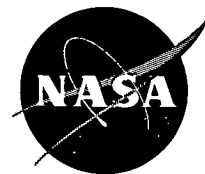


December 1970

Brief 70-10559

NASA TECH BRIEF



NASA Tech Briefs announce new technology derived from the U.S. space program. They are issued to encourage commercial application. Tech Briefs are available on a subscription basis from the National Technical Information Service, Springfield, Virginia 22151. Requests for individual copies or questions relating to the Tech Brief program may be directed to the Technology Utilization Division, NASA, Code UT, Washington, D.C. 20546.

Safe Suspension of Specimens or Clusters During Dynamic Testing: A Concept

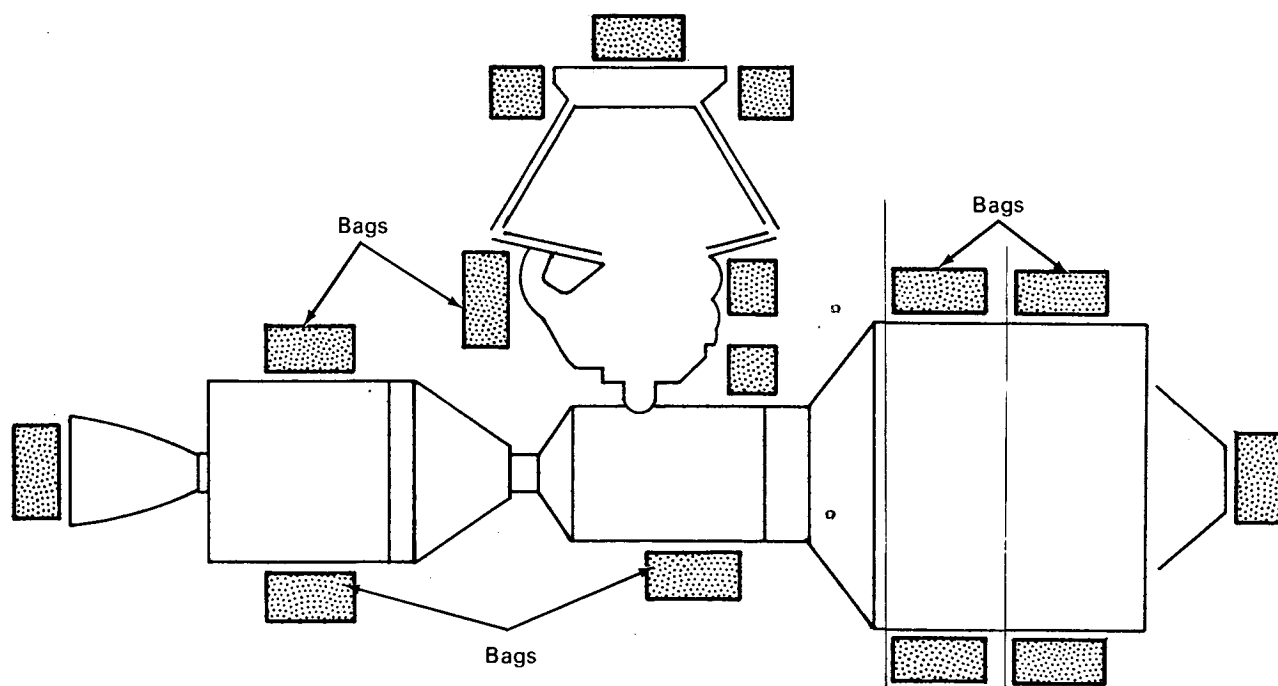


Figure 1. Cluster of Units Surrounded by Inflatable Bags; Diagrammatic Plan

A novel, inexpensive support system without point supports permits dynamic testing of complex or delicate mechanical units without excessive movement which might cause damage. The system does not add to the weight, restrict the motion, or damp the motion of the unit under test.

Earlier support methods used springs or other devices point-attached to the unit. However, springs add weight and restrict movement, and cannot bring the unit to rest during tests. In addition, the delicate surfaces of some units preclude point attachments.

In the system devised, the unit or cluster is surrounded by commercially available, strategically placed, inflatable, molded rubber bags (Fig. 1). The adjustable inflation pressure is normally sufficient to just support the specimen with a permissible degree of movement. When movement becomes excessive, a motion-sensor pressure-control system (Fig. 2) quickly increases inflation to a pressure sufficient to smother the motion until the test can be terminated. The maximum pressure is lower than the load-carrying ability of the restrained

6

(continued overleaf)

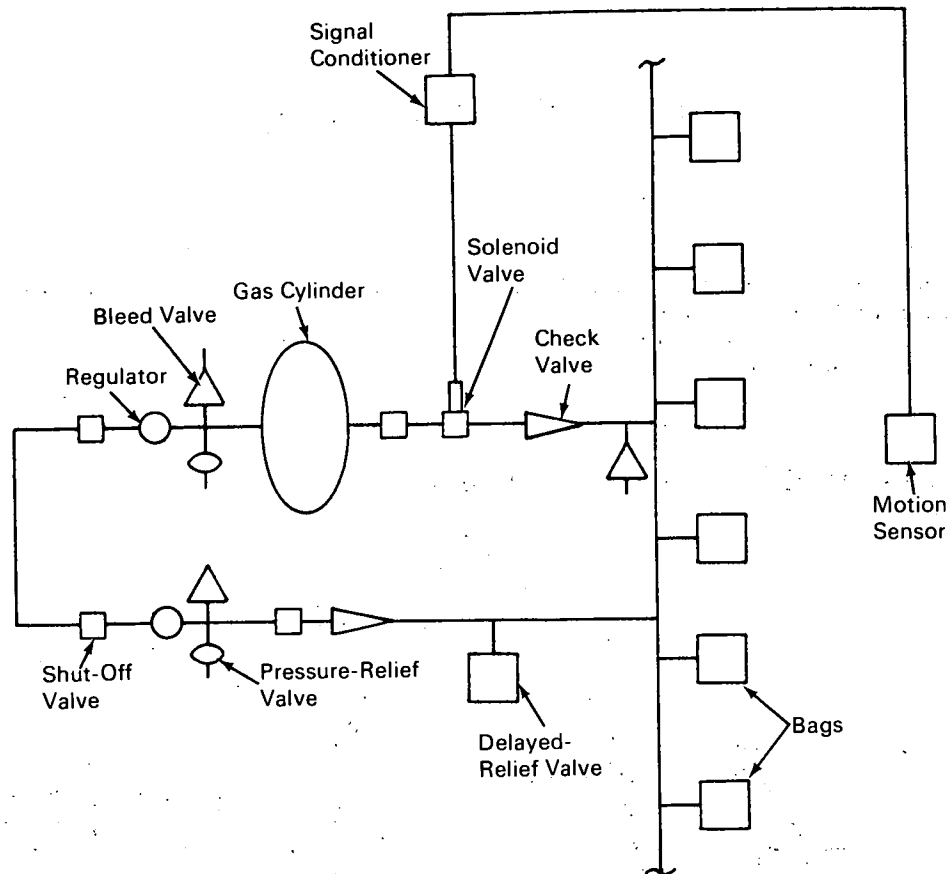


Figure 2. Diagrammatic Plan of System

surface of the unit. The gas used for inflation comes from either a receiver or a high-pressure cylinder.

Notes:

1. This innovation is in the conceptual stage only; at the time of this publication no model or prototype exists.
2. No additional documentation is available. Specific questions, however, may be directed to:
 Technology Utilization Officer
 Code A&TS-TU
 Marshall Space Flight Center
 Huntsville, Alabama 35812
 Reference: B70-10559

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to:

Patent Counsel
 Mail Code A&TS-PAT
 George C. Marshall Space Flight Center
 Marshall Space Flight Center, Alabama 35812

Source: G.C. Hoch and J.B. Russell of
 The Boeing Company
 under contract to
 Marshall Space Flight Center
 (MFS-15110)