

HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3)
How Can We Best Apply Our Experience to Future Human Missions? (2)

Author: Mr. Yoshinobu Satoh
Japan Manned Space Systems Corporation, Japan, satoh.yoshinobu@jaxa.jp

LESSONS LEARNED FROM JEM MANIFESTING AND BENCH REVIEW ACTIVITY

Abstract

Japanese first manned space module “Kibo” have been launched by Space Shuttle and assembled as a part of International Space Station (ISS). As the preparation for its launch, JAXA had experienced unique activities for manned space program. Through those activities, JAXA had experienced lots of lessons learned. This presents a part of such information which will be efficient for the future manned space program.

1. Manifesting

In International Space Station Program (ISSP), NASA and International Partners (IPs) use huge database which collects manifest data of past and future ISS flights. Manifesting is the unique process for human spaceflights. In case of the satellites, once it's launched successfully, there is no way to repair or replace any broken hardware. But in manned module, astronauts can repair or replace any hardware which is designed as Orbital Replaceable Units (ORUs). Manifesting is to make a database of all ORUs and items which can be handled by astronauts in the manned module on-orbit. The database provides for the astronauts and ground operators the easy reference of hardware which they want to repair or replace. JAXA had developed the manifest data list for Kibo. From that activity, we found the necessity and difficulty to maintain such huge list through operation and maintenance and are starting to seek better way to do that.

2. Bench Review

In ISSP, NASA and IPs are required to perform Bench Review to launch hardware as loose items such as ORU Spare, hardware to be installed on-orbit, tools and consumables. Those loose items are packed into bags with cushion to protect from launch vibration. The Bench Review is a review for confirmation of the packed loose items from the viewpoint of astronauts' experience in the space. For JAXA, This process provides many lessons to learn about human spaceflight and will be a very important part of JAXA's futur human space missions.

JAXA continues operations of Kibo based on this experience. And it'll be the foundation of future JAXA's manned space program.