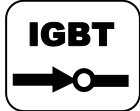


EVERLAST

POWERTIG 185 DV

AC/DC TIG/STICK (GTAW/SMAW) WELDER



Operator's Manual for the PowerTig 185 (DV) Safety, Setup and General Use Guide

Rev. 3 0 00810-14

everlastwelders.com



1-877-755-9353

Specifications and Accessories subject to change without notice.

329 Littlefield Ave. South San Francisco, CA

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 Recommendations.....	11
Product Overview.....	12
General Feature Description.....	13
Quick Setup Guide, TIG Torch Connection.....	14
Quick Setup Guide, Stick Torch Connection.....	15
Front Panel View.....	16
Rear Panel View.....	19
High Frequency Starting.....	21
Lift Arc Starting.....	22
Stick Starting Methods.....	23
Expanded View of TIG torch.....	24
7 Pin Connector Pinout.....	25
Troubleshooting.....	26

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 of safety, welding or of the operation/maintenance of this unit. Everlast Power Equipment LLC, 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 LLC, 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 LLC does not accept liability for damages, consequential or incidental, resulting from the use of the product or of the content found in this document or accept claims by a third party of 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 if off hours, or 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 _____

EVERLAST

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 Australia:

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 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.

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 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!**

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 your are comfortable with proper operation and are able to assume inherent risks of cutting or welding.

PowerTig 185



PowerTig 185 17 Series Torch Assembly



PowerTig 185 Work Clamp



PowerTig 185
Argon Regulator



PowerTig 185 (22K Ω)
Optional Foot Pedal Assembly



PowerTig 185 Consumable Kit

SECTION 1

INTRODUCTION AND SPECIFICATIONS

PowerTIG 185 DV TIG/Stick Welder	Specification
Process	AC/DC GTAW/SMAW
Minimum/Maximum Rated Output TIG	110V: DC: 5A/10.2V-120A/14.8V AC: 20A/10.8V-120A/14.8V 220V: DC: 5 A/10.2 V-185 A/17.4 V AC: 20 A/10.8V-185 A/17.4 V
Minimum/Maximum Rated Output Stick	110V: DC: 5A/20.2V-100A/24V AC: 5A/20.8V-100A/24V 220V: DC: 5 A/20.2 V-150 A/26 V AC: 20 A/20.8 V-150 A/26 V
Start Type	HF and Lift Start
HF Point Gap	.030"-.045" (.035" suggested)
TIG Duty Cycle @ Rated Amps/Volts	110V: 35% @ 120A/14.8V 60% @ 95A/13.8V 100% @ 70A/12.8V 220V: 35% @ 185A/17.4V 60% @ 145A/15.8V 100% @ 110A/14.4V
Stick Duty Cycle @ Rated Amps/Volts	110V: 35% @ 100A/24V 60% @ 80A/23.2V 100% @ 60A/22.4V 220V: 35% @ 150A/26V 60% @ 120A/24.8V 100% @ 90A/23.6V
OCV (U0)	68 V
Voltage Input (U1)/Hz	110/220 V (± 10%) 50/60Hz
Maximum Inrush Amps (I1MAX)	110V: 35.6A/ 220V: 32.3A
Maximum Operating Amps (I1EFF)	110V: 21.4A/ 220V: 19.1A
Gas Pre-Flow Time	Auto @ .3 Seconds
Gas Post Flow Time	Adjustable @ 0-10 Seconds
AC Frequency Control	20-250 Hz
AC Balance Control	10-90% of EP (early models 30-70%)
Minimum Water Ingress Protection	IP21S
Efficiency	>85%
Cooling Method	Full Time High Velocity Fan with Tunnel design
Dimensions	12.5" H X 7.25" W X 19" L
Weight (Bare Unit)	35 lbs
Recommended Generator Size/Type*	110V: 4500 Watts continuous 220V: 8500 Watts continuous Clean power: <5% THD

* Operating the PowerTIG 185 (DV) with generators, generator/welders or power sources that are considered to provide “dirty” power may damage the electronic components. Damaged caused by operation on dirty power is not covered under warranty. Use only with generators rated by the generator manufacturer as “clean power”. Clean power is typically defined as less than 5% Total Harmonic Distortion (THD) in the sine wave. Everlast does not keep an approved list of generators or manufacturers due to frequent changes and model updates by manufacturers. Using a name brand generator does not ensure the quality of power produced. Always check with the manufacturer to see if the model is rated for clean power. Clean powered generators are considered safe for TV’s, computers and other electronic items.

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**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	1-2 mm/.040"-3/32"	8-15 CFH /4-7 lpm
3-6 mm/ 1/8"-3/16"	80-185	2-3 mm/ 3/32"-1/8"	15-25 CFH/ 7-14 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"	130-150

TUNGSTEN SELECTION GUIDE

PROCESS	TUNGSTEN TYPE	DESIRED POINT SHAPE
AC	Red2% Thoriated, Gold 1.5% or Blue 2% Lanthanated Orange 2% Ceriated Do not use Green Pure for AC in Inverter welders. Arc will not be stable.	Sharpen point 2.5 x's diameter Lower amps: Sharp Higher amps: Slight Truncated Point should form slight "dome". Do not ball tungsten. Re-sharpen when contaminated.
DC	Red2% Thoriated, Gold, 1.5% or Blue 2% Lanthanated Orange Ceriated 2% Do not use Green Pure	Sharpen point 2.5 x's diameter Low Amps: Sharp High Amps: Slight Truncation Point should remain sharp. Re-sharpen when it point is dull or contaminated.

SECTION 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 welder

Only YOU, the operator of this welder, can ensure that safe operating practices are followed, through the exercise of common sense and training. Do not operate this welder until you have fully read the manual.

1. To ensure that your PowerTIG 185(DV) is in top condition when you receive it, carefully inspect the welder 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. The product should 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. Failure to test and check the unit may result in denial of shipping damage and warranty claims. Record the welder's serial number on the page provided in this manual. Include purchase date for warranty reference. Serial numbers are located on the top, side or rear of the machine, wherever the specification sticker is located (may vary). Be sure to register your unit online as well. Please, locate, download and read your current warranty statement found online at www.everlastgenerators.com, listed under the warranty link.

2. The PowerTIG 185 (DV) is designed for day-to-day fabrication and repair activities. Overall function and design has been geared toward simple, trouble free operation, without sacrificing the basic necessities that make a sound weld. The IGBT inverter design and compact size allows you to transport the unit almost anywhere. In comparison to other TIG (GTAW) welders on the market, the PowerTIG 185 (DV) is among the most compact AC/DC TIG welders on the market in its class. While it is small, it doesn't compromise on performance. With a 5 amp DC start, 20 amp AC start and full AC frequency and AC balance control the welder can satisfy most basic TIG welding demands for hobbyists or pros who are regularly welding metals 3/16" or under. The PowerTIG 185 (DV) is an ideal portable jobsite welder. It can be operated with clean powered generators or welder/generators that produce clean power due to its low input amp requirement and good duty cycle. Consult the generator manufacturer regarding the

INTRODUCTION AND SPECIFICATIONS

generator's capability of providing clean power which is less than 5% Total Harmonic Distortion (THD).

3. Be careful to observe the duty cycle of the welder. This welder has been equipped with a safety interrupt and duty cycle light as a measure of protection, but intentionally and repeatedly running the unit until the duty cycle safety is triggered can cause premature failure of the unit. Operating the welder too close to air flow obstructions, in hot or humid environments or can reduce the duty cycle. A welder not regularly maintained and that is dirty or dusty on the inside may also experience cooling issues.

4. 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 damp protective gear. The service rating for this unit is IP21S, sufficient for dripping water protection, but is not recommended for wet environment use.

5. Use the carry strap provided to lift and carry the welder. Don't suspend the unit by the strap.

6. Make sure that the cooling fan and exhaust vents are kept free of obstruction. Before every operation, inspect the unit for unexpected obstructions. From time-to-time cleaning of the machine with low pressure air and a small plastic bristle brush will be necessary to ensure long life. It's recommended that the unit be cleaned once a month in dusty conditions or when in daily use, or three to four times a year otherwise. On these occasions only, unplug the welder and remove the rear panel and main cover to access the interior. Do not remove the front panel. Concentrate the air pressure on the aluminum heat sinks and plastic vents. Keep a minimum of 18 inches distance from any obstruction on the front, rear and sides of the unit during operation. Do this at least monthly if it is being used daily.

NOTE: Changes in specifications, appearance and accessories listed with the welder that do not affect general operation or safety may occur without notice. Contact Everlast directly for up to date information on the PowerTIG 185 (DV) if more product information is required.

General Description, Purpose and Features. The PowerTig 185 DV, is an AC/DC TIG (GTAW) machine with easy to operate functions designed for home, fabrication, and general industrial use. It features dual voltage input and can be used anywhere sufficient 120V or 240V power is present. Basic features include:

1. **HF Start/Lift Start.** High Frequency starting makes initiating the arc a touch-free process and helps keep the tungsten contamination free in both DC and AC welding. It is always best to select HF start to weld aluminum. To start the arc, the torch should be as close to the metal as practical without actually touching, no more than 1/8". Pressing the trigger or pedal down will initiate the arc. High Frequency is used only to start the weld. It turns off after the arc is started. On older transformer units, while welding AC, the HF would remain on constantly and create an "overlay current" because of the slow switching speeds. Without it, the arc would extinguish itself multiple times per second during the transition between positive and negative polarity. Inverters switch fast enough to prevent the arc from going out, so the HF is not needed during the actual welding on AC. Lift start is primarily designed for DC use, and requires a brief "touch" and "lift" of the tungsten to the work piece after the trigger or foot pedal is pressed to start the arc. Use of this feature in AC will result in contaminated tungsten. If you must use this feature in AC, start the arc on a piece of nearby copper, then transfer the arc over to the work to start welding.
2. **5-185 Amps DC.** Low amp start capability allows welding on the thinnest of metals without burn through and blow outs.
3. **20-185 Amps AC.** A 20 amp start allows for light gauge Aluminum welding. Due to the rapid heat dissipation of Aluminum, 20 amps is sufficient for all but the thinnest gauges of Aluminum alloy. If less heat is needed to weld thinner material, raise the AC balance level to 40% or greater to reduce heat on the metal. (Tungsten may begin to ball.)
4. **Automatic Pre-Flow.** The PowerTig 185 uses an automatic pre-flow that is preset to provide a short pre-weld flow of gas that remains constant in length.
5. **Adjustable Post Flow.** Gives greater flexibility in post weld shielding and cooling. A quick tap on the pedal or switch will engage the post flow and it can act as pre-flow if longer pre-flow time is needed.
6. **35% Duty Cycle @ 185 Amps. (40° C)** The duty cycle refers to the amount of time out of 10 minutes

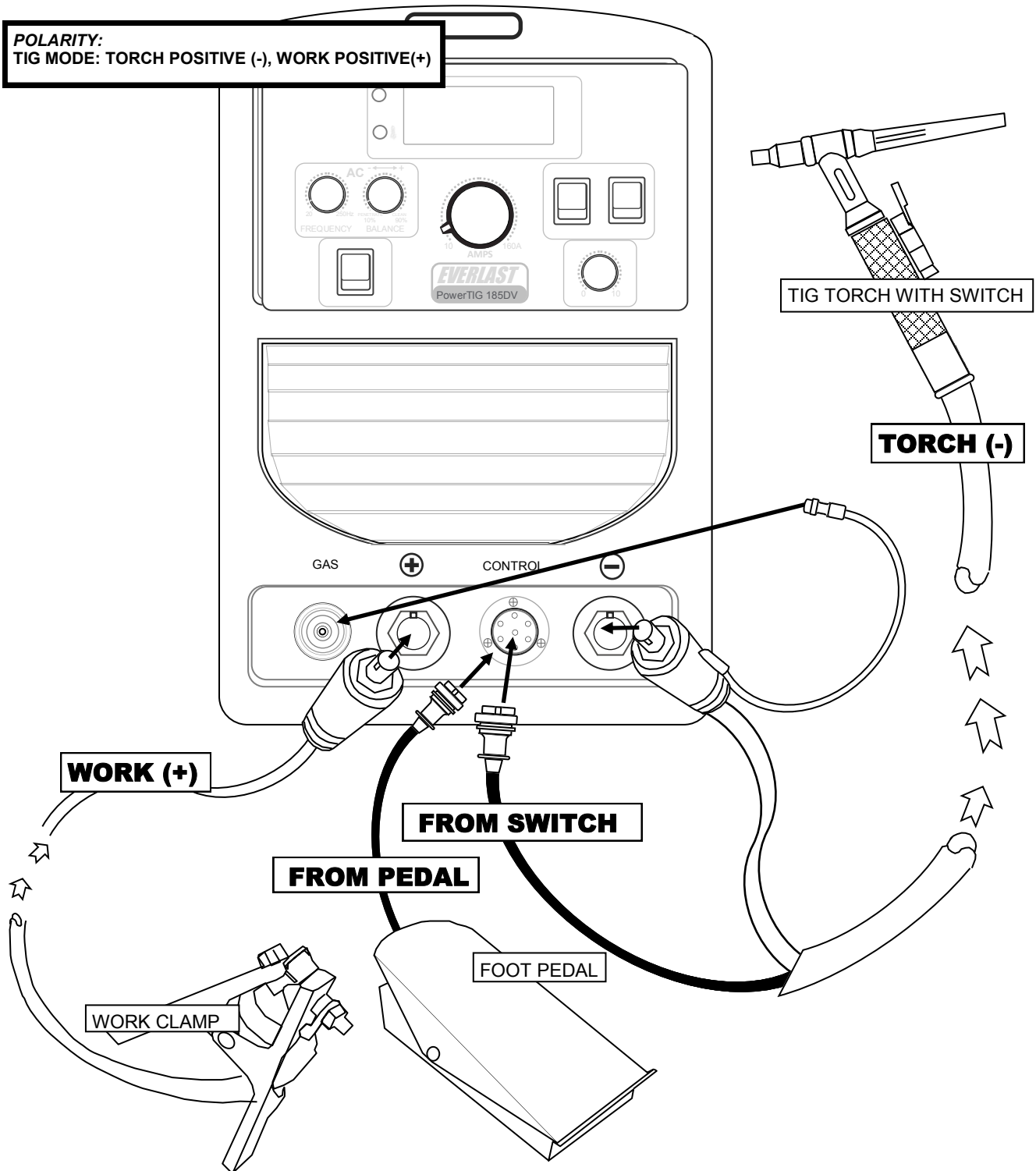
a unit should be able to operate before overheating. 35% of 10 minutes is 3.5 minutes of operation. This is rated at maximum amps. Using less amps will increase duty cycle. 3.5 minutes of welding is longer than it may seem when actually welding and provides sufficient time at maximum amps to make quality welds with minimal interruption. Actual uninterrupted welding time may vary somewhat with ambient temperature, humidity, fan blockage, and poor power sources. Running extended lengths of time with short rest cycles will also be a contributing factor for thermal buildup and limiting duty cycles. Running extreme frequency or balance settings (greater than 50%) while welding in AC mode will reduce duty cycle as well.

7. Torch Switch or Pedal Operation.

Having the option of welding without a foot pedal, greatly increases the versatility of the PowerTig 185 (DV). The torch switch enables greater flexibility, especially when welding in tight areas where a foot pedal is not practical, such as in a roll cage or welding overhead. While the torch switch is in use, amps are accurately set and controlled by the panel amp knob. To start the arc the user has to lightly press and hold the torch switch. Continue to hold light pressure on the switch keep the arc energized. When ready to terminate the arc, release the switch. Of course many prefer to control the amps with the foot pedal because it offers on-demand control of the amps by varying the position of the foot pedal. It is useful for making slight changes in amps to accommodate varying issues with fit up, heat build up and changes in torch position without stopping to make adjustments. To start the arc, simply press on the pedal with the foot and hold the pedal down, slowly varying the pressure and position of the foot pedal to control the intensity of the heat. While the foot pedal is in use, you can limit the maximum amps at the panel and the pedal will control the amps throughout the range. Correct use of the foot pedal is accomplished through experience and practice. While learning to TIG weld, practice with the torch switch control before moving on to the foot pedal, to be able to focus on basic techniques and coordination.

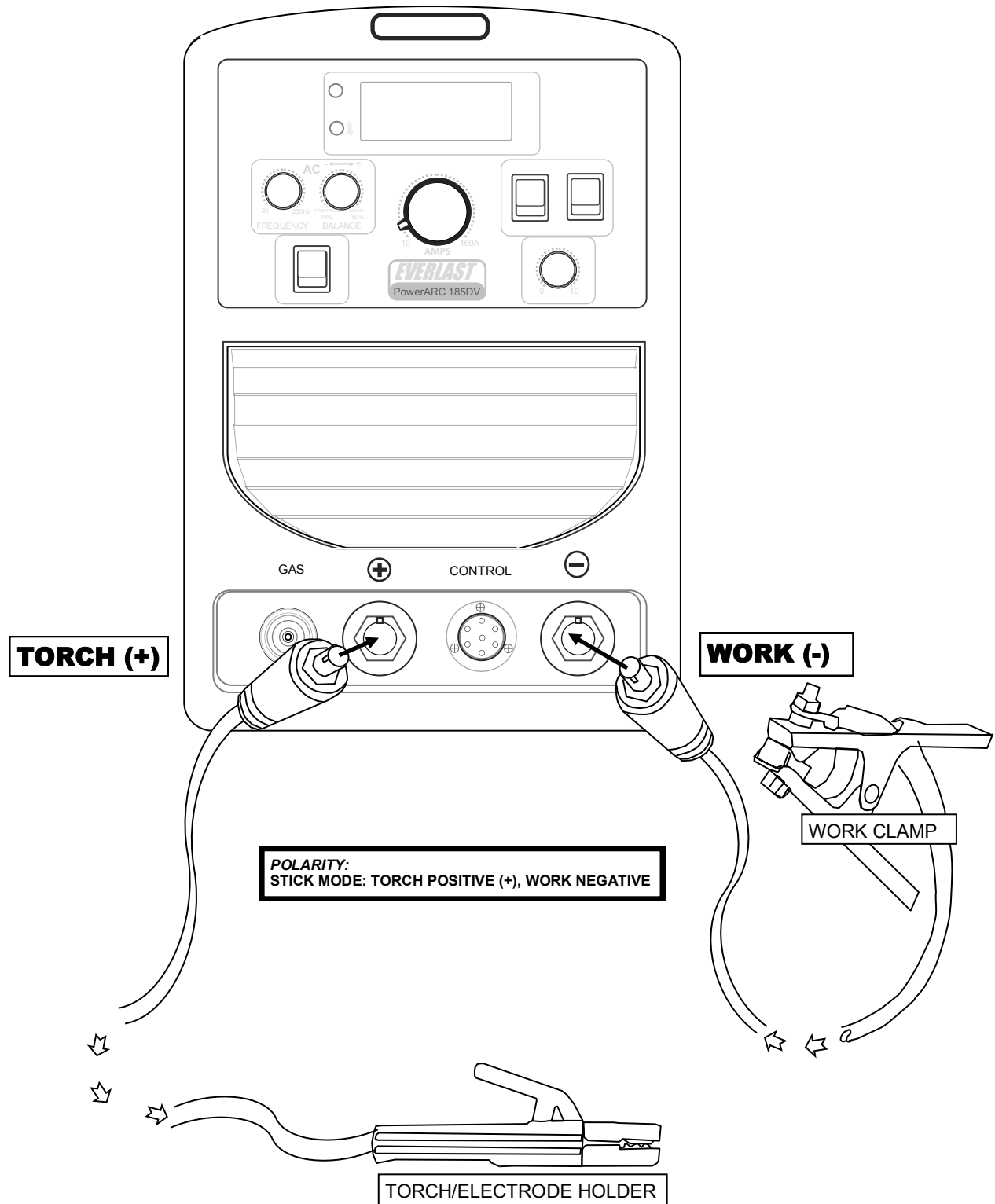
NOTE: The Foot Pedal is an optional item on the PowerTIG 185 (DV).

**QUICK SETUP GUIDE
(US/Canada)**



FOOT PEDAL IS OPTIONAL..
FOOT PEDAL AND TORCH SWITCH CONNECT AT "CONTROL" .
PEDAL AND SWITCH CANNOT BE CONNECTED AT THE SAME TIME.

**QUICK SETUP GUIDE
(US/Canada)**



TORCH (+)

WORK (-)

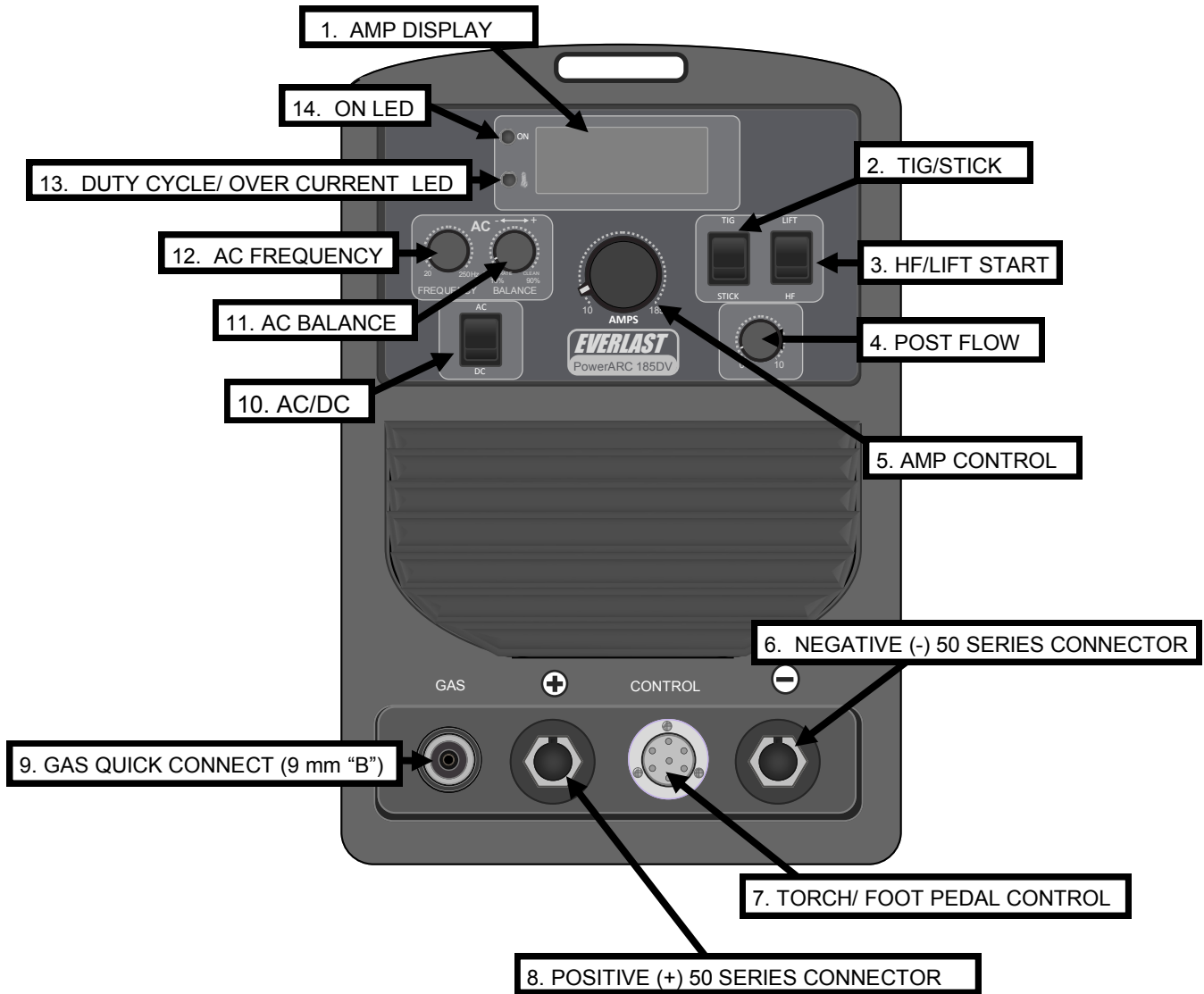
WORK CLAMP

**POLARITY:
STICK MODE: TORCH POSITIVE (+), WORK NEGATIVE**

TORCH/ELECTRODE HOLDER

NOTE: Not recommended for use with E6010.

Front Panel View



2.1 Front Panel Features. The Everlast PowerTig 185 (DV) has a simple panel layout with basic but functional controls and features.

- Digital Display.** The display posts the maximum welding amps selected. After the arc is started with the torch switch or the foot pedal, the display function changes to read actual amp output while welding. The display will show the final welding amperage for a few seconds after the arc stops before reverting to the static amp display **Note:** Display accuracy is $\pm 3\%$.
- TIG/Stick Switch.** Select between TIG or Stick operation. (Be sure to swap polarity when shifting between TIG and Stick modes.)
- HF/LIFT Start Switch.** Select between a lift start or High Frequency (HF) start. HF start is ideal for both AC and DC starts. HF start allows the arc to be started without contacting the metal. Simply place the tungsten above the metal about 1/8" or less, and press the torch switch or foot pedal and the arc will start momentarily, after a brief gas flow period. HF can cause interference with other electronic devices. Lift start is an alternative method of starting an arc where HF is problematic. Do not use this method with AC because contamination of the tungsten will occur unless the arc is struck on a copper strip first and the arc transferred to the weld area. Lift start is accomplished by touching the metal with the tungsten and then quickly lifting the tungsten when the torch switch or foot pedal is pressed. If done properly, an arc will be drawn. **Note:** This is not the scratch start method where the tungsten is rubbed across the surface of the metal to draw an arc.
- Post Flow Control.** Adjusts the gas flow time after the welding arc is stopped. Use it to provide extra shielding while the weld cools. It is also important for torch head cooling. Use one second for every 10-15 amps as a general rule. **Note:** The post flow feature can also be used to add extra pre-flow time. To do so, quickly tap the pedal or torch switch without striking an arc
- AMP Control.** Sets the welding Amp value. While setting amps in AC mode, the minimum value that the amps can be set at is 20 Amps. In DC mode, minimum set amps will be 5 Amps. ($\pm 3A$)
- Negative Connector (-).** DINSE 50 style (1/2"). Simply insert the male connector and twist clockwise. Hand tighten only. For TIG welding, connect the stick torch to the negative connector. For Stick welding, connect the work clamp to the negative connector.
- Torch/Foot Pedal Control.** The TIG foot pedal or the torch switch should be connected to the 7 pin connector. There is only one control connector, so only one may be connected at a time. Hand tighten only. **Note:** Do not attempt to use the foot pedal to control the stick amperage.
- Positive Connector (+).** DINSE 50 style (1/2"). Simply insert the male connector and twist clockwise. Hand tighten only. For TIG welding connect the work clamp to the positive connector. For Stick welding connect the electrode holder to the positive connector.
- Gas Quick Connect Coupling (9mm).** Simply insert the male TIG torch gas connector until it clicks in. The outer collar should automatically slide forward to lock the male coupling. To remove, simply slide the outer collar backwards and the male connector will be released.
- AC/DC Selector Switch.** Select DC for Steel, Stainless Steel and most other metals. Select AC for Aluminum and Magnesium alloys.
- AC Frequency Control; 20-250 Hz.** Increasing or decreasing AC frequency changes arc performance while welding in AC mode, affecting arc cone width, and penetration. A setting of around 100-120Hz for most aluminum welds is a good starting point. Low Frequency settings, particularly below 60 Hz, will make the arc lazy and wide and prone to wandering. Higher Frequency settings make the arc cone narrowly defined, deeper penetrating, and more stable.
- AC Balance Control; 10-90 %.** Adjusting between Electrode Positive (+) and Electrode Negative (-) polarity regulates the amount of cleaning action (cathodic etching) while welding. To increase the amount of etching turn the control clockwise. To reduce the amount of etching turn counter clockwise. The purpose of this feature is to improve weld appearance and quality. A setting of 20-40% is recommended with 30% generally being considered ideal for general purpose AC welding. If the AC balance is adjusted higher than 40%, balling and rapid wear of the tungsten may be experienced. If the AC balance is adjusted to less than 20%, the welds may appear contaminated and dull, unless a helium/argon mix is used, and/or the oxidation layer has been thoroughly removed. **Note:** The AC balance setting on the PowerTig 185, refers to the amount of cleaning provided. It refers to it by designating it as a PERCENT of time the welder spends during one AC cycle in the Electrode Positive (+) part of the cycle. This may

be different from some other brands that refer to percent of Electrode Negative. If you are accustomed to running a balance setting that refers to electrode negative, simply use the reciprocal value to figure the same setting on the PowerTIG 185 (DV).

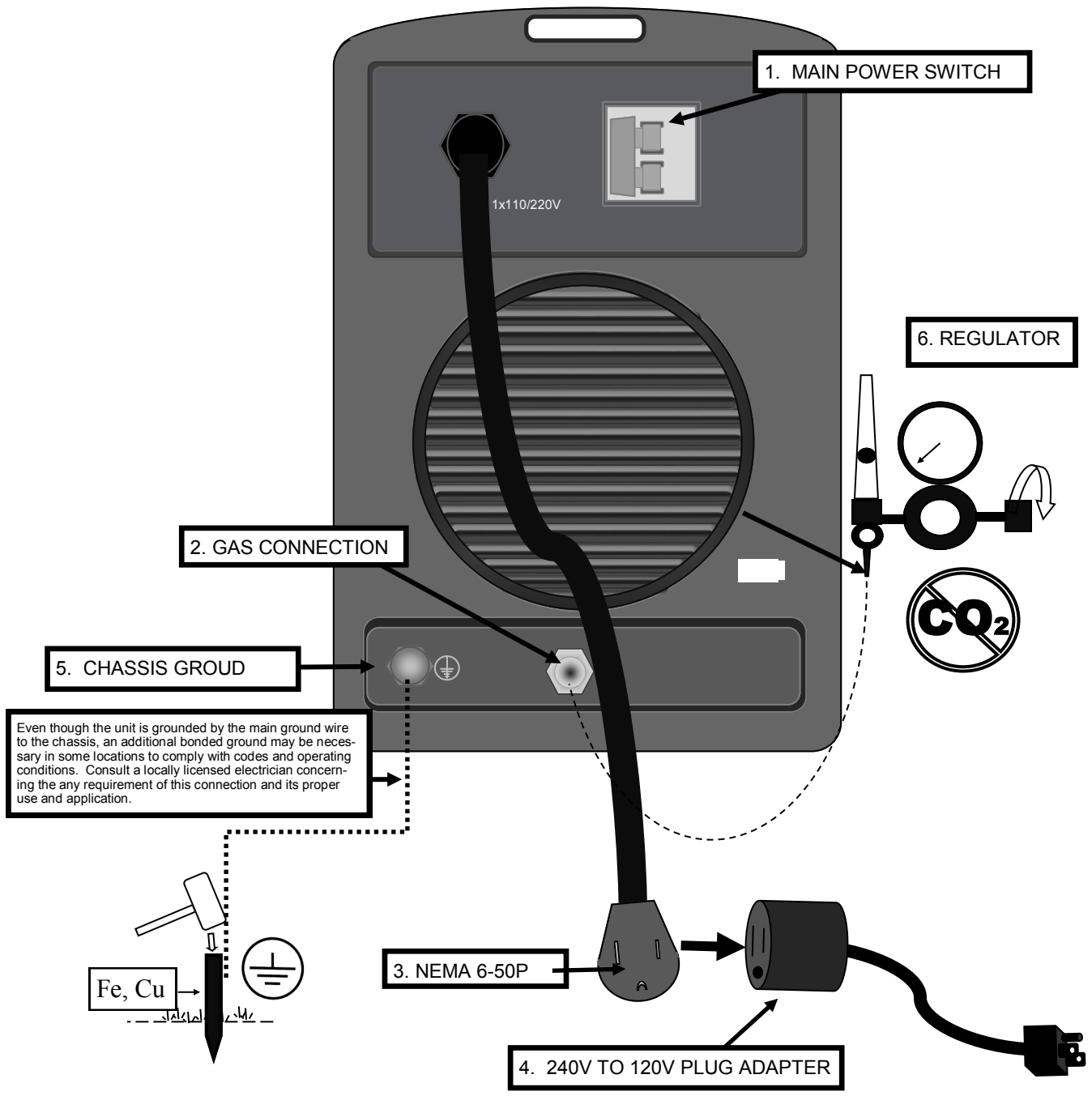
13. **Duty Cycle/Over Current LED Indicator.** This lamp will illuminate when the temperature sensor indicates that safe operating temperatures have been exceeded or when an overcurrent has taken place. Ambient temperature over 40° C, air flow restrictions, and dirty internal components can reduce the duty cycle of the welder. Also, operating the welder at high AC frequency and AC balance settings, some duty cycle loss may be experienced. When the amber LED duty cycle indicator is triggered, welding output will be interrupted. If the unit's duty cycle safety feature is engaged, do not turn the machine off. Allow the machine to continue to run and cool for 15 minutes before resetting the machine by cycling the power switch off and back on. Do not attempt to shorten the cooling cycle by prematurely cycling the switch. The machine can be forced into resetting once the temperature at the sensor is below the trip threshold, but before the full 15 minutes expires. However, it may not have been able to adequately dissipate some of the residual heat transferred to the circuits and can cause long term damage. If the LED turns red, it is a Over/Under Current problem. Check for excessive extension length, undersized cables, or improper wiring. Overly warm extension cords or cables are a symptom of undersized wiring, particularly while operating on 110V. Attempting to operate the welder on a generator not designated by its manufacturer as clean power can also trigger this condition. If no known fault exists, contact Everlast if cycling the welder off and on does not correct the problem.
14. **On LED Indicator.** The lamp will stay illuminated while unit is powered on. The LED may remain lit for a few seconds after powering off while the capacitors are discharging. This is normal and not a defect.

NOTES:

1. Make sure you swap the torch and work clamp polarity when you change between processes. Make sure the TIG torch is always in the negative and the work clamp in the positive. Make sure the stick electrode holder is in positive (for most welding rods) and the work clamp is in the negative.
2. When welding AC (aluminum or magnesium), start with a setting of 30% for the AC balance and a setting of 120 for the AC Frequency for most welding tasks.
3. Never use pure tungsten, even for welding AC in the PowerTIG 185. Pure tungsten will cause a ball and an unstable arc.
4. Small amounts of Helium may be mixed with Argon to add greater welding capability. Do not exceed 25% Helium in the Argon/Helium mix or arc starting may become difficult.
5. For best results on aluminum, thoroughly pre-clean your weld a dedicated stainless steel brush and safe-to-use aluminum cleaner.

Rear Panel View

CONSULT A LICENSED ELECTRICIAN AND LOCAL CODES BEFORE WIRING YOUR FACILITY FOR YOUR UNIT. EVERLAST IS NOT RESPONSIBLE FOR DAMAGE OR INJURIES RESULTING FROM IMPROPER WIRING.



Even though the unit is grounded by the main ground wire to the chassis, an additional bonded ground may be necessary in some locations to comply with codes and operating conditions. Consult a locally licensed electrician concerning the any requirement of this connection and its proper use and application.

IMPORTANT: USE THE 240V TO 120V ADAPTER TO SAFELY ADAPT THE NEMA 6-50P (INDUSTRY STANDARD 240V WELDER PLUG) TO THE STANDARD NEMA 5-15P WHEN OPERATING ON 120V. THIS PLUG ADAPTER PRESERVES THE POLARITY REQUIREMENT FOR OPERATION ON 120V.

2.2 Rear Panel Features. The PowerTIG 185 (DV) rear panel contains the main power switch and connection points for power and shielding gas supply.

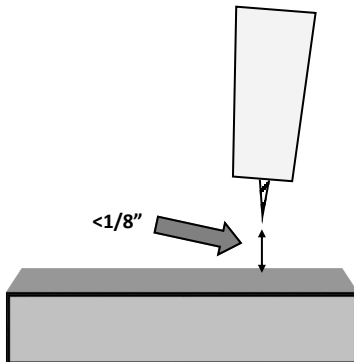
1. **Main Power Switch.** The On/Off operation of the welder is controlled by the main power switch. The switch should operate smoothly. The switch also serves as a type of circuit breaker in case of an internal machine fault but should not be relied upon for circuit protection. If the unit experiences an internal failure or an excessive current flow this switch will trip and move the switch to the “tripped” position midway between the normal on and normal off position. If the switch trips, identify the cause of the fault before switching the machine fully off and and back on. Contact Everlast if the cause cannot be identified.
2. **Gas Connection.** This is a 5/8” -18 CGA female gas compression fitting (US and Canada 2014 models and newer). This is the standard argon gas fitting for North America. The regulator supplied with the unit includes a hose pre-fitted with the male connector. Due to the compression design, thread tape and thread sealant should not be used. Carefully snug the connections using two wrenches, one to hold the male fitting and the other to hold the female fitting to prevent damage the back panel and internal solenoid. Brush the connection with mild soapy water to test for leaks and retighten if necessary.
3. **NEMA 6-50P Power Plug and Cable.** The unit is equipped with a standard NEMA 6-50P power plug and 6 ft. cable(US and Canada). This is the standard power plug used in the North American market for welders operating on 240V, 1 phase current. Welders do not require a neutral circuit to operate and this is the default plug for welder service. Removal of the plug is not recommended. Adapting the plug or cable to fit outlets with 4 wires, which include both a ground and a neutral is not recommended and may violate code. Consult a licensed electrician before adapting any connection or installing on any circuit not previously wired for welder service to make sure the circuit is properly wired and equipped with the appropriate sized circuit breaker for service of the welder and other machines operating on the same circuit.
4. **240V-120V adapter plug.** The adapter cord helps to safely and easily adapt the unit for 120V operation. This adapter features a 220V female NEMA 6-50R and a 110V NEMA 5-15P. The NEMA 120V 5-15P is an appropriately sized connector within

the limits of the NEC recommendations for duty cycle limited machines even though operating amp draw may exceed 20 amps at maximum output operating on 110/120V. To operate on 110/120V power no switching or internal changeover of wires is required. The unit automatically senses the voltage change and adapts operation and reduces output for 110V/120V operation. No other effort is required. Consult with a locally licensed electrician to determine if your circuit is appropriately wired and circuit protected for operation with the welder and other devices on the same circuit.

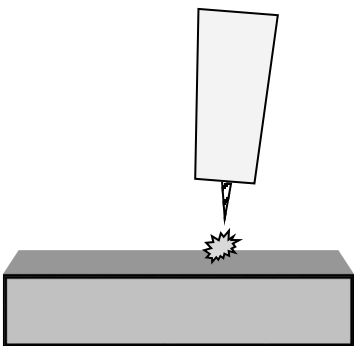
5. **Ground Bolt.** This ground bolt is provided for situations that require additional grounding to protect against HF bleed back and chassis ground to prevent to offer additional ground protection. This bolt should be used to connect an additional ground wire to the metal rod driven in the ground. **All surrounding metal objects should be grounded to a separate grounding rod including the table, metal water pipes, walls, etc. to prevent electrical interference with other circuits. Do not couple this ground connection to the ground provided in the breaker panel.** Consult with a locally licensed electrician if HF interference is suspected or to determine if the use of this additional ground connection is required for your application.
6. **Regulator.** The regulator controls gas flow from the argon tank. The regulator supplied with the unit requires some assembly which is limited to attaching the gas hose and fitting to the regulator. The gas hose provided will usually have the 5/8” argon connector already attached to one end. All that is necessary is to install the hose onto the hose barb fitting supplied with the regulator and use a hose clamp to secure the hose onto the barb and snug the fitting to the regulator using a wrench. Check to determine if the regulator provided is metered in Liters per minute (LPM) or Cubic Feet Per Hour. If in LPM, simply multiply by 2 to determine a rough CHF figure.

NOTE: TIG welding requires the use of Argon, or an Argon/Helium mix only. Do not use CO2 or an Ar/CO2 gas mix intended for MIG welding. If using Helium in the mix to increase penetration, do not use over 25% helium or arc starting difficulties may be experienced. If difficulty is experienced with arc, contamination or rapid electrode consumption, especially after changing Argon cylinders, check to make sure the correct gas is used, or suspect contamination of the supplied gas.

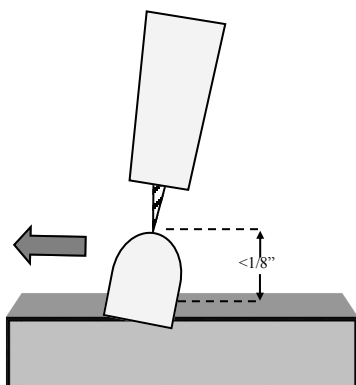
HIGH FREQUENCY START TIG OPERATION

FOR AC OR DC USE.

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. If an 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 and then move the tungsten closer to the work. Repeat steps 1 and 2.



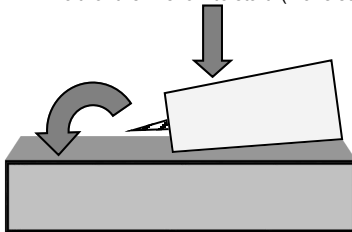
4. Leave 1/8" or less gap between the tungsten tip and the metal and proceed with welding, leaving the torch inclined at a 15° angle.

LIFT START TIG OPERATION

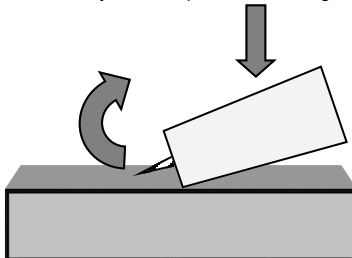
Note: This method takes some practice to master to initiate the arc on the first try. However, an arc can usually be struck fairly easily by the beginner, though it may take 2 or 3 times to get one to initiate properly at first. After it is mastered, arc striking can be done with a light, seamless motion on the first try. Use a light touch and a quick motion for best results.

DO NOT USE THIS METHOD WITH AC!

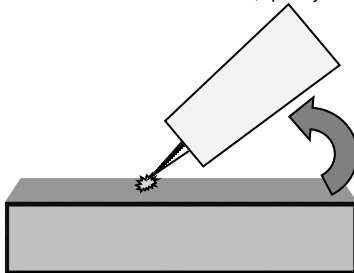
1. Position the edge of the ceramic cup on the metal. Press and hold the torch switch or press the foot pedal. Wait for the Prewflow to start. (Make sure preflow is set for a short < .5 seconds or start will be delayed.)



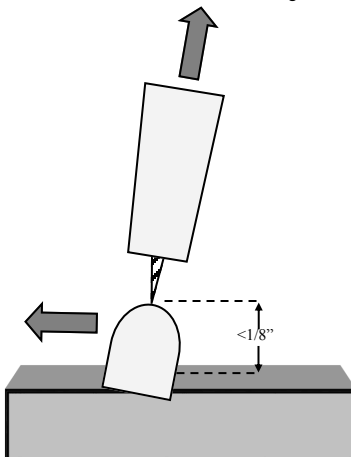
2. Quickly rotate cup so that the tungsten come in contact with the metal.



3. After contact with the metal, quickly rock the torch back so that the tungsten breaks contact with the metal.



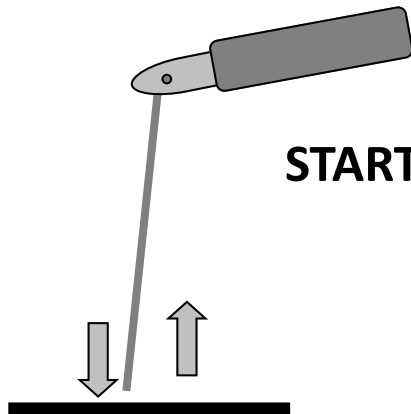
4. An arc should form. As the arc grows raise the cup up off the metal and slowly rotate the torch into welding position.



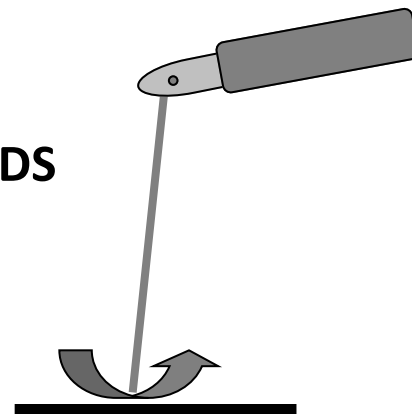
5. Leave 1/8" or less gap between the tungsten tip and the metal. Proceed with welding, leaving the torch inclined at a 15° angle.

STICK OPERATION

STARTING METHODS



Tapping Method



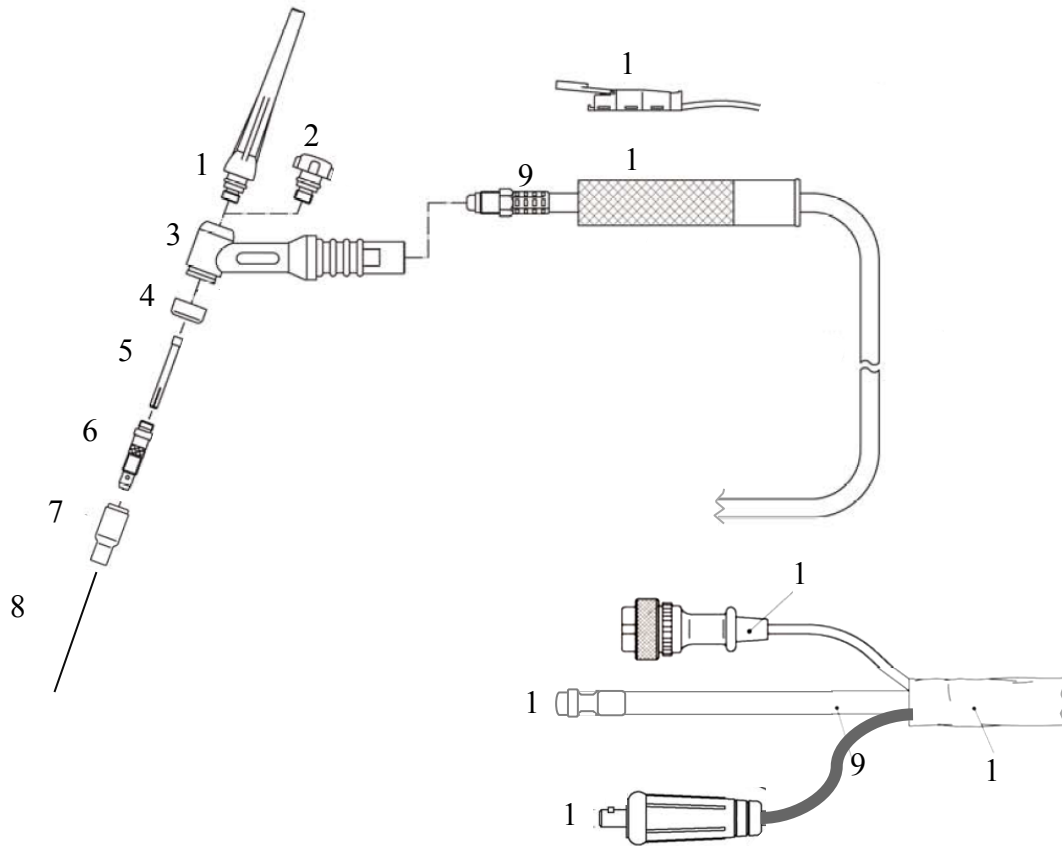
Scratch/Match Method

To start an arc, while in stick mode, there are two basic types of starting methods.

1. Tapping Method. This is done with a simple, light pecking motion against the metal with the electrode. This allows arc starting directly in the joint without the danger of starting the weld outside the joint.
2. Scratch method. This is done by swiping the electrode quickly across the face of the metal. This is a reliable and easy way to start, but can cause issues if the electrode is allowed to travel outside of the weld area.

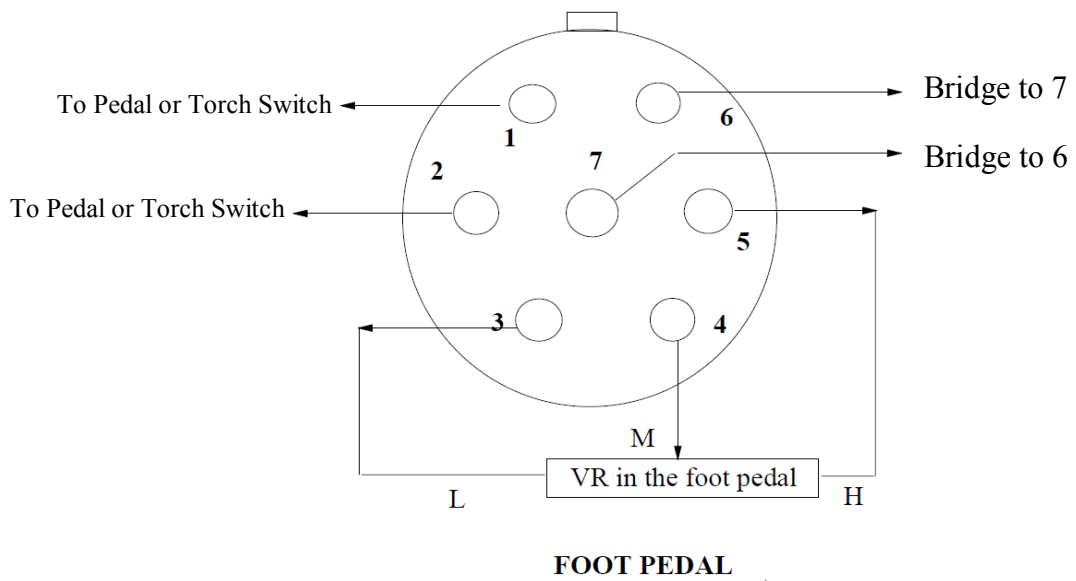
EXPANDED VIEW OF TIG TORCH

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



NO.	PARTS FOR 17 Series Torch (STYLE MAY VARY)	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

7 PIN CONNECTOR FOR 22K Ω FOOT PEDAL



TROUBLE:	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 connection. Make sure ground cable and TIG Torch is 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 adjust and clean HF point gap. Set to .035" or contact Technical Support.
Tungsten is rapidly consumed.	Inadequate gas flow. Too small of tungsten. Wrong shielding gas. Use only Ar. Using green tungsten. Use red or other. 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.
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.

