

# NASA TECH BRIEF

*Lyndon B. Johnson Space Center*



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## Microelectronics Packaging Technique: A Concept

### The problem:

Many electronic and electrical systems are made up of individually housed subsystems (such as amplifiers, receivers, or transmitters), which may be located in different areas. These are usually joined through mating connectors and electrical harnesses. Monitoring adjustments are generally made in each subsystem or on a separate patch panel that is connected to all the sub-

systems. Noncentralized monitoring systems are inconvenient, and a patch panel requires considerable hard wiring and heavy harness routing.

### The solution:

Plug-in flat packs and flat conductor cable (FCC) can be used to make a compact, lightweight, external monitoring system requiring a minimum of hard wiring.

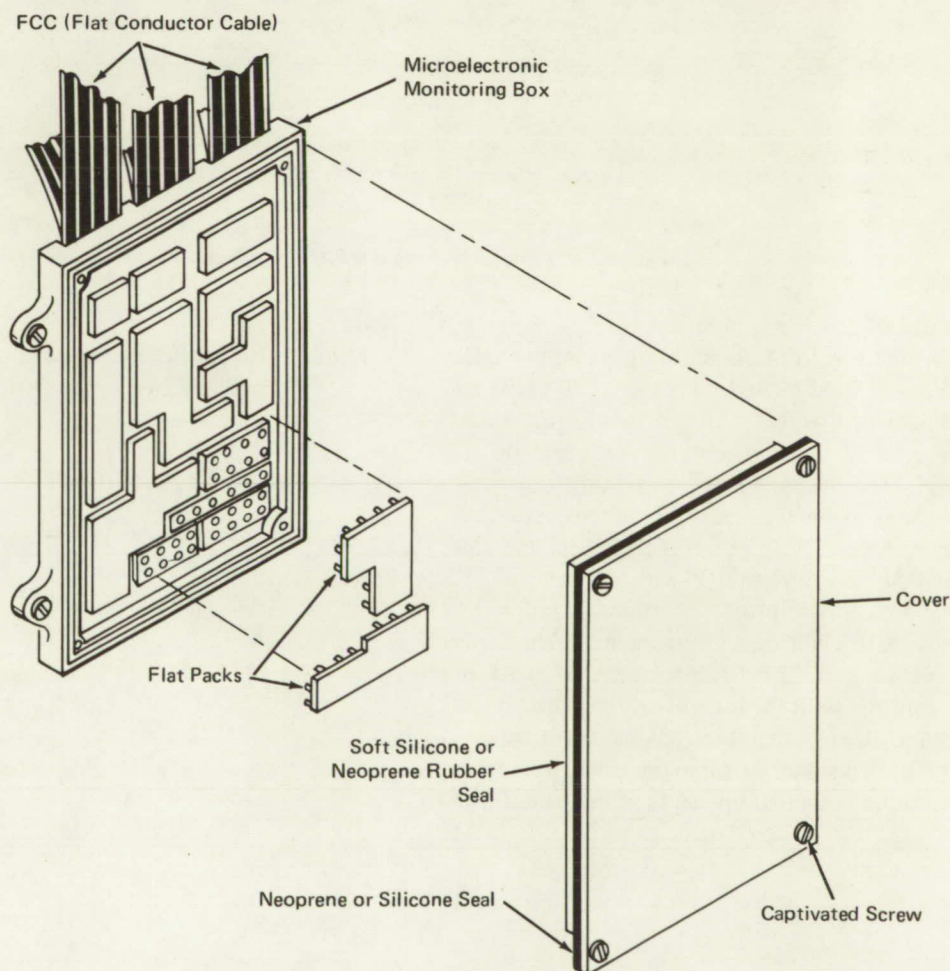


Figure 1. Monitoring Panel With Flat Packs

(continued overleaf)

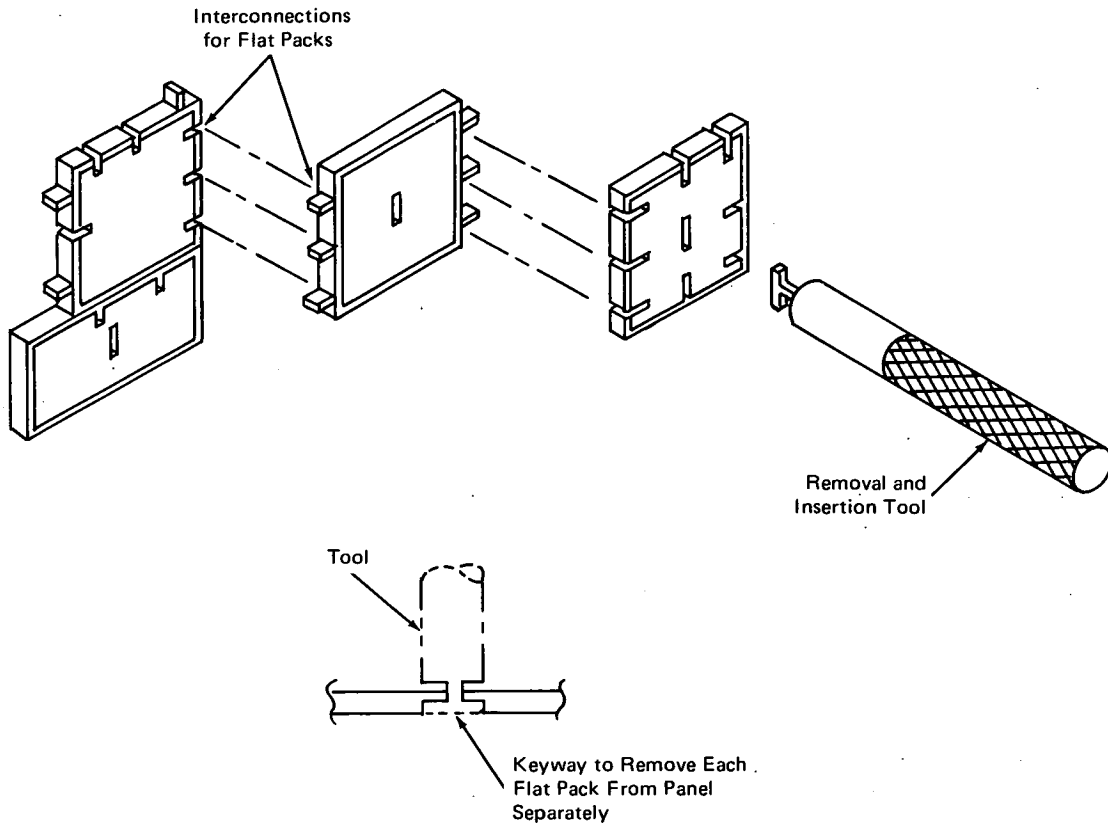


Figure 2. Flat Pack Attachment and Interconnections

**How it's done:**

A small microelectronic monitoring panel, including replaceable integrated or hybrid circuit flat packs and FCC, is shown in Figure 1. All the monitoring adjustments for a fairly large system can be made on this single panel. The independent replaceable flat packs allow the panel to be repaired or modified easily, and the FCC connections to subsystems are lighter and more readily handled than conventional wire harnesses.

The flat packs are protected from vibration and moisture by a soft silicone or neoprene rubber cover with a moisture seal. The flat packs can be sized and shaped to conform with the microelectronic components they contain. Using the tool shown in Figure 2, individual flat packs may be interconnected or removed without disturbing other components of the panel.

**Note:**

Requests for further information may be directed to:  
 Technology Utilization Officer  
 Johnson Space Center  
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 Reference: TSP74-10192

**Patent status:**

NASA has decided not to apply for a patent.

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