OSHA Training Toolbox Talk: Basic Electrical Safety – Don't Use Electrical Tape to Repair / Splice Cords

[Reference 1910 Subpart S / 1926 Subpart K]

It seems logical that a roll of electrical tape could be used to safely repair a frayed or damaged flexible electrical cord, or to splice two pieces of a flexible electrical cord back together; I mean it's called electrical tape, right? However, Federal OSHA electrical safety standards actually do not allow us to make a repair to a frayed or damaged electrical cord using electrical tape, nor can we use electrical tape to splice two cords together. Here is an overview of OSHA's reasoning for not using electrical tape to make repairs or splices of electrical cords (*click this link to see the OSHA letter of interpretation covering this issue*).

Can I Use Electrical Tape to Repair an Electrical Cord That Has a Deep Nick or Break in the Outer Jacket? Repair or replacement of a flexible electrical cord is required when the outer jacket is deeply penetrated enough to cause that part of the cord to bend more than the undamaged part, or when the jacket is penetrated completely. Repair or replacement of the cord is also required when it's conductor wires or their insulation inside are damaged. But there is one provision in the OSHA electrical standards which disallows the use of electrical tape to make the repair of the jacket of a worn or frayed flexible cord.

That is because OSHA electrical standards require that flexible electrical cords be "*approved*", and the original approval of electrical cords is based on the types of materials and construction used by the manufacturer of each cord. If we were to wrap an electrical cord with electrical tape, it could significantly change the flexibility characteristics of the cord, which in turn can affect the amount of stress in the areas adjacent to the tape; this is particularly a concern with respect to the proper function of the grounding wire. Also, the cord's outer jacket is designed both to prevent damage to the conductors and insulators inside, and to further insulate the conductors. Taped repairs of the jacket usually will not duplicate the cord's original characteristics; in most cases neither the jacket's strength nor flexibility characteristics will be restored. Therefore, tape repairs of the jacket may not be used to repair a worn or frayed cord.

Can I Use Electrical Tape to Splice a Flexible Electrical Cord? OSHA standards state that flexible cords made up with wires smaller than 12-gauge shall be used only in continuous lengths without splice or tap. A hard service flexible cord that is fabricated from 12-gauge wire or larger may be spliced, but only if the splice retains the insulation, outer sheath properties, and usage characteristics of the cord being spliced. Therefore, taped splices of electrical cords should not be made because they usually will not duplicate the cord's original characteristics; in most cases neither the jacket's strength nor flexibility characteristics will be restored. There are approved splice kits available that a qualified electrician could use to splice a cord should a splice ever be necessary.

So long story made short, we should not be repairing electrical cords that have a deep nick or broken jacket by wrapping them with electrical tape, nor should we be using electrical tape to wrap spliced electrical cords. Instead, turn damaged cords in to your supervisor, the maintenance department, or your safety representative so they can be repaired or spliced using proper methods, or replaced if necessary.

Are there any questions or comments about today's discussion on repairing damaged electrical cords? Thank you for attending today's OSHA training toolbox talk. Please be sure to sign your name on the training certification form so you will get credit for being here.