

EVERLAST

POWERULTRA SERIES

MULTIPROCESS PULSE TIG//SMAW/PLASMA CUTTER UNITS

CC

GTAW-P



SMAW



PAC



IGBT



1

PHASE

DC



Operator's Manual For All DC Output PowerUltra P Series Units Safety, Setup and General Use Guide

Rev. 1 0 00301-13

everlastwelders.com

EVERLAST

1-877-755-9353

329 Littlefield Ave. South San Francisco, CA 94080 USA

Specifications and Accessories subject to change without notice.

TABLE OF CONTENTS

Section.....	Page
Letter to the Customer	3
Everlast Contact Information.....	4
Safety Precautions.....	5
Introduction and Specifications.....	9
Unit Specifications.....	10
General Overview.....	11
General Use and Care.....	11
Quick Setup Guide, TIG Torch/Cooler Connection	12
Quick Setup Guide, Plasma Connection.....	13
Quick Setup Guide, Stick Polarity and Connection	14
Quick Setup Guide, Rear Connection for Plasma...	15
Quick Setup Guide, Rear Connection for TIG.....	16
Front Panel Features and Controls.....	17
Rear Panel Features and Controls.....	19
Pulse Summary and Explanations.....	21
Tungsten Preparation.....	22
High Frequency Start TIG Operation.....	23
Stick Arc Starting Procedure.....	24
Plasma Function and Operation.....	25
Recommendations for Polarity/Amps/Tungsten..	29
Expanded View of TIG torch.....	30
Plasma Torch S-45.....	31
7 Pin Connector Pin-out.....	32
Troubleshooting.....	33

NOTE: Product Specifications and features are subject to change without notice. While every attempt has been made to provide the most accurate and current information possible at the time of publication, this manual is intended to be a general guide and not intended to be exhaustive in its content regarding safety, welding, or the operation/maintenance of this unit. Everlast Power Equipment INC. does not guarantee the accuracy, completeness, authority or authenticity of the information contained within this manual. The owner of this product assumes all liability for its use and maintenance. Everlast Power Equipment INC. does not warrant this product or this document for fitness for any particular purpose, for performance/accuracy or for suitability of application. Furthermore, Everlast Power Equipment INC. does not accept liability for injury or damages, consequential or incidental, resulting from the use of this product or resulting from the content found in this document or accept claims by a third party of such liability.

Dear Customer,

THANKS! You had a choice, and you bought an Everlast. We appreciate you as a customer and hope that you will enjoy years of use from your welder.

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 sales department through the main customer service number in your country. Your unit will be registered and warranty will be issued and in full effect. Keep all information regarding your purchase. **In the event of a problem you must contact technical support before your welder can be a candidate for warranty service and returned.**

Please review the current online warranty statement and information found on the website of the Everlast division located in or nearest to your country. Print it for your records and become familiar of its terms and conditions.

Everlast offers full technical support, in several different forms. We have online support available through email, and a welding support forum designed for customers and noncustomer interaction. Technical advisors are active on the forum daily. We also divide our support into two divisions: technical and welding performance. Should you have an issue or question concerning your unit, please contact performance/technical support available through the main company headquarters available in your country. For best service call the appropriate support line and follow up with an email, particularly during off hours, or in the event you cannot reach a live person. In the event you do not reach a live person, particularly during heavy call volume times, holidays, and off hours, leave a message and your call will normally be returned within 24 hours. Also, for quick answers to your basic questions, join the company owned forum available through the website. You'll find knowledgeable, helpful people and staff available to answer your questions, and perhaps find a topic that already addresses your question at <http://www.everlastgenerators.com/forums/>.

Should you need to call or write, always know your model name, purchase date and welder manufacturing inspection date. This will assure the quick and accurate customer service. **REMEMBER: Be as specific and informed as possible. Technical and performance advisors rely upon you to carefully describe the conditions and circumstances of your problem or question. Take notes of any issues as best you can. You may be asked many questions by the advisors to clarify problems or issues that may seem very basic. However, diagnosis procedures MUST be followed to begin the warranty process. Advisors can't assume anything, even with experienced users, and must cover all aspects to properly diagnose the problem. Depending upon your issue, it is advisable to have basic tools handy such as screwdrivers, wrenches, pliers, and even an inexpensive test meter with volt/ohm functions before you call.**

Let us know how we may be of service to you should you have any questions.

Sincerely,

Everlast Customer Service

Serial number: _____
Model number: _____
Date of Purchase _____



Contact Information

Everlast US:

Everlast consumer satisfaction email: sales@everlastwelders.com

Everlast Website: everlastwelders.com

Everlast Technical Support: support@everlastwelders.com

Everlast Support Forum: <http://www.everlastgenerators.com/forums/index.php>

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

FAX: 1-650-588-8817

Everlast Canada:

Everlast consumer satisfaction email: sales@everlastwelders.ca

Everlast Website: everlastwelders.ca

Everlast Technical Support: sales@everlastwelders.ca

Telephone: 905-637-1637 9am-4:30pm EST M-F
10am-1pm EST Sat.

FAX: 1-905-639-2817

Everlast Austrailia:

Sydney: 5A Karloo Parade Newport NSW 2106

(02) 9999 2949

Port Macquarie: 2B Pandorea Place Port Macquarie

(02) 8209 3389

After hours support: 0413 447 492

Everlast Technical Support: support@pickproducts.com

SAFETY PRECAUTIONS

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 a ***licensed*** 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.

SAFETY PRECAUTIONS



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 chip-ping 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!**

SAFETY PRECAUTIONS



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.

SAFETY PRECAUTIONS

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.



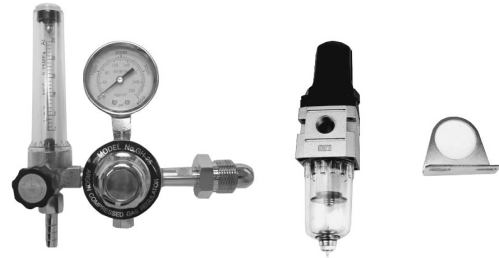
WARNING! Faulty or poorly maintained equipment can cause injury or death. Proper maintenance is your responsibility. Make sure all equipment is properly maintained and serviced by qualified personnel. Do not abuse or misuse equipment. Keep all covers in place. A faulty machine may shoot sparks or may 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 you are comfortable with proper operation and are able to assume inherent risks of cutting or welding.

SECTION 1

INTRODUCTION AND SPECIFICATIONS



Argon and Air Regulator



26 series TIG torch



Stick Electrode Holder



Work Clamp



S-45 Plasma Torch



22K Ω



Consumable Starter Kit

NOTE: Accessory and consumable style and quantities are subject to change without notice. Consumable starter kits provide only enough consumables to get started. Extra consumables can be purchased through Everlast or almost any local welding supply store.

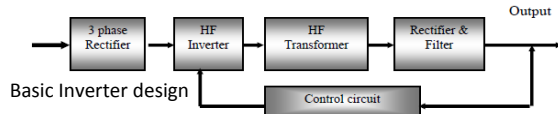
DC POWERULTRA INPUT/OUTPUT SPECIFICATIONS

FEATURE/SPEC.	POWERULTRA 205P	POWERULTRA 250P
INVERTER TYPE	IGBT	IGBT
INPUT VOLTAGE $\pm 10\%$; PHASE/FREQUENCY	110/220V; 1PH/50-60Hz	220V; 1PH/50-60Hz (Some Models 110-220V)
MAXIMUM INPUT AMPS (I_{LMAX})	34 A @110V/ 25 A @ 220V	32 A @220V
MAXIMUM INPUT RUNNING AMPS (I_{Leff})	28 A @ 110V/ 31.3 A @ 220V	25 A @ 220V
TIG DUTY CYCLE % @ AMPS	35% @ 100 A (110V) 60% @ 85 A (110V) 100% @ 55 A (110 V) 60% @ 200 A (220V) 100% @ 160 A (220V) 60% @ 50 A (220V) 100% @ 40 A (PLASMA/220V) 60% @ 25 A (PLASMA/110V)	35% @250 A 60% @ 200 A 100% @ 160 A
OUTPUT AMP RANGE	TIG: 5-200 A (220V) Stick: 5-160 A (220V) PLASMA: 20-50 A (220V) 10– 100 A (120V)* 20-27A (120V)*	TIG: 5-250 A Stick: 5-200 A PLASMA: 20-50 AMPS
OPERATING VOLTAGE RANGE	TIG: 10.4-18 V Stick: 20.2-26.4 V PLASMA: 88-100 V	TIG: 10.4-20 V Stick: 20.2 V-28 V PLASMA: 88-100 V
OPEN CIRCUIT VOLTAGE	TIG/STICK 60-80 V PLASMA: 250 V	TIG/STICK: 70-80V PLASMA: 250 V
TIG TORCH	26 SERIES	26 SERIES
PLASMA TORCH	S-45 SERIES BLOWBACK START	S-45 SERIES BLOWBACK START
CONSTANT CURRENT (CC) OUTPUT TYPE	DC (\pm)	DC (\pm)
STICK CELLULOSE ROD CAPABLE 6010,6011	6011 ONLY (DC+)	6011 ONLY (DC+)
INCLUDES	WORK CLAMP WITH CABLE (8 FT),STICK TORCH WITH CABLE (8FT), TIG TORCH: 12 FT, PLASMA S-45 12 FT, CONSUMABLE STARTER KIT FOR TIG AND PLASMA (NO TUNGSTEN)	WORK CLAMP WITH CABLE (8 FT),STICK TORCH WITH CABLE (8FT), TIG TORCH: 12 FT, PLASMA S-45 12 FT, CONSUMABLE STARTER KIT FOR TIG AND PLASMA (NO TUNGSTEN)
DINSE CONNECTOR TYPE	25 Series	35 Series
POST FLOW	ADJUSTABLE 0-60Seconds	ADJUSTABLE 0-60 Seconds
PROTECTION CLASS	IP21S	IP21S
INSULATION GRADE	F	F

SECTION 1

INTRODUCTION AND SPECIFICATIONS

General overview: The PowerUltra Series from Everlast are entry level TIG, stick and plasma multi-purpose units, designed for portable repair and light general welding work. These are suggested for the home hobbyist, trail use or light use in factory settings where spot repairs are needed on stainless, or steel metal. These units are ideal for portable repair situations. These are basic dual voltage DC output machines with a Low/High fixed pulse setting for TIG. These are not intended for use in production or intensive fabrication duties. The following features are included on the welder.




General Use and Care: The welder is designed for regular use, but not necessarily for fabrication or production duties. Keep in mind that the unit is designed for on-the-spot repairs and portability. They provide function and convenience in these situations. Care should be taken to keep the unit out of direct contact with water spray. The unit is rated IP21S, which rates it for light contact with dripping water. It is a good idea to remove the welder from the vicinity of any water or moisture source to reduce the possibility of electrocution or shock. Never operate in standing water.

Every 1-2 months, depending upon use, the welder should be unplugged, opened up and carefully cleaned with compressed air. Regular maintenance will extend the life of the unit.

IMPORTANT: Before opening the unit for any reason, make sure the unit has been unplugged for at least 10 minutes to allow time for the capacitors to fully discharge. Severe shock and/or death can occur.

Do not restrict air flow or movement of air around the welder. Allow a buffer distance of 2 ft from all sides if possible, with a minimum distance of at least 18" clearance. Do not operate the welder immediately in the weld area or the force of the fan will cause welding issues such as unstable arc, or porosity.

Do not mount in areas that are prone to severe shock or vibration. Lift and carry the welder by the handle.

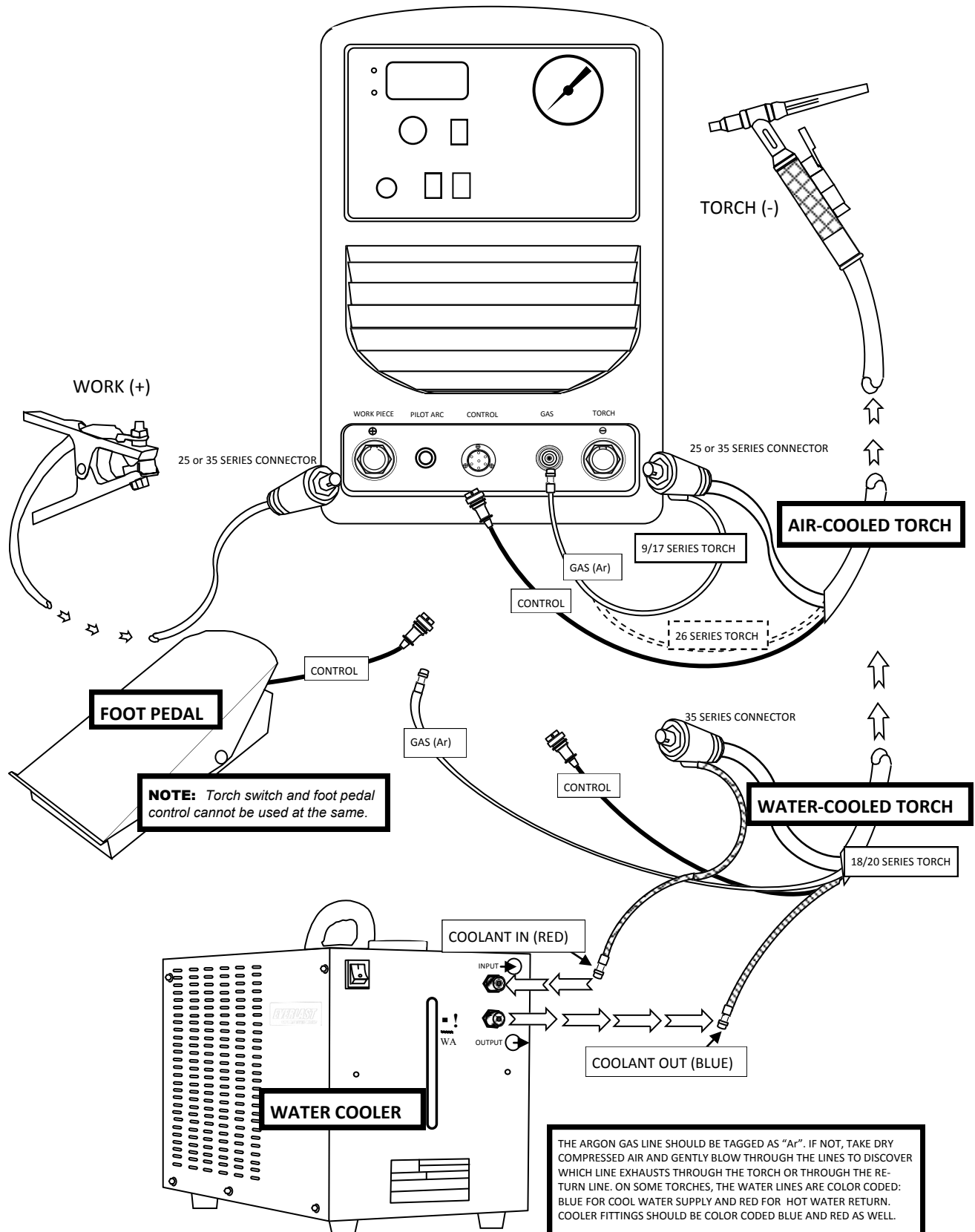
 Do not direct metallic dust or any dirt intentionally toward the machine, particularly in grinding and welding operations. Make sure the panel is protected from damage during welding and cutting operations by flipping down the clear protective cover.

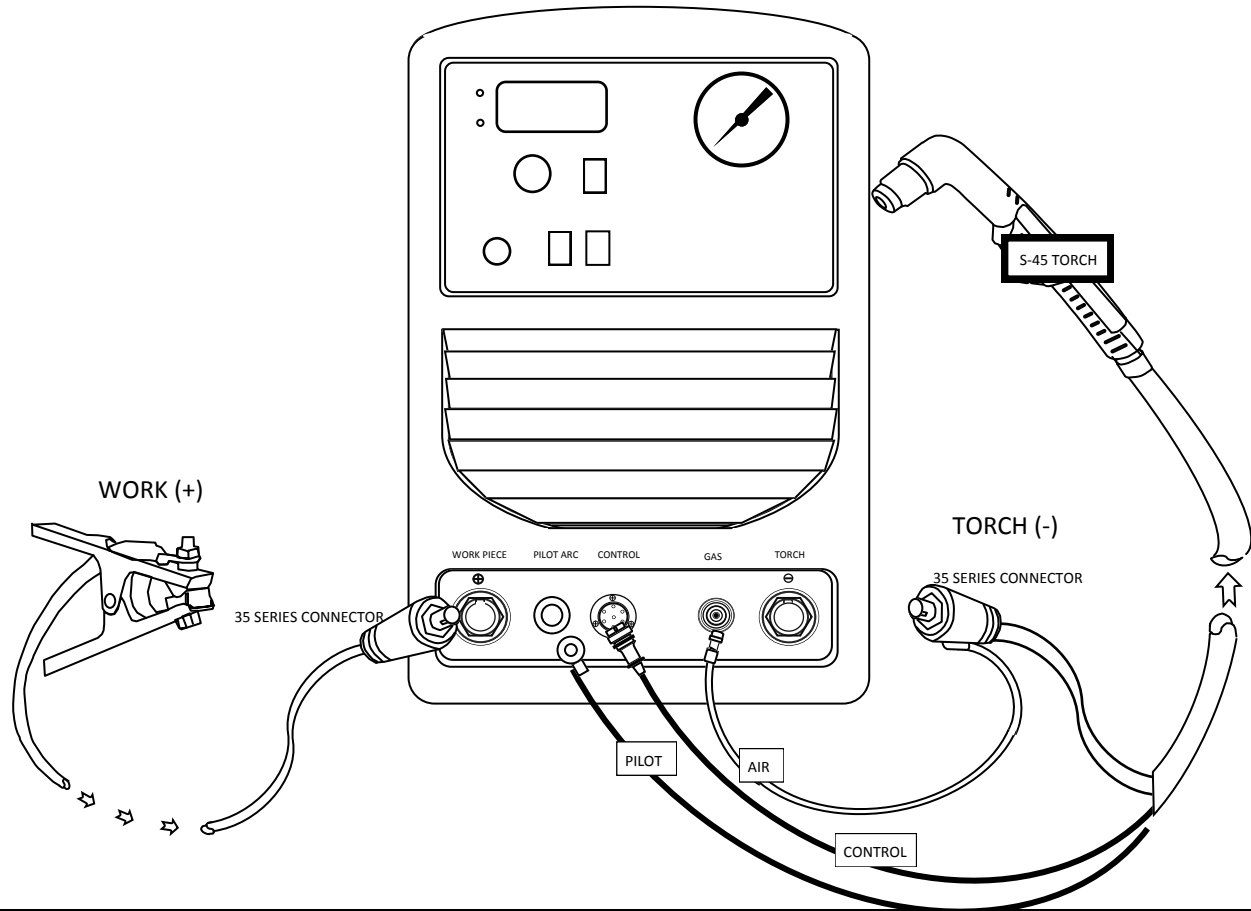
Duty Cycle. The duty cycle has been determined for the 250P at 35% TIG/Stick and 60% plasma. For the 205P, it is 60% TIG/Plasma and 35% stick. The duty cycle is based off a 10 minute duty cycle rating at 40° C. This means that the unit is capable of being operated at the max amps for the stated percent of time out of 10 minutes without a break to cool down the unit. For the remainder of the 10 minute time period, the welder should rest for maximum life. The temperature light will come on and the welder will automatically stop welding when an overheat condition has occurred. Stop welding immediately. Heat will continue to be generated by and transferred to the electronics after welding has ceased. Welding in humid, or hot conditions can affect duty cycle as well. Do not shut down an overheated welder until it has safely cooled. Once the overheated condition has cleared, welding can resume. Do not operate the welder with the covers removed. Only cycle the power switch to reset the unit IF the light has not gone out after 10 minutes. 120V operation may reduce duty cycle in some situations and will necessarily reduce output.

HF Start. The welder uses High Frequency to start the TIG arc. HF is generated by a point gap system similar to an older automotive point/coil system. A slight buzz, or hiss may be heard immediately upon start as the HF energizes. A bright blue light may be emitted from the front or side panel as the spark energizes. This is normal and safe as long as the covers are in place.

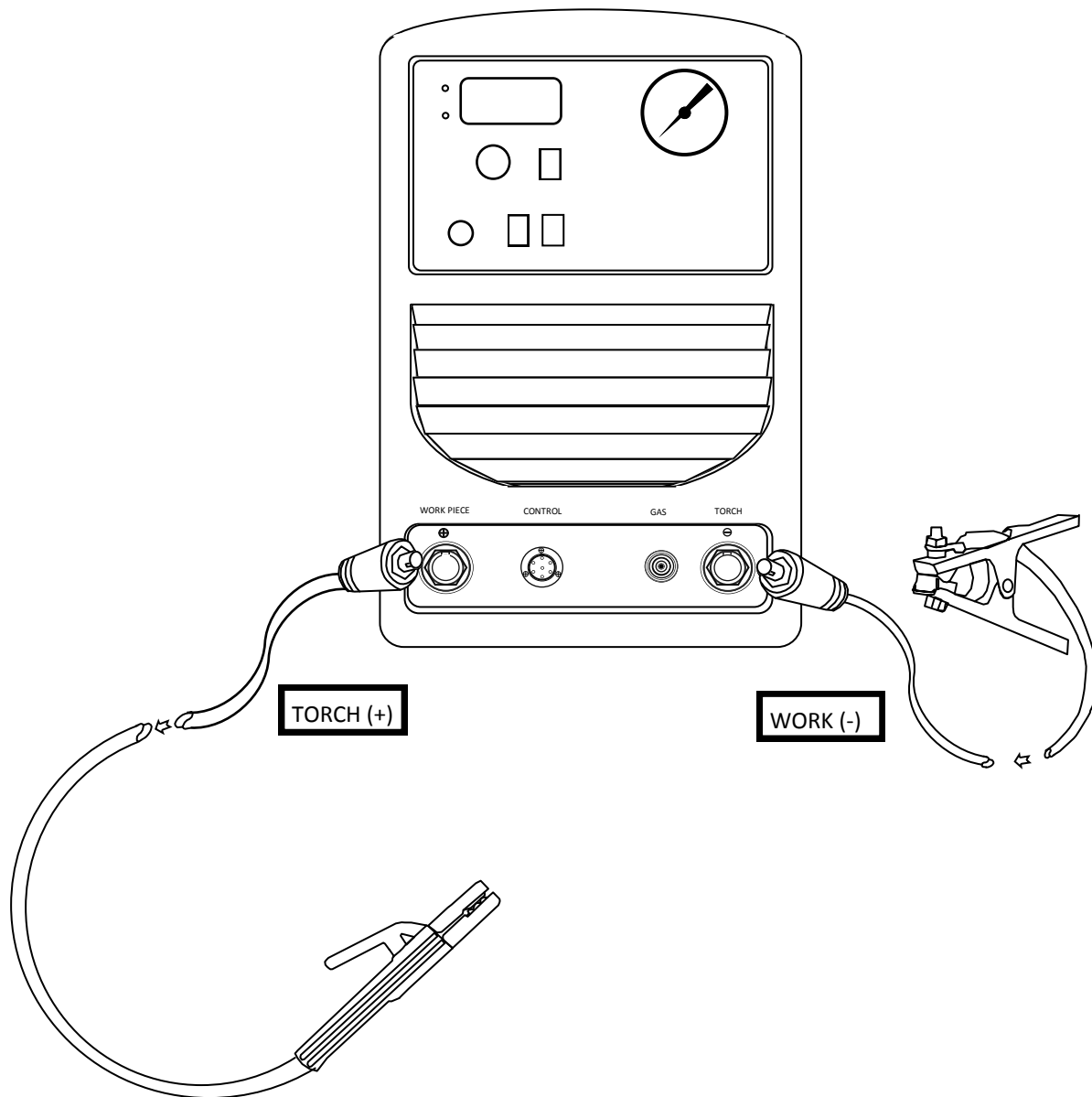
This manual has been compiled to give an overview of operation and is designed to offer information centered around safe, practical use of the welder. Welding is inherently dangerous. Only YOU, the operator of this welder, can ensure that safe operating practices are followed, through the exercise of common sense practices and training. Do not operate this machine until you have fully read the manual, including the safety section. If you think that you do not have the skill or knowledge to safely operate this welder, do not use this welder until formal training is received.

QUICK SETUP GUIDE: TIG CONNECTIONS



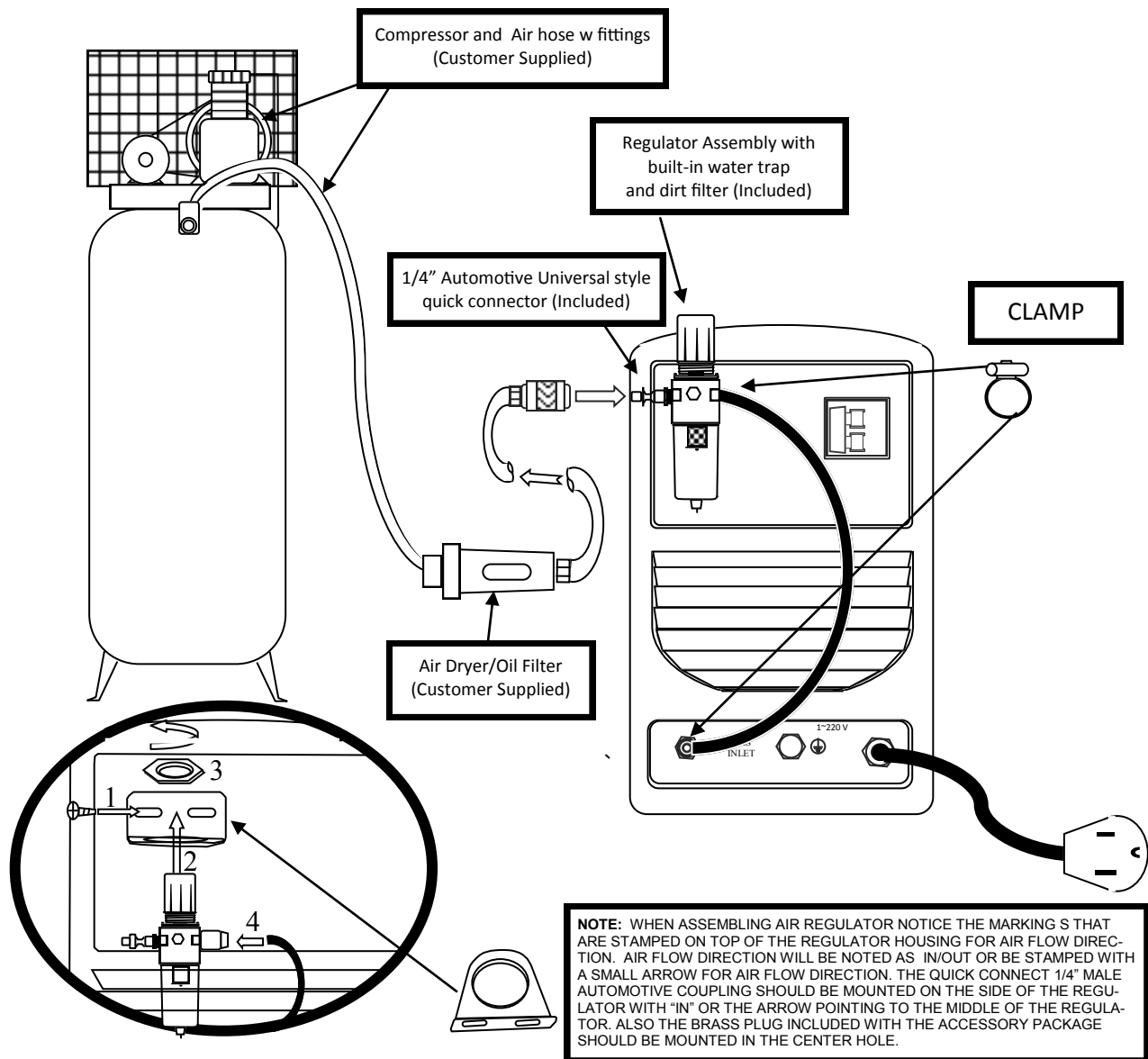
QUICK SETUP GUIDE: PLASMA CONNECTIONS**NOTES:**

- 1) When connecting and using the plasma function of the unit, be sure to always turn off the pulse function and turn of start/end amps and up/down slope. Operate only in DC mode. AC is not used to cut aluminum!
- 2) For operation, and safest use, be sure 2T is selected. Do not attempt to use the foot pedal to control the amps.
- 3) Do not flip the process switch while cutting or unit failure may result.
- 4) Attempt to operate only when "OK to Cut" light is ON.
- 5) See torch manual included in this manual for best pressure settings and parts identification.
- 6) Do not exceed 90 psi air supply pressure or failure of components may result.
- 7) Adjust torch operation pressure to 72 psi (5 bar) for best results while post flow is flowing. If supplied, use the flow meter as depicted in the torch manual to properly set the air pressure and flow.
- 8) When using lower amperage levels, the nozzles will need to be changed out for ones with a smaller diameter orifice. Everlast is the OEM supplier of the torch but not the manufacturer. Smaller diameter nozzles are available through Trafimet authorized distributors.

QUICK SETUP GUIDE: STICK POLARITY AND CONNECTIONS

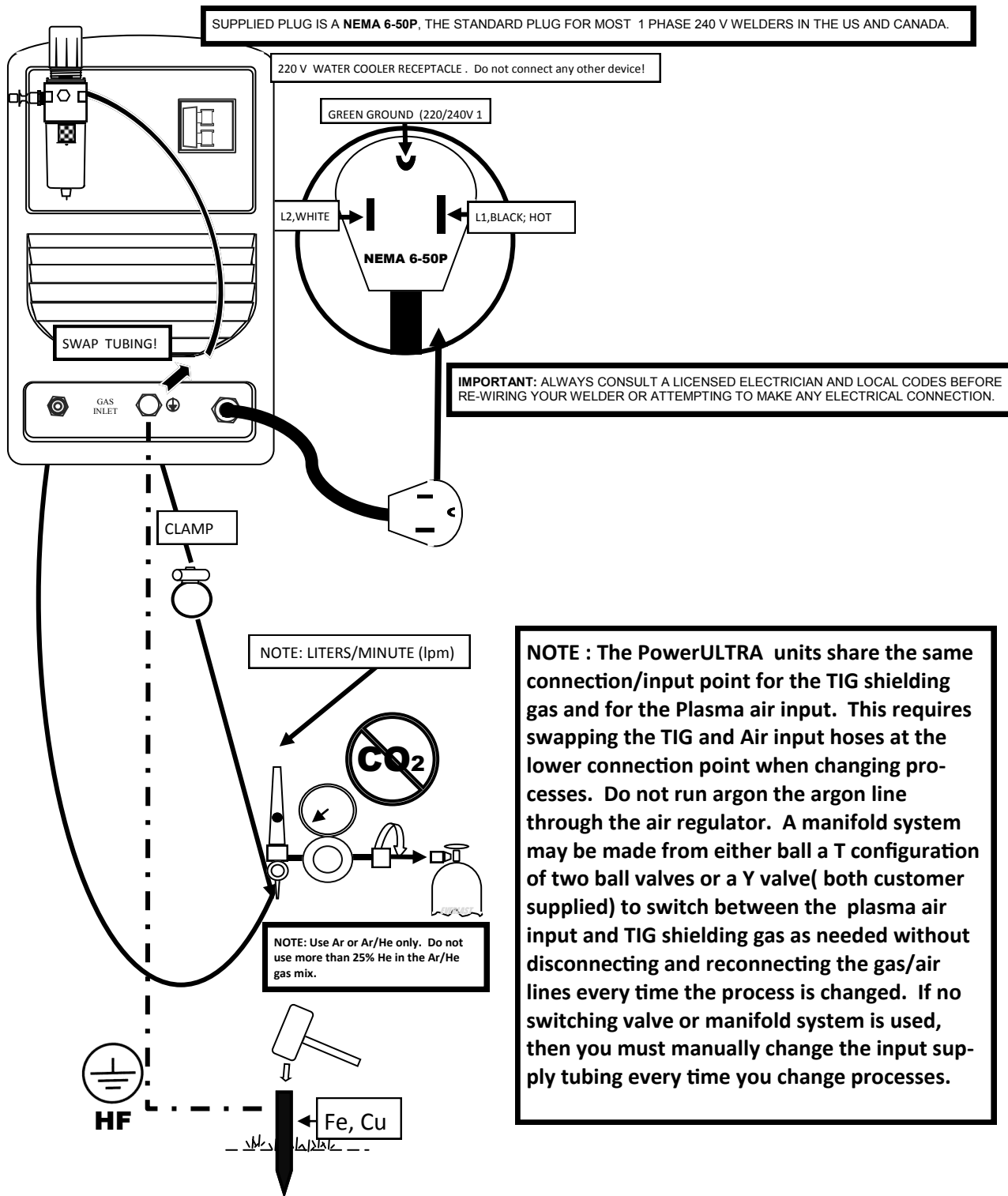
QUICK SETUP GUIDE: REAR CONNECTIONS FOR PLASMA OPERATION

Compressor and Dryer Diagram



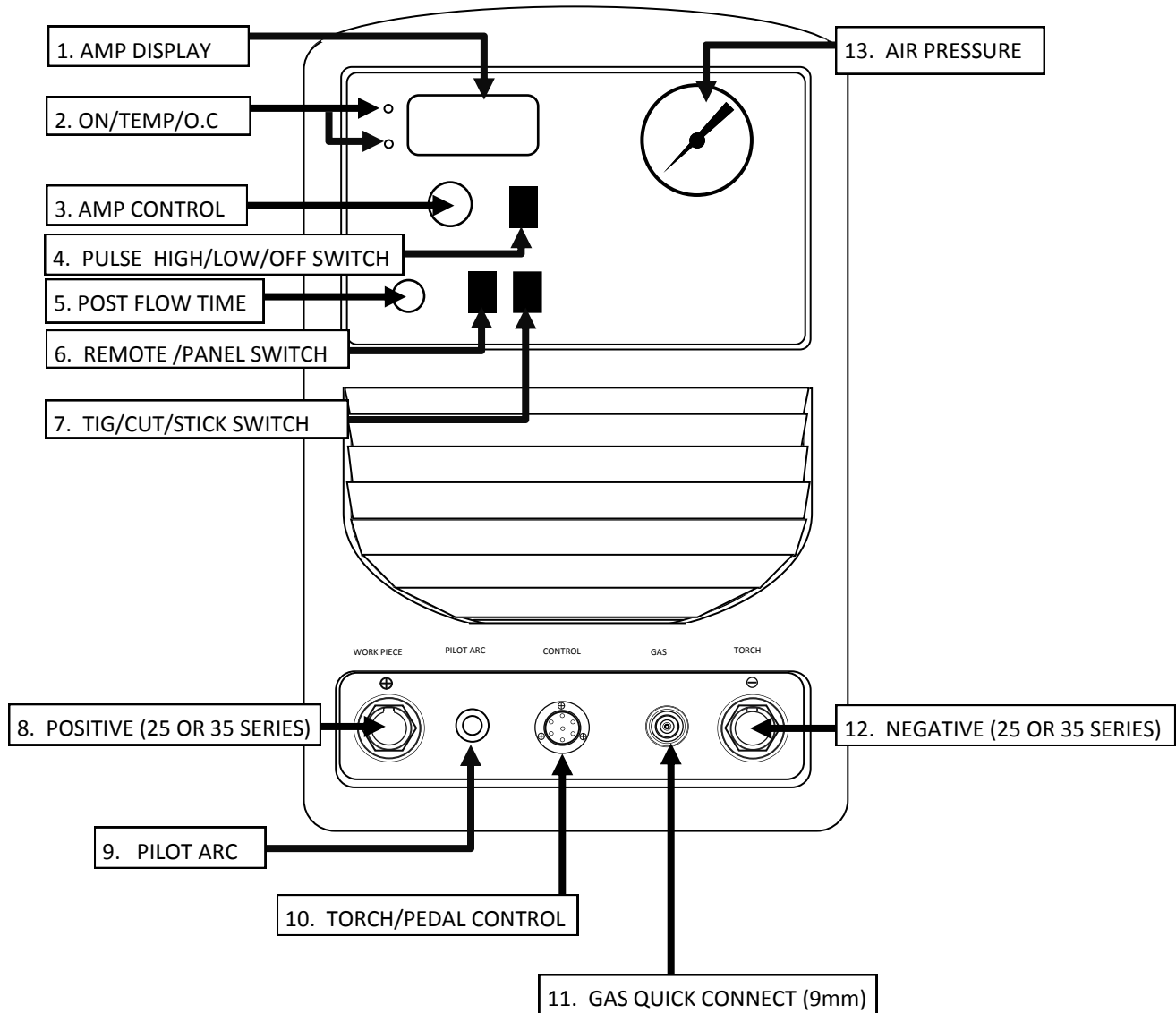
NOTE: A SEPARATE AIR DRYER BETWEEN THE AIR COMPRESSOR AND REGULATOR ASSEMBLY MUST BE INSTALLED. IT SHOULD BE INSTALLED AS CLOSE TO THE POWERPRO UNIT AS PRACTICAL. THIS IS A CUSTOMER SUPPLIED ITEM. THIS WILL REDUCE CUTTING ISSUES SUCH AS SPITTING, POPPING AND RAPID CONSUMABLE WEAR. THE REGULATOR/FILTER THAT IS INCLUDED IS NOT SUFFICIENT TO REMOVE ALL MOISTURE. IT SERVES ONLY AS A WATER TRAP AND FINE SEDIMENT FILTER. ANY AIR COMPRESSOR SYSTEM PRODUCES MOISTURE IN ALMOST ANY ENVIRONMENT REGARDLESS OF HUMIDITY LEVELS. DAILY DRAINING OF THE AIR COMPRESSOR IS RECOMMENDED AS WELL. THE AIR SUPPLIED TO THE PLASMA CUTTER SHOULD BE OF SIMILAR QUALITY USED FOR AUTOMOTIVE PAINTING. DIFFERENT STYLES OF DRYERS ARE AVAILABLE. THE MOST INEXPENSIVE AND COMMONLY AVAILABLE IS THE REPLACEABLE DESSICANT TYPE USED FOR AUTOMOTIVE PAINTING. DAMAGE DONE TO THE TORCH AND THE PLASMA CUTTER (INCLUDING BUT NOT LIMITED TO: SHORTING, CORROSION AND DETERIORATION OF INTERNAL LINES AND COMPONENTS) AS A RESULT OF EXCESS MOISTURE IS NOT COVERED UNDER WARRANTY. ADDITIONALLY, A FILTER SHOULD BE INSTALLED IN-LINE OR AT THE COMPRESSOR THAT WILL FILTER ANY EXCESS OIL OR OIL BLOW-BY FROM THE LINE IF NECESSARY. DO NOT USE WITH OILING SYSTEMS DESIGNED TO AUTOMATICALLY LUBRICATE AIR TOOLS. IT IS ADVISABLE TO USE THE PLASMA CUTTER WITH A NEW AIR HOSE/LINE THAT IS FRESH WITHOUT MOISTURE OR LUBE CONTAMINATION. IF AIR PRESSURE DROPS FROM THE COMPRESSOR TO THE CUTTER MORE THAN 5-10 PSI, OR AIR FLOW IS INSUFFICIENT, INCREASE TO A LARGER SIZE DRYER/FILTER. FAILURE TO USE THE PROPER DRYER/FILTER IS THE NUMBER ONE CAUSE OF CUTTING ISSUES.

QUICK SETUP GUIDE: REAR CONNECTIONS FOR TIG / WIRING (US/Canada)



NOTE: TO PREVENT STRAY HIGH FREQUENCY INTERFERENCE, THIS UNIT PROVIDES AN ADDITIONAL GROUNDING POINT AT THE REAR OF THE UNIT. IT SHOULD BE DIRECTLY GROUNDED THROUGH A SEPARATE WIRE TO AN OUTSIDE METAL ROD DRIVEN IN THE GROUND. THIS HELPS PREVENT BLEEDBACK OF HF INTO THE POWER GRID, AND HELPS MUTE HF INTERFERENCE. ADDITIONALLY, ALL SURROUNDING METAL OBJECTS SHOULD BE GROUNDED INCLUDING THE TABLE, PIPES, WALLS ETC. TO PREVENT ELECTRICAL INTERFERENCE WITH OTHER CIRCUITS. DO NOT COUPLE THIS WIRE TO THE GROUND PROVIDED IN THE ELECTRICAL CIRCUIT.

FRONT PANEL FEATURES AND CONTROLS

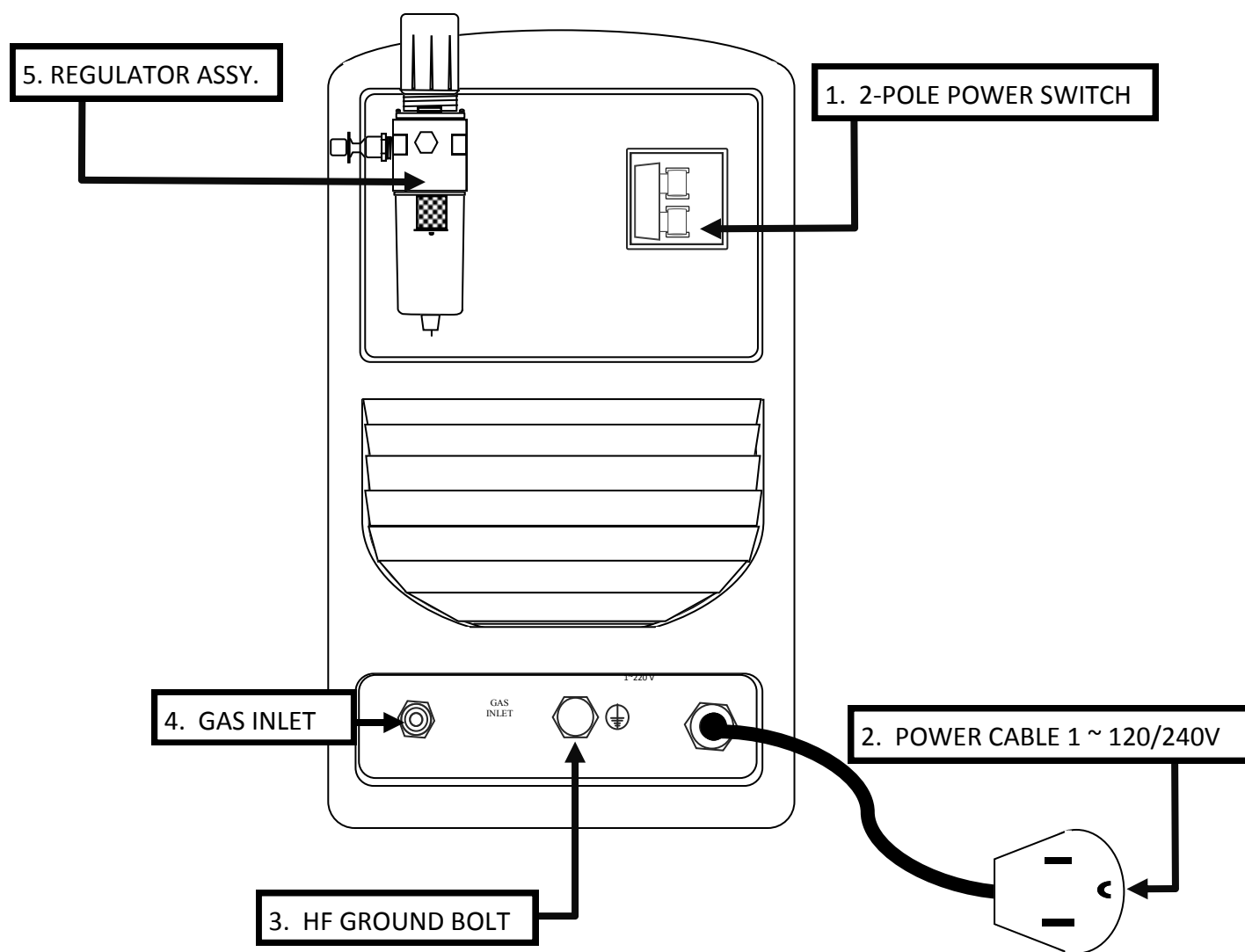


NOTE: PowerPRO 256S panel shown. PowerPRO 205S panel layout, appearance and function is identical, with the exception of the pulse frequency range, and the amp ranges being smaller.

FRONT PANEL FEATURES AND CONTROLS CONTINUED

POWERPRO FEATURES	PARAMETERS	PURPOSE
1. Amp Display	N/A	Indicates amperage while welding. While adjusting the amperage with the torch switch connected relays selected amperage. Remains static while foot pedal is plugged in until the pedal is pressed, then displays active amps.
2. On/Temp/ Duty Cycle	On/Off	On indicator should always be on while the unit is plugged in and the power switch is switched on. The Duty Cycle/ Over Current light is a dual colored LED. The color will appear red/amber if duty cycle is reached and welding/cutting will be interrupted. The unit should automatically reset if this light comes on. If the unit does not reset, manually cycle the power switch after 10 minutes. Do not turn off the unit until it has had sufficient time to cool. If it appears Green, then it is likely an overcurrent situation has occurred. Cycle the power switch to reset the machine. The light should go off. If it does not, and will not weld, contact Everlast.
3. Amp Control	N/A	Controls amperage output. While using the torch switch with TIG and Plasma this amp control switch sets the amperage. While using the foot pedal, however, this control becomes inactive and the full range of amps from the minimum up to the maximum output of the machine is available.
4. Pulse Off/High/Low Switch	Off/ Low/ High	Turns pulse on. Operates at fixed frequency of approximately 1 Hz(Low) or 25 Hz (Hz) Pulse ratio and balance is not adjustable. Do not operate with stick or with plasma!
8. Post Flow Control	0-25 Seconds (some models 0-60 Seconds)	Sets the post flow time of the shielding gas while welding in TIG mode. While in plasma (cut) mode, it sets the post flow time of the air. Time is approximate only and can vary somewhat from the maximum limit posted from unit to unit. The air or shielding gas may stop flowing before full maximum time is reached. Consider the maximum setting mark a reference guide only.
Panel/Pedal Switch	N/A	This selects Tig torch switch. When TIG torch is used, the control connector for the torch must be plugged in. This allows simple on/off operation at the selected amps. For foot pedal use, the foot pedal must be plugged in. The foot pedal will override panel control of the amps and the foot pedal is used to vary the amperage throughout the full range, from minimum to maximum output.
8. TIG/CUT/STICK	N/A	This switch selects processes. Do not switch this switch while welding or cutting, or with the improper torch connected or unit failure may result. Improper polarity can lead to unit failure as well. Make sure all connections are installed properly before cutting or welding.
9. Positive Connector (Work Piece on some models)	PU 205P: 25-35 mm ² PU 250P: 35-70 mm ²	Location of the positive terminal connection. Dinse-style connector. (35 Series) For Stick: Torch connection. For TIG, Plasma: Work Clamp Connection.
10. Pilot Arc	N/A	Pilot Arc Wire connection. To be used only with plasma torch. The small ringed wire connects here. Unscrew the plastic thumb nut and attach the wire to the post. Reinstall the thumb nut over the wire with finger pressure only.
11. Control Connector	7 Pin	Connect the foot pedal or torch switch to this socket to control the welder. Only the foot pedal or torch control connector can be plugged in at one time. If the torch has a torch switch feature, tie the loose connector back and leave it unconnected while using the pedal.
12. Quick Connect Gas Outlet	9 mm	Connects the gas to the TIG torch. To connect: Push the torch fitting into the connector until the collar slides forward with a click. To Release: Slide the collar back.
13. Negative Connector (Torch on some models)	PU 205P: 25-35 mm ² PU 250P: 35-70 mm ²	Location of the negative terminal connection. Dinse-style. (35 series) For Stick: Work Clamp Connection. For TIG: Torch Connection For Plasma: Torch Connection
14. Air Pressure Gauge.	90 psi max supply 65-75 operating	Use to measure air supply pressure for plasma only. This gauge is irrelevant while being used for TIG, although some pressure may register while the gas is actively flowing. Supply pressure should not exceed 90 psi. Adjust operating pressure while air is flowing with gauge provided, or adjust to 72 psi and increase or decrease pressure from there to achieve optimum cutting results. To adjust air pressure with torch, briefly fire torch with post flow set to maximum. Adjust air flow while the air is still flowing.

REAR PANEL FEATURES AND CONTROLS



REAR PANEL FEATURES AND CONTROLS CONTINUED

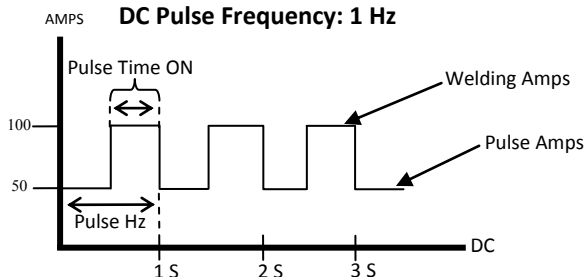
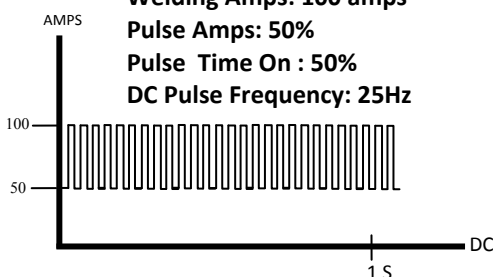
FEATURE	PARAMETERS	PURPOSE
1. 2-Pole Power switch	On/Off	The breaker switch has 2 poles. It serves as the On/Off switch for the welder. Always turn the welder on and off by the switch first before using any disconnect. The Water cooler outlet on the rear remains live after the switch is turned off.
3. Power Cord	120/240 V 1 phase, 50/60 Hz.	The unit is prewired with a standard NEMA 6-50 plug. This is the standard plug for welders in the US and Canada. Other countries vary plug configuration as well as input. As a dual voltage unit, when used with 120V supply connect the pigtail adapter to reduce the input. When using on 120V, make sure the breaker and wiring is sized properly for use or damage to the machine can result. NOTE: Maximum operation, on 120V is not recommended for long periods of time as high breaker amperage are required along with heavier than normal wiring ampacity, not normally found on most household 120V wiring. Keep operation of TIG UNDER 100 amps for TIG. Keep operation while in stick mode under 85. Keep Operation of Plasma under 27 while operating on 120V. Consult licensed electrician before operating on 120V to confirm wiring and breaker suitability.
4. Gas Input Connection	1/4-5/16"	This is the point where the shielding gas from the regulator connects. The unit is supplied with tubing and clamps which connect this fitting to the regulator. The hose barb design allows universal connection of the welder to almost any regulator or setup found throughout the world. Make sure the tubing slides fully over the connector, then thoroughly tighten the clamp. Use an additional clamp if necessary to prevent leaking. If you suspect leaking, test the connection with a solution of mild soapy water. If bubbles are seen, retighten or reinstall the tubing. While changing processes, the tubing must be swapped. Do not run the Argon gas through the air regulator/filter. A T-fitting or Y-fitting may be placed inline at the connection to leave both argon and air hooked up without having to swap out the lines. This is not supplied by Everlast.
5. HF Ground Bolt	N/A	HF energy can be devastating to surrounding electronic equipment. If the operating environment includes electronic equipment, this connection can serve as a direct path to an outdoor grounded metal rod that is isolated from the main electrical circuit to help bleed off excess HF circuit. All metal parts inside the building should be grounded as well, including pipes, tables, and even metal siding. HF energy has been known to bleed back into the power grid and disrupt electronic devices further down the grid. If the point gap becomes out of adjustment, more HF energy may build up, or even jump across circuitry within the welder. It is recommended that a small, separate ground wire (minimum 14 gauge) be attached at this point while in use.
6. Air Regulator Assembly	90 psi maximum Supply pressure. 65-75 psi operating pressure while cutting	The regulator serves a dual purpose. 1) It controls air pressure for plasma. 2) It filters fine particulates and large drops of water. The regulator is not designed to regulate Argon flow or have argon flowing through it. A separate air dryer must be installed inline to prevent rapid torch and consumable wear (Customer supplied). The regulator assembly is not designed to remove moisture from the air, only large drops of water that may be created in the coupling and uncoupling process. Everlast does not warranty damage caused to torches or consumables by moisture. Residual moisture in the line also can contaminate the system, causing problems while TIG welding. The number one issue experienced with Plasma cutting, with many different symptoms is the presence of moisture in the air line. To adjust the pressure, for cutting, simply pull the knob up until it clicks and rotate it clockwise to increase the pressure, and rotate it counter clockwise to decrease the pressure. To adjust the pressure correctly, adjust the pressure while the air is flowing in post flow mode. If a flow tube for the torch is provided, adjust it so the ball floats in the window as depicted in the torch manual. Do not fire torch with the flow tube installed on the torch. Turn Post flow to maximum, fire the torch, then install the flow meter and make adjustments to the air pressure while it is flowing. If no flow tube is provide, adjust pressure to 65-75 psi.

NOTES

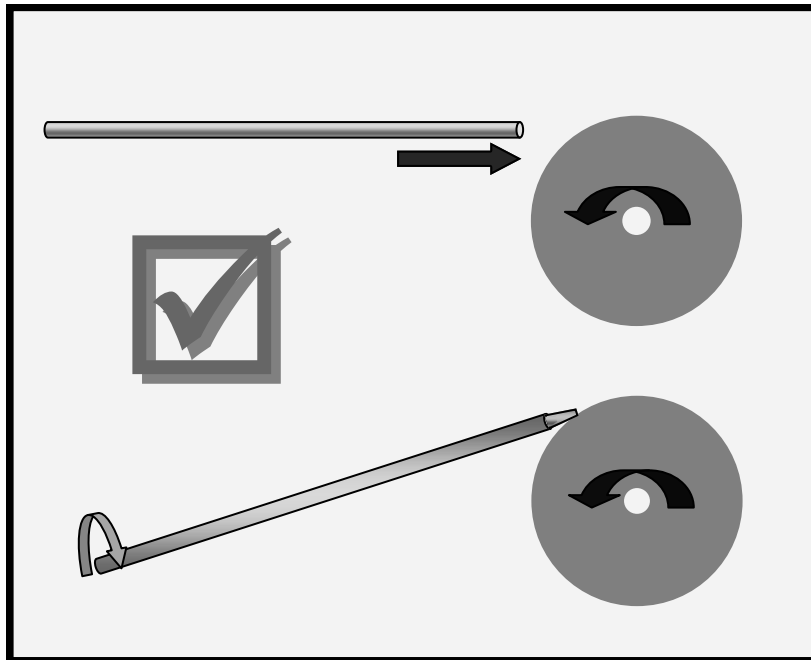
- The gas input connection should be checked for tightness periodically, especially if the machine is moved or when changing process.
- Never operate welder on a generator that is not certified by its manufacturer to be "clean" power, which is less than 10% total harmonic distortion. Less than 5% is preferred. Operating the unit on square wave output or modified sine wave generator is strictly prohibited. Contact the manufacturer of the generator for this information. Everlast does not have an "approved" list of generators. But, if the generator is not listed as clean power by its manufacturer, then operation is prohibited. Generators that do not at least meet the operating input requirements of the welder are also forbidden to be used with the welders. Surge amp capability of the generator should equal or exceed the maximum inrush demand of the welder. But the surge capability should not be used as the only factor. The regular, running output of the generator should match or exceed the running or "rated" demand of the welder. Any damage done by operating the welder on a generator not specified by its manufacturer to be "clean", will not be covered under warranty. This also includes suspect power sources where voltage is below 208 V and above 250 V.

Pulse. The pulse creates two amp values, a high and a low value that cycle back and forth between each other while welding. The upper amperage is called the “welding amps” (sometimes called “peak” current) and the lower amperage is called “pulse amps” (sometimes called “background” or “base” current). This creates a situation where penetration can be achieved without overheating the metal, particularly on metals that are prone to structural deterioration or burn through. In effect you are creating an average of amps. The PowerUltra uses fixed Pulse Time On and fixed Pulse Amps, which are set at a balanced 50% level for simplified pulse operation.

A fast pulse speed will make fine ripples in the weld while a slow pulse speed will give a much more coarse, but visually appealing result. There are limitless ways to adjust the pulse. Keep in mind though, that the basic purpose of the pulse is to average the heat input while maintaining penetration. **Do not attempt to use pulse while in stick mode.**

EXAMPLE 1**Welding Amps: 100 amps,****Pulse Amps: 50%****Pulse Time On: 50%****DC Pulse Frequency: 1 Hz****EXAMPLE 2****Welding Amps: 100 amps****Pulse Amps: 50%****Pulse Time On : 50%****DC Pulse Frequency: 25Hz**

TUNGSTEN PREPARATION

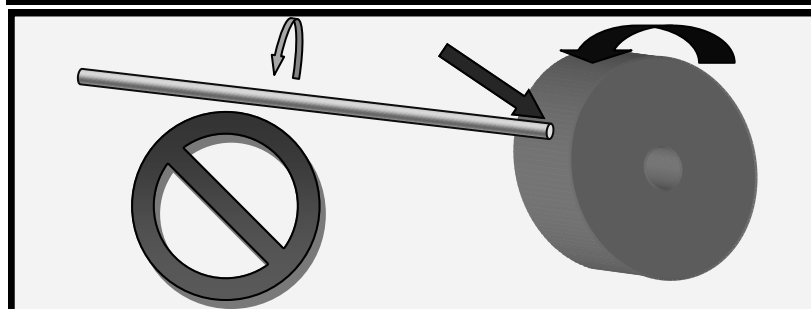


1. Use a dedicated grinding wheel or contamination may result. Do not breath grinding dust! Wear eye protection and gloves.

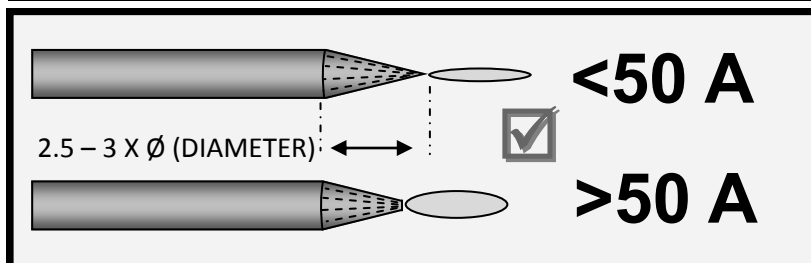
2. Hold Tungsten firmly.

3. Grind perpendicular to grinding wheel face. Allow tungsten to grind away slowly, creating point.

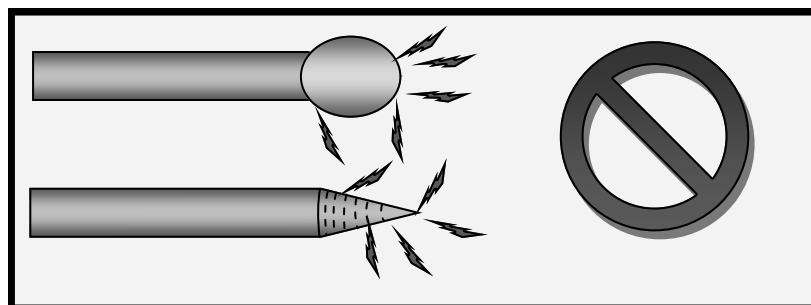
4. Rotate tungsten quickly as it is being ground to keep point even and symmetrical.



DO NOT GRIND TUNGSTEN PARALLEL TO WHEEL FACE OR AN UNSTABLE ARC WILL RESULT.



Use a point for low amp use to help control arc. Create a slight truncation on the tip for higher amp use for best arc stability. Grind the tip so that it is 2.5- 3 times longer than the tungsten is wide (Diameter).

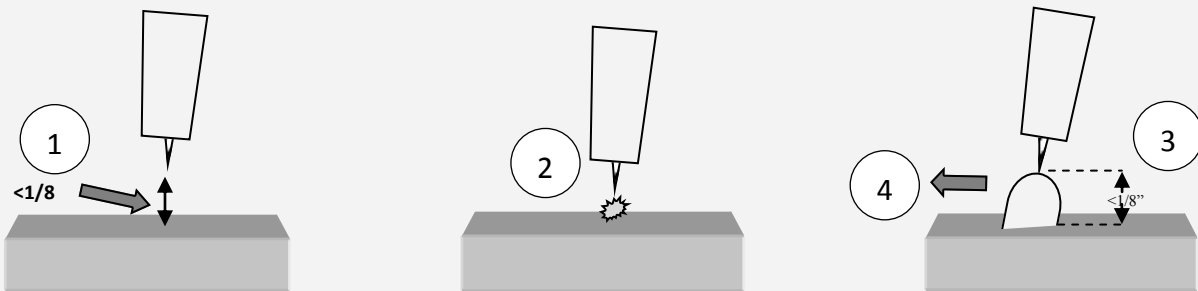


DO NOT BALL TUNGSTEN. ERRATIC ARC WILL RESULT. MAKE SURE GRINDING MARKS RUN PARRALEL TO TIP. CONCENTRIC MARKS WILL CAUSE ERRATIC ARC.

NEVER USE PURE (GREEN) TUNGSTEN IN AN INVERTER.

SEE FOLLOWING RECOMMENDATIONS ABOUT TUNGSTEN SELECTION FOUND IN THIS MANUAL ON NEXT PAGE.

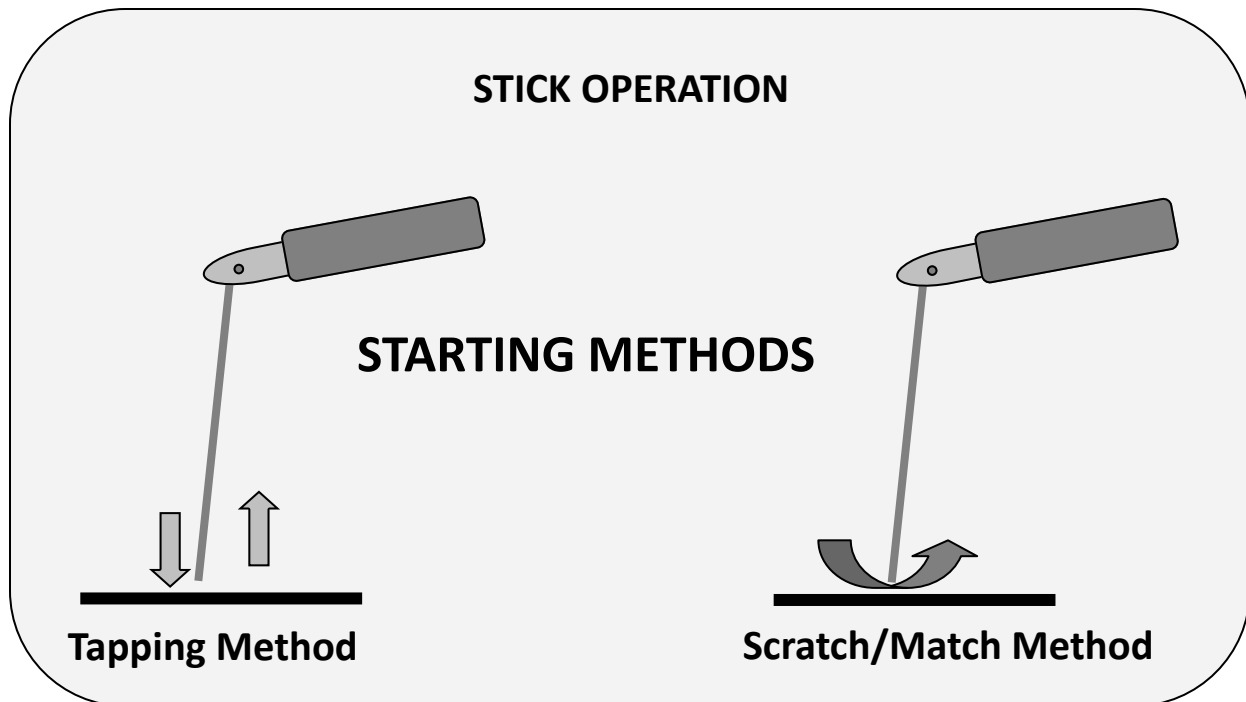
HIGH FREQUENCY START TIG OPERATION



1. Position the point of the sharpened tungsten about 1/8" or less above the metal.
2. Press the torch trigger or press the foot pedal to initiate the arc. The HF arc will be initiated. It may appear briefly as a blue spark.
3. An arc should form, almost immediately after the pre-flow cycle is completed. HF arc initiation will be delayed by the amount of pre-flow time used. If arc does not start after the pre-flow interval, and the HF is creating a spark, then check the work clamp contact with the work piece. Move the tungsten closer to the work. Repeat steps 1 and 2.
4. Leave 1/8" or less gap between the tungsten tip and the metal and proceed with welding, leaving the torch inclined at a 15° angle.

General TIG Arc Starting Steps

1. Turn unit on, allow time for power up cycle to complete its start up process.
2. Select either TIG with TIG /CUT/Stick selector switch.
3. Plug in Torch and select panel mode with the selector switch **OR** plug in foot pedal and select Pedal.
4. If using the torch switch, Post Flow time by rotating the knob to increase/decrease.
5. Adjust amps with amp control knob.
6. Start arc as depicted above.
7. If using panel mode, continue to hold the torch switch until you are ready to stop welding. Release the switch. The Arc will then cease.
If using pedal raise foot fully off the pedal and arc will stop automatically.



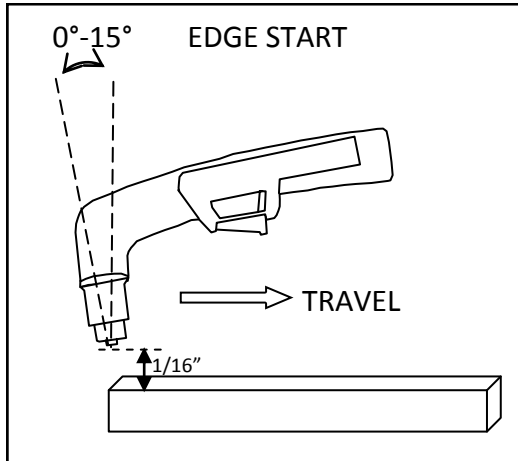
1. Turn on the power switch on the rear of the unit. Allow unit to cycle through its start up program.
2. Select the Stick mode with the HF/Lift Start/Stick selector switch.
3. Make sure electrode holder is hooked into the positive connector and the work clamp is hooked the negative connector. This will require the torch to actually be placed in the WORKPIECE connector and the work clamp to be in the Torch connector for proper operation.
4. Select the amps desired. Use the electrode diameter selection chart in this manual to determine the approximate range of amps suitable for the rod size selected. Consult the welding electrode manufacturer's recommendation for proper amperage range. Each manufacturer has specific recommendations for its electrodes.
5. Strike the arc with either the tapping method or the match strike method. Beginners usually find that the match strike method yields best results. Professionals tend to gravitate toward the tapping method because of its placement accuracy which helps prevent arc striking outside of the weld zone.

IMPORTANT: Do not weld in the TIG mode with the stick electrode holder still attached.

SECTION 3

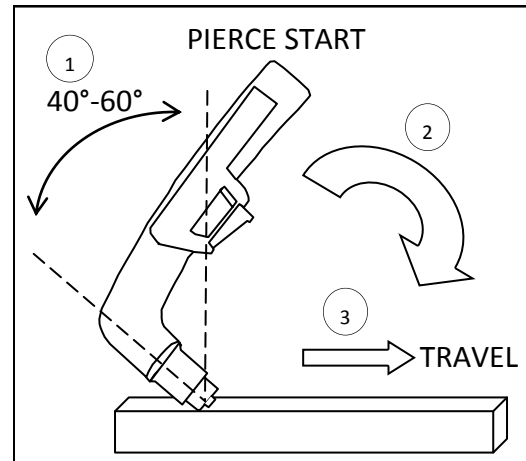
BASIC THEORY AND FUNCTION

The design of the blow back start *may* cause a slight delay in the arc as the air pressure must built inside the torch tubing and head to create the pressure needed to force the electrode off the nozzle seat. This may take up to two seconds. Restarting the arc with the post flow going may not cause a delay. If the torch does not light after 3 seconds, let go of the trigger and press it again. If start/arc is erratic check nozzle and electrode for tightness and wear.



Edge Starts are the best type of start if possible to promote consumable and torch life. This reduces blow back of molten material and allows a smooth gradual start of the cut.

1. Line up the hole on the tip of the electrode on the edge of the cut. Hold torch perpendicular to the cut initially, about 1/16" off the metal. Slide the yellow safety lock and squeeze the trigger. Wait for arc to start.
2. Once the arc starts, wait for the arc to penetrate all the way through the metal.
3. As the torch penetrates its flame all the way through the metal, tilt the torch so there is a slight lead in the flame if metal is thin. If it is thick, keep holding torch in a nearly vertical position.
4. Begin moving the torch in the direction of the cut. Maintain 1/16" standoff height.
5. Move the torch fast enough so the sparks and flame trail from the bottom edge at an angle of no more than 30° and no less than 10° from perpendicular to the metal. Excess angle of sparks/flame indicate too fast of travel speed or practical cut capacity has been reached. Little or no angle indicates too slow of travel speed.



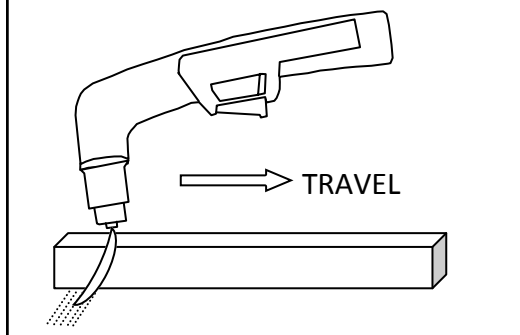
Piercing starts often result in rapid consumable wear and excess blow back of molten metal deposited onto torch and consumables. This should be done only as necessary.

1. Tilt the torch in the direction of travel or toward the side of the metal to be discarded or wasted at a 40° to 60° angle. Slide the yellow safety lock and squeeze the trigger. Wait for arc to start.
2. Once the arc starts, wait for the arc to transfer from pilot arc to the cutting arc.
3. As the torch penetrates it flame at an angle rotate the torch slowly to the vertical position, as the arc penetrates the metal. Tilt the torch from 0°-15° for thin metal cuts, or hold it nearly perpendicular for thicker metal cuts.
4. Begin moving the torch in the direction of the cut. Maintain 1/16" standoff height.
5. Move the torch fast enough so the sparks and flame trail from the bottom edge at an angle of no more than 30° and no less than 10° from perpendicular to the metal. Excess angle of sparks/flame indicate too fast of travel speed or practical cut capacity has been reached. Little or no angle indicates too slow of travel speed.

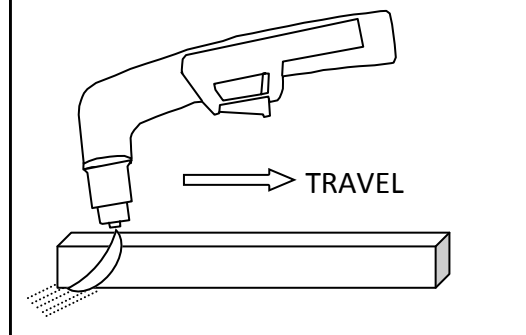
IMPORTANT: If you use a standoff guide with the torch, it must be adjusted or bent to provide no more than 1/8" standoff, less if possible. Long standoff heights reduce cut capacity and quality. It also promotes rapid consumable wear and can prevent the pilot arc from transferring.

TIP: For longer consumable life do not use the pilot arc unnecessarily. Select the 3 second pilot arc feature and do not fire the torch unless you are near the metal and ready to cut. For expanded metal cutting be sure to select "Normal" to re-fire the pilot arc automatically.

FLAME AT NORMAL TRAVEL SPEED

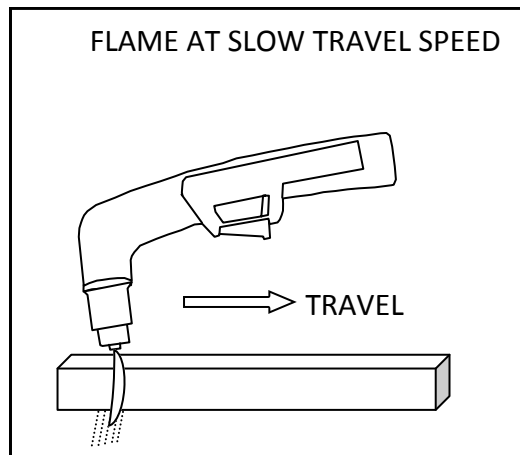


FLAME AT FAST TRAVEL SPEED



15-30

FLAME AT SLOW TRAVEL SPEED

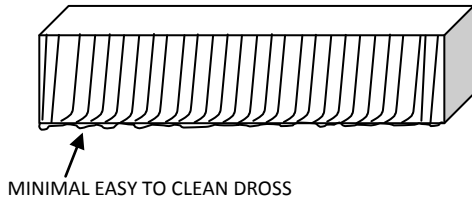


NOTE: When stepping down amps to cut thinner material, you must change to smaller orifice nozzle. Nozzles are offered through Trafimet in different sizes which are appropriate for different amp levels. Too large of a diameter orifice will result in arc instability and a rough cut. Lowering the air pressure below 65 psi to try to get the torch to cut will only result in a lazy, wandering arc.

IMPORTANT: Check consumables regularly for wear and change them out before they are completely worn. Allowing the consumables to wear until they quit working may damage related torch components, creating a more costly repair.

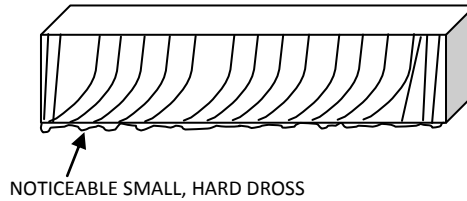
**RESULTS OF CUT AT CORRECT SPEED,
AIR PRESSURE AND TORCH ANGLE**

SMOOTH, EVEN CUT LINES WITH A S REARWARD SWEEP



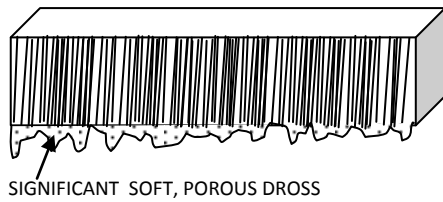
RESULTS OF CUT AT FAST SPEED

ROUGH, DISTINCT CUT LINES SPACED FAR APART



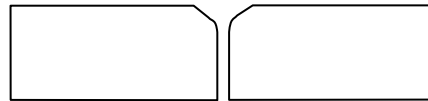
RESULTS OF CUT AT SLOW SPEED

VERTICAL CUT LINES



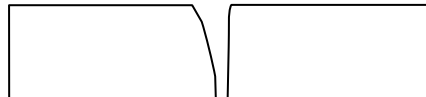
**RESULTS OF TOO MUCH CURRENT OR
TOO MUCH STAND OFF HEIGHT
(SIDE VIEW)**

MELTED TOP EDGE

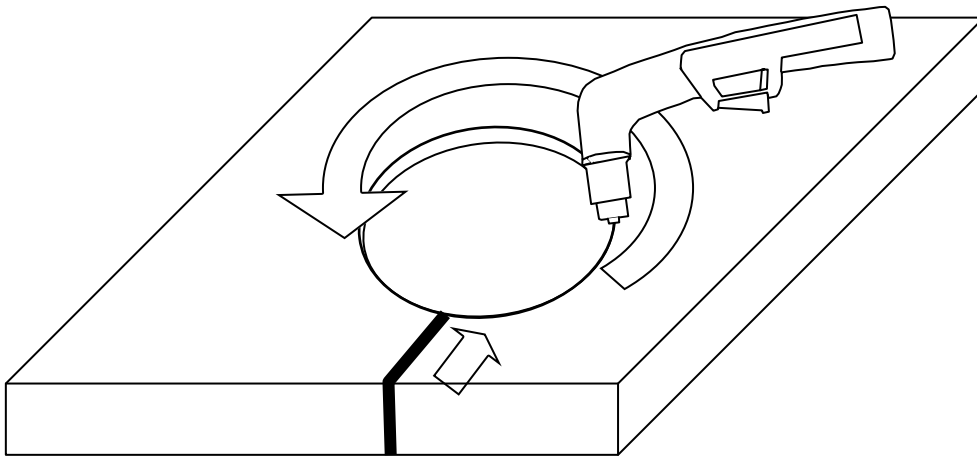


**RESULTS OF WORN CONSUMABLE OR
LOW AIR PRESSURE
(SIDE VIEW)**

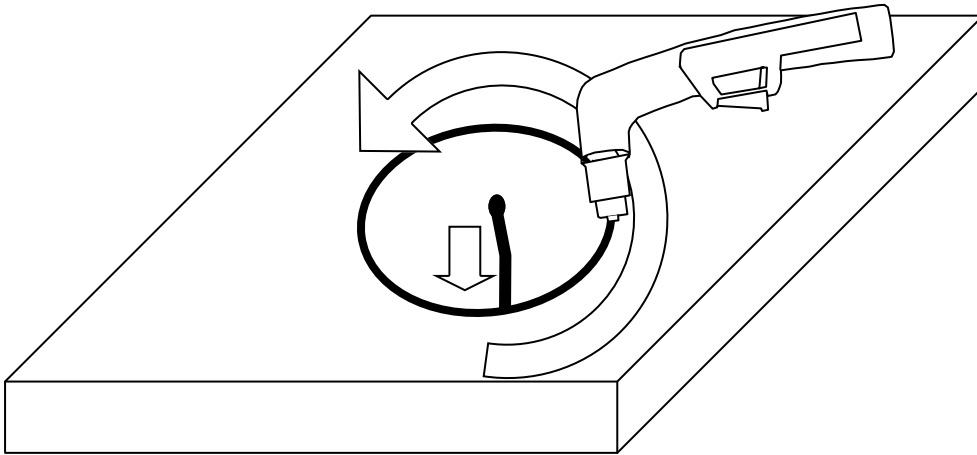
SEVERLY ANGLED CUT AT TOP



AN EXAMPLE OF CUTTING A LEAD-IN WHEN CUTTING OUT A DISK SHAPED OBJECT



AN EXAMPLE OF CUTTING A LEAD-IN WHEN CUTTING HOLE IN AN OBJECT



When cutting an object, particularly a pattern shape, where the torch must pierce or re-fire in-line at an intersection of a cut, a lead-in cut should be employed. A lead-in is a cut that is made in the disposable part (also known as a drop) of the object to “lead” into the main part of the cut so that the destructive force of the arc is not directed into the desirable side of the cut itself. Also, all plasma cutters exhibit some angularity or bevel in the cut which is greater on one side than the other. Keep this in mind when cutting an object to size so that too much metal is not accidentally removed.

SECTION 3**BASIC THEORY AND FUNCTION****GENERAL POLARITY RECOMMENDATIONS***

*Follow manufacturer of stick electrode for complete polarity recommendations

PROCESS	TORCH POLARITY	WORK POLARITY
TIG (GTAW)	-	+
STICK (SMAW)	+	-

TIG (GTAW) OPERATION GUIDE FOR STEEL (ALUMINUM)*

*As a general rule, set amperage using 1 amp for every .001" of metal thickness for aluminum. Less is required for DC.

METAL THICKNESS	WELDING AMPS (A)	TUNGSTEN DIA.	Ar FLOW RATE
1-3 mm/.040"-1/8"	40-80 (60-125)	1-2 mm/.040"-3/32"	8-15 CFH /4-7 lpm
3-6 mm/ 1/8"-1/4"	80-200 (125-200)	2-3 mm/ 3/32"-1/8"	15-25 CFH/ 7-14 lpm
6-10 mm 1/4"-3/8"	150-200 (200-250)	3-6 mm/ 1/8"-1/4"	20+ CFH/10-15 lpm.

STICK (SMAW) OPERATION GUIDE

METAL THICKNESS	ELECTRODE SIZE	WELDING AMPS
< 1 mm/.040"	1.5 mm/ 1/16"	20-40
2 mm/.080"	2 mm/3/32"	40-50
3 mm/ 1/8"	3.2 mm/1/8"	90-110
4-5 mm/ 3/16"	3.2-4 mm/ 1/8"	90-130
6-10 mm/ 1/4"-3/8"	4-5 mm/ 1/8"-5/32"	130-200

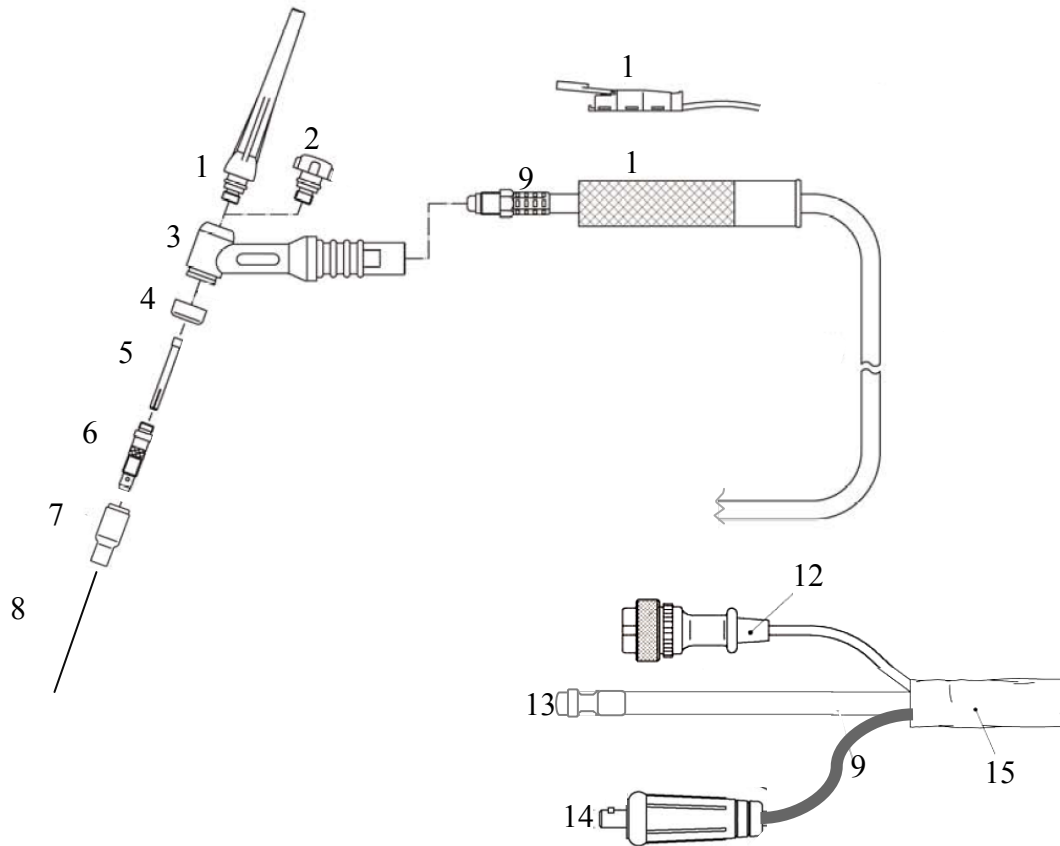
TUNGSTEN SELECTION GUIDE FOR AN INVERTER

TYPE	PERCENT	COLOR	PROCESS	RECOMMENDATION
Pure	100% Tungsten	Green	AC	NOT RECOMMENDED! Do not use in an inverter.
Thoriated (slightly radioactive)	2% Thorium	Red	AC/DC	YES. Great for all purpose welding. Most economical.
Ceriated	2% Ceria	Orange	AC/DC	YES. Good for low amp use.
Lanthanated	1.5% Lanthanum	Gold	AC/DC	YES. Best alternative to 2% Thoriated. Tough performer.
Lanthanated	2% Lanthanum	Blue	AC/DC	YES. Slight advantage over 1.5% Lanthanated.
Zirconiated	1% Zirconia	Brown	AC	NOT RECOMMENDED! Do not use in an inverter.

NOTE: Thoriated tungsten is slightly radioactive, but is commonly used in the US. Care should be used when grinding so as not to breath the dust. If you have concerns about Thoriated (red) tungsten, choose from Lanthanated or Ceriated tungsten.

EXPANDED VIEW OF TIG TORCH

(Actual appearance may vary slightly from what is listed.)



NO.	Parts for Standard 26 Series Torch (18 series uses same consumables and basic design is similar, except water cooler line plumbing)	QTY.
1	Long Back Cap with O-Ring	1
2	Short Back Cap	Opt.
3	Torch Head	1
4	Insulator	1
5	Collet 1/16 or 3/32	1
6	Collet Holder	1
7	Ceramic Cup #5,6, or 7	1
8	Tungsten (customer supplied)	0
9	Torch Cable	1
10	Torch Handle (Blue ergo handle std, not pictured)	1
11	Torch Switch (Built into ergo handle, separate on straight handle)	1
12	Torch Switch Connector	1
13	9mm (1/8") b quick connect coupling (male)	1
14	Power Connector	1
15	Protective Synthetic Rubber Cover	1

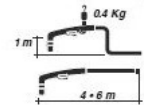
S-45 PLASMA TORCH**

ERGOCUT S 45 * PLASMA RANGE



TECHNICAL DATA

Voltage class	M
Standard length m	4 • 6
Air consumption	115 l/min
Air pressure	5 bar
Duty cycle 60%	40 A
Air pressure switch	3.5 bar



RETURNING	PA0165	6
RETURNING	PA0167	4
RETURNING	PA0168	6

DECLARATION OF CONFORMITY

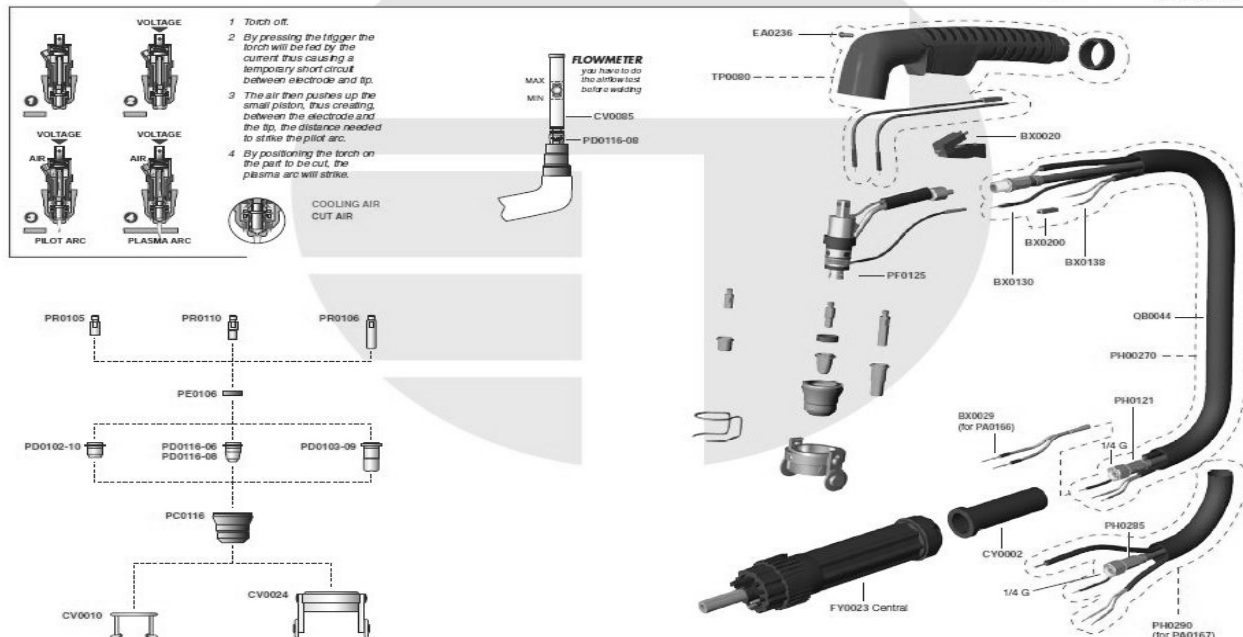
The undersigned company Trafimet - Via del Lavoro, 8 - 36020 Castegnero (VI) - Italy - declares that the product identified and described on this page complies with standard EN 60974-7 in accordance with the requirements contemplated by directive EEC 73/23 low voltage.



EN 60974-7

trafimet[®]
your welding partner

ERGOCUT S 45 PLASMA RANGE



The company reserves the right to modify any products without notice. TRAFIMET spa is the registered owner of all trademarks, patents and models.

Copyright © 2007 Trafimet Spa. All rights reserved.

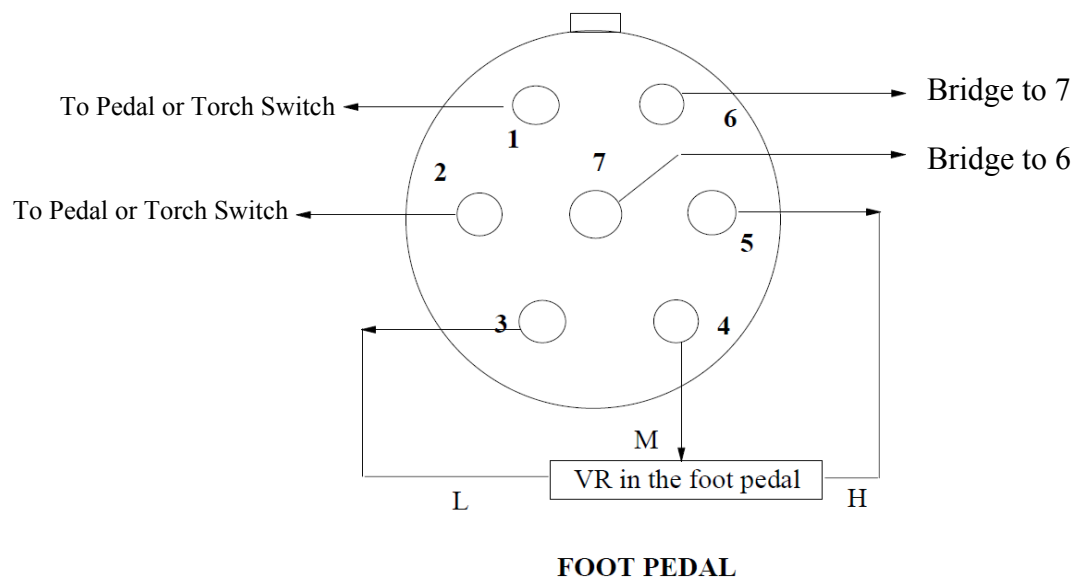
first date: 11/04 - EA0030

www.trafimet.com

*Everlast is not the manufacturer of the Trafimet S-75 torch, nor is it affiliated with Trafimet other than its role as an OEM supplier of torches on PowerPRO S-Series units. Trafimet and its logo are a gistered trademarks of Trafimet. Not all items, accessories and parts depicted are available directly through Everlast. These are items supplied through nationwide Trafimet dealers and resellers. Diagram provided courtesy of Trafimet.

**Actual manufacturer of the S-45 torch may vary, but consumables are still considered interchangeable with the Trafimet S-45 model and will function normally.

7 PIN CONNECTOR FOR 22K Ω FOOT PEDAL



TIG/Stick Trouble shooting:	CAUSE/SOLUTION
Machine will not turn on.	Check cords and wiring in the plug. Check circuit breaker.
Machine runs, but will not weld in either mode.	Check for sound work clamp and cable connections. Make sure work cable and TIG Torch are securely fastened to the Dinse style connector. Reset main power switch if overcurrent light is on. Contact Technical Support.
Arc will not start unless lift started.	Check HF point gap. Set to .035" See addendum or contact Technical Support. Make sure unit is set to HF
Tungsten is rapidly consumed.	Inadequate gas flow. Too small of tungsten. Wrong shielding gas. Use only Ar. Using green tungsten. Use red thoriated or other color. Wrong polarity. Too much AC cleaning.
Tungsten is contaminated, arc changes to a green color.	Tungsten is dipping into weld. Check and adjust stick out to minimum 1/8 inch. Tungsten is melting. Reduce amperage or increase tungsten size.
Porosity of the Weld. Discolored weld color. Tungsten is discolored.	Low flow rate of shielding gas. High flow rate of shielding gas. Too short of post flow period. Wrong TIG cup size. Possible gas leaks internally or externally due to loose fittings. Base metal is contaminated with dirt or grease.
Weld quality is poor. Weld is dirty/oxidized.	Eliminate drafts. Check if there is sufficient shielding gas left in tank. Check gas flow. Adjust for higher flow of gas. Listen for audible click of gas solenoid. If no click is heard, then contact Everlast Support. Clean weld properly, especially in Aluminum. Too short of post flow. Check tungsten stick out.
Over current/Duty cycle LED illuminates. Machine runs, but no output.	Duty cycle exceeded or Over current. Allow machine to cool. Reset main power switch after full cool down period. Make sure fan is not blocked. Check wiring.
Unstable Arc.	Poorly ground or shaped tungsten. Regrind to proper point. Too much AC positive polarity. Reduce balance to 30% or less. Increase AC Frequency.
Other issues.	Contact Everlast support.

PLASMA TROUBLE SHOOTING:	CAUSE/SOLUTION
Air Flows but arc does not start within 2-3 seconds.	Check consumables for wear and tightness. Check fuse. Check Air Pressure. Sticky or slow spring/piston on torch blow back mechanism. Release trigger and try again. Pre-flow turned on.
Air Flows but arc does not start or spark when nozzle is rubbed on the metal.	Pre Flow is turned on. Fuse blown. Missing swirl ring. Worn or loose consumables. IGBT issue. PCB issue.
OK to cut light is not on. Will not start arc.	Increase air Pressure. Make sure air is connected.
Pilot arc will not light.	Fuse blown.
Pilot arc will not transfer and amps read approximately 25-27 amps while switch is held. (Arc barely cuts or only "scratches" the surface of the metal or cut is extremely slow on thin materials.)	Check work clamp connection. Make sure rust is removed from work clamp contact area. Faulty Clamp. Arc continuity is not being sensed. If these steps do not correct the issue, contact Everlast.
Arc Sputters.	Inadequate air flow or air pressure. Improperly sized nozzle. Decrease size as amps are lowered. Increase air pressure to 70-75 psi while air is flowing through torch. Loose consumables. Check tightness.
Consumables are dirty, smutty looking upon inspection. Premature wear on consumables. Shortened consumable life.	Moisture, oil contamination of consumable. Wrong consumables. Poor quality aftermarket consumables.
Premature wear on consumables. Short consumable life. Uneven wear of consumables, melting of cup.	Moisture, oil contamination of consumable. Excessive pilot arc time. Improper cutting technique. Wrong piercing technique.
Arc will not start. Air will not flow. Machine runs.	Torch cup is loose, safety contact pins dirty or not making contact with cup face. Torch switch wire is loose. Problem with connector. Torch is not properly connected.
Amperage changes constantly, "bouncing" back and forth wildly, randomly.	Pulse turned on. Turn off.
Unstable Arc at lower amps.	Consumable orifice size is too large. Reduce orifice size.
Arc tries to start but irregular, dancing arc and/or arc melts through side of nozzle.	Missing swirl ring, or worn electrode or both. Check and replace. Make sure swirl ring is not cracked.
Arc will try to start if touched to the metal, but no air flow while switch is pressed.	Stuck or dirty solenoid valve. Contact Everlast. Wrong Process selected.
Air flows continuously.	Post flow turned set too long. Preflow is turned on. Solenoid is stuck. Contact Everlast.
Excessively Beveled Cut.	Worn consumables, too high of stand-off height.
Cup and/or nozzle is melting or cracking.	Improper cutting technique/excessive piercing.
Power input circuit breaker trips repeatedly.	Improperly sized circuit. Internal issue. Contact Everlast.
Arc "Blows Out" when ready to cut.	Too high of air pressure. Reduce to 72 psi.
Arc will not stop when switch is released.	Unit is in 4T. Switch to 2T. Torch trigger is stuck.

