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# NASA TECH BRIEF



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## Substituting Gold for Silver Improves Electrical Connections

### The problem:

In attaching external leads to thin film sensors of platinum ribbon, the standard procedure has been to apply liquid silver to each end of the ribbon and solder the leads to the cured silver. It has been found that, at elevated temperatures (1100°–1300°F), the assembly is degraded by migration of the silver ions into the sensor pyrex substrate to a degree that electrical resistance is first changed and eventually completely lost.

### The solution:

The substitution of liquid gold for the liquid silver previously used to attach the leads. The liquid gold, after curing and receiving the soldered leads, showed no tendency to migrate and retained initial resistance characteristics when exposed to elevated temperatures.

### How it's done:

A commercially available liquid gold is applied to the ends of the platinum sensor strip, cured, and

external leads soldered to the gold. To successfully attach the extremely fine leads to the gold contact areas, several layers of the liquid gold must be applied and cured before soldering.

### Note:

Inquiries concerning this innovation may be directed to:

Technology Utilization Officer  
Marshall Space Flight Center  
Huntsville, Alabama 35812  
Reference: B67-10228

### Patent status:

No patent action is contemplated by NASA.

Source: R. F. Pickard and J. R. Loyd  
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