

## THE COMPUTER CORNER

# No. 178: The Car Won't Start. Dead Battery!

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**Missing Operating System.** Have you ever had this message or something similar? The darn computer just freezes and will not boot. Has a virus hit you and wiped out every bit of data on your hard drive? Well, maybe, but that is not the most common cause. The most common cause is garbled BIOS settings caused by a dead or nearly dead battery.

The most commonly used battery these days is a 3-volt CR2032 lithium unit, about the size of a quarter. You can purchase new ones in auto stores (they are often used in the gadget you use to open your car door remotely), jewelry stores and most hardware stores. Of course, Radio Shack will have them, too.

When that 3-volt battery drops in voltage to around 2.6 or 2.7 volts, there is not enough juice to keep the BIOS settings written to a CMOS chip on your motherboard when you turn your machine off. Hard disk configuration data is one of the critical things stored in that chip. If garbled, the volume boot record cannot be found or it shows invalid data when the system queries the chip.

So what do you do? Turn off the computer and unplug it. Find the shiny coin-cell battery about the size of a quarter – most often, it will have a big plus sign on its top. It is there, somewhere. Carefully remove it. Measure its voltage with a digital voltmeter and see if it is below 3.0 volts. If it is, buy a replacement and put it back in to its holder on the motherboard. Then see if the machine will boot.

If you replaced the battery because the voltage was low and it still will not boot, try this. Boot the system with the Windows XP Installation Disk, choose the Recovery Console and from the command prompt type **fixmbr** and press the Enter key. This should restore the Master Boot Record and may bring your machine back to normal. Don't worry – the **fixmbr** command runs a safe process. If the MBR is OK, running this will just rewrite it.

What say? You don't have a Windows XP Installation disk? Why not? You paid for it when you purchased your computer! The vendor did not give it to you? Call them and demand it.

If the battery voltage was OK, or if you replaced the battery, used the **fixmbr** command and the machine will still not boot, you may have a more serious problem. Some boot files may be missing or damaged, or you may have a boot sector virus. This is a virus that is copied to the partition table on the hard drive, and when you power up it is loaded into memory. You need to kill it using a bootable antivirus program (on CD). If the antivirus program succeeds in removing the virus, then you can boot with the XP Installation Disk and run **fixmbr**, as outlined above.

How do you prevent the battery problem? If a machine is 3 or 4 years old, it is at risk for having the battery poop out. So, replace it before this happens. I do it this way, though I do not claim that this is always safe. Replace the battery while the machine is running. Use a credit card or other non-metallic tool to help you remove the old battery and pop in the new one. There should be plenty of juice in the running machine to keep the CMOS data alive. Some folks will tell you that you can replace the battery quickly, even when off. Supposedly, on-board capacitance will supply enough current to maintain the data for the few seconds it takes to change the battery.

Happy computing!