OSHA Training Toolbox Talk: Cutting, Welding, & Compressed Gas Safety – Electric Arc Welders

[Reference: 1910.254 / 1926.351]

Electric arc welding equipment presents potentially dangerous electrical hazards; some of these hazards are obvious, and some are not so obvious. Here is an overview of how to identify and avoid some of the more prevalent electrical hazards associated with arc welding.

- Inspect your welding machine before each day's use to make certain all equipment enclosures and protective covers are in place, closed and secured.
- Welding machines which have become wet shall be thoroughly dried, and then tested by a qualified technician before being used.
- Make certain the terminal connections where the welding cables for the electrode holder and ground clamp attach to the welding machine are protected from accidental contact by conductive materials or people. Protection could include using dead-front receptacles for plug connections, recessed openings with non-removable hinged covers, heavy insulating boots or insulators, or equivalent protection.
- Inspect welding cables for damaged insulation or exposed bare conductors. Also make sure that insulators covering current-carrying parts on the outer surfaces of the jaws of the electrode holder are in place and securely attached. Damaged cables and insulators shall be repaired or replaced by qualified personnel.
- Make sure welding lead cables are of the proper size and length for the work to be performed. Your supervisor can provide guidance on what is an acceptable size and length of cable for welding operations.
- Joining lengths of grounding and electrode cables shall only be done by the use of cable-connecting means specifically intended for that purpose, and have insulation adequate for working conditions.
- Only cable free from repair or splices for a minimum distance of 10 feet from the cable end to which the electrode holder is connected shall be used, except for cables with standard insulated connectors or with splices whose insulating quality is equal to that of the cable are permitted.
- Coiled welding cable shall be spread out before use to avoid serious overheating and damage to insulation.
- Do not coil or loop welding electrode cable around parts of your body.
- Conduits containing electrical conductors shall not be used for completing a grounding circuit. Likewise, chains, wire ropes, cranes, hoists, elevators, or scaffold frames shall not be used to carry welding current.
- Pipelines shall not be used as a permanent part of a work-grounding circuit, except during pipeline construction, extension or repair when the pipeline does not contain any flammable gas or liquid, and the welding current is not carried through threaded joints, flanged bolted joints, or caulked joints. Also, special precautions must be used to avoid sparking at connection of the work-grounding cable.
- When an electrode holder is to be left unattended, the electrode shall be removed and the holders shall be placed or protected so that they cannot make electrical contact with any person or conducting objects.
- When welding is stopped for any appreciable length of time, or when the welding machine is to be moved, the power supply switch to the equipment shall be turned to the off position.
- If arc welding is performed in wet conditions, or under conditions of high humidity, use special protection against electric shock, such as false floors with insulating mats, and insulating boots and gloves.
- Hot electrode holders shall not be cooled by dipping them in water; doing so may expose you to shock.
- Report any welding equipment defect or safety hazard to your supervisor, and discontinue use of such equipment until repairs are made by qualified personnel.

Does anyone have anything to add to today's toolbox talk on general electrical safety while arc welding? Please sign the training certification form to ensure you get credit for attending today's toolbox training session.