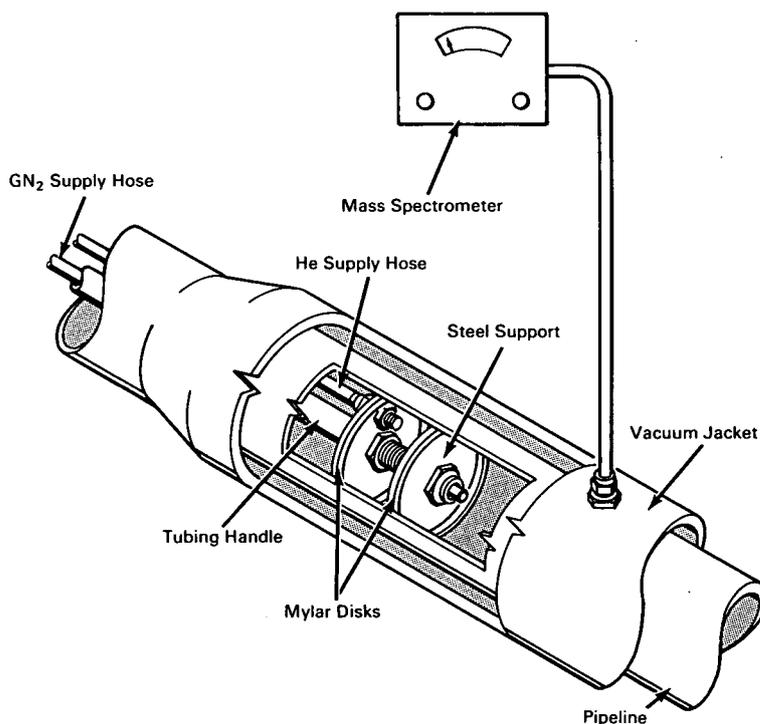


NASA TECH BRIEF



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Leak Locator for Vacuum Jacketed Pipelines Eliminates Need for Removal of Outer Jacket



The problem:

To develop a device to provide a positive means of locating leaks in a vacuum-jacketed liquid-hydrogen transfer line without having to remove the entire outer jacket.

The solution:

A leak locator, consisting of two Mylar disks, a source of nitrogen and helium gas, and a mass spectrometer, which is capable of detecting leaks in the area between the outer jacket and the pipeline.

How it's done:

The leak locator consists of two Mylar disks cut to fit the inner diameter of the pipeline. A cavity is formed by the Mylar disks which are spaced a small distance apart on a tubing handle and kept in place by two smaller steel supports. A mass spectrometer is used to monitor the area between the outer jacket and the pipeline. The pipe is first cut at a cone separator near the leak and the detector is inserted

(continued overleaf)

into that section of pipe. Low pressure gaseous nitrogen is fed through the tubing handle to fill the pipe in front of the detector. Helium is supplied to the cavity between the two Mylar disks and allowed to discharge back toward the opening. The leak locator is moved forward a distance equal to the spacing of the disks. With each move the mass spectrometer is monitored. When the leaking section falls between the detector disks, the mass spectrometer will indicate helium. The jacket may then be cut at the proper place and the pipeline repaired.

Note:

Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Houston, Texas 77058
Reference: B66-10412

Patent status:

No patent action is contemplated by NASA.

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