

## THE COMPUTER CORNER

# No. 251: Lamp Safety

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Well, here is something new. This is similar to a safety notice I send to all my lamp customers (I rewire/repair/rebuild lamps through a hardware store in Mequon). The article may give you something to think about, as well.

Examine the plugs on the ends of all the 2-wire lamp cords in your home. All the plugs should be of the polarized type. Non-polarized plugs have two blades that are identical in size, as shown in the plug on the left, below. Polarized plugs have one blade that is wider than the other, as is shown at the end of the pointer line in the plug on the right.



It is important for all standard two-wire lamps to have polarized plugs installed, for safety. Why? Non-polarized plugs can be plugged into the wall outlet in two different ways, and this means that the hot wire may be connected to the lamp incorrectly. This may lead to the lamp being energized even when the lamp switch is off, and this can lead to possible shock, or even electrocution.

On the other hand, polarized plugs can only be plugged into the wall outlet one way. Assuming the lamp has been correctly wired and the wall outlet has been correctly wired, there is little chance of danger when a polarized plug is used on a lamp. (Of course, a frayed electrical cord can always lead to danger).

Each lamp repair I do finishes with careful continuity testing to ensure that the lamp is correctly wired. Interestingly, I have seen more than one instance when a brand-new lamp was wired incorrectly at the lamp factory, so don't assume a lamp is OK just because it is brand-new! If wired correctly, the black or hot lead in the wall (narrow slot in the wall socket) will supply the center conductor in the lamp socket. The white or neutral conductor in the wall (wider slot in the wall socket) will connect to the socket shell (the threaded part of the lamp receptacle that you screw the bulb into). The path from the white wire in the wall (the wider blade on the plug) should never be interrupted or broken. The path from the black wire in the wall (the narrow blade on the plug) is broken by the switch in the lamp socket or elsewhere on the lamp fixture. This is the only safe arrangement for household lamps that plug into a wall socket, unless all exposed surfaces are made of plastic or other non-conducting materials.

Another source of danger can be chandeliers. These fixtures are often permanently attached to wires in the ceiling and are controlled by a light switch on the wall. When one changes a light bulb in a chandelier, it is common for one to hold the chandelier with one hand to prevent swinging of the whole fixture while using the other hand to unscrew the faulty bulb and screw in the replacement. This is fine if one remembers to turn off the controlling switch on the wall before beginning to change the bulb, *and if the chandelier has been properly connected in the ceiling*. If the chandelier has been wired into the ceiling incorrectly, there is real danger of shock or even electrocution. Why? Assuming incorrect hookup

in the ceiling, when the wall switch is on, the shell of the bulbs are energized. One hand holding the fixture to prevent swaying and the other hand unscrewing the bulb provides a perfect pathway across your chest and heart if you should contact the bulb's threaded shell while it is in contact with the socket. This is because code requires all hanging metal chandeliers to be separately grounded (the green wire in your ceiling). Thus, your left hand is holding a grounded metal fixture while your right hand accidentally contacts a live (hot) metal electrode, the shell on the bulb and fixture socket. This is a scenario for potential heart stoppage!

Things to do to avoid danger: 1. Always make sure the wall switch is off before changing bulbs. 2: Consider putting on rubber gloves (household dishwashing gloves would be fine) before changing a bulb. 3. Keep your bulb-changing hand away from all metal ... just handle the bulb by the glass.

Also on your list: Remember that polarized plugs are good. Non-polarized plugs are bad for most simple desk lamps used in houses. Indeed, very few appliances or lighting fixtures should be used with non-polarized plugs unless they have no exposed metal. Such non-polarized plugs were standard fare a handful of years ago, but no longer. The Electrical Code now takes this into consideration. Be safe!!!