

# NASA TECH BRIEF

## *Manned Spacecraft Center*

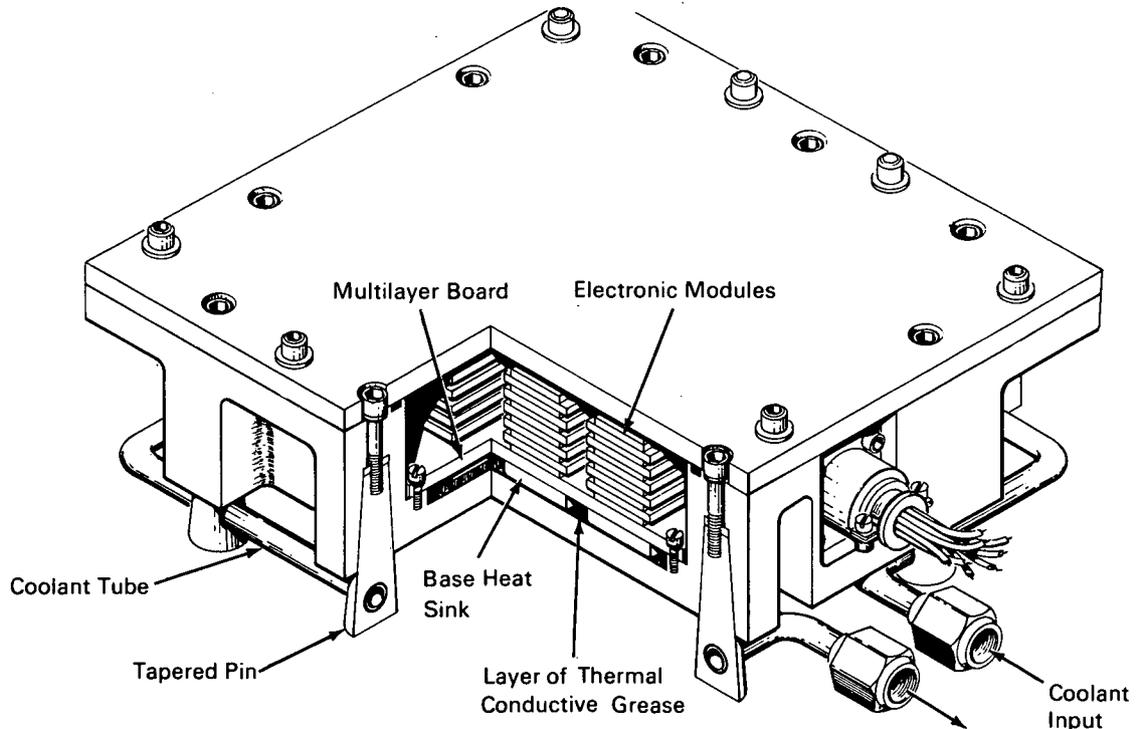


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### High Density Electronic Packaging Module with Improved Cooling Assembly

An efficient, lightweight cold plate increases the heat transfer within the high density electronic module shown in the figure. A significant innovation of the heat transfer assembly is the use of

This cooling technique increases thermal contact where planar area is limited. It also increases interface pressure, thereby increasing the coefficient of heat transfer for a given mating force.



tapered mounting pins brazed onto the coolant tube. The tapered pins provide a larger surface pressure with increased planar area, resulting in an improved heat transfer process. The ten tapered pins mate with holes in the module assembly. Since the cold plate is lightweight, stresses which might normally warp the module are dissipated harmlessly in the pins and coolant tube.

#### Note:

Requests for further information may be directed to:

Technology Utilization Officer  
Manned Spacecraft Center, Code JM7  
Houston, Texas 77058  
Reference: TSP71-10088

(continued overleaf)

**Patent status:**

No patent action is contemplated by NASA.

Source: Jacob H. Martin of  
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