

The Soviet Lunar Landing Program

INST 154

Apollo at 50

Launch escape system

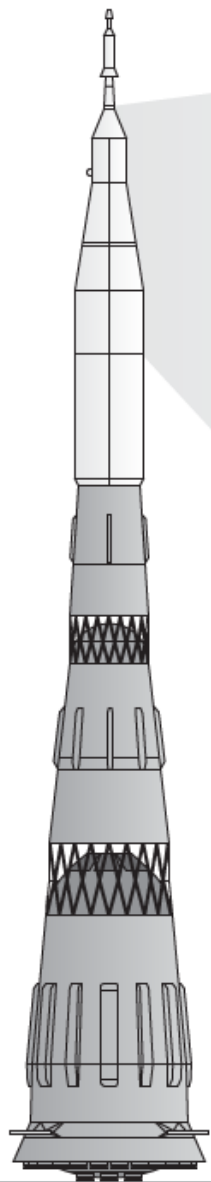
L3 Complex

BLOK G

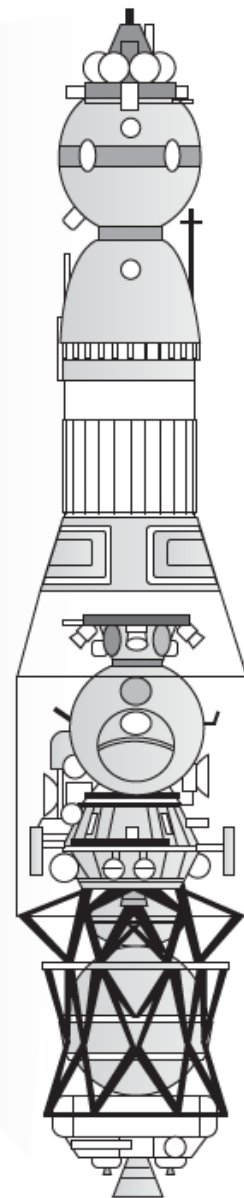
BLOK V

BLOK B

BLOK A



N1/L3

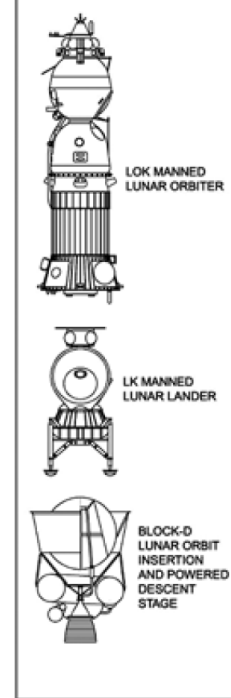
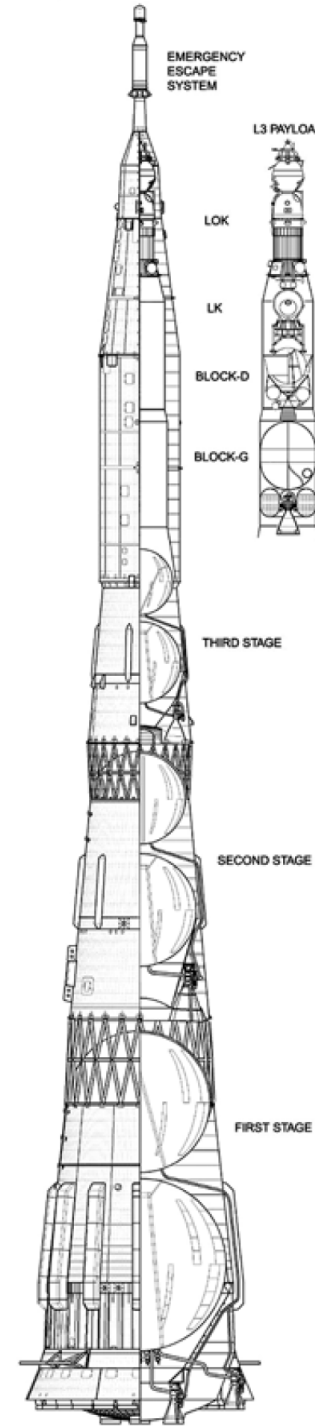


L3 Complex

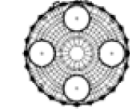
Lunar Orbital Craft (LOK)

Lunar Craft (LK)

BLOK D

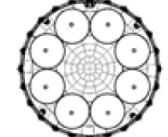


THIRD STAGE WITH 4 ENGINES



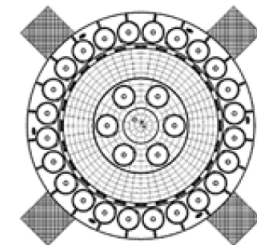
SECOND STAGE

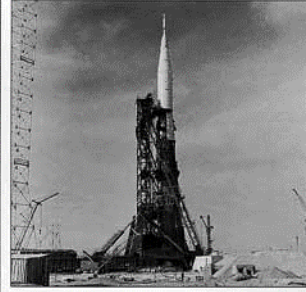
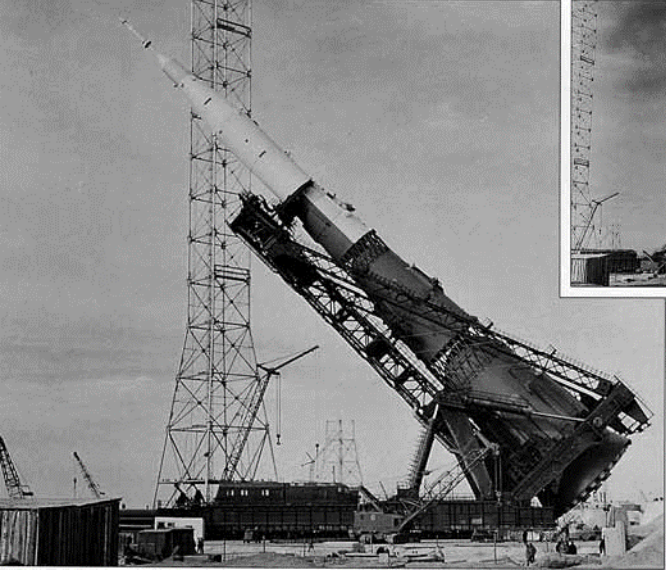
SECOND STAGE WITH 8 ENGINES



FIRST STAGE

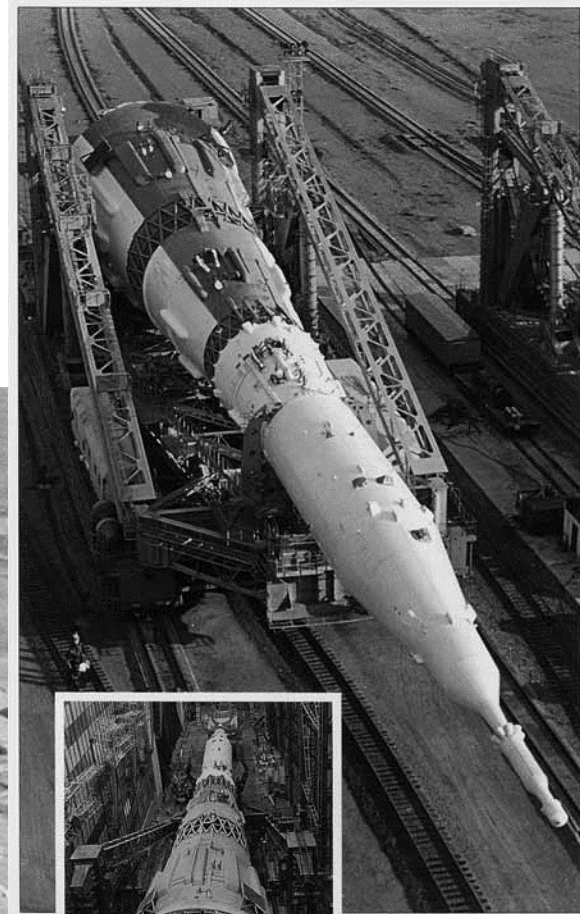
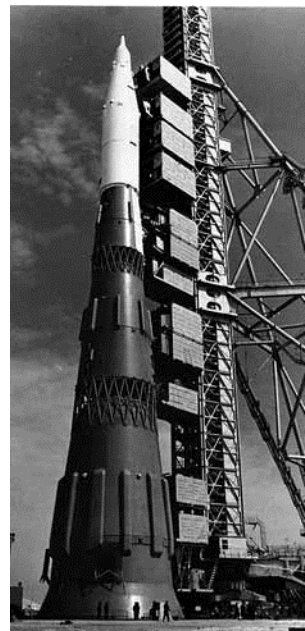
FIRST STAGE WITH 30 ENGINES





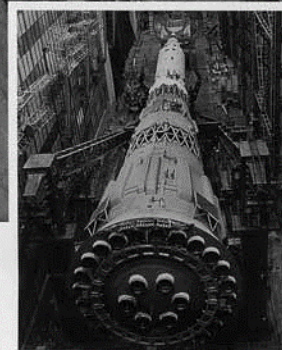
Система Н1-Л3 установлена вертикально на пусковое устройство. Транспортно-установочное устройство не отведено

Установка системы Н1-Л3 на пусковое устройство

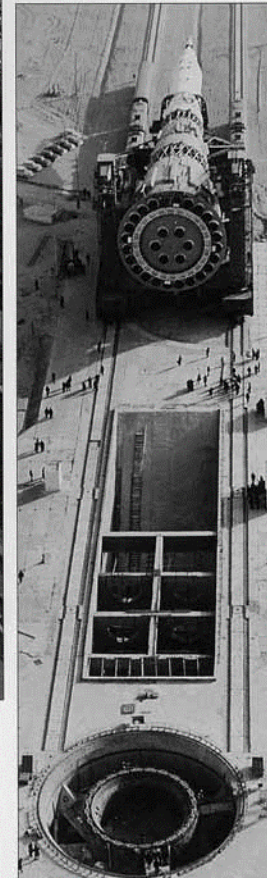


Система Н1-Л3 в пути на стартовый комплекс

Система Н1-Л3 около пускового устройства стартового комплекса



Космическая система Н1-Л3 на транспортно-установочном агрегате в монтажно-испытательном корпусе, готовая к вывозу на старт



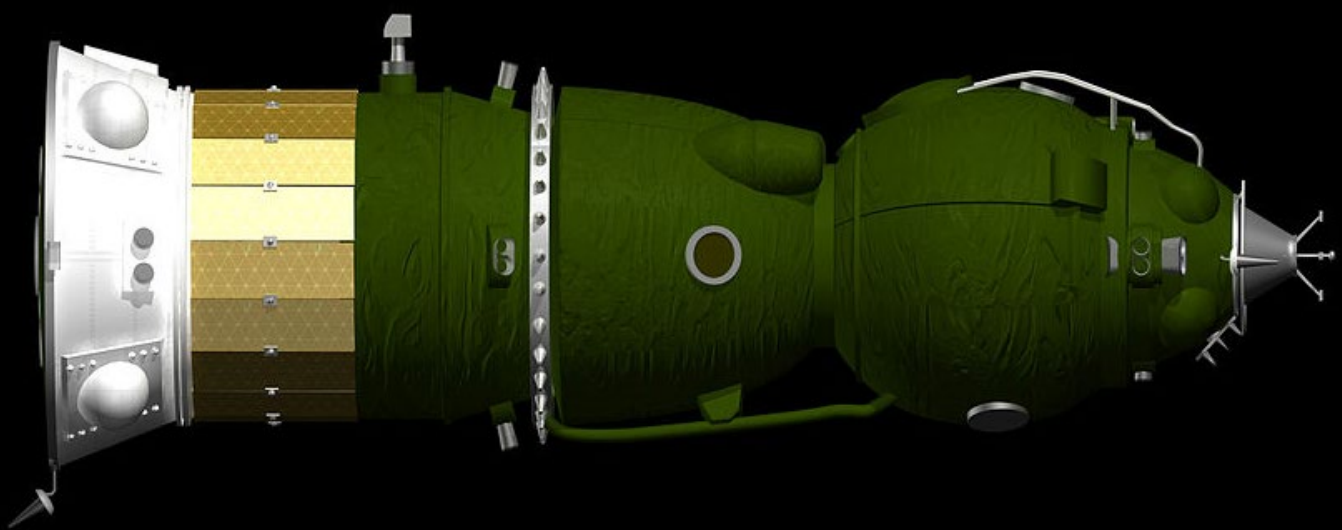
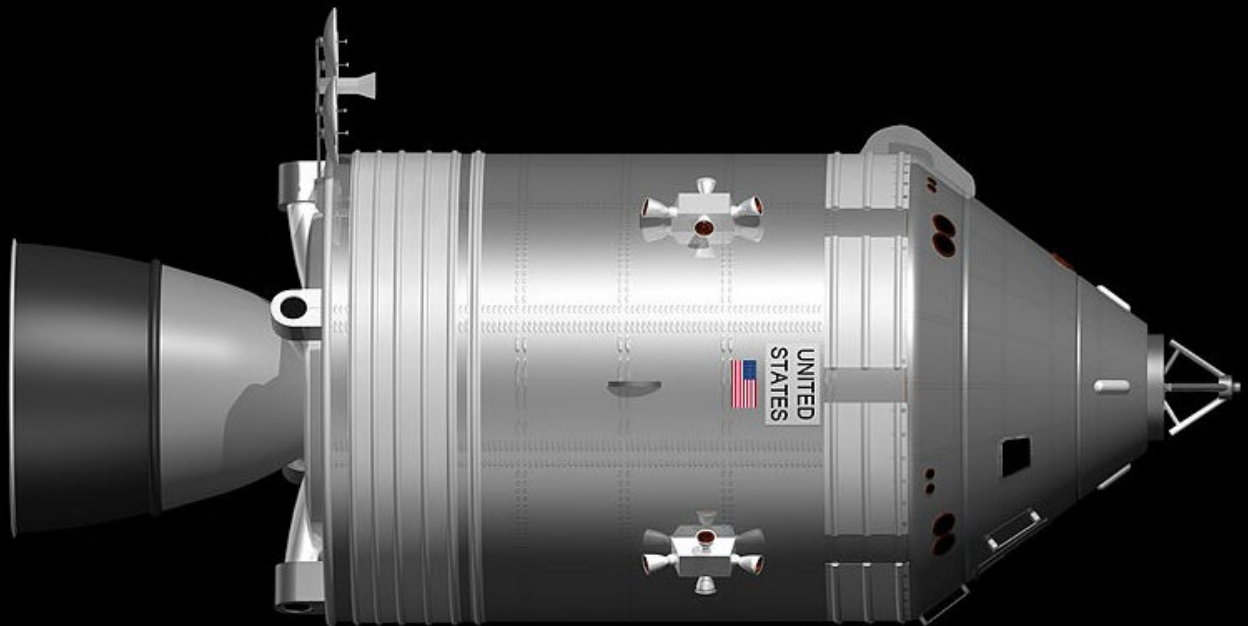
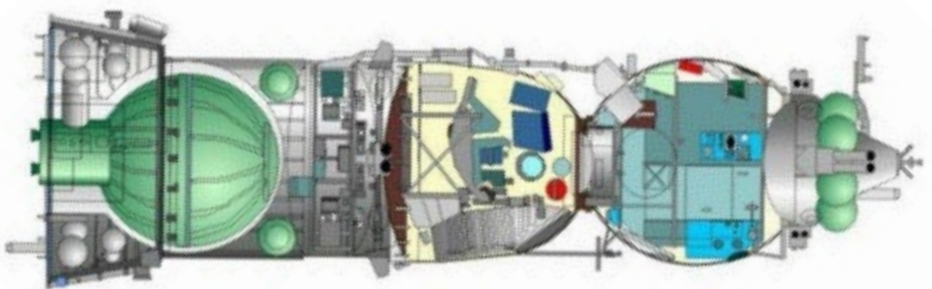


Fig. 1: Cosmonaut transfers from LOK to LK

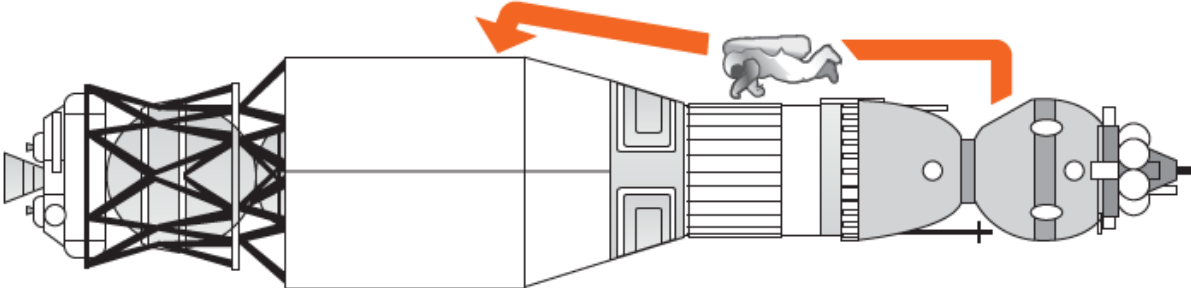
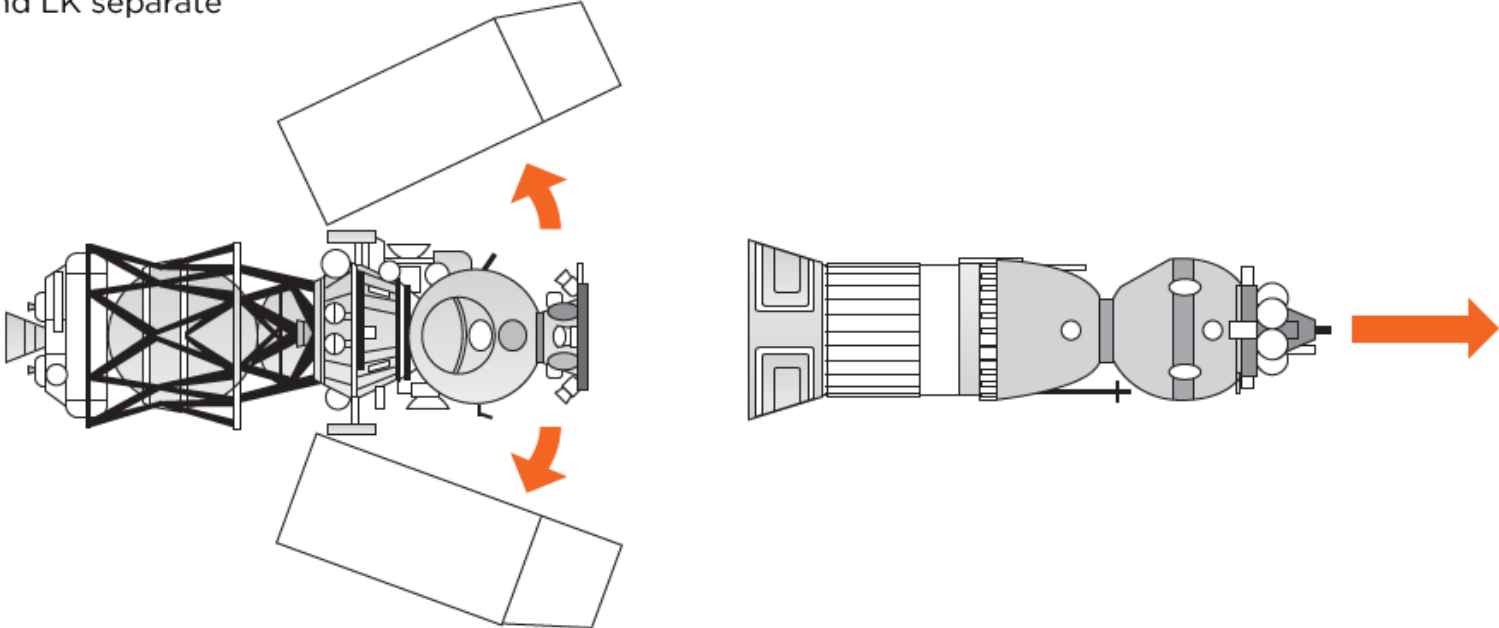
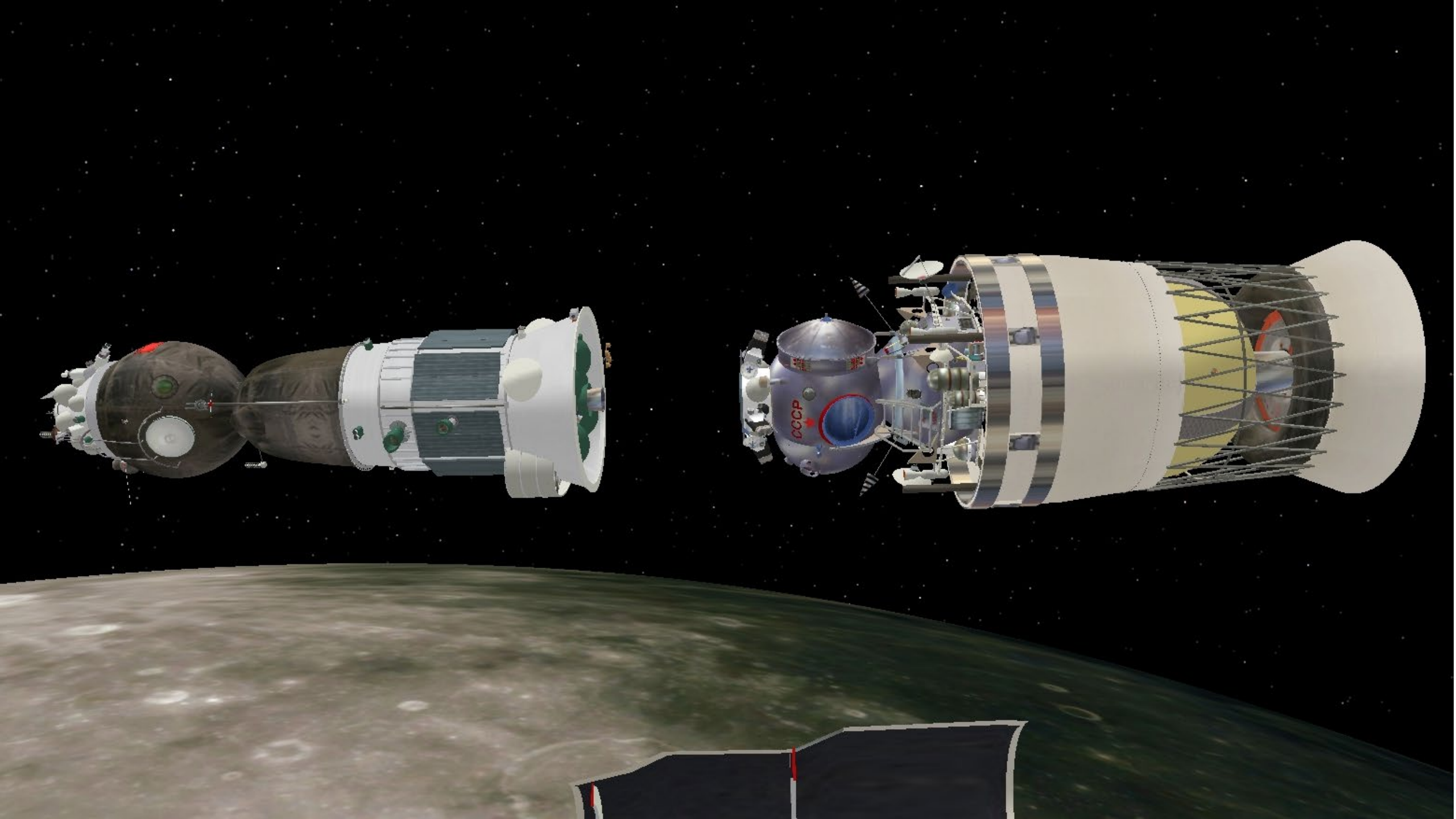
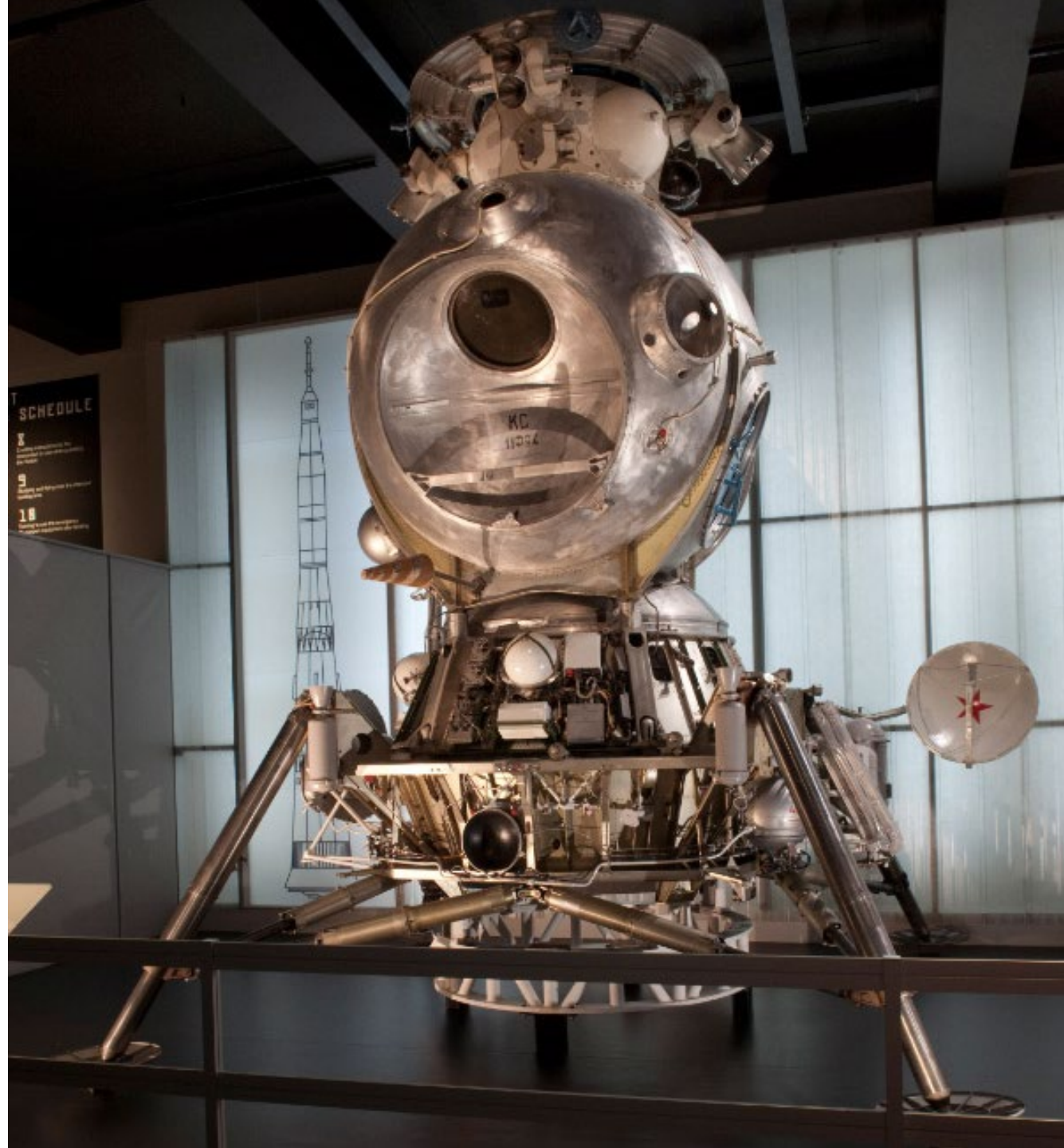


Fig. 2: LOK and LK separate







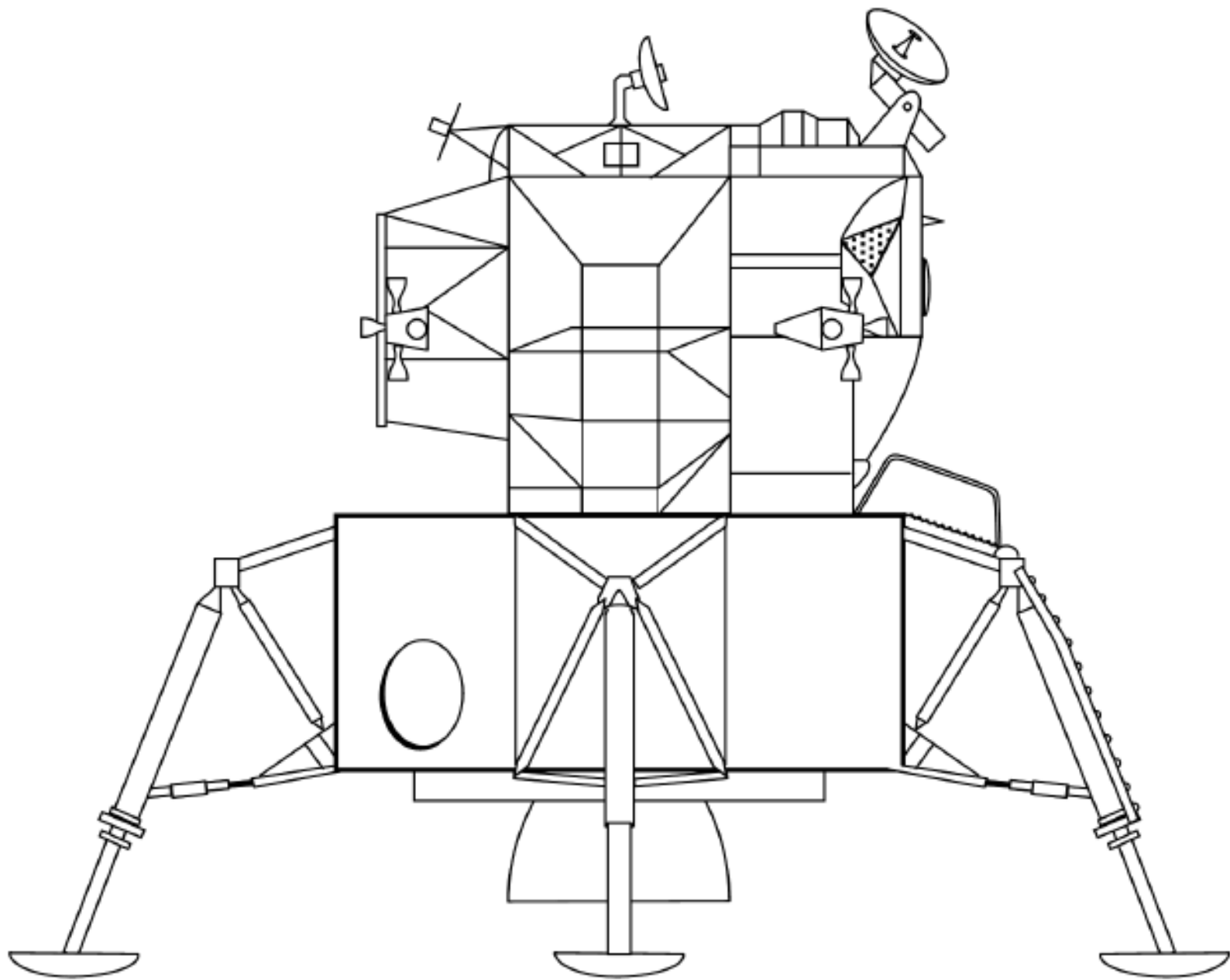
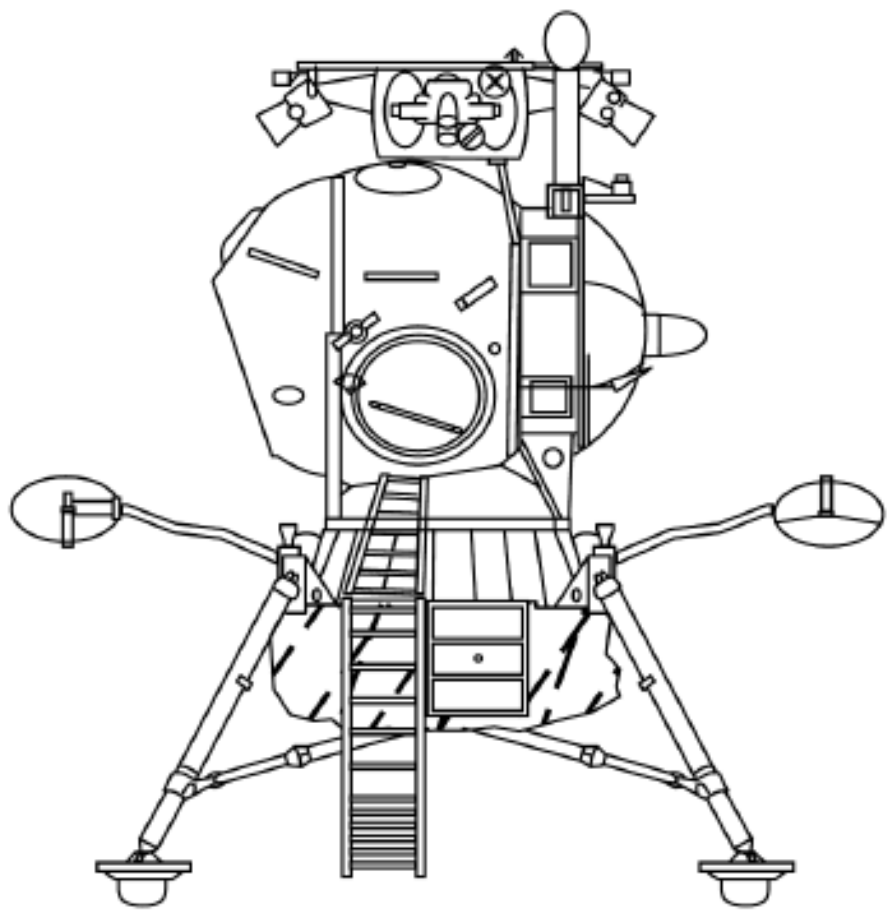


Fig. 3: LOK approaches returning LK

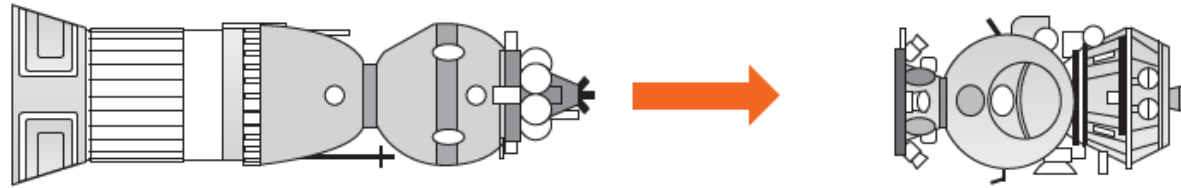


Fig. 4: Cosmonaut transfers from LK to LOK

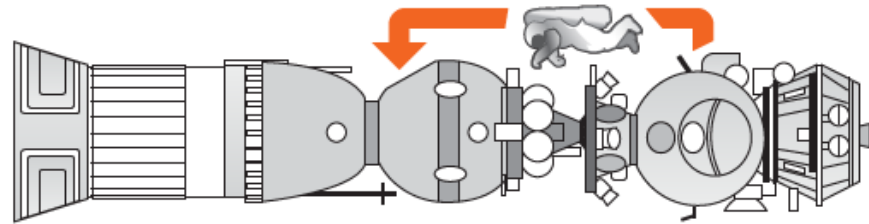
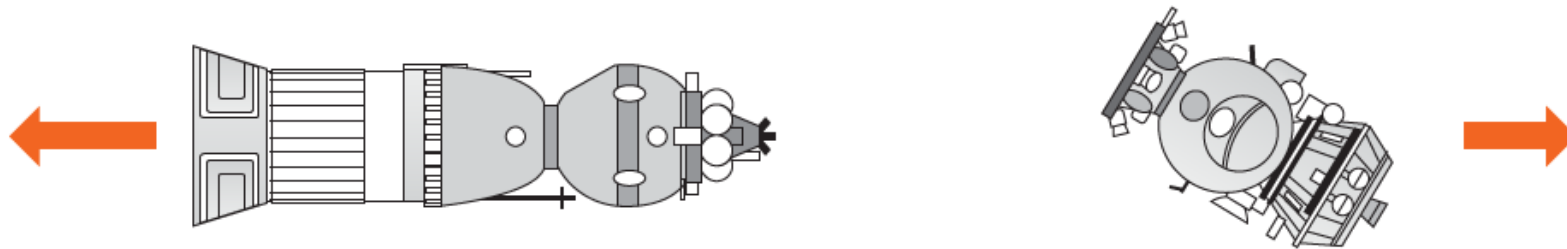
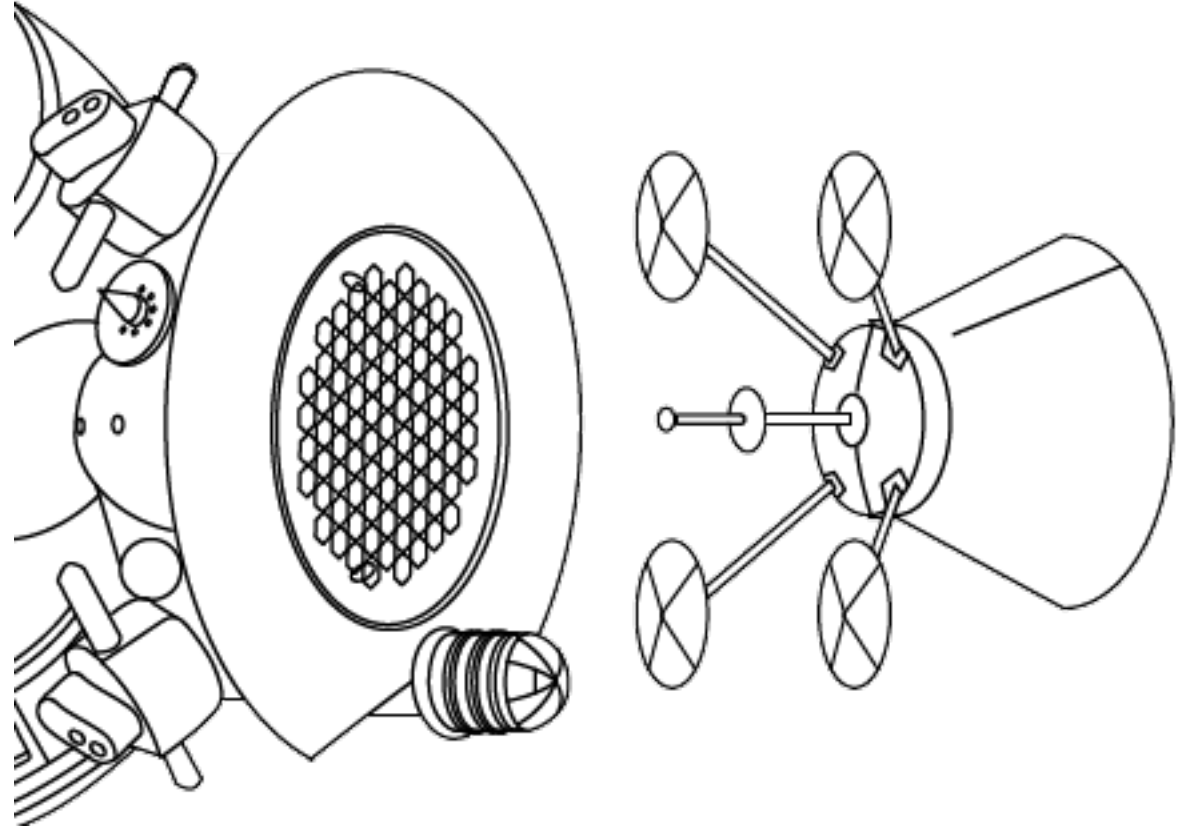
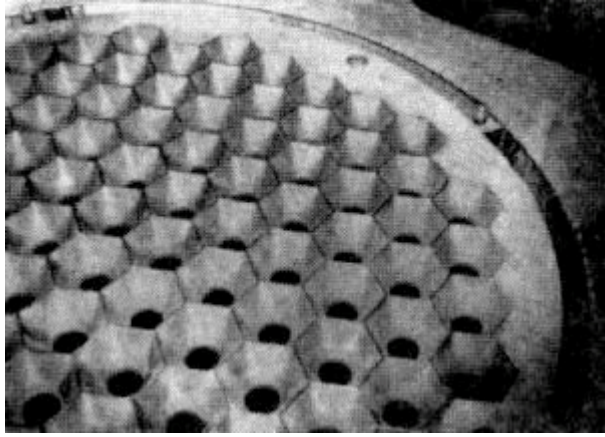
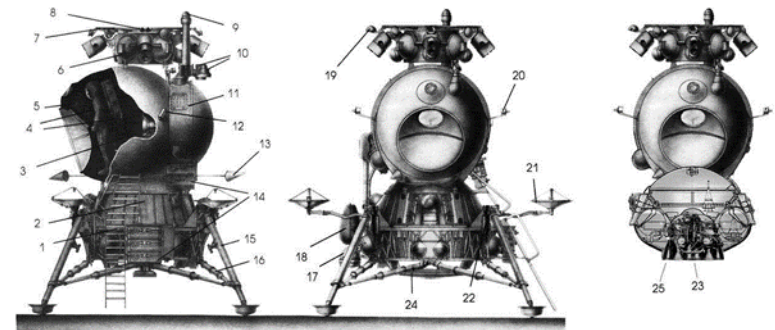
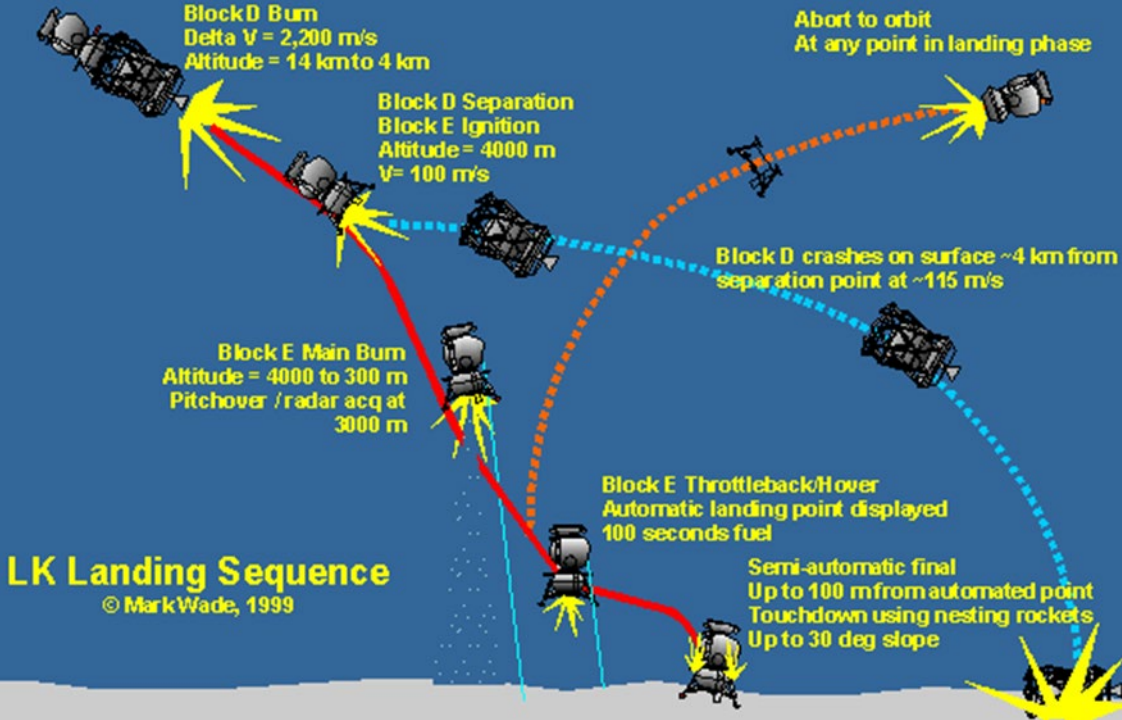


Fig. 5: LK is discarded



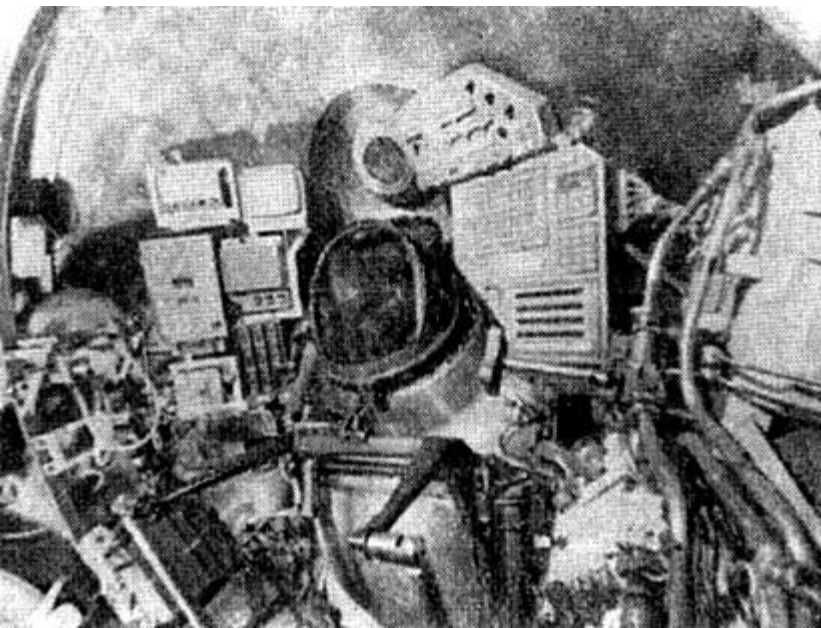


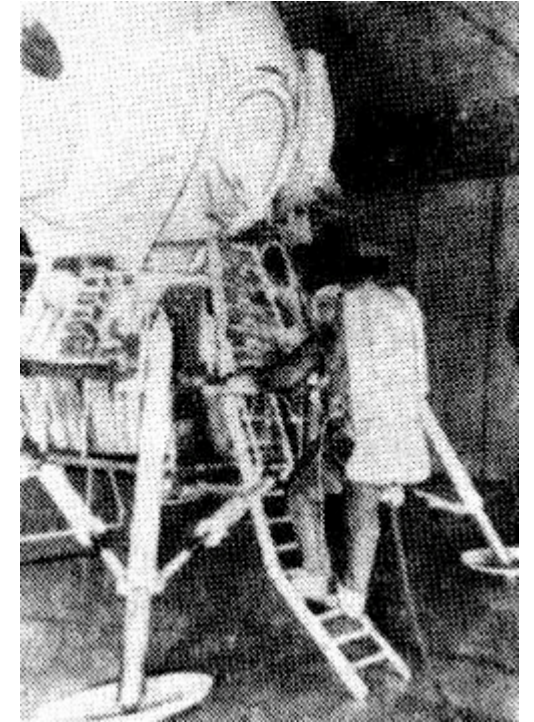
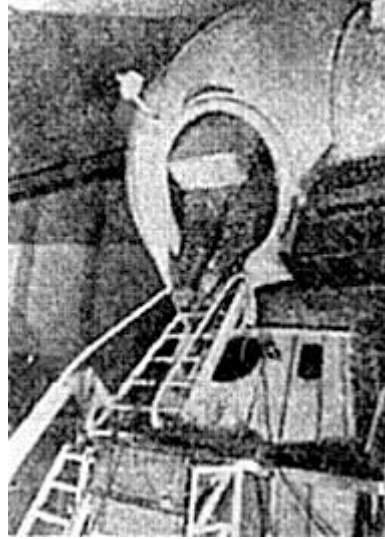


Landing and Surface Configuration

Ascent Configuration

- | | | |
|--|--|--------------------------------|
| 1. Lunar Landing Aggregate - LPU | 10. Alignment Sensors | 19. Omni-Directional Antennas |
| 2. Rocket Block E | 11. Instrumentation Compartment | 20. Rendezvous System Antennas |
| 3. Cosmonaut Cabin | 12. TV Camera | 21. TV Antennas |
| 4. Life Support System Equipment | 13. Omni-Directional Antennas | 22. Pressing Engine |
| 5. Visual Observation Port For Landing | 14. Power Supplies | 23. Main engine |
| 6. Block Of Attitude Control Engines | 15. Support Leg With Shock Absorber | 24. Reflector |
| 7. Thermal Control System Radiator | 16. Strut With Shock Absorber | 25. Backup Engine |
| 8. Docking Mechanism | 17. Landing Radar Locator | |
| 9. Targeting Sensor | 18. Strap-On Instrumentation Compartment | |

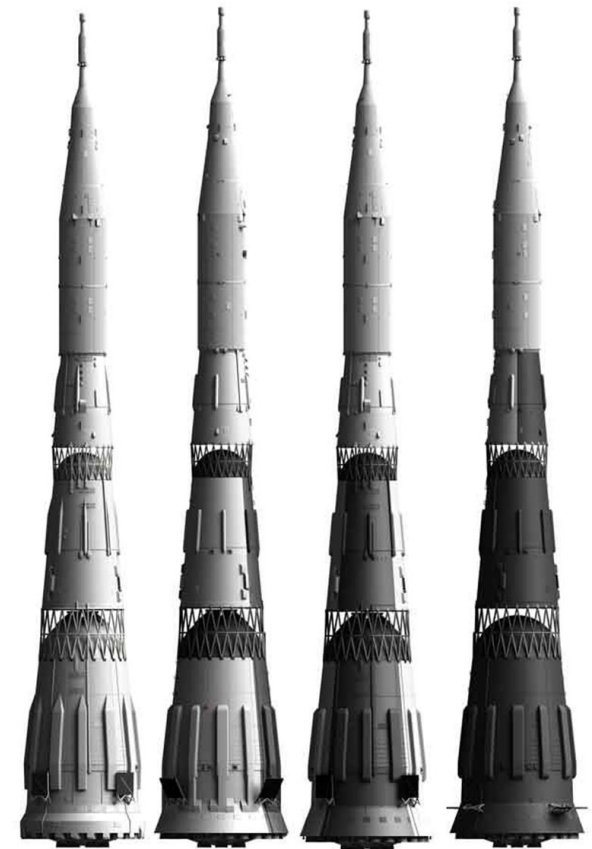




Lunar Landing Program Flights



- Feb 1969 Uncrewed N1 test (first stage failure)
- Jul 1969 Uncrewed N1 test (first stage failure, destroyed launch pad)
- Nov 1969 Uncrewed Block D test (first stage failure)
- Nov 1970 Cosmos 379: Uncrewed LK test
- Dec 1970 Cosmos 382: Uncrewed Block D test
- Feb 1971 Cosmos 398: Uncrewed LK test
- Jun 1971 Uncrewed N1 test (first stage failure failure)
- Aug 1971 Cosmos 434: Uncrewed LK test
- Nov 1972 Uncrewed N1 test (first stage failure)



Discussion Groups

- Siddiqi Chapter 15 (“Final Lap to the Moon”)
 - The Soviet space program between Apollo 1 and Apollo 11
- Chertok Chapter 3 (“N1-L3 Lunar Program Under Korolev”)
 - The origins of the Soviet lunar landing program
- Chertok Chapter 10 (“1969—The First N-1 Launch”)
 - The first attempt to launch the Soviet moon rocket
- The Engines that Came in from the Cold video
 - The rebirth of the N1’s engines in American rockets