Re: Mars Rover Windshield Wiper

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- *From*: John Doe <jdoe@xxxxxxx>
- *Date*: Fri, 03 Aug 2007 21:24:40 −0400

John Crichton wrote:

> the temperature on Mars can be as low as −220ºF. The differing thermal expansion coefficients of the component parts will cause mechanical stresses to set up which will cause breakage of the connections (solder joints, electric welds, etc.) which will render the electronics useless.

OK, this is a show stopper. Is there research being conducted in developping electronic components that can , when put together, widthstand the shrinkage at those winter temperatures ?

has anyone ever tried to cool an inactive circuit board to test actual temperature at which failures begin due to shrinkage ?

Most COTS computers have some environmental limits during transport, but I have to assume that they just put their units in a freezer and tested that the unit would still function when warmed up and powered back on at that freezer's lowest setting (usually between −20 and −40C). It doesn't mean that it will fail the second you drop one degree below that, it could very well end up failing at much lower temperatures.
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