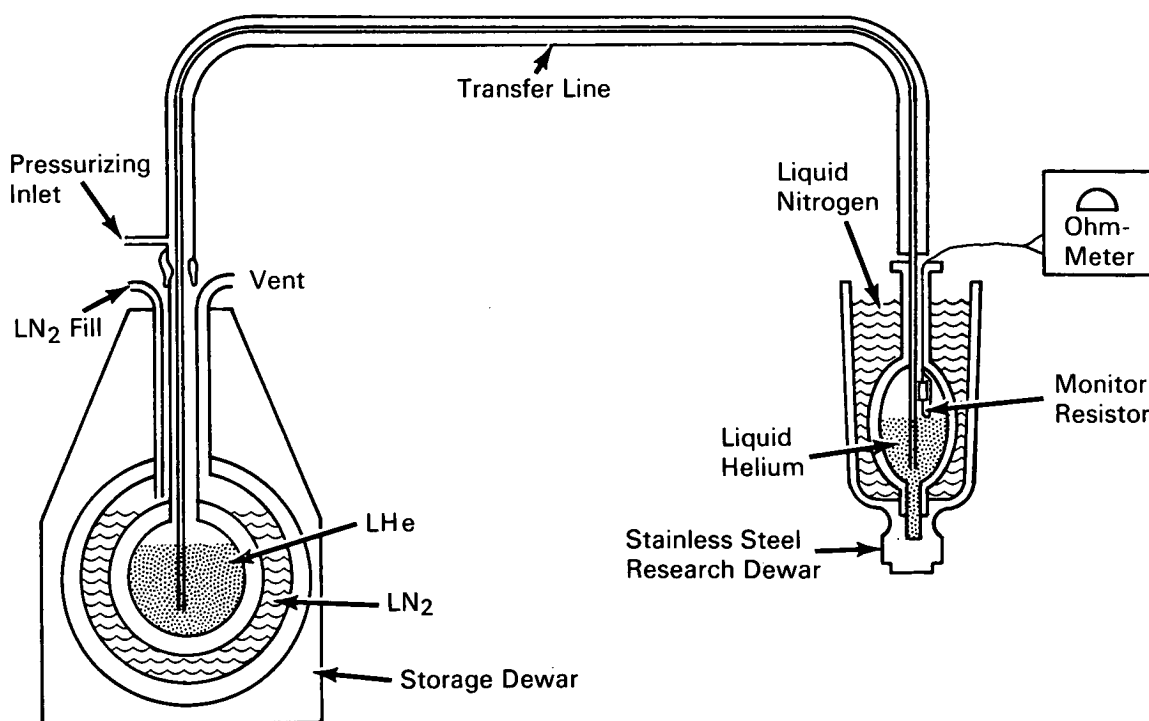


# NASA TECH BRIEF



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## Resistor Monitors Transfer of Liquid Helium



### The problem:

To devise a means of distinguishing between the transfer of liquid helium and gaseous helium into a closed dewar.

### The solution:

Use the large resistance change of a carbon resistor at the liquid helium temperature.

### How it's done:

Attach a 1 Kohm resistor to the inner tube of the transfer line. The resistor should be physically as small as possible to reduce the heat load to the helium.

Leads of No. 40 enameled wire or smaller should be attached to the resistor and connected to an ohmmeter for monitoring the resistance change. With liquid helium being transferred the resistance will be steady and approximately 100 Kohms. A transfer of gas will produce a reading below this maximum and the reading will fluctuate. The resistor may also be used to indicate a maximum or operating level of liquid in the research dewar and a minimum level of liquid in the storage dewar may be monitored by another such system in the storage dewar. The transfer of helium is discontinued by removing the pressure from the

(continued overleaf)

storage dewar. A falling resistance value indicates the level of liquid helium is below the resistor. A steady resistance indicates the level of the liquid is at or above the position of the resistor.

**Note**

Information concerning this invention may be directed to:

Technology Utilization Officer  
Langley Research Center  
Langley Station  
Hampton, Virginia 23365  
Reference: B66-10580

**Patent status:**

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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