

SPACE OPERATIONS SYMPOSIUM (B6)  
Human Spaceflight Operations Concept (1)

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KIBO MANIPULATOR INITIAL CHECKOUT OPERATION

**Abstract**

Japanese Experiment Module (JEM) Kibo has a Remote Manipulator System (JEMRMS), one of the four JEM elements (PM, EF, ELM and JEMRMS), is operated by crew inside Pressurized Module (PM). It is a remote control type manipulator and has the following performance.

- 1.Number of joints:6
- 2.Length:10m
- 3.Mass (Main Arm):780kg
- 4.Max speed (with less than 600kg payload):60mm/s 2.5deg/s
- 5.Max mass of handling payload:7000kg

JEMRMS Main Arm has two cameras (Elbow Camera and Wrist Camera) and one End Effector. The crew in the PM can manipulate the JEMRMS by monitoring camera vision and computer data of JEMRMS console. JEMRMS console has two TV monitors and one Robotics Laptop computer (RLT). To support JEMRMS operation, the crew can select the camera vision of JEM system for TV monitors. JEMRMS was launched by STS-123 and STS-124 Space Shuttle. During STS-124 (1J Flight) operation (June 2008), JEMRMS initial deploy operation was executed. All of arm joints drove normally, and healthfulness of brake system has been confirmed through its operations. And after STS-124 operation, some JEMRMS initial checkout operation has been executed. This paper shows the JEMRMS initial checkout operations of Kibo Manipulator, such as the crew flight operations, engineering support operations on the ground and flight data evaluations.