

HUMAN EXPLORATION OF THE SOLAR SYSTEM SYMPOSIUM (A5)
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A CONCEPT OF REUSABLE MANNED LUNAR LANDER BASED AT A SPACE STATION ON
CYCLER ORBIT

Abstract

Based on a manned space station on Earth-Moon Cyler Orbit, which encounters the Moon at the apogee every two revolutions in one month, a new concept of reusable manned lunar lander is presented. The new concept lander is designed to meet the requirements of secular and repeatedly manned lunar exploration missions in the future. A reusable lunar lander can effectively save the cost in such missions. When a lunar mission start, a manned lunar lander is separated from the space station and injected into a low lunar orbit. Then the lander descends to the Moon surface, supports the surface mission of the crew, and sends the crew back to the space station on Cyler Orbit. The most expensive modules of the lander is reusable, those include crew cabin, GNC system, landing and ascending propulsion system, landing cushions, etc. An additional propellant module is abandoned before landing to the Moon surface.