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SURGE PROTECTORS

Even your ancient XT deserves a surge protector. These devices intercept high voltage spikes, sometimes only a few picoseconds in duration. The spikes come down the line (fairly often) and have the potential for damaging components in your power supply, on the motherboard, or anywhere else inside the computer.

Pick one up at your local ACE hardware store for well under $10, or on sale from time to time for under $5. Wherever you buy one, make sure it has "three mode" protection. What that simply means is that instead of just one MOV (Metal Oxide Varistor), there are three of these devices inside. They look just like disk capacitors (though usually colored red to distinguish them). One should be soldered between the ground lead (green) and the hot (black) wire, one between the ground lead and the neutral (white) wire, and one between the hot and neutral leads.

MOVs are made of a zinc oxide mixture, placed between two electrodes. The device acts like a very high value resistor under usual conditions. When a high voltage spike comes down any of the three wires, the MOV's voltage threshold (typically 130 volts) is exceeded and the device conducts, shorting out the spike and preventing it from reaching the computer.

Some years ago, when surge protectors were unavailable or very expensive, I began to make these devices at a cost of about $10 each and distribute them in my department at the medical school. Before I was able to saturate my department with them, each time we had an electrical storm two or three or four unprotected computers would be damaged or have their brains temporarily scrambled. Protected machines came through the ordeal unscathed. Invariably, the next day would find several of my colleagues in my office, begging for a protector. They work.

A warning, though. MOVs wear out with time, and you cannot tell when one is bad unless they actually short out and "let the smoke out" or blow a fuse. After many spikes, a preferred path develops between the zinc oxide particles, which reduces the resistance until the device actually shorts out. Some claim this is a fire hazard. Apparently computer manufacturers hesitate to include MOVs in the power supply because of the limited life characteristics and inability to tell when the device is bad. Therefore, if you have a surge protector that is more than, lets say, five years old, replace it or replace the MOVs.

One last hint. Tie one or two simple overhand knots in the power cord of the surge protector, or even in the power cord of the computer itself. Why? In the event of a close lightning strike, it may save the computer. Lightning does not like sharp bends, and the surge of high voltage electricity traveling down your power cord will balk at a knot. It will probably fry the cord at the knot, dissipating its energy in the act of making the cord into toast. Better the cord, than the computer!

An experiment done by a leading computer guru proves this point. In a large office with many computers, knots were put in the cords of some, while others were left alone. After a lightning strike, every machine with a knot in its cord worked fine (after replacement of the toasted cords). Those computers without knots in the cord were ruined, and required extensive service or complete replacement. A knot is a simple insurance policy, indeed! Happy computing.