Paper ID: 13493
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HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3)
New Technologies, Processes and Operating Modes Enabling Future Human Missions (7)

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RECYCLABLE RESPIRATORY SYSTEM- POTENTIAL SOLUTION TOWARDS LONG TERM MANNED MISSION TO MARS

Abstract

The ongoing exploration of Mars and the in depth discoveries about the mystery of Mars are boosting our confidence to send manned mission to Mars. Human habitation on Mars is our long term prospective in exploring Mars considering the possible vanishing of life on Earth due to the rise of Global Warming. Non availability of technology at present is in some manner is putting a break to our ambition of Manned Mission to Mars. The presently used unmanned spacecrafts to Mars takes nearly nine months to travel to Mars and once the human begins their journey to Mars they will have to spend another nine months or more in return journey to Earth. The need of Primary Life Support System remains the biggest concern for the possible Manned Mission to Mars considering the safe return journey of the humans. We don't have the technology at the moment to provide the life support systems to the astronauts for the long term continuous to and fro journey to Mars. In this direction, the development of a Recyclable Respiratory System can provide us a smart solution to our concern as it will help us to reduce both the cost and weight of the spacecraft by not fitting huge oxygen cylinders onboard the Spacecraft. The presently used Respiratory System onboard manned spacecrafts can't be used for the continuous long term return journey to Mars as they can provide life support system only for short span of time. This Recyclable Respiratory System can play a crucial role in solving this problem. The System designed in such a manner that the system is fed with certain amount of Oxygen in two or three cylinders in the initial and inhaled by the astronauts exhaling Carbon-Di-Oxide which is converted back into Oxygen and vice-versa through the system. The development of this kind of technology can not only help in return manned mission but also in human colonization on Mars where this kind of system can be designed inside the future ground station for human habitation. The decomposition of Carbon produced from the Carbon-Di-Oxide can be a hurdle in designing this kind of technology. Radioactive isotopes like Plutonium or solar panels installed on board the Mars spacecraft can be used to drive power to run this system. The effective development of this technology can play a potential role in designing the proposed Manned Missions to Mars