

ELECTRIC PLUGS!

REPAIRING OR REPLACING

--Translated from the original by James Penn.

Electric plugs (or "male" sockets) are attached to the end of the electrical cord of electrical appliances, & are used to connect them to the electrical current.

Simple plugs are composed of a body of plastic or rubber with two prongs to which are connected the two wires of the electrical cord. Plugs for appliances that are grounded by a grounding line have three prongs or two prongs & a hole as they have three wires in them. You may also run into some plugs that have four prongs when the appliance is to be used on a triphase circuit. (This class only deals with simple two wire plugs.)

Many mishaps are caused by plugs that are in bad condition, as they are quite fragile & are often very roughly handled:

*The lamp or appliance does not work when plugged in. In this case, start by trying the lamp in another wall socket, to ensure that the problem is not due to the lampbulb, or a faulty wall socket. If this is not the problem, one of the wires in the interior of the plug must have become disconnected.

*The plugged-in appliance works haphazardly, or there are sparks when it is plugged in. This could be because of a loose connection due to the prongs being incorrectly fixed, or a bad connection in the interior of the plug.

*There are a lot of sparks when the appliance is plugged in, accompanied by the blowing of the fuse or circuit breaker. This is due to a "short circuit" caused by the direct contact of the two wires in the interior of the plug. In case of problems, start by taking apart the plug & check the connections. The repair of electrical plugs is simple & is not dangerous.

WHAT YOU WILL NEED

TOOLS	ACCESSORIES
*A small electrician's screwdriver	*If necessary, a new electric plug
*A sharp knife	
*Wire cutters or a big pair of scissors	

RECOMMENDATIONS:

- *In the case of simple plugs with only two wires, each wire can be hooked to either of the two prongs. This is not the case with three or four prong plugs, for which each wire must be carefully re-connected to its original prong.
- *Certain electrical appliances have plugs that are a little too big for normal wall sockets. In this case, cut the wire & replace the plug with a normal plug, or buy a small cheap adapter plug at an electrical supply shop.
- *If the plug is old & in bad condition, replace it so that you do not have the same problem again.
- *Avoid pulling on the cord when you want to unplug the appliance. It won't stand up to this sort of treatment, & you might also loosen the wall socket.



STEPS TO FOLLOW

1) There are several different types of electrical plugs:
*To take apart type 1, unscrew the central screw which holds the two covers to the plug. The electrical wires are enclosed in the ends of the prongs & are held there by a small screw on each prong.

*On type 2, the prongs are screwed into the body of the plug. Unscrew them by hand, or if necessary with the blade of a knife. The wires are wrapped around the base of the prongs, & are held tightly there when the prongs are screwed in.

*The prong-holder of type 3 is fixed into the pliable cover of the plug. To take it apart, squeeze the cover between your thumb & index finger & pull on the prongs or the prong-holder.

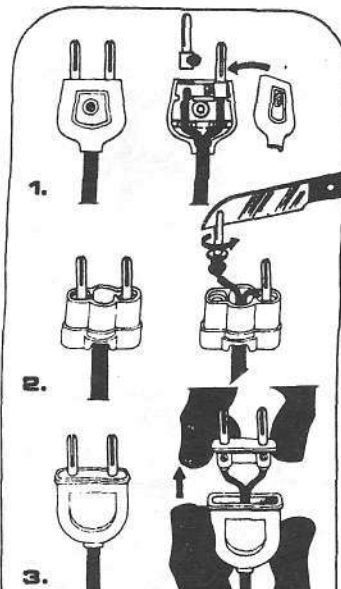
2) The bad condition of the ends of the wires is frequently the cause of problems. So you must start with the preparation of the wires.
*Remove the damaged ends by cutting the wire with a pair of scissors or a wire cutter.

*Pull apart the two parts of the cord for about three centimeters to separate the two electrical wires.
3) With a sharp knife, cut the plastic insulation off the ends of the wires for about one centimeter. (Be careful not to cut the little strands of wire.) Twist these bare ends, & fold them back on themselves.

4) To connect them:
*For types 1 & 3 put the ends of the wires in their holes (after having made place for them by unscrewing the screws a bit), & then tighten the small retaining screws.

*For type 2, fold the ends of the wire in the shape of a ring, within which you put the screw base of the prong. Then screw the prong into its place & tighten it with the blade of a knife.

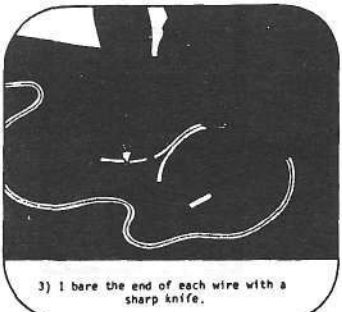
5) All that remains to do is to put the cover back on, making certain that the position of the wires inside does not prevent the cover from closing completely. Then plug in the appliance to test your repair.



1) There are three basic types of electrical plugs. In all of them, the electrical wires are directly connected to the prongs.



2) If the end of the wires are in bad condition, I cut them off, & I separate the two parts of the cord for about two or three centimeters.



3) I bare the end of each wire with a sharp knife.



4) After having folded the bare ends back on themselves, I put these ends into their holes & I tighten the small retaining screws.



5) I position the prongs & screw the plug back on the cover.

FUSES!

IDENTIFICATION AND REPLACEMENT.

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When the electrical wires of your home have too strong a current going through them, they overheat & could cause a fire. In these same circumstances, the various appliances that are plugged in could easily "burn out" & be permanently damaged.

This is why your electrical installation is necessarily equipped with "circuit-breakers", pieces of equipment regulated to only allow a certain amount of current through. If this maximum amount is exceeded, they activate & automatically cut off the current to the circuit that it controls.

The breaker-switch is the principal circuit breaker which controls all the electrical circuits in your house or apartment. Because of this, it is usually situated just below the electrical counter which controls the incoming current. Apart from this, there are several secondary circuit-breakers, or fuses, each of which control one of the secondary circuits of the house, which is usually all the lamps, wall plugs etc. of one or more rooms.

There are several different models of fuses, but the principle of how they work is the same. Inside the fuse, the electrical current passes through a small lead or brass wire which is regulated to melt (or "fuse") when the current gets to its set limit.

When a fuse blows, you must be able to reply to these three questions:

1) What was the cause? It is of the utmost importance to find it & correct it before replacing the fuse. The "overloading" which made the fuse blow is usually caused by two different things happening:

a) a "short-circuit" usually due to a faulty appliance being plugged in;
b) an overloading of the electrical installation, when too many appliances are plugged into the same circuit.

2) Where is the fuse? The fuses are either grouped on a panel near the main circuit breaker & electrical counter, or in or near the rooms that they control.

3) How to replace the fuse? As long as you have a few extra fuses on hand this is not very hard to do.

WHAT YOU WILL NEED

TOOLS	ACCESSORIES
*Medium size screw driver	*A flashlight
*A knife	*Stepladder
	*Some extra fuses (from an electrical shop, hardware dealer or handyman shop)

RECOMMENDATIONS:

- *To avoid difficult & sometimes lengthy investigations in case of a blowout, identify ahead of time each fuse & the sector that it controls. Label it clearly.
- *Never use, even temporarily, copper wire to replace fuse wire. In case of overheating it will not melt. The fuse wire should be regulated to the amount of current that is normally used.
- *Certain electrical outlets have a built in fuse (a small screw-in button in the cover of the outlet).



STEPS TO FOLLOW

1) There are several models of fuses:
*Box fuses. I take it off by simply pulling on the cover which is "plugged" in its socket. The fuse wire is held on two pegs by small flat head screws.

*Pin fuses. They plug & unplug like an electrical plug. The pins unscrew by hand or with the blade of a knife which I put in the crack which is apparent. The fuse wire is kept on the pegs by the lower part of the pins.

*Cartridge fuses. If it is a cylindrical cartridge (type C), unscrew the top & take the cartridge out. If it is a flat cartridge (type D), unscrew the two pins & take out the plate. To locate a defective cartridge, exchange it with cartridge controlling other parts of the house.

2) The fuses which control the different parts of the house are sometimes grouped together on a panel near the main breaker switch & electrical counter.

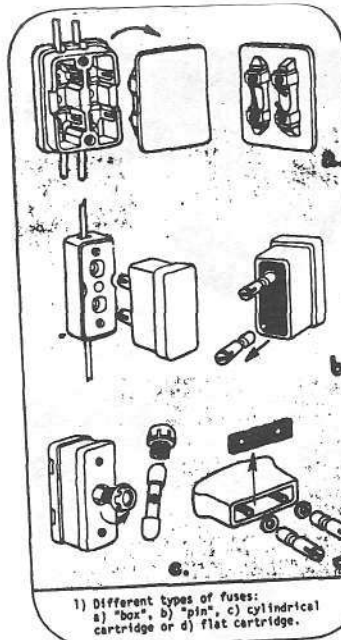
3) They can also be found in or near the rooms that they control. They are usually quite high up, in a corner & out of reach.

In case of difficulty, follow the electric wire which will inevitably lead you to the fuse.

4) To replace the fuse wire on the "box" model:
*Undo the two screws holding the wire, & remove the two pieces of melted fuse wire. (sold in spools).

*Put this small piece of wire in the form of an "S" & wind the ends around the two pins (at least twice), & screw the screws on tightly.

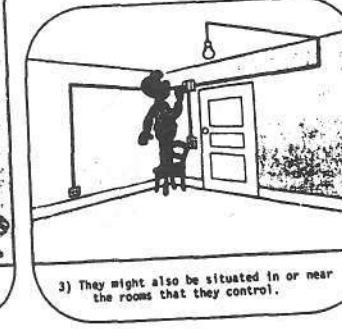
5) On the "pin" models, the securing method is the same, the fuse wire being held by the base of the pins which are screwed to the bottom with help of a knife blade.



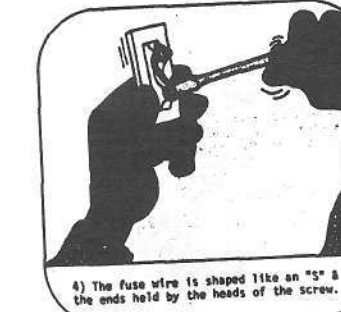
1) Different types of fuses:
a) "box", b) "pin", c) cylindrical cartridge or d) flat cartridge.



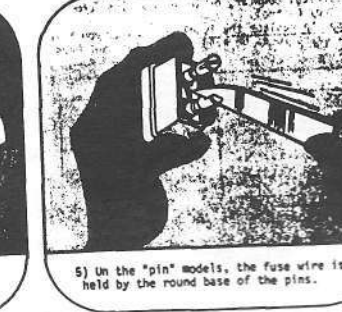
2) The fuses are often grouped together on a panel near the main circuit breaker switch and the electrical counter.



3) They might also be situated in or near the rooms that they control.



4) The fuse wire is shaped like an "S" & the ends held by the heads of the screw.



5) On the "pin" models, the fuse wire is held by the round base of the pins.