

PLAYING IT SAFE

PROTECTING YOURSELF

Before you start poking your nose around in the PC's cabinet, there are a couple of things you need to know in order to protect the computer, and yourself, from damage.

The first rule is to disconnect the power. At this stage, we're just looking and not troubleshooting, so there is no need for power anyway. Pull that plug out of the wall. Pull the other end of the power cord out of the back of the cabinet. Next, coil up that cord, stick it in the bottom of a desk drawer somewhere, and lock the drawer. Now we're ready.



I'm exaggerating slightly, but you get the idea. Don't just turn the computer off. **Unplug the power cord** before you loosen even a single screw on that cabinet. This will eliminate most of the risk of shock.

*Note: These beginning safety tips apply only to the PC cabinet. Do **not** attempt to open a monitor until you have studied Monitor Safety in Volume 2, because a monitor can be **lethal** if not properly handled.*

The only other shock hazards you'll need to watch out for inside the cabinet are capacitors. These are electrical components designed to store an electrical charge. Because the electricity is stored, capacitors can give you a kick even after the power is disconnected. Capacitors come in all shapes and sizes, but only the larger ones will make you wish you had stayed in bed that day. These larger ones usually look like silver containers (see Figure) with two wires coming out, and are typically found in the power supply. In Volume 2 there's a procedure for discharging the electricity stored in capacitors. In the meantime, it's easy enough to avoid a shock from capacitors. Just don't touch them or any wires connected to them.

It's also a very good idea to remove any rings or other jewelry from your hands before sticking them into the cabinet. And this step is absolutely essential if you ever have to put your hands into a cabinet while the power is still connected.



Capacitors

PROTECTING THE COMPUTER

I'm sure some winter day you've shuffled your feet on the carpet and then gotten a sharp ZAP when you reached for the door-knob. Irritating, isn't it? You should be thankful you are made out of tougher stuff than the computer. A zap many times smaller than that, so small you wouldn't even know it happened, can be fatal to some of the components inside that cabinet.



This is such a serious problem in the computer industry that it has its own initials: ESD. These initials stand for Electro-Static Discharge. Which is a serious way of saying something is getting zapped. Shocked. Fried. Kaput.

There is an entire section of the electronics industry that has grown up around solutions for the problem of ESD. There are special mats you can stand on, there are straps for your wrist, special packaging materials, even spray cans of solutions that reduce the danger of ESD.

ESD is much more of a problem when conditions are cold and dry. You may have noticed that's when you get zapped from touching the doorknob, never when the weather is hot and humid. However, it takes so little ESD to damage some computer circuitry that even though it's worse during cold, dry spells, it's still a hazard all year round.

There is more to be said about ESD (in Volume 2, of course). For now, here are a couple of tips for avoiding it.

1. Don't poke around in the cabinet.
2. If you can't help poking around, first grab the chassis with your other hand (the one that's not poking). That way, your body and the computer will be at the same potential, so no current will flow to damage the chips, see? This rule only applies if you are absolutely sure the power is disconnected.

If you insist on poking with both hands at the same time or you forget to grab that chassis, be prepared to buy some new parts for your computer. Even if you never shuffle your feet.