

IAF MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)  
Facilities and Operations of Microgravity Experiments (5)

Author: Dr. I SANG YU

Korea Aerospace Research Institute (KARI), Korea, Republic of

Dr. Seungwhan Baek

Korea Aerospace Research Institute (KARI), Korea, Republic of

Mr. Mansu Seo

Korea Aerospace Research Institute (KARI), Korea, Republic of

Dr. kwangkun park

Korea Aerospace Research Institute (KARI), Korea, Republic of

Mr. jaehyun shin

HANYANG ENG Co., Ltd, Korea, Republic of

Mr. yungu choi

YJ TECHNOLOGY Co., Ltd, Korea, Republic of

## STUDY ON CAPSULE RELEASE DEVICE FOR LOW GRAVITY ENVIRONMENT TEST FACILITY

**Abstract**

In order to stably operate low-gravity environment test facilities, various components are used. Low-gravity environment test facilities can be divided into release devices, capsules, and recovery devices. A drop tower was used as a method to create a low-gravity environment. The falling body has a double capsule structure, using the principle that the outer capsule acts as a drag-shield and the inner capsule moves in free fall. This paper contains information about a separation device so that a capsule that realizes low gravity through falling can fall stably. By sequentially testing the pulley, hook, 2-point electromagnet support, 1-point electromagnet support, 8-point release device, and 3-point support, a device that can stably separate the capsule was finally applied. The release device operates by pneumatics and is designed to grab an object at three points. It is installed at a height that ensures stability and a net drop distance of 110m, and is used for capsule testing.