

Title of Training	PLASMA CUTTER	
Equipment Info.	MAKE/TYPE/SIZE/MODEL	
Material Needed	OPERATOR'S MANUAL	PPE REQUIREMENTS: Leather Gloves-Face Shield w Safety Goggles & Side Shields-FRC's-FR Ear Plugs-Respirator (if necessary)
	PLASMA CUTTER MACHINE	

PLASMA CUTTER SAFETY

PERSONAL PROTECTIVE EQUIPMENT



Safety glasses must be worn at all times in addition to welding mask.



Long and loose hair must be contained.



Oil free leather gloves and spats must be worn.



Sturdy footwear with rubber soles must be worn.



Close fitting/protective clothing to cover arms and legs must be worn.



A welding mask with shade number 11 protective filters must be worn.



Respiratory protection devices may be required.



Hearing protection may be required when cutting thick material.

PLASMA CUTTING MAKES SENSE

Like a hot knife through butter, a plasma arc cutting machine slices through any electricity-conducting metal faster than traditional cutting methods, including saws, snips or oxy-acetylene torches. Although the technology has been available for more than 50 years, the introduction of small, portable (less than 50 lb.) and affordably-priced machines in the mid-1990s produced phenomenal growth in the use of plasma arc cutters. Many artists, farmers/ranchers, sign makers, do-it-yourselfers, repair shops, maintenance facilities and metal fabricators regularly use this technology.



However, because of its newness, many people are not familiar with proper plasma arc cutting safety procedures. Fortunately, basic safety practices are not hard to learn

PRE-OPERATIONAL SAFETY CHECKS

- ✓ Locate and ensure you are familiar with all machine operations and controls
- ✓ Ensure material to be cut poses no hazard. Consult the manufacturers' Material Safety Data Sheets (MSDS) for specific technical data and precautionary measures for any materials or coatings on materials cut with this equipment.
- ✓ Check workspaces and walkways to ensure no slip/trip hazards are present.
- ✓ Ensure the work area is clean and clear of grease, oil and any flammable materials.
- ✓ Keep the equipment, work area and your gloves dry to avoid electric shocks.
- ✓ Ensure the gloves, handpiece and work leads are in good condition.
- ✓ Ensure other people are protected from flashes by closing the curtain to the welding bay or erecting screens.

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Instructor Name		Date of Training	
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- ✓ Start the fume extraction unit before beginning cutting operation. Ensure machine is used in a well-ventilated area if not used in a welding bay.
- ✓ Ensure the work leads and hoses do not create a trip hazard.

OPERATIONAL SAFETY CHECKS

- ✓ Ensure machine is correctly set up for current and airflow.
- ✓ Ensure work return earth cables make firm contact to provide a good electrical connection.

ENDING OPERATIONS AND CLEANING UP

- ✓ Switch off the machine and fume extraction unit when work completed.
- ✓ Turn off the air supply and hang up handpiece, hose and welding cables.
- ✓ Leave the work area in a safe, clean and tidy state.

POTENTIAL HAZARDS AND INJURIES

- ⓘ Electric shock.
- ⓘ Noise.
- ⓘ Body burns.
- ⓘ Compressed air.
- ⓘ Radiation burns.
- ⓘ Fumes.
- ⓘ Noxious gas.
- ⓘ Flying sparks and falling slag.

DON'T

- ✗ Do not use faulty equipment. Immediately report suspect equipment.
- ✗ Do not weld or cut containers that have held combustible liquids or gases.
- ✗ Do not heat or cut metals coated with or containing materials that emit toxic fumes, unless coating is removed from the work surface.
- ✗ Never leave the machine running unattended.

PRE-CUT CHECKLIST

A few final words of advice before cutting:

- Follow proper safety procedures and wear personal safety equipment — read the Owner's Manual!
- Inspect the torch tip, electrode and shield cup and replace worn items. The expense is well worth avoiding the poor cutting performance (and operator frustration) caused by worn parts.
- Check gas/air pressure at the compressor or bottle gauge.
- Turn on the plasma machine.
- Set the amperage control (generally to maximum) and check the air pressure.

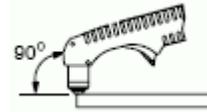
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- Grind off rust or paint where you plan to secure the ground clamp. This step is critical with 12-amp machines; they just don't have the power to drive through rust and paint like larger units do.
- Place the ground clamp as close to the cut as possible, and place the clamp on the work piece itself when possible. Check for any loose connections between the work cable and the clamp.
- Relax-don't hold the torch too firmly or your hand will shake more.
- Begin cutting.

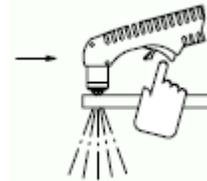
CUTTING TECHNIQUE

Step 1. Place the drag shield on the edge of the base metal, or hold the correct standoff distance (typically 1/8 in.). Direct the arc straight down. (Dragging the tip will reduce tip life).

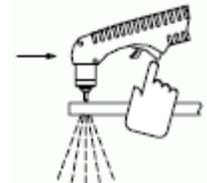


⚠ The arc starts immediately when trigger is pressed.

Step 2. Raise the trigger lock; press the trigger and the pilot arc starts immediately.

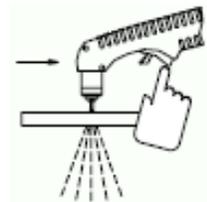


Step 3. Once the cutting arc starts, begin to slowly move the torch across the metal.

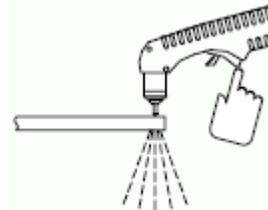


Step 4. Adjust your speed so sparks go thru metal and out bottom of cut.

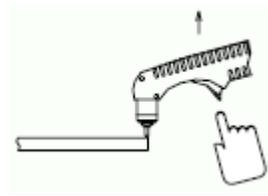
If the sparks are not visible at the bottom of the plate, the arc is not penetrating the metal. This can be caused by moving the torch too quickly, insufficient amperage or directing the plasma stream at an angle (not straight down). Insignificant grounding can also cause this problem.



Step 5. At the end of a cut, angle the torch slightly towards the final edge or pause briefly before releasing trigger to completely sever the metal.



Step 6. To cool torch, post-flow air continues for 20 - 30 seconds after releasing the trigger; pressing the trigger during post-flow instantly restarts the arc.



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EMPLOYEE NAME (Print or Type)	EMPLOYEE SIGNATURE	TRADE	JOB TITLE
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