

SAFE WORK PRACTICES

ELECTRIC WELDING—INSTALLATION, MAINTENANCE & INSPECTION *Page 1 of 2*

**This information does not take precedence over OH&S. All employees should be familiar with the Saskatchewan Employment Act and the OH&S Regulations.*

Installation:

Engine Driven Equipment:

- Locate on a level base protected from weather. Block wheels to prevent movement. Equipment used outside may require temporary shelter.
- Ensure fuel tank has no leaks and cooling fan is guarded.
- Direct engine exhaust outside when used inside.

Grounding:

- Wear eye protection; ground according to manufacturer's instructions.
- Check that welding machine frame is grounded with special attention to ground connectors.
- Do not ground to pipelines carrying gases, flammable liquids or electrical conductors.
- Keep plugs and sockets, connecting welding machines to power, clean and free of moisture.
- De-energize electrical power when connecting power plug to the power socket.
- Stand well away from plug and socket when power is turned on.
- Install caps on plugs and sockets when not in use.

Connections and Cables:

- Locate main switch near equipment so power can be shut off easily.
- Locate main power lines overhead and connect them to each machine location.
- Spread out welding cable prior to use. Check welding cables for damaged insulation and exposed conductors. Check welding cables for full insulation along their length.
- Ensure welding cable is large enough to carry the current required. As the total length of cable in welding circuit increases, the current carrying capacity of the cable decreases. Therefore, for a given application it may be necessary to increase cable size.
- Replace weld lead spliced within 3 m (10 ft) of the electrode holder.
- Check for leaks in gas hoses if metal inert gas (MIG) or tungsten inert gas (TIG) welding.
- Inspect equipment periodically for loose or corroded connections, cable damage, dirty or defective jaws of electrode holders and ground clamps.
- Connect to the transformer or generator with the proper plugs or lugs.

SAFE WORK PRACTICES

ELECTRIC WELDING—INSTALLATION, MAINTENANCE & INSPECTION *Page 2 of 2*

- Do not use bolts for clamping stranded or plaited conductors. They usually work loose.
- Use proper cable couplings to extend leads.

Maintenance and Inspection:

- Ensure that the welding equipment has required power supply capacity and is grounded. Only qualified electricians should install and repair electrical equipment.
- Provide properly sized fuses or circuit breakers for overload protection – size for machine current requirements.
- Locate main power terminals inside welding machine cover. Ensure terminals are accessible only with tools.

Maintenance Personnel:

- Inspect regularly and keep records. Check oil level and moisture content in oil cooled transformers.
- Prevent overheating. Check with portable ammeters to ensure that load current has not increased beyond the capacity of the welding machine, cable or torch.
- Clean equipment according to manufacturer's recommendations.
- Ensure welding set has adequate ventilation and internal cooling fans, if present, are operating properly.

Welders:

- Check daily all external connections. Report defective electrode holders and guns, insulation, overheating or suspected defects.
- Ensure all connections are tight and contact areas are clean.
- Check welding leads for damage.
- Report and clean up all fuel leaks in engine driven equipment. Ensure gases are vented.
- Avoid spilling fuel when filling tanks (clean up spills).
- Connect cables sized for maximum welding amperage.

Electrode Holders Inspection:

- Check for: loosened metallic screws in the holder, burned or cracked insulation which exposes electrical conductors, overheating and damage at cable connections.
- Secure the "welding return" and "welding ground" cables to the work with a bolt or strip conductor. For stranded conductors use a cable lug or a grounding clamp. Cable strands are unlikely to hold firm for long periods under the head of a bolt.
- Ensure welding lead and returns are sized for maximum welding amperage.