

Equipment identification:

Date :

Arc And Oxy-Fuel Gas Welding and Cutting

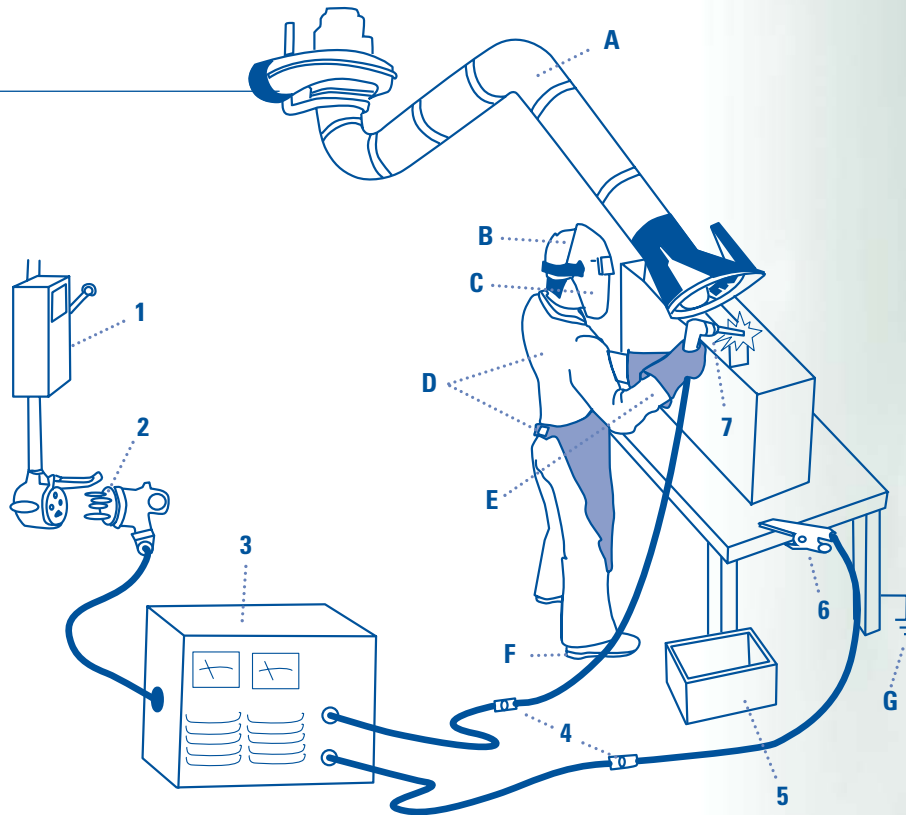
Arc Welding Station

Arc Welding Station Parts

- 1 Disconnect Box
- 2 Grounded Plug
- 3 Arc Welding Machine
- 4 Extension Connections
- 5 Spent Electrode Container
- 6 Return Cable Clamp
- 7 Electrode Holder (pistol grip)

Safety Devices

- A Exhaust Hood
- B Head Cap
- C Welder's Helmet
- D Protective Clothing
- E Gloves
- F Safety Boots
- G Table Support



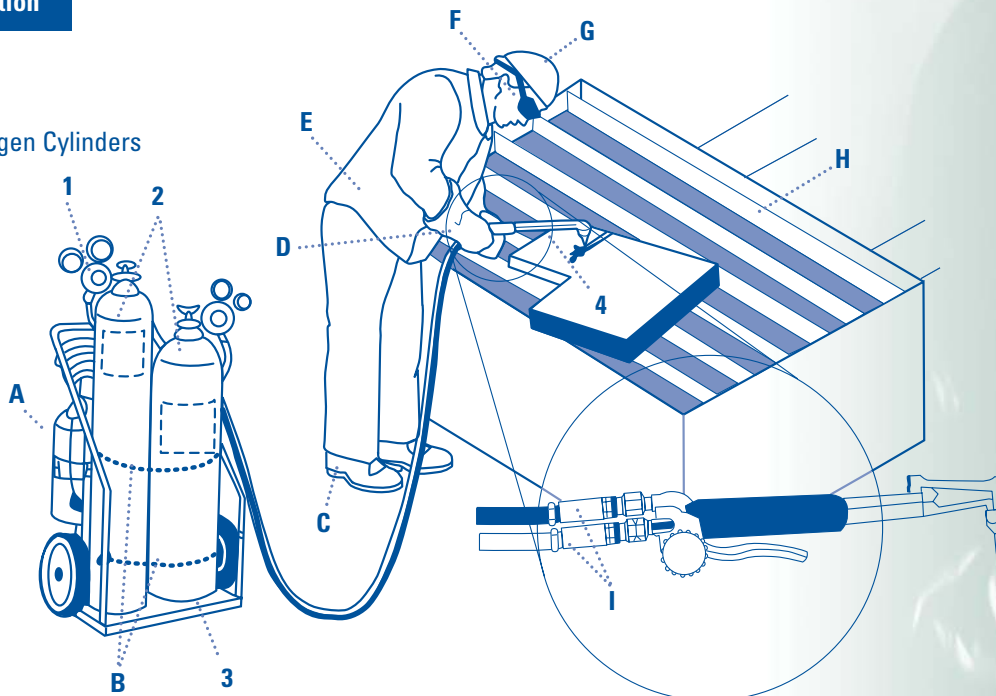
Oxy-Fuel Gas Cutting Station

Oxy-Fuel Gas Cutting Parts

- 1 Regulator
- 2 Combustible Gas And Oxygen Cylinders
- 3 Hand Truck
- 4 Torch

Safety Devices

- A Portable Extinguisher
- B Safety Chains
- C Safety Boots
- D Gloves
- E Protective Clothing
- F Eye Protection
- G Head Protection
- H Down draft table
- I Flashback arrestors



SELF-ASSESSMENT FORM
For Occupational Health And Safety



Association paritaire pour la santé
et la sécurité du travail
Secteur fabrication de produits
en métal et de produits électriques
www.aspme.org



Institut de recherche Robert-Sauvé
en santé et en sécurité du travail
www.irsst.qc.ca



It's About Making A Difference.
Industrial Accident Prevention Association
1-800-406-IAPA (4272)
www.iapa.ca

LEGEND

Preventative Measures

- ▶ Procedural Measures
- Orders/instructions

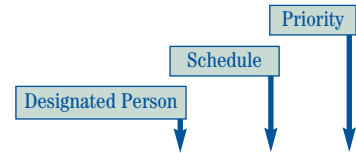
Priority Codes for applying risk measures:

- A. Immediate stoppage and resolution
- B. Resolution as soon as possible
- C. Resolution according to normal company procedures

The suggested preventative measures are based in part from the Workplace Health And Safety Regulations (RSST), from An Act Respecting Occupational Health and Safety (Québec LSST, S-2.1), as well as CSA Standard W117.2-1994.

Mechanical Hazards

Most likely injuries: Fractures, crushing, foreign bodies.



Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior..
Risk Factor: Flying Particles						
▶ Install non-combustible screens.	<input type="checkbox"/>	<input type="checkbox"/>				
● Wear CSA-approved safety glasses with lateral protection, even under a welder's helmet. Do not wear contact lenses; the presence of impurities may cause serious eye irritation.	<input type="checkbox"/>	<input type="checkbox"/>				
Risk Factor: Falling Object						
● Wear CSA-approved safety footwear with steel-capped toes and steel upper plate for metatarsal protection.	<input type="checkbox"/>	<input type="checkbox"/>				
Risk Factor: Damaging and Breaking Lifting Device Or Attachments During Welding						
Electric arc welding						
● Insulate the workpiece from the lifting device with a non-conducting attachment or with slings made of fibres resistant to heat and UV rays. Chains and metallic cables may be damaged by the passage of current.	<input type="checkbox"/>	<input type="checkbox"/>				
Risk Factor: Confinement, Falling Or Overloading While Using A Lifting Device						
● Refer to the Self-Assessment Form: "Cranes And Lifting Devices".	<input type="checkbox"/>	<input type="checkbox"/>				
Risk Factor: Propulsion Of A Gas Cylinder Following Ruptured Valve or Regulator						
● Store cylinders upright, in designated areas, where they are not at risk of being damaged. Store them away from stairs, overhead-travelling cranes, hallways and doors.	<input type="checkbox"/>	<input type="checkbox"/>				
● Secure the cylinders so they cannot tip over.	<input type="checkbox"/>	<input type="checkbox"/>				
● Use a hand truck, a cage or a platform designed for the transportation of cylinders. Never use slings or electromagnets.	<input type="checkbox"/>	<input type="checkbox"/>				
● Ensure the valve cap is securely in place at all times, except when the cylinders are in use.	<input type="checkbox"/>	<input type="checkbox"/>				

Notes:

Ergonomic Hazards

Most likely injuries: Musculo-skeletal disorders, backaches.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
Risk Factor: Handling Heavy And Bulky Workpieces						
▶ Supply mechanical handling devices (hoist, dolly with lift table, etc.) suitable to the weight and dimensions of the workpiece.	<input type="checkbox"/>					
Risk Factor: Straining Working Positions						
▶ Supply devices that help position the workpiece, such as trestles, elevating table, turntable, magnet on a swivel joint, etc.	<input type="checkbox"/>					
▶ Supply an elevating platform or basket for elevated work.	<input type="checkbox"/>					
● Use knee and elbow pads.	<input type="checkbox"/>					
● Use an electronic welding helmet to reduce neck pains during tacking.	<input type="checkbox"/>					
● Install sufficient lighting to illuminate the work area so as to eliminate the need to bend neck and back.	<input type="checkbox"/>					
Risk Factor: Static Standing Work						
▶ Supply appropriate seating if suitable for such work.	<input type="checkbox"/>					
● Supply a heat and spark resistant anti fatigue mat.	<input type="checkbox"/>					

Chemical Hazards

Most likely injuries: Intoxication, respiratory track irritation, and brazier's disease.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
Risk Factor: Exposure To Fumes And Gases						
● Consult the MSDS for the workpiece to determine if there are any hazardous substances (base metals, metal solder, electrode, gas, etc.). Do not weld or cut material of unknown composition.	<input type="checkbox"/>					
● Clean pieces to make work area clean of paint, oil and other surface finish.	<input type="checkbox"/>					
▶ Implement a procedure that generates the least amount of fumes [e.g., to replace gas metal arc welding (GMAW) by flux cored arc welding (FCAW)].	<input type="checkbox"/>					
▶ Supply electrodes that contain the least amount of toxic substances possible.	<input type="checkbox"/>					
● Adjust or modify welding parameters, such as amperage, polarity, gas shielding, diameter of electrode, etc. so as to reduce the production of fumes and gas.	<input type="checkbox"/>					
▶ Install vacuuming devices to remove fumes and gases from their source before they reach the respiratory tract, such as integrated fume recovery welding gun, a vacuum table or an exhaust hood.	<input type="checkbox"/>					
▶ Vent the workplace according to required air exchange standards.	<input type="checkbox"/>					

Chemical Hazards (continued)

Most likely injuries: Intoxication, respiratory track irritation, and brazier's disease.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
Risk Factor: Exposure To Fumes And Gases						
▶ Sample the breathable air to evaluate the concentrations of gases and fumes.	<input type="checkbox"/>					
● Wear a NIOSH-approved respirator to protect against fumes and gases.	<input type="checkbox"/>					
Risk Factor: Working In A Confined Space						
● Implement procedures specific for confined workspaces.	<input type="checkbox"/>					
▶ Implement emergency procedures to evacuate personnel involved.	<input type="checkbox"/>					
● Store gas cylinders outside the enclosed workspace.	<input type="checkbox"/>					

Physical Hazards

Most likely injury: Flash blindness, burns, hearing loss.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
Risk Factor: Radiation Exposure To The Eyes						
▶ Install non-combustible screens with the required degree of shielding for the process used.	<input type="checkbox"/>					
● Wear CSA-approved safety glasses with polycarbonate lenses and lateral protection against adjacent workstations.	<input type="checkbox"/>					
● Wear a welder's helmet with tinted glass appropriate to the welding process and amperage used.	<input type="checkbox"/>					
● Wear tinted welding cup goggles appropriate to the welding or cutting process used.	<input type="checkbox"/>					
Risk Factor: Radiation Exposure To The Skin						
Arc welding or cutting						
● Wear a long-sleeve shirt buttoned all the way to the collar.	<input type="checkbox"/>					
● Apply to the neck sunscreen lotion with an SPF factor of at least 15.	<input type="checkbox"/>					
Risk Factor: Noisy Workplace Environment And Impact Noise						
● Use assembly techniques that reduce the need for hammering to straighten pieces.	<input type="checkbox"/>					
▶ Change process to avoid slag production, which needs to be broken once the weld has been completed.	<input type="checkbox"/>					
▶ Increase the workbench thickness to reduce vibrations and impact noises.	<input type="checkbox"/>					
▶ Install soundproofing screens between noisy workstations and adjacent workstations.	<input type="checkbox"/>					
● Wear earplugs or earmuffs.	<input type="checkbox"/>					

Electrical Hazards

Most likely injuries: **Electrocution**

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
Risk Factor: Contact With Parts Normally Or Accidentally Energized						
Arc welding or cutting						
▶ Install an isolating switch near each arc welder, with clear markings.	<input type="checkbox"/>					
● Apply lockout procedures: - disconnect sources of energy to the arc welder - dissipate all residual electrical energy in the condensers - lockout the power cord plug - validate to ensure start-up is no longer possible.	<input type="checkbox"/>					
▶ Supply connectors specifically designed for arc welder cable extension cords.	<input type="checkbox"/>					
▶ Install or supply special equipment such as an insulated mat, a differential circuit breaker, automatic shock protection switch, generator, etc. with welding work is carried on in a very conductive environment, such as a metallic container or in a humid environment.	<input type="checkbox"/>					
● Check the supply cord, rod handle, and connector insulation, as well as the arc welder grounding circuit.	<input type="checkbox"/>					
● Do not allow anyone to store material on top of electric cables lying on the floor.	<input type="checkbox"/>					
● Place the return clamp as close as possible to the welding area.	<input type="checkbox"/>					
● Follow the welder manufacturer's recommendations for grounding the piece to weld.	<input type="checkbox"/>					
● Wear dry clothes and gloves.	<input type="checkbox"/>					
● Wear CSA-approved boots with insulated soles.	<input type="checkbox"/>					

Heat-Related Hazards

Most likely injuries: **Burns.**

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
Risk Factor: Flying Sparks And Molten Metal						
▶ Install non-combustible screens.	<input type="checkbox"/>					
● Wear wool clothes, fire-resistant cotton or fabrics specially designed to resist sparks.	<input type="checkbox"/>					
● Tuck flaps inside shirt pockets and ensure the pants cover the boot tops.	<input type="checkbox"/>					
● Wear elastic-held boots to allow for quick removal.	<input type="checkbox"/>					
● Wear leather gauntlet gloves (covering wrists).	<input type="checkbox"/>					
● Wear a leather apron, gaiters or sleeves to protect body parts exposed to flying objects.	<input type="checkbox"/>					
● Wear a fire-resistant cap or hood.	<input type="checkbox"/>					
● Wear CSA-approved safety glasses with lateral protection, even under a welder's helmet.	<input type="checkbox"/>					

Heat-Related Hazards (continued)

Most likely injuries: Burns.

Preventative measures	Applicable <input checked="" type="checkbox"/>	Not applicable <input type="checkbox"/>	Notes	Desig.	Sched.	Prior.
Risk Factor: Welding Or Cutting A Container That Held Flammable Products						
▶ Implement working procedures specific to clean-up techniques and to the preparation for welding, such as purging the container with inert gas or filling with water to the point of weld or cutting. Do not cut or weld containers for which the prior contents are unknown.	<input type="checkbox"/>					
▶ Measure the concentrations of flammable gases with an explosion meter.	<input type="checkbox"/>					
Risk Factor: Ignition Of Flammable Materials						
▶ Keep combustible material at least 15m (50 feet) away from a welding area or place non-combustible screens to block any flying particles.	<input type="checkbox"/>					
● Use a self-closing container to store solvent-soaked rags. Do not leave oil-soaked rags around the workstation.	<input type="checkbox"/>					
● Use a flint lighter or a pilot light to light your torch; do not use matches or a common lighter.	<input type="checkbox"/>					
● Inspect the area after the work is finished to detect any incipient fire.	<input type="checkbox"/>					
▶ Install appropriate fire extinguishers near the work areas.	<input type="checkbox"/>					
● Implement a workplace procedure for hot work outside usual workstations.	<input type="checkbox"/>					
Risk Factor: Flashback And Back Pressure Oxy-fuel welding						
▶ Install gas and flame non-return safety valves near the torch handle, on the gas fuel and oxygen lines.	<input type="checkbox"/>					
● Follow the manufacturer's instructions for lighting sequence, adjustments and for flame shut-off.	<input type="checkbox"/>					
● Clean the welding tip regularly with a proper tool, specifically designed for that effect.	<input type="checkbox"/>					
Risk Factor: Fire Or Explosion Following A Gas Leak						
▶ Keep gas fuel cylinder and oxygen cylinder storage at least 6m (20 feet) apart. Otherwise install a screen at least 1.5m (5 feet) high with a fire resistance rating of at least one-half hour.	<input type="checkbox"/>					
● Store cylinders in quantities not exceeding regulation maximum.	<input type="checkbox"/>					
▶ Have regulators inspected yearly.	<input type="checkbox"/>					
● Clean oxygen valve mating surfaces with a clean oil- and grease-free cloth.	<input type="checkbox"/>					
● Check the regulator, hose and fitting seal tightness with a product specifically designed for the purpose. Do not allow soapy water to be used; it may contain fatty substances, which may react violently in the presence of oxygen.	<input type="checkbox"/>					

Completed By: _____

This Self-Diagnosis form was developed following a research project in workplace health and safety from IRSST, a workplace health and safety research institute named (Institut de recherche Robert-Sauvé en santé et en sécurité du travail).