SAFETY SERVICES COMPANY

Tailgate/Toolbox Safety Training

Safety Services Company-Safety Meeting Division, PO Box 6408 Yuma, AZ 85366-6408 Toll Free (866) 204-4786

Company Name: _____ Job Site Location: _____

Date: _____ Start Time: _____ Finish Time: _____ Foreman/Supervisor: _____

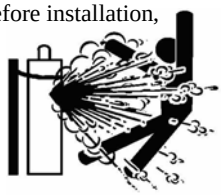
Topic 666: MIG and TIG Welding (Part B)

Introduction: Only qualified workers should operate MIG and TIG welders. Following are safety guidelines for ensuring safe operations:

Electrical Hardware: Poor electrical connections can yield any number of problems, including excessive resistance in the weld circuit resulting in arc wanders, or an arc that will not start, or is difficult to start. ***Inspect the following:***

- ***Power sources:*** Approximately every six months, disconnect the power to the unit and blow out or vacuum the inside of the machine. In heavy service conditions, cleaning monthly may be necessary.
- ***Wire feeders:*** Periodically inspect the electrode wire drive rolls. If dirty, remove the drive rolls and clean with a wire brush. If the drive rolls are deformed, replace them. Drive rolls should be changed, adjusted, or cleaned only when the wire feeder is shut off. In addition, check the inlet and outlet guides and replace the guides if they are deformed from wire wear. Remember that when power is applied to a wire feeder, fingers should be kept away from the drive roll area.

- ***Gun and liner assembly:*** Guns and torches should be kept in good working order and serviced at regular intervals by qualified technicians. A gun or torch must be used only with the gases for which they are designed. Shielding gas pressures should be those recommended for the weld process used. Remember, MIG gun liners should be cleaned periodically.
- ***Electrode holders:*** Fully insulated electrode holders should be used. Do not use holders with protruding screws.
- ***Connectors:*** Fully insulated lock-type connectors should be used to join welding cable lengths.
- ***Cables:*** Frequently inspect cables for wear, cracks, and damage. Immediately replace those with excessively worn or damaged insulation to avoid the possibility of lethal shock from bared cable. Also, keep cable dry, free of oil and grease, and protected from hot metal and sparks.
- ***Terminals; exposed parts:*** Terminals and other exposed parts of electrical units should have insulating covers secured before operation.
- ***Electrodes:*** Welding power sources for use with MIG and TIG welding normally are equipped with devices that permit on/off control of the welding power output. If so, the electrode becomes electrically hot when the power source switch is on and the welding gun switch is closed. Never touch the electrode wire or any conducting object in contact with the electrode circuit, unless the welding power source is off. Welding power sources used for shielded metal arc welding (SMAW or stick welding) may not be equipped with welding power output on/off control devices. With such equipment, the electrode is electrically hot when the power switch is turned on. Never touch the electrode unless the welding power source is off.
- ***Electrical safety devices:*** Safety devices, such as interlocks and circuit breakers, should not be disconnected or shunted out. Before installation, inspection, or service of equipment, shut off all power (or lock or "red-tag" switches) and remove line fuses to prevent power from being turned on accidentally. Disconnect all cables from the welding source, and disconnect all 115 volt line-cord plugs.



Cylinders (Shielding Gas System): Cylinders should be securely fastened at all times. Chains are usually used to secure a cylinder to a wall or cylinder cart. When moving or storing a cylinder, a threaded protector cap must be fastened to the top of the cylinder. This protects the valve system should it be bumped or dropped.

- ***Cylinders*** should not be stored or used in a horizontal position. This is because some cylinders contain a liquid that would leak out or be forced out if the cylinder were laid in a flat position. Welding guns and other cables should not be hung on or near cylinders.
- ***A gun*** could cause an arc against the cylinder wall or valve assembly, possibly resulting in a weakened cylinder or even a rupture.

Regulators: Remove a faulty regulator from service immediately for repair (but remember to first close the cylinder valve). The following symptoms indicate a faulty regulator: Leaks (if gas leaks externally.) Excessive creep (if delivery pressure continues to rise with the downstream valve closed.) Faulty gauge (if gauge pointer does not move off the stop pin when pressurized, nor returns to the stop pin after pressure release.) Do not attempt to repair a faulty regulator. Send it to the manufacturer's designated repair center, where special techniques and tools are used by trained personnel.

Hoses: Use only ferrules or clamps designed for the hose, (never ordinary wire or other substitutes), as a binding to connect hoses to fittings.

- ***Avoid*** long runs to prevent kinks and abuse. Suspend the hose off the ground to keep it from being run over, stepped on, or otherwise damaged.
- ***Coil*** up excess hose to prevent kinks and tangles. Examine hose regularly for leaks, wear, and loose connections. Immerse pressured hose in water to check for leaks (bubbles will indicate leaks.) Repair a leaky or worn hose by cutting out the damaged area and splicing. Do not use tape.

Conclusion: Accidents can be avoided by following proper safety measures. Always refer to the equipment manufacturer's manual for a thorough explanation of each machines safety. Retrain all workers periodically. Follow these safety guidelines to ensure safe MIG and TIG welding operations.

Work Site Review

Work-Site Hazards and Safety Suggestions: _____

Personnel Safety Violations: _____

Material Safety Data Sheets Reviewed: _____ (Name of Chemical)

Employee Signatures: ***(My signature attests and verifies my understanding of and agreement to comply with, all company safety policies and regulations, and that I have not suffered, experienced, or sustained any recent job-related injury or illness.)***

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Foreman/Supervisor's Signature: _____

These guidelines do not supercede local, state, or federal regulations and must not be construed as a substitute for, or legal interpretation of, any OSHA regulations.