



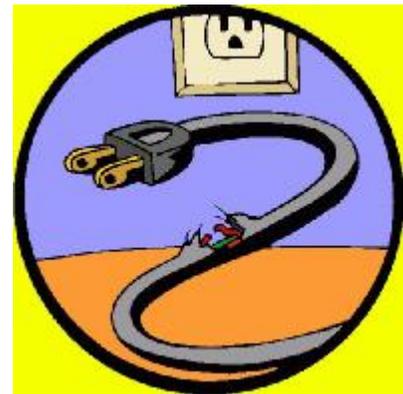
Why Can't I Just Repair It Myself?

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Your heat gun has a damaged cord. The grounding prong broke off of the shop vacuum. You need to rig up a way to keep your overheating compressor from overheating, so you want to cobble together that old fan to blow on it. You're moderately handy, and know the difference between the black wire and the white one. Why not just do it yourself?

If you're at home, no one's stopping you. If you do it wrong, it's only your own family at risk. If you're at work and you botch the job, your employees and your customers could be at risk. At home, no one requires you to have that repair done correctly. At work, OSHA, your insurer, and your fire marshal are all looking over your shoulder.

A number of OSHA standards require the use of equipment approved by a Nationally Recognized Testing Laboratory (NRTL). An NRTL is an organization that tests and certifies equipment, attesting that it will perform safely and as specified by consensus standards, such as ANSI standards, or other recognized product safety standards. Underwriters Laboratory (UL) and Factory Mutual (FM) are two of the best known NRTLs. Both of those have developed their own product safety standards, which OSHA has accepted.



What kind of products need to be approved by an NRTL? The list isn't that long, but it is very broad in scope: electrical equipment, fire detecting and extinguishing equipment, equipment used in hazardous atmospheres (such as your spray booths), equipment used with LP gas....

You don't *always* need to use approved equipment. For example, if you have an electrical device that no NRTL will certify, you're okay if your local government authority (such as a building code official) approves it, or if it's custom made and the manufacturer states it is safe. That's a pretty limited list.

It isn't enough to just buy an approved or listed device. The equipment must be used and maintained in accord with its listing. An example that everyone uses: power strips. Their UL listing calls them relocatable power taps. To use them according to their UL listing:

- They need to be plugged directly into permanent outlets. If they won't reach the outlets, buy power strips with longer cords, or install closer outlets. It's a violation of their listing to plug these into extension cords or into another power tap.
- They must be used with low-amperage loads only. Use them for a heat gun? Not okay, because that has a high power (amperage) demand. Use them for your battery chargers? Go right ahead.

- They have to be relocatable – in other words, you need to be able to remove them without using any tools. Is it dangerous to cable-tie them to the wall? Probably not, but it is a violation of their listing.

If the equipment needs to be repaired, it has to be done in a way that maintains the listing. If you have the work done by a factory-authorized representative, you can be confident that it's still okay. If you make the repair yourself, are you sure that you've done it with approved parts, and in a manner that doesn't void the listing? You could always send it back to the NRTL for evaluation, but that's cost-prohibitive.

Does that mean you can't even repair a damaged cord? It depends.

If it's a cord for a listed tool, such as that heat gun, probably not. The cord was included in the approval for that tool, so any repairs have to be reapproved. Your alternative: prove that you're a "competent repair technician" and that NRTL allows that repair. Better yet, send the heat gun in to a manufacturer-authorized repair shop.

What if it's just an extension cord? There is an exception for these. OSHA allows "cord sets assembled by qualified persons" under certain conditions:

- All parts have to be approved for that purpose (UL listed or equivalent), and have to be compatible with each other.
- You still need to meet the OSHA requirements for the equipment. For instance, you can't make an extension cord that uses a box with knockouts, because the box is intended for permanent installations.
- You can only do the work if you're a qualified person. And that qualified person has to check it, to make sure it's done correctly. That includes making sure it's grounded and wiring wasn't reversed.

What would make you qualified? The training, experience, and the knowledge to do the work correctly, and to understand what could happen if you do it incorrectly. If you don't know what happens if you reverse polarity, for instance, you're not a qualified person. If you think you can repair the cord with electrical tape, or that it's okay to splice the cord, you're not qualified. If you think you know how to make the repair, but can't prove it, leave it to an electrician or a manufacturer-authorized technician.

If you have questions about electrical safety, building safety, hazard prevention, handling worker injuries, OSHA grants, or general safety issues, call CHESS at 651-481-9787 or e-mail us at CHESS@chess-safety.com

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