

IAA Study Group Status Report

Responsible Commission:

Commission 3

Study Number and Title:

SG3.25, The Maintainability and Supportability of Manned spacecraft in Deep Space

Short Study Description (repeat from Study Group Proposal):

Aiming at characteristics of manned exploring in deep space about long period, considering roundly the problems faced to solve with maintenance and repairs, spares carrying and supplying, reliability and fault-tolerant redundant of manned spacecrafts in deep space, carrying out analysis of maintainability and supportability with different strategies, forming multi-parameter optimization design; based on the analysis results, research the implementation of maintainability and supportability with new technologies, providing different solutions and schemes.

Progress in past six months:

- Analysis of the flight mode of manned Mars mission further:
 - To analyze the crew's number for Mars.
 - To analyze and select the Orbit of the mission.
- Analysis and comparison of advanced propulsion system
 - Analysis of Chemical propulsion with high specific impulse
 - Analysis of Nuclear thermal propulsion
 - Analysis of Electric propulsion
 - Comparison of advanced propulsion system
- Analysis and comparison of advanced ECLSS
 - Physical and chemical regeneration ECLSS
 - Biological life support system
 - Comparison of advanced ECLSS

Website Study Information update: (please give any update regarding Study Group Membership, documents, Study Plan and Schedule):

Please update Study Group Membership, the specific staff and the contact information could be seen on next page.

Please update the time line as following:

- July 2017 — Sep. 2017: an interim report to the IAA.
- Oct. 2017 — Mar. 2018: To complete the Comparison of advanced propulsion systems and advanced ECLSS systems.
- Apr. 2018 — Jun. 2018: To complete the multi-parameters optimization and scheme selected.
- July 2018 — Sep. 2018: submission of a final report to the IAA.

Issues requiring resolution? (recommend approach):

Members/Participants from other space faring nations like Russia, USA, Europe, Japan, India are important for wide acceptability of the contents. We already send email to some experts, and we should strengthen communication to IAA Office for collecting experts' information from IAA website.

Product Deliveries on Schedule? (If modified explain rationale):

No.

Study Team Member Changes? See next page.

Name of person providing Study Group Status (Study Group Chair or Co-Chair):

YANG Hong

Status Report Date:

20/09/2017

Study Team Membership Changes

Effectivity Date:

20/09/2016

Discontinue:

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