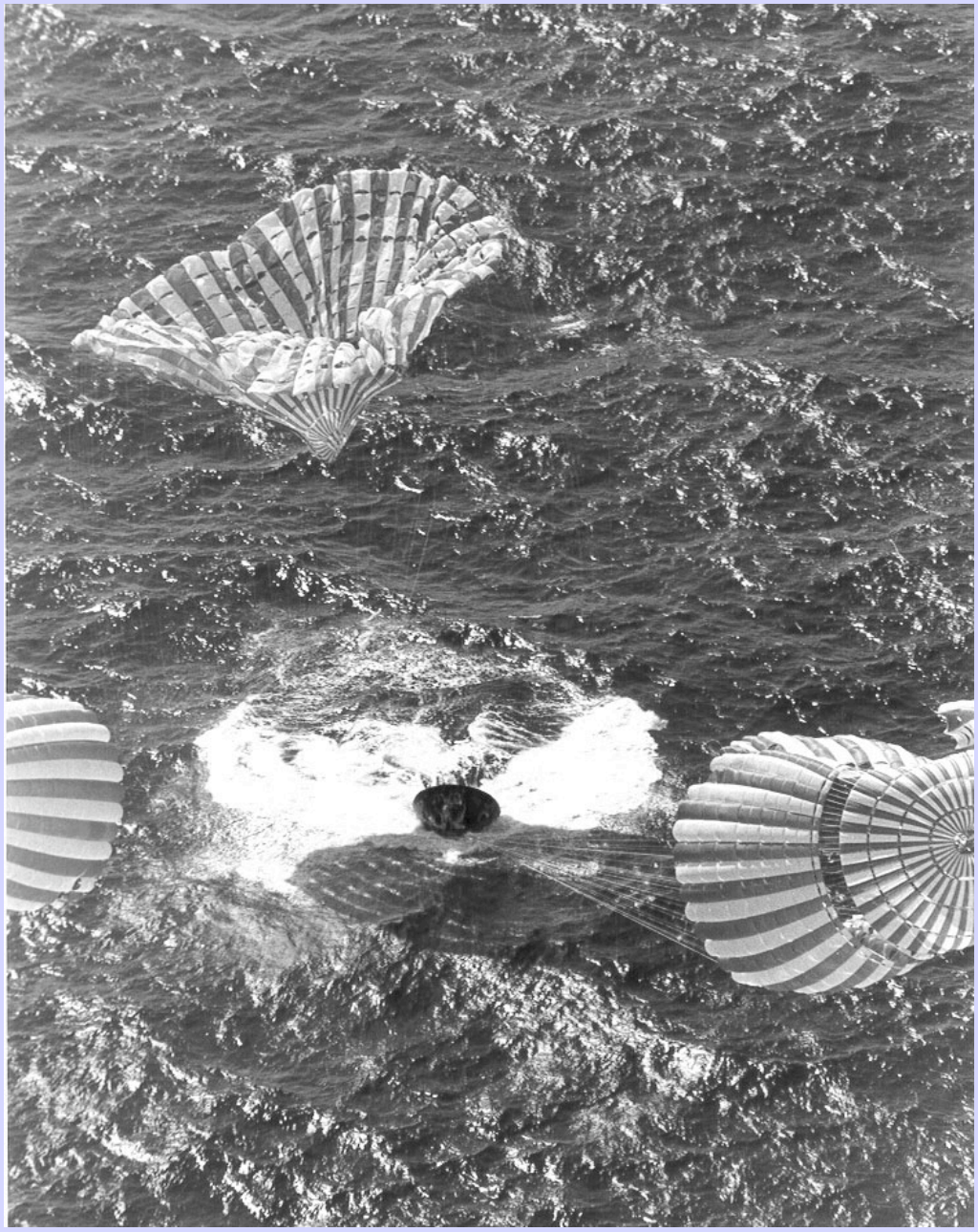
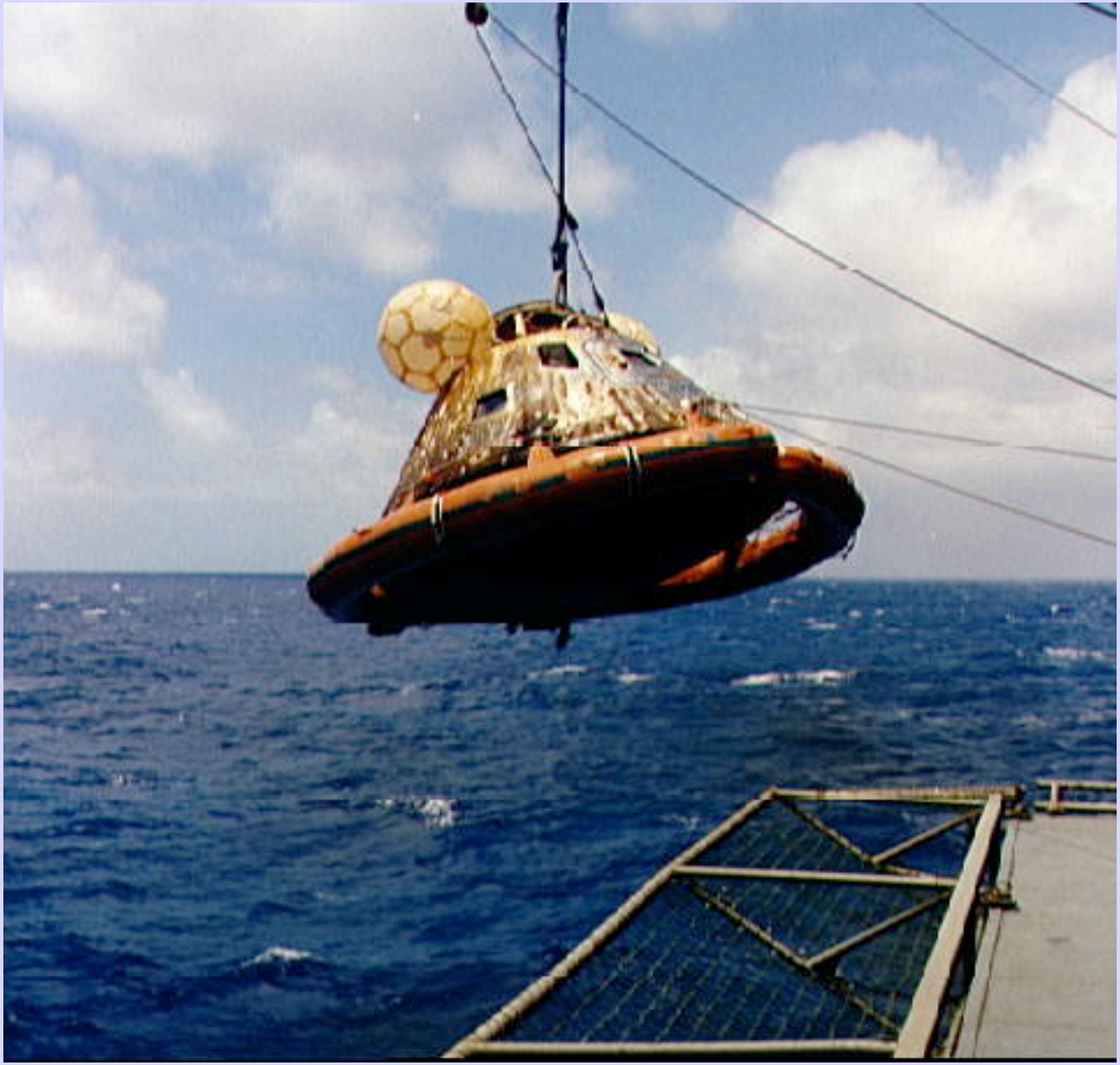
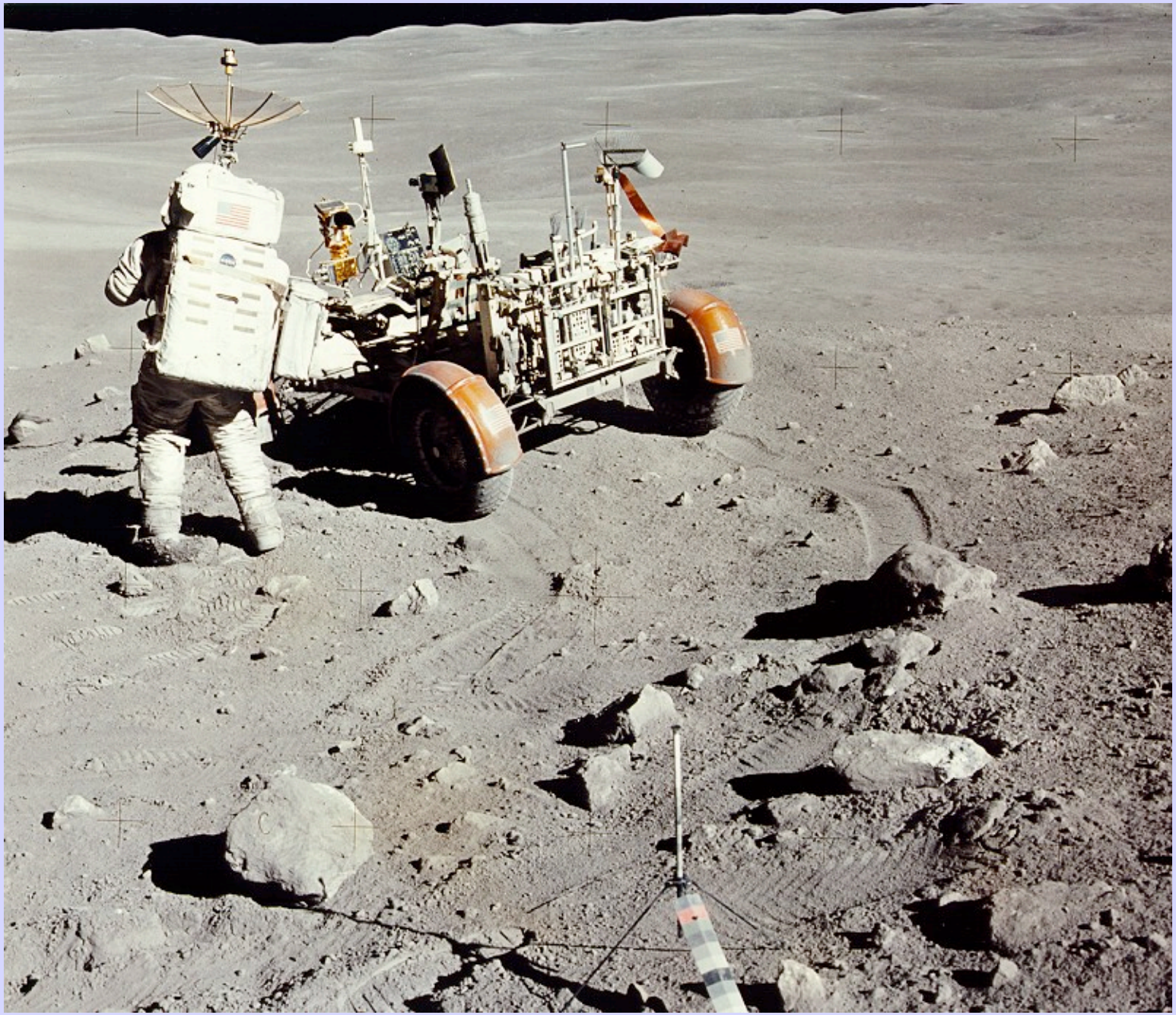
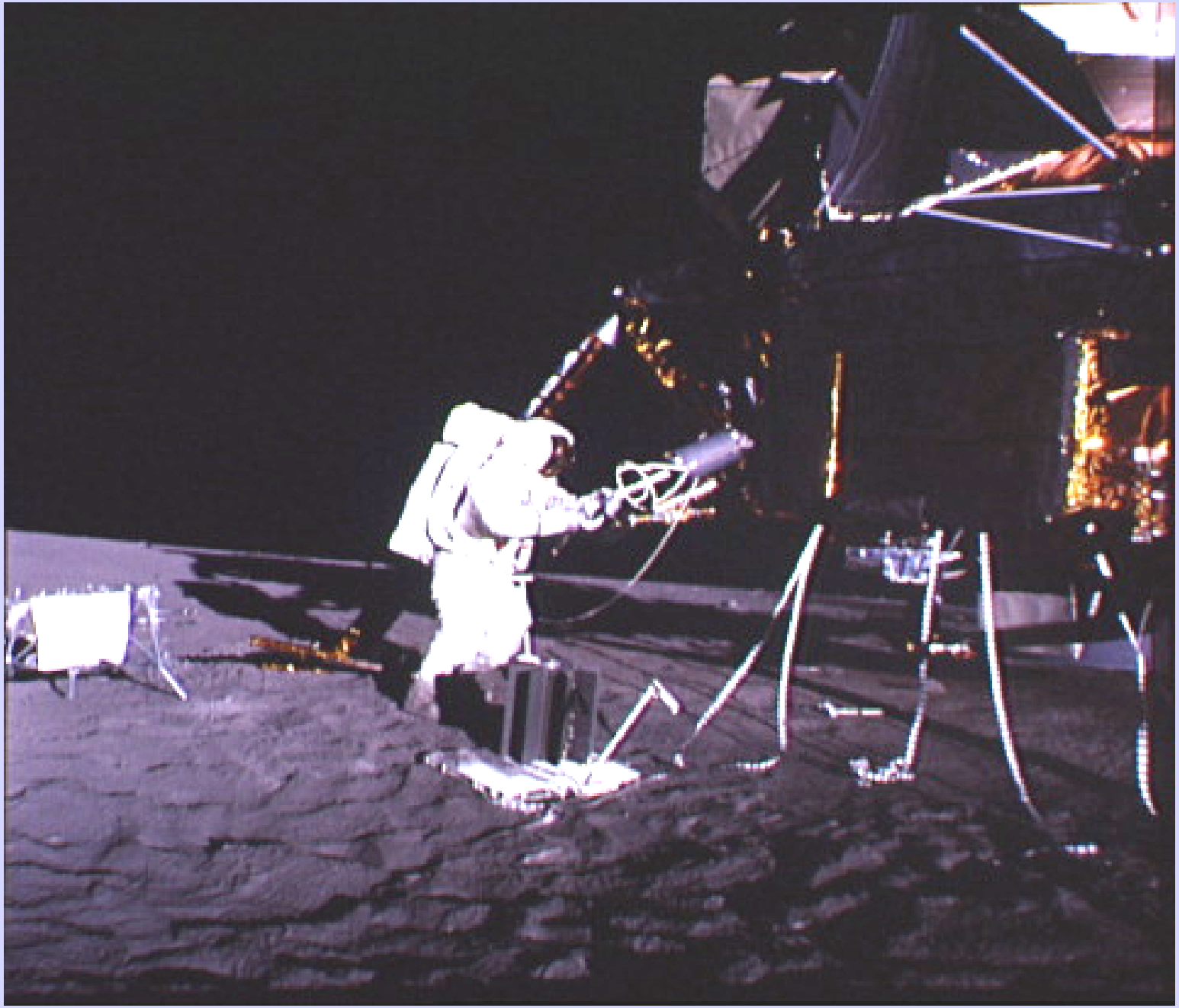
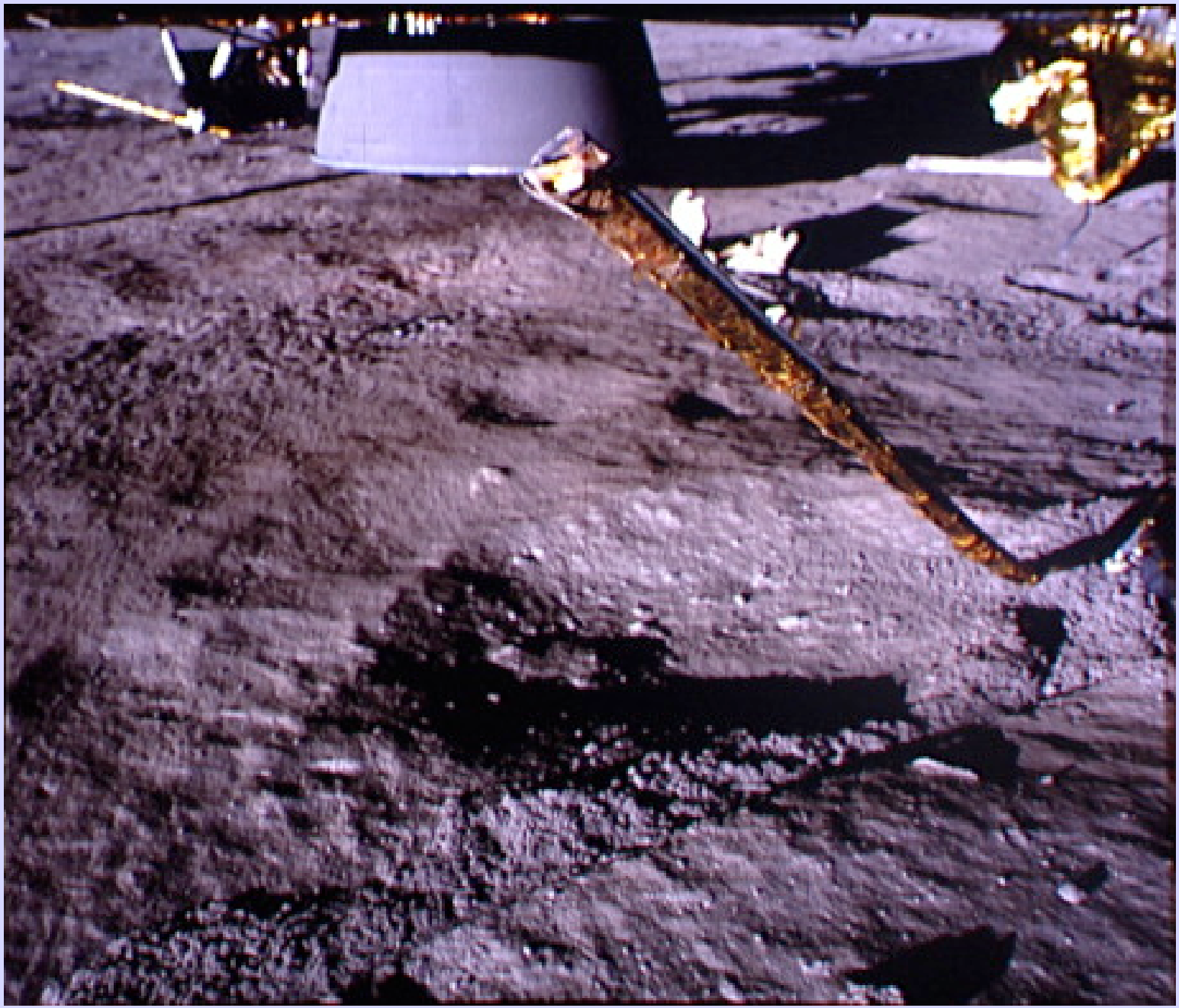



FIGURE 1-39 LRV DEPLOYMENT SEQUENCE