

HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3)
Space Stations Assembly and Operations (3)

Author: Mr. Michele Trichilo
Altec S.p.A., Italy, trichilo.michele@spacegate-altec.it

INCREASING DRY CARGO CARRYING CAPABILITY TO ISS WITH MPLM AND ATV

Abstract

Since 1998 the ISS is in continuous evolution and it is near to the “assembly complete” configuration. ISS logistics has been accomplished with STS pallets/lockers and available pressurized modules (SPACEHAB and MPLM), in addition to the Soyuz/Progress spacecrafts. Modifications to the existing ISS logistics pressurized modules have been executed as temporary solutions to satisfy the need associated with the enlarged crew of increasing the ISS outfitting until new spacecrafts shall become operative. In this context, MPLM is still a viable example of a flexible carrier, able to adjust its cargo capability. Modifications have been implemented to utilize the extra ascent performance margin available on MPLM. A concept for the installation of soft-bags supported by dedicated structure, derived from ATV Cargo carrier design, was implemented on MPLM for last ULF2 flight and will be adopted also for the other remaining missions. This paper describes the evolution of the concept and the design implemented, and contains guidelines for ISS pressurized cargo addition, extrapolating existing concepts and drawing technical scenarios.