



# Tech Info Library

## PowerBook Computers: How Cold Temperatures Affect Them (3/97)

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Security: Everyone

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TOPIC -----

How can a cold environment affect a PowerBook computer's Power Manager?

DISCUSSION -----

Issue  
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When a PowerBook computer's Lithium backup battery is exposed to cold temperatures it may cause the PowerBook computer to not keep time or not power on.

Description  
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A PowerBook computer's Power Manager and Parameter RAM (PRAM) are maintained by the backup battery when the PowerBook computer is either Shut Down or in Sleep mode.

The backup battery used in PowerBook computers is a Lithium battery which behaves differently compared to other battery types in both low-voltage and cold temperature situations.

Lithium batteries when exposed to a cold environment (less than 45 degrees Fahrenheit or 7 degrees Celsius) may either stop sending voltage completely or they may "pulse" full voltage. This inadequacy or inconsistency of voltage sent from the backup battery can corrupt the PRAM and/or Power Manager of a PowerBook computer.

Solution  
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A PowerBook computer which has recently been exposed to a cold environment (such as the trunk of a car, in a classroom at a school which may not be heated overnight, and so on) should be placed in a warm environment where it can be

warmed to room temperature (more than 50 degrees Fahrenheit or 10 degrees Celsius) before you attempt to power it on.

If the PowerBook computer still does not power on after being allowed to warm up, you should reset the \*\*\*Power Manager\*\*\*. Each model of PowerBook computer has different methods for doing this. For more information on resetting the Power Manager for your PowerBook computer model see the Tech Info Library article 0014449, titled "PowerBook: Resetting Power Manager".

\*\*\* WARNING \*\*\*\*\* WARNING \*\*\*\*\* WARNING \*\*\*\*\* WARNING \*\*\*\*\* WARNING \*\*\*

Power Manager Reset procedures for all of the Macintosh PowerBook computers will permanently remove a RAM disk, if present, and all of its contents.

\*\*\* WARNING \*\*\*\*\* WARNING \*\*\*\*\* WARNING \*\*\*\*\* WARNING \*\*\*\*\* WARNING \*\*\*

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