Paper ID: 31163
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HUMAN EXPLORATION OF THE SOLAR SYSTEM SYMPOSIUM (A5)
Human Exploration of the Moon and Cislunar Space (1)

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THE EUROPEAN SERVICE MODULE CONTRIBUTION TO THE ORION PROGRAM

Abstract

This paper provides an overview of the system and subsystem configuration of the European Service Module (ESM), presently in the detailed design phase, as well as its perspectives of utilization within the global space exploration endeavour. The ESM builds on the European experience of the Automated Transfer Vehicle (ATV), the International Space Station cargo vehicle who completed its operational life in February 2015. Its main functions are to bring the structural continuity between the launcher and the crew module, to provide propulsion for attitude control and orbital maneuvers to Orion, to ensure its thermal control as well as electrical power generation in the orbital phases and to store water, oxygen and nitrogen required to sustain life for the mission. Although focusing on Lunar Missions, the design is conceived to allow versatility for future, more demanding exploration missions. The program is managed in close cooperation by an European team composed by the European Space Agency and by the industrial ESM Prime Contractor Airbus DS, and by the US team composed by NASA and the industrial Orion Prime Contractor Lockeed Martin.