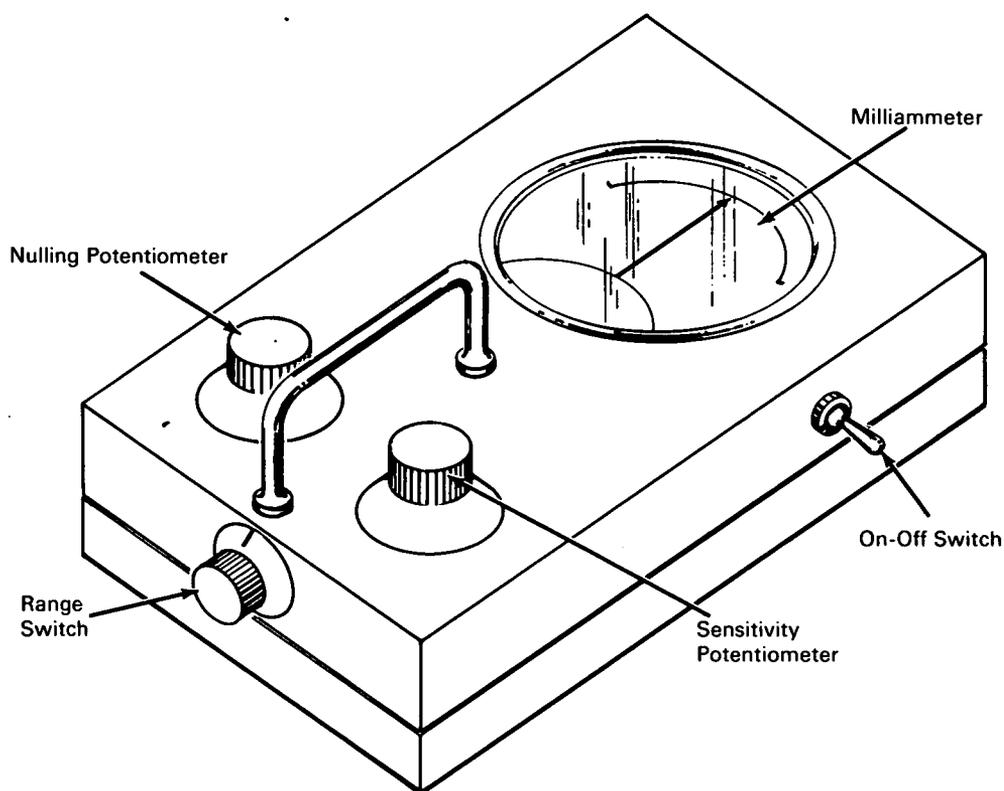


# NASA TECH BRIEF



NASA Tech Briefs are issued to summarize specific innovations derived from the U.S. space program, to encourage their commercial application. Copies are available to the public at 15 cents each from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

## Detection and Location of Metallic Objects Imbedded in Nonmetallic Structures



### The problem:

To easily and reliably detect and locate metal objects imbedded in the nonmetallic walls, floors, or ceilings of a building or other structure. Present methods use bulky and heavy mine detectors which are not suitable in confined areas.

### The solution:

The application of a small battery operated eddy current proximity measuring device that will detect

metal objects the size of a dime at distances up to one foot within nonmetallic structural members. Such a device is based on the design of an eddy current proximity measuring device designed to nondestructively measure the thickness of spray-on foam insulation. This device weighs approximately two pounds, occupies approximately 60 cubic inches, and is battery powered.

(continued overleaf)

**How it's done:**

A specially tuned oscillator loses power to the imbedded metal objects. The loss is proportional to the distance of the object from the instrument and its size. The signal output is amplified in an integrated amplifier, then fed into a milliammeter. In order to operate the instrument, it is held against, or close to, the surface and the switch is turned on. The device is then moved or aimed over the area to be searched. A deflection of the meter needle will indicate that the buried metal object is beneath the instrument; amount of deflecting pinpoints its location.

**Note:**

Inquiries concerning this invention may be directed to:

Technology Utilization Officer  
Marshall Space Flight Center  
Huntsville, Alabama 35812  
Reference: B68-10183

**Patent status:**

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

Source: Robert L. Brown  
and Robert W. Neuschaefer  
(MFS-14790)