EVERLAST

POWERPLASMA ® AND SUPER CUT ® SERIES

PLASMA CUTTERS

Operator ’s Manual

Includes PowerPlasma 50,60,70,80, 100 and SuperCut 50

Safety, Setup and General Use Guide

Rev. 1 0609-09

Thank you for purchasing an everlast product. We appreciate your patronage and hope that you will enjoy years of use from our product.

Please go directly to the Everlast website to register your unit and receive your warranty information. Your unit registration is important should any information such as product updates or recalls be issued. It is also important so that we may track your satisfaction with Everlast products and services. If you are unable to register by website, contact Everlast directly through the consumer department at the main number. Your unit will be registered and warranty will be issued and in full effect.

Serial number: _____
Model number: _____
Date of Purchase_____

EVERLAST

Contact Information

Everlast consumer satisfaction email: sales@everlastwelders.com

Everlast Website: everlastwelders.com

Everlast Technical Support: Support@everlastwelders.com

Main toll free number: 1-877-755 WELD（9353）9am—5pm PST M-F
11am-4pm PST Sat.

FAX: 1-650-588-8817

NOTES:

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Everlast is dedicated to providing you with the best possible equipment and service to meet the demanding jobs that you have. We want to go beyond delivering a satisfactory product to you. That is the reason we offer technical support to assist you with your needs should an occasion occur. With proper use and care your product should deliver years of trouble free service.

Safe operation and proper maintenance is your responsibility.

We have compiled this operator's manual, to instruct you in basic safety, operation and maintenance of your Everlast product to give you the best possible experience. Much of welding and cutting is based upon experience and common sense. As thorough as this welding manual may be, it is no substitute for either. Exercise extreme caution and care in all activities related to welding or cutting. Your safety, health and even life depends upon it. While accidents are never planned, preventing an accident requires careful planning.
Please carefully read this manual before you operate your Everlast unit. This manual is not only for the use of the machine, but to assist in obtaining the best performance out of your unit. Do not operate the unit until you have read this manual and you are thoroughly familiar with the safe operation of the unit. If you feel you need more information please contact Everlast Support.

The warranty does not cover improper use, maintenance or consumables. **Do not attempt to alter or defeat any piece or part of your unit, particularly any safety device.** Keep all shields and covers in place during unit operation should an unlikely failure of internal components result in the possible presence of sparks and explosions. If a failure occurs, discontinue further use until malfunctioning parts or accessories have been repaired or replaced by qualified personnel.

Note on High Frequency electromagnetic disturbances:
Certain welding and cutting processes generate High Frequency (HF) waves. These waves may disturb sensitive electronic equipment such as televisions, radios, computers, cell phones, and related equipment. High Frequency may also interfere with fluorescent lights. Consult with an electrician if disturbance is noted. Sometimes, improper wire routing or poor shielding may be the cause.

HF can interfere with pacemakers. See EMF warnings in following safety section for further information. Always consult your physician before entering an area known to have welding or cutting equipment if you have a pacemaker.

These safety precautions are for protection of safety and health. Failure to follow these guidelines may result in serious injury or death. Be careful to read and follow all cautions and warnings. Protect yourself and others.

Welding and cutting processes produce high levels of ultraviolet (UV) radiation that can cause severe skin burn and damage. There are other potential hazards involved with welding such as severe burns and respiratory related illnesses. Therefore observe the following to minimize potential accidents and injury:

Use appropriate safety glasses with wrap around shields while in the work area, even under welding helmets to protect your eyes from flying sparks and debris. When chipping slag or grinding, goggles and face shields may be required.

When welding or cutting, always use an approved shielding device, with the correct shade of filter installed. Always use a welding helmet in good condition. Discard any broken or cracked filters or helmets. Using broken or cracked filters or helmets can cause severe eye injury and burn. Filter shades of no less than shade 5 for cutting and no less than shade 9 for welding are highly recommended. Shades greater than 9 may be required for high amperage welds. Keep filter lenses clean and clear for maximum visibility. It is also advisable to consult with your eye doctor should you wear contacts for corrective vision before you wear them while welding.

Do not allow personnel to watch or observe the welding or cutting operation unless fully protected by a filter screen, protective curtains or equivalent protective equipment. If no protection is available, exclude them from the work area. Even brief exposure to the rays from the welding arc can damage unprotected eyes.

Always wear hearing protection because welding and cutting can be extremely noisy. Ear protection is necessary to prevent hearing loss. Even prolonged low levels of noise has been known to create long term hearing damage. Hearing protection also further protects against hot sparks and debris from entering the ear canal and doing harm.

Always wear personal protective clothing. Flame proof clothing is required at all times. Sparks and hot metal can lodge in pockets, hems and cuffs. Make sure loose clothing is tucked in neatly. Leather aprons and jackets are recommended. Suitable welding jackets and coats may be purchased made from fire proof material from welding supply stores. Discard any burned or frayed clothing. Keep clothing away from oil, grease and flammable liquids.

Leather boots or steel toed leather boots with rubber bottoms are required for adequate foot protection. Canvas, polyester and other man made materials often found in shoes will either burn or melt. Rubber or other non conductive soles are necessary to help protect from electrical shock.

Flame proof and insulated gauntlet gloves are required whether welding or cutting or handling metal. Simple work gloves for the garden or chore work are not sufficient. Gauntlet type welding gloves are available from your local welding supply companies. Never attempt to weld with out gloves. Welding with out gloves can result in serious burns and electrical shock. If your hand or body parts comes into contact with the arc of a plasma cutter or welder, instant and serious burns will occur. **Proper hand protection is required at all times when working with welding or cutting machines!**

continued

WARNING! **Persons with pacemakers should not weld, cut or be in the welding area until they consult with their physician. Some pacemakers are sensitive to EMF radiation and could severely malfunction while welding or while being in the vicinity of someone welding**. ***Serious injury or death may occur!***

Welding and plasma cutting processes generate electro-magnetic fields and radiation. While the effects of EMF radiation are not known, it is suspected that there may be some harm from long term exposure to electromagnetic fields. Therefore, certain precautions should be taken to minimize exposure:

- Lay welding leads and lines neatly away from the body.
- Never coil cables around the body.
- Secure cables with tape if necessary to keep from the body.
- Keep all cables and leads on the same side the body.
- Never stand between cables or leads.
- Keep as far away from the power source (welder) as possible while welding.
- Never stand between the ground clamp and the torch.
- Keep the ground clamp grounded as close to the weld or cut as possible.

Welding and cutting processes pose certain inhalation risks. Be sure to follow any guidelines from your chosen consumable and electrode suppliers regarding possible need for respiratory equipment while welding or cutting. Always weld with adequate ventilation. Never weld in closed rooms or confined spaces. Fumes and gases released while welding or cutting may be poisonous. Take precautions at all times. Any burning of the eyes, nose or throat are signs that you need to increase ventilation.

- Stop immediately and relocate work if necessary until adequate ventilation is obtained.
- Stop work completely and seek medical help if irritation and discomfort persists.

WARNING! **Do not weld on galvanized steel, stainless steel, beryllium, titanium, copper, cadmium, lead or zinc without proper respiratory equipment and or ventilation.**

WARNING! **This product when used for welding or cutting produces fumes and gases which contains chemicals known to the State of California to cause birth defects and in some cases cancer.** (California Safety and Health Code §25249.5 *et seq*.)

WARNING! **Do not weld or cut around Chlorinated solvents or degreasing areas. Release of Phosgene gas can be deadly.** Consider all chemicals to have potential deadly results if welded on or near metal containing residual amounts of chemicals.

Keep all cylinders upright and chained to a wall or appropriate holding pen. Certain regulations regarding high pressure cylinders can be obtained from OSHA or local regulatory agency. Consult also with your welding supply company in your area for further recommendations. The regulatory changes are frequent so keep informed.

All cylinders have a potential explosion hazard. When not in use, keep capped and closed. Store chained so that overturn is not likely. Transporting cylinders incorrectly can lead to an explosion. Do not attempt to adapt regulators to fit cylinders. Do not use faulty regulators. Do not allow cylinders to come into contact with work piece or work. Do not weld or strike arcs on cylinders. Keep cylinders away from direct heat, flame and sparks.

continued

WARNING! **Electrical shock can kill.** Make sure all electrical equipment is properly grounded. Do not use frayed, cut or otherwise damaged cables and leads. Do not stand, lean or rest on ground clamp. Do not stand in water or damp areas while welding or cutting. Keep work surface dry. Do not use welder or plasma cutter in the rain or in extremely humid conditions. Use dry rubber soled shoes and dry gloves when welding or cutting to insulate against electrical shock. Turn machine on or off only with gloved hand. Keep all parts of the body insulated from work, and work tables. Keep away from direct contact with skin against work. If tight or close quarters necessitates standing or resting on work piece, insulate with dry boards and rubber mats designed to insulate the body from direct contact.

All work cables, leads, and hoses pose trip hazards. Be aware of their location and make sure all personnel in area are advised of their location. Taping or securing cables with appropriate restraints can help reduce trips and falls.

WARNING! **Fire and explosions are real risks while welding or cutting.** Always keep fire extinguishers close by and additionally a water hose or bucket of sand. Periodically check work area for smoldering embers or smoke. It is a good idea to have someone help watch for possible fires while you are welding. Sparks and hot metal may travel a long distance. They may go into cracks in walls and floors and start a fire that would not be immediately visible. Here are some things you can do to reduce the possibility of fire or explosion:

- Keep all combustible materials including rags and spare clothing away from area.
- Keep all flammable fuels and liquids stored separately from work area.
- Visually inspect work area when job is completed for the slightest traces of smoke or embers.
- If welding or cutting outside, make sure you are in a cleared off area, free from dry tender and debris that might start a forest or grass fire.
- Do not weld on tanks, drums or barrels that are closed, pressurized or anything that held flammable liquid or material.

Metal is hot after welding or cutting! Always use gloves and or tongs when handling hot pieces of metal. Remember to place hot metal on fire-proof surfaces after handling. Serious burns and injury can result if material is improperly handled.

WARNING! **Faulty or poorly maintained equipment can cause injury or death.** Proper maintenance is your responsibility. Make sure all equipment is properly maintained and serviced by qualified personnel. Do not abuse or misuse equipment. Keep all covers in place. A faulty machine may shoot sparks or may have exploding parts. Touching uncovered parts inside machine can cause discharge of high amounts of electricity. **Do not allow employees to operate poorly serviced equipment.** Always check condition of equipment thoroughly before start up. Disconnect unit from power source before any service attempt is made and for long term storage or electrical storms.

Further information can be obtained from The American Welding Society (AWS) that relates directly to safe welding and plasma cutting. Additionally, your local welding supply company may have additional pamphlets available concerning their products. Do not operate machinery until your are comfortable with proper operation and are able to assume inherent risks of cutting or welding.

1.1 **This manual has been compiled to give an overview of operation and is designed to offer information centered around safe, practical use of the machine.** It is not intended to teach plasma cutting technique. All suggestions and techniques given are approximations and should be used as a general guide only.

1.2 **To ensure that your Everlast product is in top condition, carefully inspect unit for damage upon opening the box, looking for damage on the surface of the unit and to the machine itself and all its accessories**. Do this immediately upon receipt of product. Any damage issues must be resolved right away. It is further recommended that the product be tested at the same time for proper operation, even if it is to be stored for a while. Check to make sure all passages, connections and fittings are clear of any packing material or other obstruction. Record the serial number on the page provided in this manual. Include purchase date for warranty reference. Serial numbers are located on the rear of the machine.

1.3 **The Power Plasma units are used in industrial settings performing day to day fabrication and repair activities.** The exceptional cutting characteristics powered by the inverter based technology that employs the use of reliable IGBT transistor technology from Germany.(Except SuperCut series, which employs MOSFET technology). Inverters allows plasma cutters to be manufactured incredibly light weight for easy portability around the job site. Large and heavy plasma cutters of the past limited practical uses to the shop and manufacturing facilities with industrial 3 phase power supply. Today's inverter technology offers more practical uses and adaptations of the plasma cutting process, while reducing not only purchase cost, but also operational costs. The PowerPlasma series also utilizes pilot arc technology that allows the arc to continue, even though no direct or close contact of the torch is made. This allows uninterrupted cutting without restart when cutting materials such as expanded or perforated metal. **Note: SuperCut series has no pilot arc.**

1.4 **Be careful to observe duty cycles of the machine posted in this manual and on the machine itself.** A duty cycle is a rating of percentage of time out of 10 minutes the machine can be used at the rated power setting . Overheating may occur if the duty cycle is exceeded. For example, the duty cycle of the PowerPlasma 50 is 60% at 50 amps which continuous operation is allowed for 6 out of 10 minutes before a cooling period of 4 minutes is needed. Certain types of plasma cutting operation may further reduce duty cycle of the torch itself such as constant piercing and blind hole cutting.**On multi-voltage, multi-phased machines, note that the rated duty cycle will change with the voltage supplied.**

1.5 **The unit should be stored in a dry place for long term storage.** Humid/wet conditions can contribute to the eventual decay of the circuitry in the machine. For safety reasons, do not use this machine directly in the rain or with soaked clothing or protective gear.

1.6 **Use only the provided handles to lift the unit.** Do not suspend by cables or chains. Do not use fork truck forks to lift by handle.

1.7 **Make sure that the units cooling fan and exhaust vents are kept free of obstruction.** Before every operation, inspect the unit for unexpected obstructions such as insect and rat nests. From time to time, a cleaning of the machine with low pressure air and a small plastic bristle brush is necessary to ensure long life. On these occasions only, unplug unit and remove cover to access interior. Concentrate efforts on aluminum heat sinks and panel vents to remove dust and dirt.

1.8 **Refer to the following pages to locate your particular unit and its specifications.** Note that product specifications are subject to change without notice due to product improvements. If any additional information is needed contact Everlast. Simple wiring diagrams may be obtained for basic diagnosis and may be obtained from technical support.

Everlast **SuperCut/PowerPlasma Specifications***	**Super Cut 50**	**Power Plasma 50**	**Power Plasma 60**	**Power Plasma 60E**	**Power Plasma 70**	**Power Plasma 80**	**Power Plasma 100**
Input Voltage	120/240V 1 ph	120/240V 1 ph	240V 1 ph	240V 3 ph	240V 1 ph	240V 1 ph	240V 1/3 ph
OCV	200	200	200	250	200	200	230
Input amps	35	39	50	35	58	70	90/45
Pilot ARC	No	Yes	Yes	Yes	Yes	Yes	Yes
Start Type	HF	Blowback	HF	HF	HF	HF	HF
Inverter Type	MOSFET	IGBT	IGBT	IGBT	IGBT	IGBT	IGBT
Recommended Max Cut	5/8”	3/4”	7/8”	1”	1 1/8”	1 1/4	1 5/8”
Maximum Severance Cut	3/4”	15/16”	1 1/8”	1 1/4”	1 3/8”	1 1/2”	1 3/4”
Recommended Minimum Air Supply @ 90psi	3.5 cfm	3.5 cfm	4 cfm	5 cfm	6 cfm	6 cfm	7 cfm
Recommended Operating Air Pressure	50– 70 psi	50-70 psi	50-70 psi	50-70 psi	50-75 psi	50-75 psi	50-75 psi
Air Pressure Operating Zone Indicator	No	Yes	Yes	Yes	Yes	Yes	No
Over Current Protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes

***Specifications and recommendations subject to change.**

SuperCut 50

PowerPlasma 50

PowerPlasma 60,70, and 80

PowerPlasma 100

Included Accessories *

Air Filter/Regulator

Work Clamp with cable

Consumable Kits
(PP 50 and PP 60 shown)

*Actual appearance and quantity may vary. For torches see pages 16-19.

2.1 **Panel Face.** The following is a unit panel face from the Super Cut and PowerPlasma series unit. Depending upon your unit, the panel face may vary with regard to quantity and location of controls and features. Use the appropriate referenced number to refer to equivalent features on your unit. Some numbers are omitted on each panel because the function does not apply to that unit.

Images 2.1.1, 2.1.2, and 2.1.3

1. **Power lamp.** This green LED light illuminates while unit is powered on.

2. **Air Pressure OK lamp.** This LED indicator light remains lit as long as the air pressure is above minimum operating parameters. The light will go off if the pressure drops below minimum acceptable levels. (< 35 psi approx.)

3. **Over Current/Overheat lamp.** This amber or green(color may vary depending upon model) LED indicator light illuminates when the duty cycle has been exceeded or the machine has overheated due to improper ventilation. Discontinue use until lamp goes out. Allow the fan to continue to run. Once lamp goes out, you may resume using the unit and reset the breaker switch if necessary. If frequent or continuous overheating is encountered, contact Everlast or improve operating conditions.

4. **Digital Display.** The display posts the approximate amps/volts within ±3 amps. Display will change to reflect actual real time amps/volts. A slight under or over rated amps may be observed. This is normal, but should not exceed 3 amps/volts over or under maximum rating. It does not necessarily indicate a defect or unit problem and should not affect performance. A under or over reading can indicate differences in calibration OR voltage input.

5. **ABS phase lamp.** (Only found on PP 60E and 100). This indicates that a primary phase is open. Check input wiring if this light is lit.

6. **Amperage control.** This controls the output amps of the machine. Minimum value is 20 amps. Maximum value is the rated output of the unit.

7. **CNC/Track Torch/Manual or Auto/Standard.** This allows a simple 2T or 4T operation of the unit. In 2T (Manual/Standard) mode simply press and hold the torch switch for continuous operation. In 4T (CNC/TrackTorch/Auto) mode, simply press and release torch switch once to activate the arc. Arc will stay lit until the switch is pressed again to deactivate the arc.

8. **Timed/Constant Flow or Test Gas/Cutting.** PowerPlasma units are equipped with a special constant flow/test feature to allow the air pressure to be set without activating the arc. The

continued

Timed/Standard feature allows the unit to operate normally while cutting. Use the Constant Flow/Test Gas feature to allow additional post flow cooling if needed after periods of extended operation.

9. **Post Gas Flow Control.** This allows variable selection of post flow cooling. Increased operation times and higher amps require longer post flow cooling times. Allow 1-2 seconds of post flow cooling per 10 amps. Long periods of use will require additional post flow cooling. The value is from 0– 60. This is a relative reading and not a true second reading. Actual adjustable post flow time may range between 0-15 seconds depending upon unit model. To maintain adequate cooling times, for varying amperage levels set the units post flow to the approximate 12:00 position. This should maintain minimum cooling requirements.

10. **Air Pressure Gauge.** The air pressure gauge reflects air pressure supplied to the torch. It does not reflect actual input pressure from the tank. Optimum air pressure operating range is generally between 50-70 psi. Moderate gouging can be accomplished by operating torch between 35 and 40 psi. This will soften the arc and allow it to "wash" the metal out. If unit air pressure light comes on, adjust pressure until it goes off.

Do not over pressurize supply line to the plasma cutter. Do not exceed 80- 90 psi! Make sure your air compressor has a functioning and accurate gauge and your tank regulator is functioning correctly. Over pressurization will cause the internal lines to either loosen, leak or blow off! A simple repair, it is not considered an issue for warranty return. In case of a line leaking or blowing off, you will need to replace line clamps inside unit with standard automotive type adjustable hose clamps. The OEM clamps are not reusable in most situations. Consult Everlast Tech Support.

11. **Air Pressure Adjustment.** Pull knob until click is heard to adjust pressure up or down. Turn clockwise to increase pressure. Turn counter-clockwise to decrease pressure. Push in to lock. Adjust slowly so gauge has time to catch up. Adjust air pressure while air is flowing. Use the Constant Flow/Test gas feature to allow air to flow without arc activation. Adjust air pressure on rear filter for SC 50, PP60E, PP100.

2.2 Lower Panel. The lower front panel is depicted below. Each terminal and connection should be kept free of dirt or obstructions.

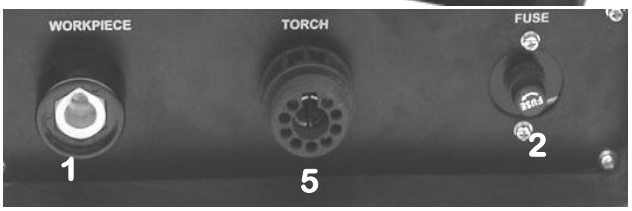


Image 2.2.1 and 2.2.2 Actual layout varies.

1. **Work piece Clamp Connection.** Although technically not a correct term, this is also often referred to as the "Ground". Connect by inserting male DINSE connector into slot, matching tab and slot together and gently twisting 1/8 to 1/4 turn until connection is firmly seated.

2. **Fuse.** This is a standard automotive type fuse. Twist off cap to replace. If unit will not start or quits working, check and replace fuse if necessary. Extra fuses are provided. If additional fuses are needed, replace with a fuse of identical amp rating.

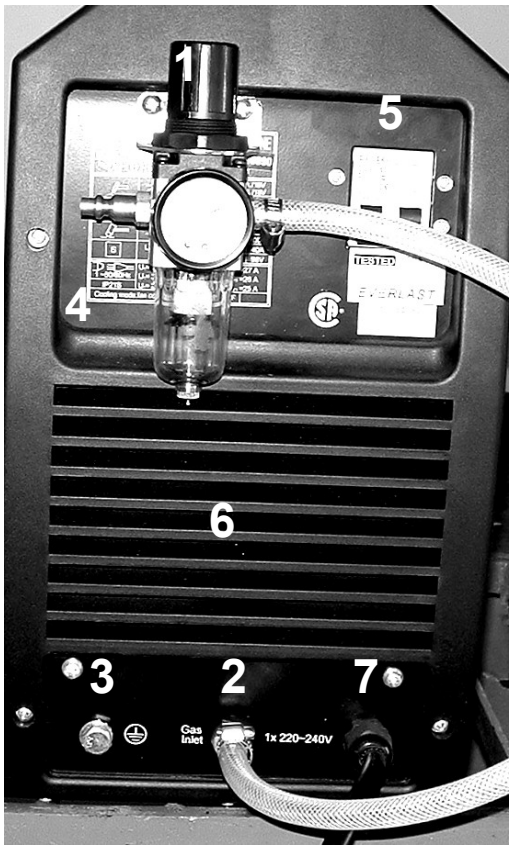
3. **Control.** The torch switch connection fits here. Plug in pin connector and tighten collar.

4. **Pilot Arc.** Connect Ring terminal for proper pilot arc operation. Loosen thumbscrew and tighten finger tight.

5. **Torch Connection/ Euro quick connector. Do not overtighten! Damage to the housing may result. Fully seat connection before tightening.** Finger tight is usually sufficient. Units with the Euro Connector can instantly connect torch, pilot arc, and control. Line up key hole before inserting connector.

continued

2.3 **Rear Panel**. Reference the following image for guidance on rear panel setup and function. Some features vary slightly.



1. **Air Pressure Regulator/Filter.** On some units air pressure is controlled at this point . To adjust air pressure, pull up on knob until click is heard. Simply twist the knob clockwise to increase pressure an counter clockwise to lower pressure. Firmly secure clear braided air hose with clamps provided. Use extra clamps if required to make leak proof connection. When assembling, full slotting of the bracket mounting holes may be required, depending on filter supplied with the unit. Simply cut or grind the edges of the screw holes in the bracket so that the ends are opened up and the bracket aligns fully with the pre-tapped screw holes in the unit.

2. **Gas Inlet.** Secure with clamp provided. If necessary use an additional clamp. Make sure orifice is clear of any packing material or other obstruction before connecting. Use a small pick or screwdriver to clear the orifice should it become plugged. Do not attempt to clear with air pressure!

3. **High Frequency Ground.** This unit provides a separate grounding point for the high frequency to help reduce interference that high frequency may cause. This ground must be connected to a separate wire that is grounded to a metal rod driven into the ground. It is strongly recommended that you connect this to a separate ground as prescribed. This will assist in draining the HF and help prevent interference with electronic products. Do not ground to cart, table or ground to the ground wire in the power supply circuit. Ground only to separate ground rod. Do not ground back to panel box!

4. **Specifications and Serial number**. These specifications override any other published specifications, as changes may occur from time to time. Register your unit's serial number online and record it here in the manual.

5. **Switch**. Flip switch up to turn the unit on. If the switch needs to be reset, due to over current or overheating, flip the switch fully down then back up to resume normal operation.

6. **Fan Area.** Keep area from being blocked. Air flow must be free and unobstructed. Allow 12 inches of clearance behind fan area and all sides of the unit. Do not operate in an enclosed cabinet.

7. **Power cord.** The power cord must not be placed in a strain or the unit pulled by the cord at any time.

3.0 Getting Started and setup.

1. Wiring. You must purchase a plug to wire your Everlast PowerPlasma properly. Everlast does not currently provide a plug for their units since many customers have varying 220V service supply. **To wire new service or when adding or circuit, use a standard NEMA 6-50 male plug and female receptacle.** Most plugs have wire color coding included in the instruction manual or printed on the plug itself. Everlast single phase units use black and white wires as the two 110V "hot" legs of the 220 circuit. The white wire is typically wired to the smaller blade and the black wire to the larger flat blade. The green wire is for ground only (middle post). Do not assume that your existing receptacle is wired correctly for service. Always verify wire colors from the panel box to the receptacle. Do not use 4 prong dryer or stove receptacles. . "Crow foot" plugs and other type receptacles may be used as long as they meet the amperage requirements of the machine. However, local codes must be observed at all times when using a non standard plug. For 1 and 3 phase capable machines, consult with Everlast and your local electrician for proper wiring to single phase and 3 phase applications. Other types of plugs may be used, but it is suggested to use the 6-50 series plugs as it meets most codes. **If a 110/220V 20 amp plug is found within the box of consumables and accessories, discard this plug and do not use.** This is not intended for installation on any PowerPlasma Unit. It is not intended use in the US. To determine exact amp requirements of your machine, refer to the rear panel for max inrush current (I-max value.)

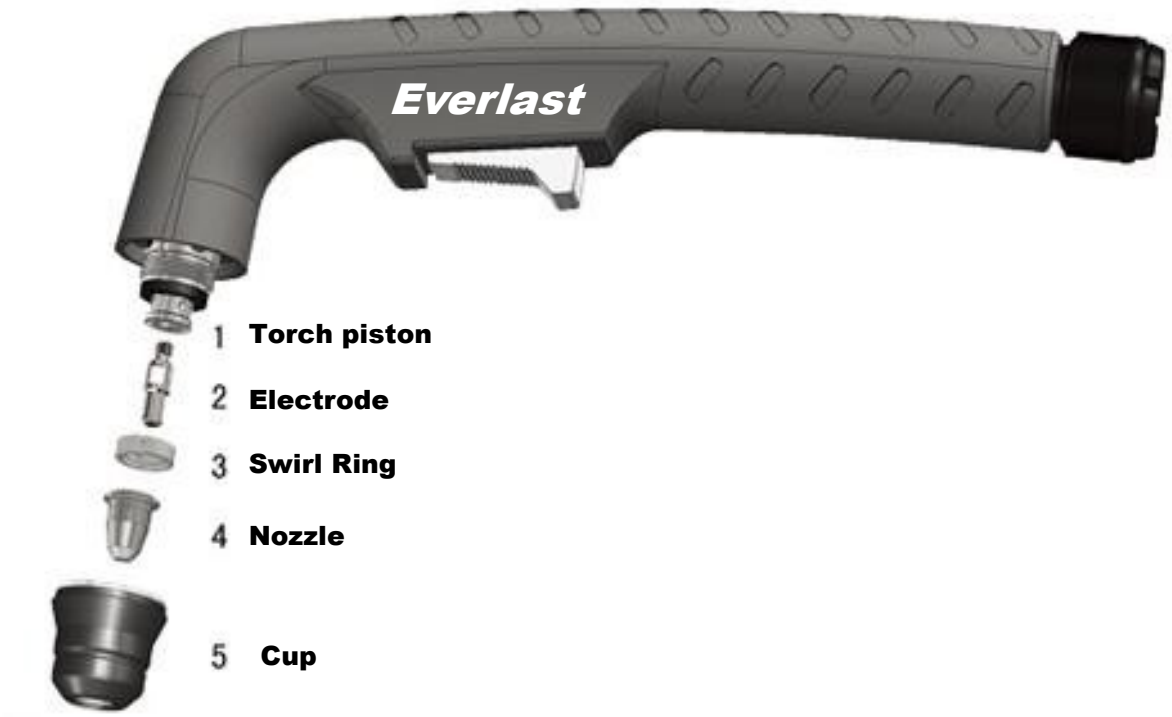
Figure 3.0.1
Nema 6-50R

2. **Assembly.** Open and layout all components. Separate and store consumables and fuses. Assemble filter. Notice arrow on to that indicates attention to direction of air flow. Use Teflon tape if necessary on the quick connect fitting. Install filter bracket onto the plasma cutter first, then attach filter. Some modification of the bracket may be required for screws to align properly. Take the clear hose and cut ends square. Work hoses gently up onto the brass nipple barbs on the filter and onto the machine. Make sure they slide all the way to the shoulder of the nipple. Install clamps securely with a flat bladed screwdriver or nut driver. Additional clamps may be required to prevent leaking of air. Install torch and cables as shown in the manual. Check preinstalled consumables for tightness. Gently tighten with the small wrench provided in the plastic consumable bag (PP 50) or use a pair of pliers to gently snug consumable. Connect dry air supply to unit and check for leaks.

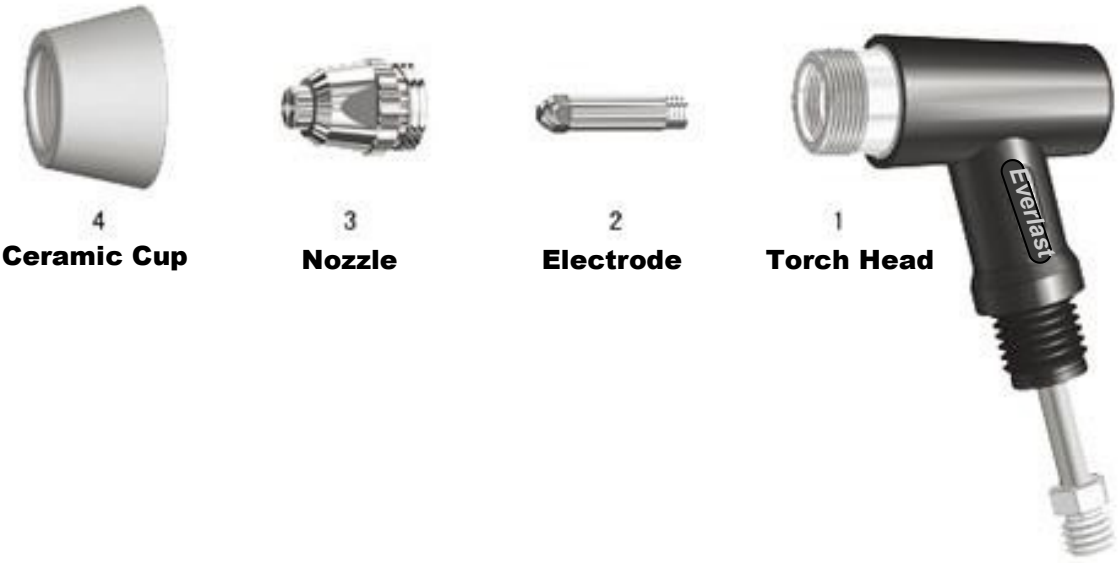
3. **Start Up.** Turn the machine on and observe the lights and the programming as it powers up. Turn amp knob fully up and down. A small discrepancy in minimum and maximum amps and the control knob is normal. Fan should power up and be heard distinctly. If the fan is not heard or it runs quietly, the unit does not power up correctly, the amps do not register in the display, or show reduced amp output, recheck wires in plug and electrical circuit for tightness and proper connection. If additional help is needed, contact Everlast Support. Many problems at start up are caused by improper wiring or loose connections. Adjust post flow up and down (if equipped). Press trigger on torch and watch for pilot arc then release. Repeat this several times to observe proper function of post flow. The post flow should stop automatically. Flip the switches on the unit to check for normal function of features.

4. **First Cuts.** Attempt small, thin first cuts at low amps and gradually increase cuts as confidence levels grow. Do not immediately attempt maximum cuts. Allow the unit to "burn" in for at least 20 minutes of cutting time. Watch all warning lights for function. The air pressure light will stay on as long as the air is above the minimum safe operating pressure. The over current light should remain off and the display will change to reflect the actual output amps while the unit is performing cutting actions. While the Pilot arc is engaged, amp output will not show full amps until cutting arc transfers. When cutting arc transfers machine will register actual cutting amps.

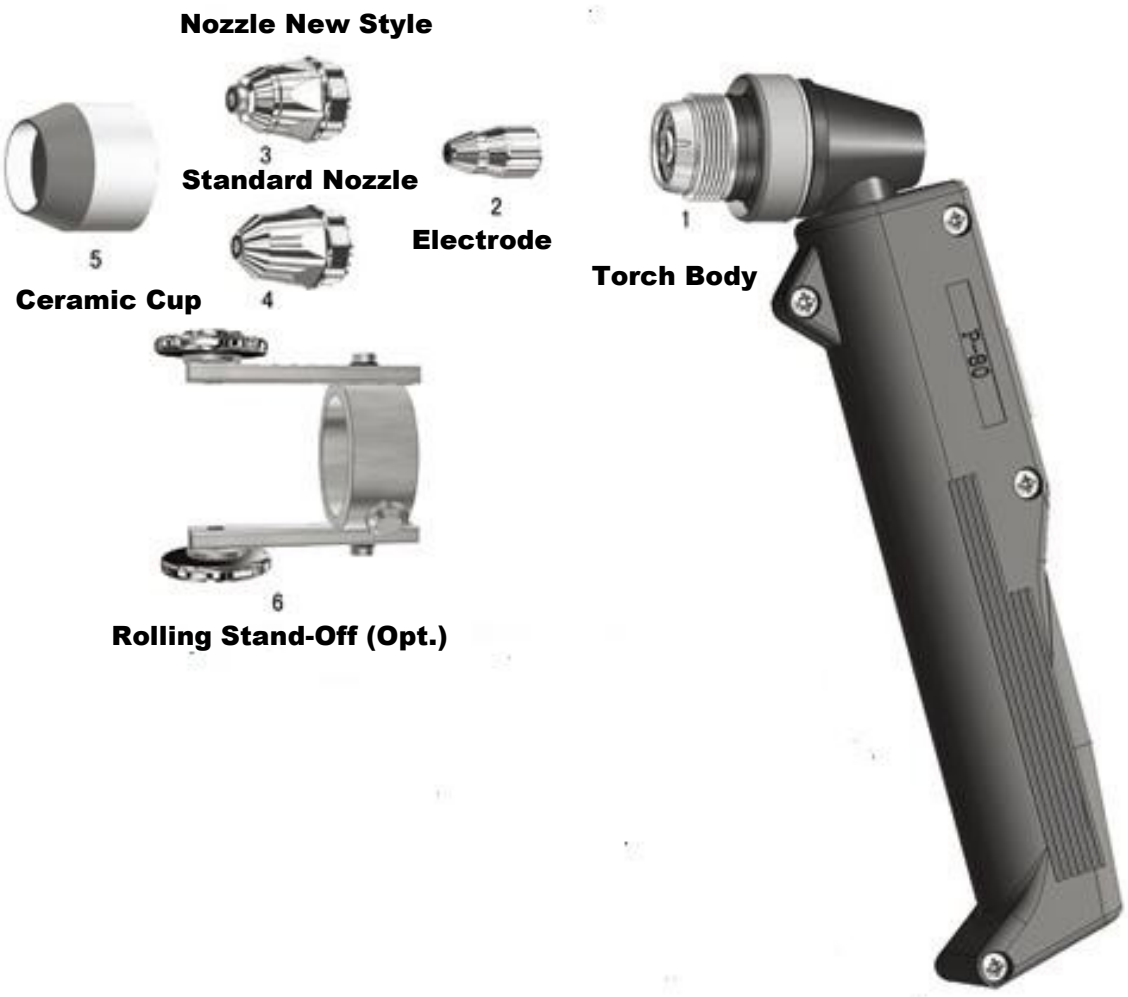
Everlast S– Series Torch 50 Amp Blowback Start Pilot Arc
Exploded View



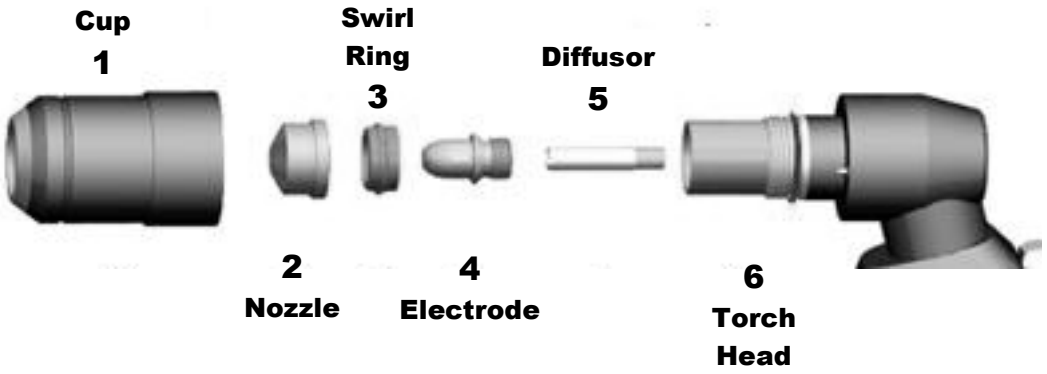
Everlast P Series Torch 60 Amp High Frequency Start Pilot Arc Exploded View



Everlast P Series Torch 70-80 Amp High Frequency Start Pilot Arc
Exploded View with Optional HF track/CNC Torch



Everlast A Series Torch 60-80 (optional) and 100 Amp (standard)
High Frequency Start Pilot Arc
Exploded View



3.1 **Plasma Torch.** Becoming familiar with a Plasma torch is a necessary step to becoming proficient at Plasma Cutting. Refer to the following images for a typical Plasma torch breakdown for the PowerPlasma 50 and 60-100 torch assemblies.

Image 3.8a
PowerPlasma Torches

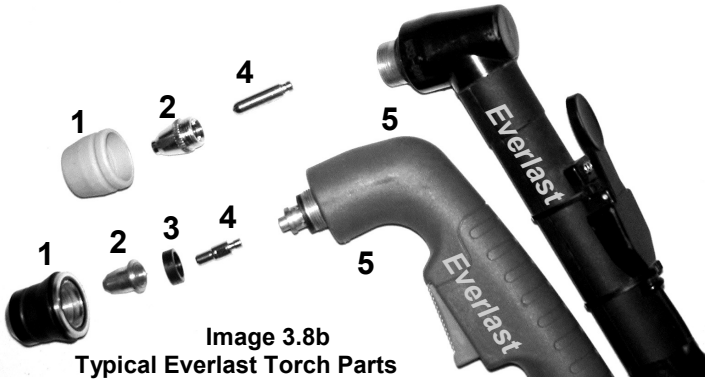


Image 3.8b
Typical Everlast Torch Parts

1. **Cup.** Screws to torch body. Replace when either severely burned or cracked because shorting to the work piece can occur.

2. **Cutting Tip.** Directs the plasma flame to the base metal. Either screws to torch or sits inside cup, depending upon model. Check tip frequently for wear or burn through.

3. **Swirl Ring.** Rapidly spins air into a tornado like stream to create plasma. Not found on all torch designs. If your torch (S-series in particular) has a swirl ring, it must be used.

4. **Electrode.** This forms the arc in the head of the torch needed to create the plasma. Often when tip is burned or worn, the plasma cutting ability of the unit becomes limited. Check condition when changing out cutting tips. Make sure they are tight or torch failure can occur.

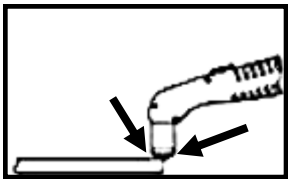
5. **Torch Body.** Keep the body of the torch in good condition. Inspect often for cracks and burns in the torch body to prevent electrocution.

3.2 **Plasma Cutting Principles.** ⚠ **Before any welding or cutting takes place, it is necessary to put on protective gear and familiarize yourself with safety precautions.**

Plasma Cutting is an efficient and simple way to cut multiple metal types. The super sonic plasma stream, generated by ionized pressurized air, is capable of rapidly burning metal without overheating the surrounding area. This is helpful for preventing warpage and preventing the formation of Heat Affected Zones (HAZ) in the metal.

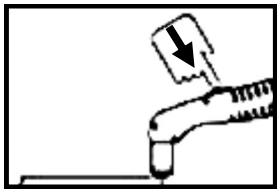
3.3 **Simple and easy steps to cutting correctly with an Everlast PowerPlasma® Cutter.**

1. **Set Amperage and Air pressure to suit the units specifications.**

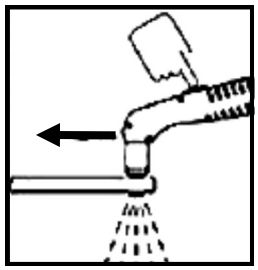


Place the torch cutting tip directly on the edge of the metal. Alternatively, you may allow up to 1/8 inch of standoff to prevent extra wear and blow back of material.

2. **Press trigger to begin cutting.** Hold torch trigger down to continue cutting in Standard mode. To cut in Automatic mode, press trigger to allow arc to start and release trigger to continue cutting.



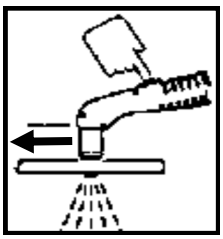
3. **Once Plasma stream is established and sparks exit the bottom of the piece of metal being cut, slowly move the torch forward into the cut.**



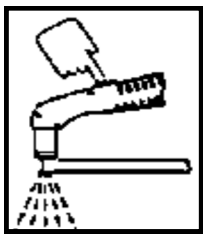
Depending upon torch orientation, you may pull, push or move side-to-side to make the cut. Grip the torch only tight enough to keep the trigger pressed. A tight grip will result in uneven cutting. Glide the hand gently across the metal, maintaining a drag style cut or a standoff. Use standoff wheels or ring if necessary on long cuts. If the torch tip sticks or fouls excessively, revert to standoff cutting.

continued

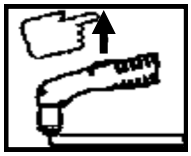
4. **Continue cutting following the desired path of cut.** Make sure that the sparks are exiting the piece of metal at a 10-15 degree angle. If the sparks are exiting straight down, then the cutting speed is too slow. Increase cutting speed until a change of the spark angle is observed. If excessive slag is building up on the bottom of the metal (more than 1/8 inch) then either increase amperage, travel speed or air pressure. Sometimes excessive slag build up on the bottom of the cut occurs because the machine has reached its severance limit. Occasionally excessive slag can be caused by rusty or contaminated metal. Note that cutting thicknesses posted in the specification page are specifically for mild carbon steel under ideal circumstances. Stainless, Aluminum and other metals have reduced ratings cut ratings. Cutting capacity of these metals are generally 10-20% less than mild steel.



5. **Exit the cut by pausing briefly to allow the spark stream to catch up and to be directed straight down.** This is usually the most challenging part of the cut because the bottom of the cut needs to be even with the top before exiting or the cut piece will remain stuck to the parent piece of metal. Carefully work the plasma stream to the very edge of the cut.

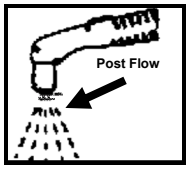


6. **Release the trigger to break the arc in the Standard/Manual mode setting.** In the Automatic mode setting, repress the trigger and release to discontinue the arc.



⚠ Caution! Breaking the arc in the auto / CNC or track torch mode by lifting the arc away will not satisfactorily terminate the arc and will restart the pilot arc. Precautions must be taken in this mode or serious injury can occur.

7. **Allow post/after flow cooling to occur.** Post flow will continue after the cut is completed. If additional cooling is required because of heavy cutting or extended cutting, switch the post flow switch to "Test" or "Constant Flow" to start manual cooling of the torch. After the torch is sufficiently cooled, return the switch to cutting mode to discontinue the post/after flow cooling cycle.



3.8 **Helpful Hints for cutting.**

1. **Make several practice cuts first.** Adjust the amperage and air pressure throughout the range to see the effects it has on the cut. **General guide: for every 1/8 inch increase over 1/8" thickness, increase by 10 amps. For 0-1/8" use 20 amps minimum. For example use. 1/4 inch should be set at 30 amps. 3/8 inch would require 40 amps.**

2. **Use a substantial flat piece of metal to make a long, clean cut.** Attempting to cut odd objects or make short cuts cannot really train proper technique. It will also be difficult to ascertain the quality of the cut.

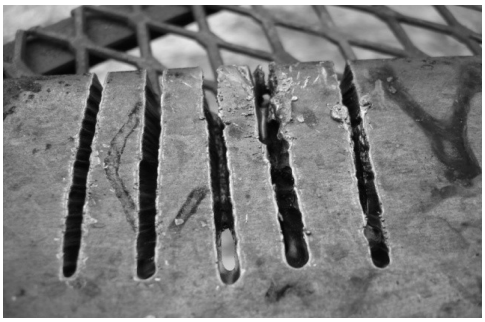


Image 3.11 Practice Cuts Using Different Settings.

3. **Keep torch straight in the cut.** Do not lean or tilt the torch excessively except at start. The ergonomic design of Everlast torches eases this problem. However, fatigue is a common cause for poor, uneven cuts.

4. **Keep consumables checked for wear.** Tip wear can decrease cutting capacity and cut quality at an imperceptible rate until

continued

3.4 **Gouging.** Everlast PowerPlasma Cutters are able to perform light to medium gouging, depending upon the type of metal with the standard cutting tip and electrode. To gouge, simply lower the air pressure until the low air pressure warning light comes on. When the light illuminates, allow the air pressure to stabilize and increase the air pressure 5-10 pounds above the warning light threshold. Lean the torch at a 30-35 degree angle to the work piece and begin to gouge. If you experience problems, experiment with the air pressure to accomplish the desired type of gouge. For certain applications, a special gouging tip may be required. For this special need, contact Everlast well in advance of the expected time of use to check on availability of tips and electrodes. Gouging tips may not be available for some units or they may be special ordered only.

3.5 **Piercing.** Occasionally, the need will arise to pierce directly down into a piece of metal to initiate a cut with out the benefit of starting on the edge of the material. This is known as piercing. To pierce, simply start the torch with a 1/8 inch stand-off at the desired spot. If possible, lean the torch at a slight angle so that blowback does not become a problem and will not foul the tip. Make sure that you tilt the torch away from the piece being cut out to prevent marring. Allow the torch to slowly burn its way through the metal. As the torch plasma flame burns down through the plate, straighten the torch into the normal cutting position. As sparks begin to exit the bottom, you may shorten the stand-off and begin your cut. Excessive use of piercing will significantly reduce consumable life, particularly with an inexperienced operator. Do not attempt to pierce an object that is thicker than 40-50% of the rated cut capacity to ensure long torch and consumable life. Piercing can melt torch components because of extreme redirected heat and blowback.i.e. blind hole cutting and tight corner cutting. blind hole cutting or piercing in tight corners. **Melted components is deemed abuse. Damage resulting from abuse in this manner is not covered under warranty. Care should be taken to direct blowback and heat away from the torch head at all times.** Note: Even the best piercing technique may result in some blowback, which is normal and acceptable. Protective gear is absolutely required, especially face shields and fire proof clothing.

3.6 Additional safety concerns.

1. Plasma cutting uses a high voltage arc. Touching any part that is not insulated can cause severe electrical shock that could severely injure or kill you. While in operation, do not touch any component of the torch other than the handle and the switch. Do not touch the Cup even though it appears to be insulated as fine cracks or burned areas can conduct electricity directly. Do not touch connectors or fittings while in operation. Do not allow children in work area unsupervised as they may try to touch machine components while in operation.

2. Any cutting glasses or shields should be rated for UV protection as well as Infrared. The plasma arc is different than that of the IR intensive Oxy/Fuel flame. A full face shield such as a welding helmet is recommended due to the intense UV rays emitted. Most quality welding helmets offer excellent protection. A minimum shade of 7 is recommended by OSHA. However, lighter shade allowances are made for different amp levels and cutting techniques. Consider purchasing an auto-darkening helmet with a cutting shade of 7 such as the Everlast Fabricator Helmet with an adjustable shade range of 7-15.

3. The cutting of some metal can release toxic fumes. Metals such as stainless steel can release hexavalent chromium. Always take precautions for ventilation.

4. Never use brake cleaner or ANY chlorinated solvent to clean metal before cutting or welding, even after it dries! A chemical reaction will occur creating phosgene gas. Phosgene gas is a deadly gas in the smallest amounts. Onset of poisoning symptoms may be slow and delayed or immediate. Symptoms include flu like conditions, nausea, vomiting, difficulty breathing, low blood pressure, organ failure and death. If you suspect you have been exposed, immediate medical attention is required.

5. Remove all potential fuel sources from the area. Sparks and embers may go unnoticed for hours. Take care to inspect work area up to 30 feet away before leaving site unattended .

TROUBLE:	CAUSE/SOLUTION
Machine will not turn on.	Check cords and plug wiring. Occasionally a terminal screw will loosen after installation and use. Check for proper wiring at plug and receptacle. Check circuit breaker. If no fault is found, contact Everlast Support.
Machine runs, but will not cut.	Check for a good work clamp connection. Make sure work piece cable and plasma torch is securely fastened to lug and receptacle. Check that the CNC/Track torch Auto/ Standard switch is in the correct position for type of use desired (see description of feature function and operation on page 11). Check fuse.
Plasma Cutter pilot arc will not energize. Energizes erratically.	Check electrode/cup tightness. Tighten electrode with supplied wrench or pliers. Torch switch wire or pilot arc disconnected inside torch or at unit connection. Burned or broken cup. Check for cracks.
Electrodes and tips are rapidly consumed.	Inadequate air flow. Water in air supply. Poor cutting technique. Return to standoff cutting of no more than 1/8“, not less than 1/16”. Check and tighten consumables.
Heavy slag on the underside of the cut with complete cut through.	Travel speed too slow. Either increase cutting speed or reduce cutting amperage to fit metal thickness. Too much standoff (more than 1/8 inch). Worn consumables. Low air pressure.(Do not exceed 70 psi)
Plasma cut is beveled on one side.	Plasma cutters tend to leave a slightly beveled side (up to 5 degrees). However, decreasing the standoff and increasing air pressure can help reduce or eliminate problems. Worn Consumables. Replace consumables.
Air pressure light does not illuminate. (some models) or air is heard escaping inside unit.	Overpressurized supply line. Internal leakage around air fittings. Consult with Everlast Support for repair instructions if needed. No air supply.
Cut quality is poor or irregular.	Check and adjust settings. Increase or decrease air pressure. Check for consumable wear and tightness. Pilot arc failure.
Over current LED illuminates.	Duty cycle exceeded. Allow machine to cool while running. Reset breaker after cooling.
Unstable Plasma Arc.	Poorly grounded unit or worn electrode.
Surrounding lights, or electronic equipment malfunctions.	Use high frequency ground connected to an exterior ground rod to drain Electro magnetic frequencies. Use a shielded wire to drain if necessary. Consult local electrician/codes.