

OSHA Training Toolbox Talk: Basic Electrical Safety – The Most Abused Safety Device On The Job!

[Reference 1910 Subpart S / 1926 Subpart K]

Guardrails; back-up alarms; seat belts; these are all examples of safety devices that most of us would never dream of damaging or by-passing. But there is one other important safety device that is commonly abused by workers all the time; the grounding pins on electrical power cords. In this toolbox talk, we will discuss why the grounding pin on a power cord is important, and why we should never use a tool or extension cord when the grounding pin has been damaged or removed.

Many hand tools and other pieces of equipment we use are manufactured with housings or cases made from metal or other materials that conduct electricity. And if the power cord feeding electricity to that tool or piece of equipment becomes loose inside, it can touch the case or housing and cause it to become energized. Anyone who then touches that tool or equipment could be electrocuted.

To help prevent electrocutions from happening, many tool and equipment manufacturers provide a power cord made with three wires inside the power cord; one is the hot wire that provides power to the tool, one is the neutral or return wire that allows the electrical current to be completed, and the third is a ground wire. That ground wire is attached inside the tool or equipment at the conductive case and the other end is attached to a grounding pin on the cord's power plug. The ground wire allows the electrical current that electrifies the energized housing or case to flow through the ground pin and wire to the electrical receptacle, which is also grounded (or at least it is supposed to be, a topic to be discussed in a later talk). Since the grounding wire and attachments are more conductive than human skin, most, if not all, of the current flows through the grounded electrical system instead of through the person who touches the energized tool case, preventing an electrocution. BUT the electricity cannot flow through the grounded electrical system if the ground pin has been badly damaged or broken off.

Many people see no harm in breaking off the ground pin on a power cord or extension cord because the piece of equipment still functions normally, even if the ground pin has been broken off. And the odds of you being electrocuted if you use a tool that has the ground pin broken off the cord are very low. But it COULD happen, and that is exactly why we should never break the ground pin off of a power cord or extension cord. And using a tool or extension cord that has a badly damaged ground pin that is barely attached to the cord is just as bad!

So always inspect your tools, equipment, and extension cords that are equipped with grounding pins to make sure they are in place, firmly attached, and free of damage. And if you do happen to come across any tool or equipment with a damaged or missing ground pin, do not use it. Instead, take it out of service right away and turn it in to your supervisor or a safety representative.

One last thing to keep in mind; not all tools and equipment are manufactured with power cords that have a ground pin. That is because their cases or housings are not made out of metal or other materials that can become energized if the tool were to short out. So we will discuss how to identify those types of tools and equipment in a later toolbox talk.

Does anyone have a question about why it is so important to maintain the grounding pin on power cords and extension cords? Thank you for attending, and please sign your name on the training certification form so you get credit for attending today's OSHA training toolbox talk.