

July 1966

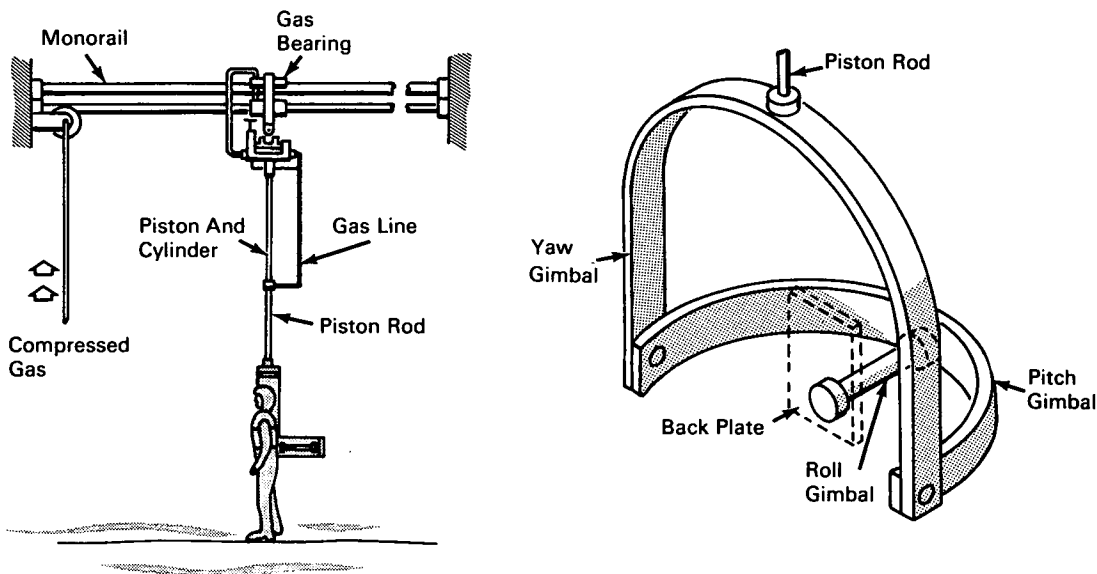
Brief 66-10339

# NASA TECH BRIEF



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## Simulator Effects Partial Gravity Conditions



### The problem:

To partially support the weight of patients in rehabilitation exercises. Patients convalescing following injuries or certain types of surgery cannot comfortably support their full weight while regaining their ability to walk about.

### The solution:

An apparatus that is adjustable to partially support a patient to the extent desired. It can simulate partial gravity to zero gravity.

### How it's done:

A gimballed support is suspended from a pneumatically driven piston and cylinder arrangement that rides on a monorail by means of a gas bearing. Gas under

pressure is valved by an adjustable servo system to exert an upward force on the piston at a constant, preselected rate. The gimbal support is comprised of yaw and pitch gimbals, consisting of half circle members pivotally joined at their diameter ends, and a roll gimbal in the form of an axially rotatable rigid rod secured at one end to a back plate strapped to the patient's body, and at its other end is journaled to the center of the arc defined by the pitch gimbal. The back plate is part of a harness assembly that supports the patient while leaving his arms and legs free.

### Notes:

1. This device should be an ideal tool for physical therapy in rehabilitation centers.

(continued overleaf)

2. A related innovation is described in NASA Tech Brief B64-10146, June 1964. Inquiries may also be directed to:

Technology Utilization Officer  
Manned Spacecraft Center  
Houston, Texas 77058  
Reference: B66-10339

**Patent status:**

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