Proper Repair of Electrical Cords

After regular use, even heavy duty extension cords can become damaged. Because they can be expensive, you may be asked to make a repair, rather than get a new cord. But merely re-attaching and wrapping the wires doesn't mean the repair is proper or safe. Let's review the correct way to repair electrical cords. The first step is often overlooked: Unplug the cord and take control of both ends.

Splices: Cut back only enough of the outer and inner insulation to make the repair. Keep in mind that the color-coded wires on one side need to be connected to the like-colored wires on the other. In other words, match black-to-black, white-to-white, green-to-green. Stagger the lengths of the inner wire so that, even if the insulation goes bad, the conductors will not come in contact with each other. If the black wire is long on one side, it should be short on the other. Make good mechanical connections. Twist the conductors together and solder, using electrical solder.

The splices now need to be insulated. Electrical tape is not very reliable. Shrink tubing works well. This is a sleeve of plastic put over one of the wires before it is connected to the other. When the joint is completed, the sleeve is slipped over the joint, and heated with a small heat source. A hair dryer, match or lighter will do. When heat is applied, the tubing shrinks around the conductor, forming tight insulation.

We now need to pay attention to the outer jacket. This is important because the outer jacket protects the inner wires from additional damage. Shrink tubing could again be used, although, for additional strength and protection, it could also be wrapped with electrical tape, duct tape or other durable, non-conductive material.

NOTE: See NFPA-70 (National Electric Code) for restrictions on splicing flexible cords.

Plugs: Remove only as much outer jacket as is needed to make the repair. The outer jacket must be long enough to go into the plug or cap and be gripped by the strain relief clamp. After the jacket and wires are cut to length; we again must pay attention to the color coding. ***The black (or sometimes red) wire is "hot". It goes to the smaller prong on the plug, which has a brass screw for attachment. The white wire is neutral. It goes to the larger prong, which is attached with a chrome screw. The green wire is "ground." This goes to the half-round or curved prong and is attached with a green-colored screw.*** Make a good connection. All screws must be tight. Reassemble the plug and tighten the clamp until it is snug on the cord. Do not over-tighten the clamp.

Testing: The repair is not done until the cord has been tested. The easiest way to check for continuity and correct wiring is to use a simple, inexpensive test light. This device plugs into the end of the cord and, by way of three lights, indicates if you have continuity and proper polarity. If you do *not*, you must redo the repair. You have created a dangerous situation.

Good repairs take simple skills — but you cannot take shortcuts. Incomplete or improper repairs create fire and shock hazards. Do the job right!

Topic:	
Date:	
Presented by:	

Attendee Signature	Attendee Printed Name

If more space is needed for attendance, use back of sheet.

Comments or Notes: