

EVERLAST

POWERTIG 185

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



Operator's Manual for the PowerTig 185

Safety, Setup and General Use Guide

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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 _____



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 you 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 TIG/Stick Welder	Specification
Process	AC/DC GTAW/DC SMAW
Minimum/Maximum Rated Output TIG	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	5 A/20.2 V - 150 A/26 V 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	35% @ 185 A/17.4 V (220 V) 35% @ 125 A/15.0 V (110 V) 60% @ 145A/ 15.8 V (220 V) 60% @ 100 A/ 14.0 V (110V) 100% @ 110 A/ 14.4 V (220V) 100% @ 75 A/ 13.0 V (110V)
Stick Duty Cycle @ Rated Amps/Volts	35% @ 150 A/ 26.0 V (220 V) 35% @ 105 A/ 24.2 V (110 V) 60% @ 120 A/ 24.8 V (220 V) 60% @ 85 A/23.4 V (110 V) 100% @ 90 A/ 23.6 V (220 V) 100% @ 65 A/22.6 V (110 V)
OCV (U _o)	70 V
Voltage Input (U ₁)	Standard 240 V/ Optional 110/220 V 50/60Hz
Maximum Inrush Amps (I _{1MAX})	24.5 A @ 220 V / 22 A @ 110 V 23.1 A @ 230 V 22.1 A @ 240V
Maximum Operating Amps (I _{1EFF})	14.5 A @ 220 V/ 13.5 A @ 110V 13.6 A @ 230 V 13.0 A @ 240V
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 Standard	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

SECTION 1**INTRODUCTION AND SPECIFICATIONS****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.

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 machine until you fully read the manual.

1. To ensure that your PowerTig 185 is in top condition, carefully inspect 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 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 "terms and policy".

2. The PowerTig 185 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 carry the unit almost anywhere it is needed. In comparison to other Tig (GTAW) welders on the market, the PowerTig 185 is among the most compact AC/DC TIG welders on the market. While it's small size is a bonus, it doesn't compromise on duty cycle or 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. The PowerTig 185 is an ideal portable jobsite welder that can operate with clean power generator/welders or limited jobsite power availability due to its low input amp requirement and good duty cycle.



3. Be careful to observe the duty cycle of the weld-

er. The duty cycle of the PowerTig 185 is 35%. This means that the machine may be run for up to 3.5 minutes out of 10 minutes of operation at maximum amperage. Overheating may occur if the duty cycle is exceeded. Overheating will cause the unit safety cut-out to engage, and interrupt the welding. Allow the unit to run for 10 minutes after the safety has triggered. Then reset the unit at the main switch by cycling it off and back on. On 110/220V machines, the amp output of the machine will be reduced. The maximum output will still be rated at 35% when operated at maximum amperage on 110V. High heat and humid conditions will also affect the duty cycle of the welder.

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 the welder. Do not suspend the unit in the air by the carry 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. 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 12 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.

7. Refer to the following pages for specifications. Note that product specifications are subject to change without notice due to product improvements. If any additional information is needed contact Everlast. As with any product, some changes in specifications do occur that do not affect overall scope and function of the machine, and may not be noted until a major production change occurs.

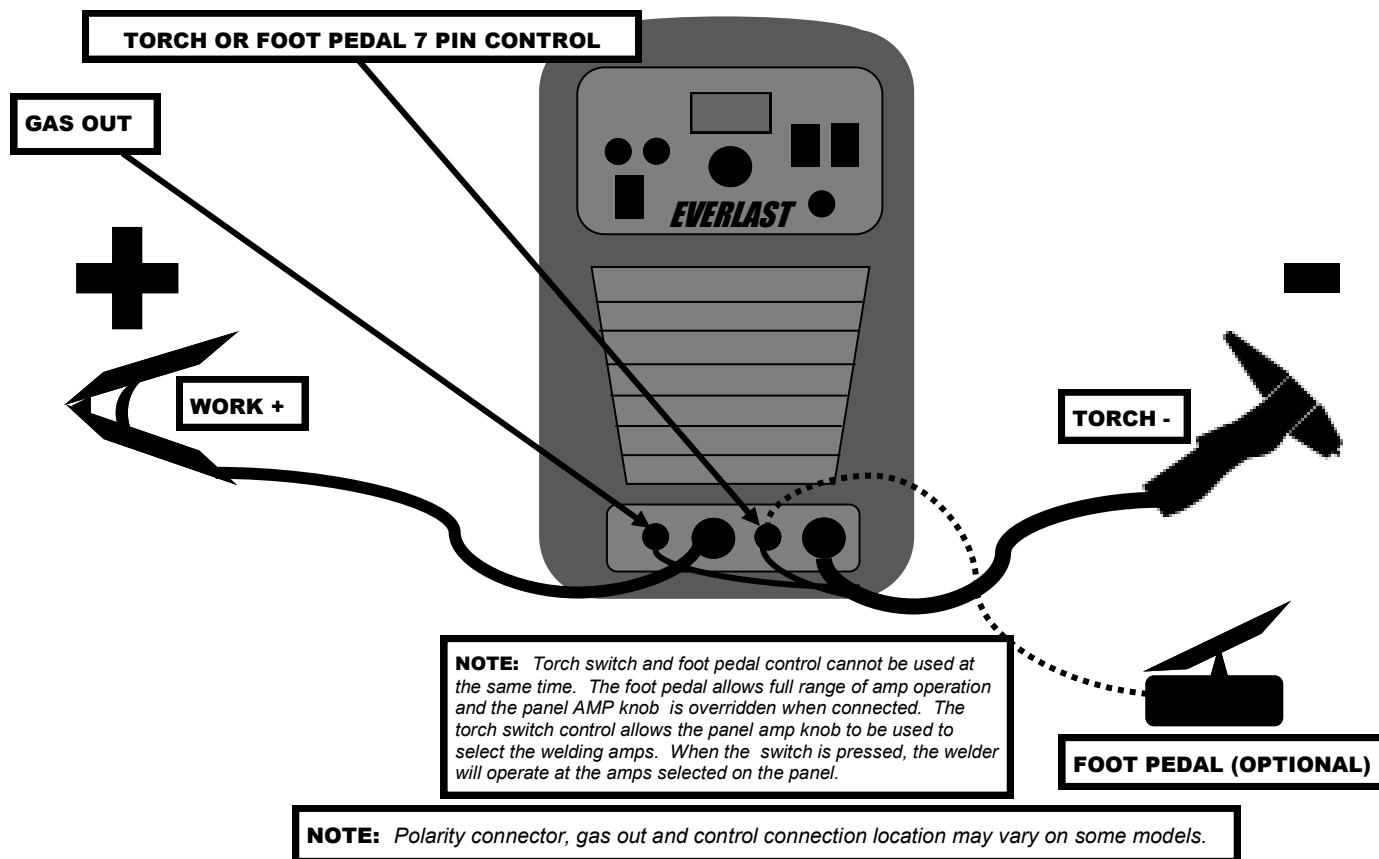
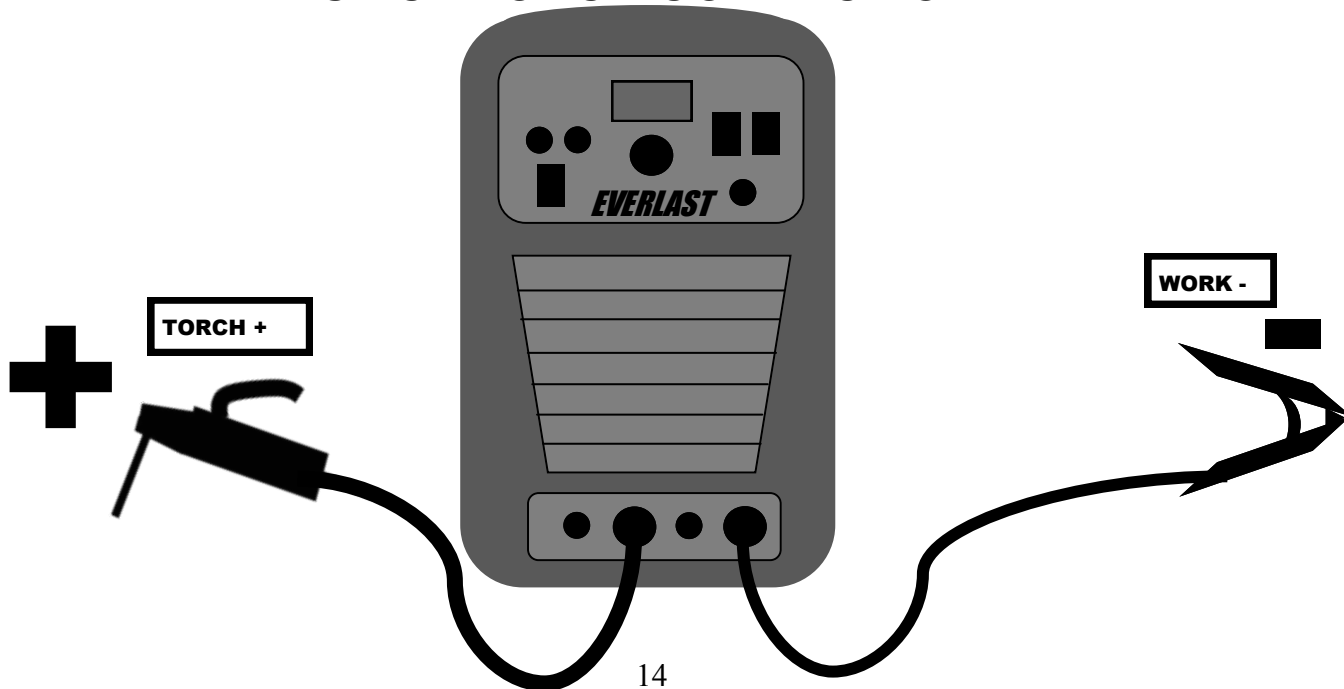
General Description, Purpose and Features. The PowerTig 185 Micro, is an AC/DC TIG (GTAW) machine with easy to operate functions designed for home, fabrication, and general industrial use. Basic features include:

1. **HF Start/Lift Start.** High Frequency starting makes starting 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 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 an 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.

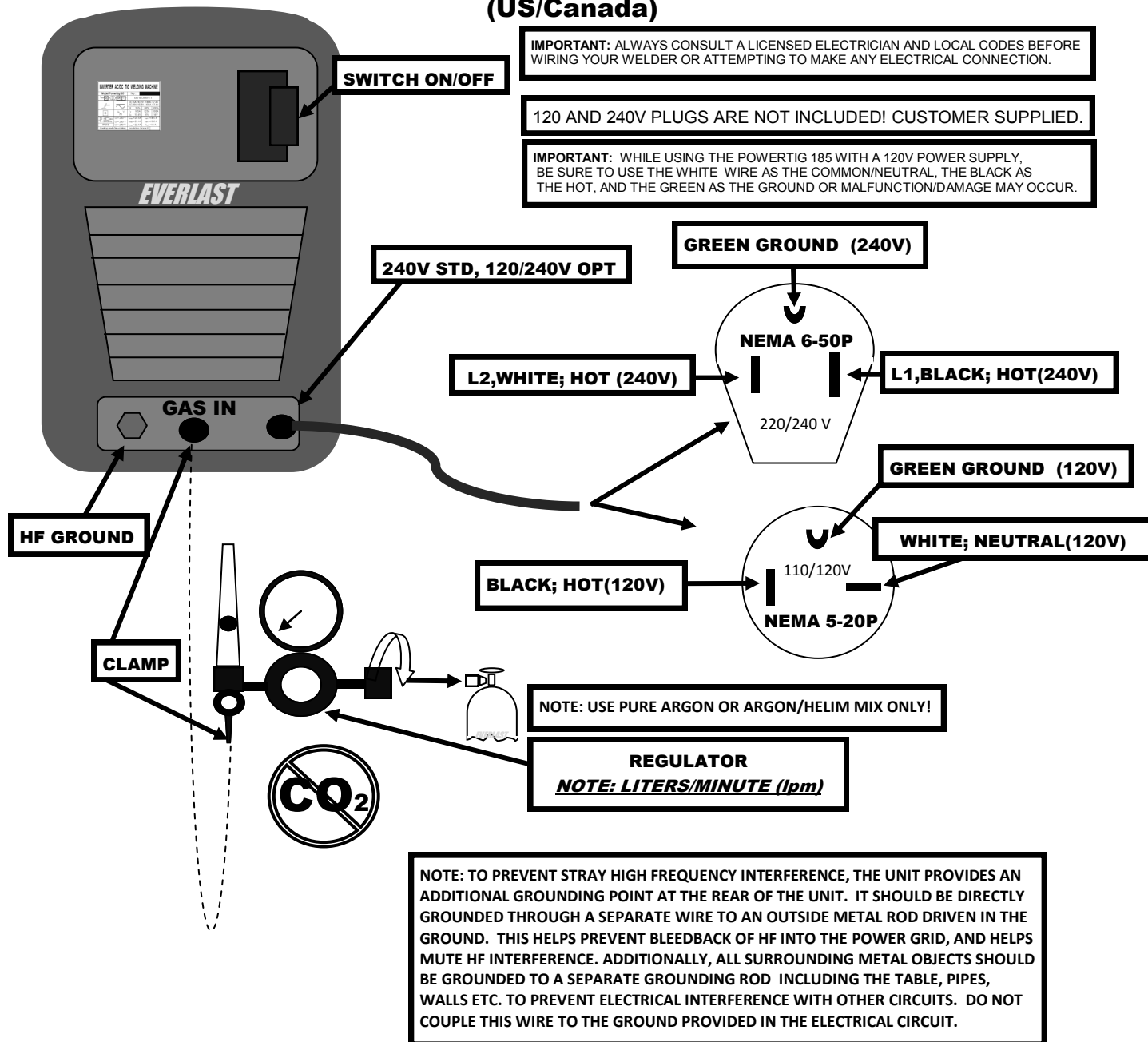
7. Torch Switch or Pedal Operation.

Having the option of welding without a foot pedal, greatly increases the versatility of the PowerTig 185. 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. The foot pedal overrides the panel amp control on the PowerTIG 185. The panel knob becomes inactive while the foot pedal is in use. While the foot pedal is in use, the welder will have variable control of the welding amps from the minimum to maximum current of the machine (5-185 DC, 20-185 AC). Correct use of the foot pedal is accomplished through experience and practice. While learning, it is suggested to practice with the torch switch control before moving on to the foot pedal, because it allows the operator to concentrate on technique without having to coordinate the variable amp capability of the foot pedal. **NOTE: The Foot Pedal is an optional item on the PowerTIG 185.**

**QUICK SETUP GUIDE
(US/Canada)****TIG TORCH CONNECTION****STICK TORCH CONNECTION**

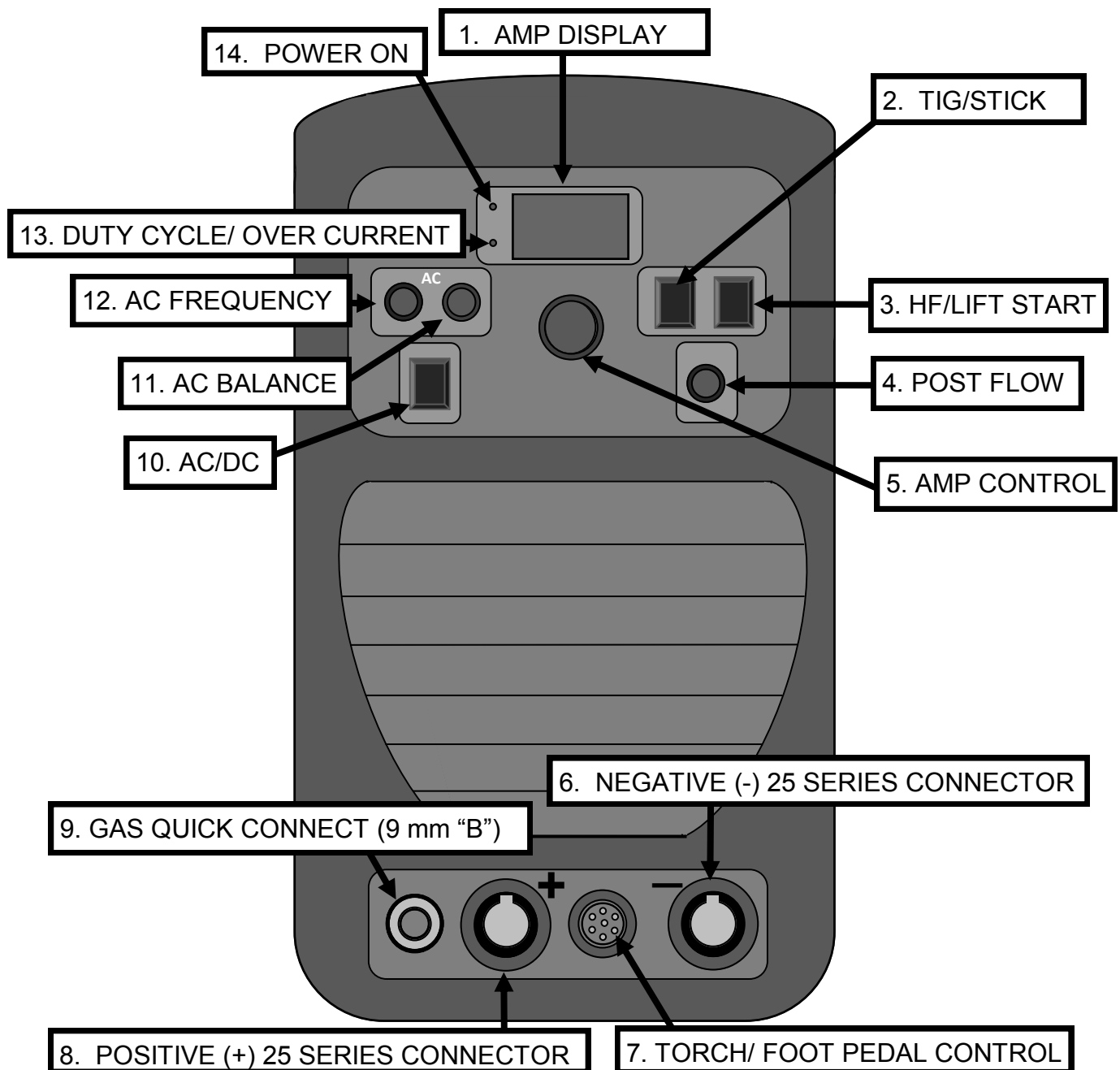
QUICK SETUP GUIDE

(US/Canada)



WIRING 240V: Match the correct colored wires found on your unit to the colors (usually) found printed on the welding plug so that the unit can be properly connected to the power supply. Be sure to make a secure ground connection to the plug and identify the correct 115 V power wires (measured to ground) on the power input side, commonly referred to as a "hot" leg. A neutral wire is not required, and should not be used. If a 4th wire on the power side is found in a single phase system, it is a neutral, usually white in color. Do not match this wire to the white wire on the welder. Typically the hot wires in a 4 wire system will be red and black. In a three wire 240V configuration, hot wires may be white and black. The circuit should be rewired if this neutral is present so that only two "hot" wires and one ground wire is present. Everlast strongly recommends using the NEMA 6-50, a three wire 50 amp plug and receptacle, available at almost all hardware stores. The NEMA 6-50 P/R is the industry standard plug /receptacle for welders. Consult local codes and a licensed electrician should any doubts or problems arise. Wiring the welder incorrectly can result in failure/damage to the welder. It is important to have the proper gauge wire feeding the outlet from the breaker panel. Consult section 6-30 of the NEC and local authorities for codes related to wiring and breaker requirements for welders and duty-cycle limited devices.

Front Panel Features And Operation



2.1 Upper Panel Features. The Everlast PowerTig 185 Micro has a simple panel layout with basic, functional controls and features. See section 3 for more detailed explanation on welding functions and techniques.

1. **Digital Display.** The display posts the approximate welding amps selected in Panel mode. Accuracy is usually within ± 3 amps. After the arc is started the display function changes to read actual amp output while welding. The display will show the final welding amperage for a few seconds after terminating the arc before it re-sets to the original static amp setting. Using the foot pedal alters the function of the display. Until the pedal is pressed, it will not reflect an amperage setting because the amps are determined by the foot pedal position. The display will read "000" when the foot pedal is plugged in, until the pedal is pressed. While welding it will show actual amps. **Note:** Display accuracy is $\pm 3\%$.
2. **TIG/Stick Switch.** Select between TIG or Stick operation. (Be sure to swap polarity when shifting between TIG and Stick modes.)
3. **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 switch or foot pedal and the arc will start momentarily, after a brief gas pre-flow period. Lift start requires only a quick touch down and lifting of the tungsten to the metal to start the arc (after the torch switch or foot pedal is activated). Lift start is designed primarily for DC starting. Do not use this method with AC because contamination of the tungsten will occur. **Note:** This is not the scratch start method where the tungsten is rubbed across the surface of the metal to draw an arc.
4. **Post Flow Control.** Adjusts the gas flow time after the welding arc is stopped. Use it to provide extra shielding while the weld cools and provides some torch head cooling. **Note:** The Post Flow can also be used to add extra pre-flow by quickly tapping the pedal or torch switch without striking an arc.
5. **AMP Control.** Adjusts amperage while it is being used with the torch switch function. It is deactivated when the foot pedal is plugged in. While adjusting amps in AC, the minimum amp value will be 20 Amps. In DC it will be 5 Amps. **Note:** The foot pedal always overrides the amp control and has full range of control from 5(20)-185 amps and maximum amps cannot be limited.
6. **Negative Connector (-).** This is a standard Dinse 25 style (3/8") connector. Simply insert the male connector and twist clockwise. Hand tighten only. **Do not use tools.** For TIG: connect the torch. For Stick: connect the work clamp.
7. **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. **Do not use tools.** **Note:** Do not attempt to use the foot pedal to control the stick amperage. If the operator desires to weld with fixed amperage on the panel, then connect the torch control. If varying amperage control is required during the welding process, then connect the foot pedal.
8. **Positive Connector (+).** This is a standard Dinse 25 style (3/8") connector. Simply insert the male connector and twist clockwise. Hand tighten only. **Do not use tools.** For TIG: connect the work clamp. For Stick: connect the torch. **Note:** If the TIG torch is connected to this side, the tungsten will melt rapidly.
9. **Gas Quick Connect.** Simply insert the male TIG torch connector until it clicks in. The outer collar should automatically slide forward. To remove, simply slide the outer collar backwards and the male connector will be released. This is a 9 mm quick connector, with nominal diameter dimensions of 1/8" (US).
10. **AC/DC Selector Switch.** Select DC for Steel, and Stainless Steel and most other metals. Select AC for Aluminum and Magnesium alloys. Unsatisfactory results will occur if DC is used for welding aluminum.
11. **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 suggested. 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.
12. **AC Balance Control; 10-90 %.** Adjusting between AC + and AC- polarity regulates the amount of cleaning action (cathode 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. 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 (Hz) in the electrode positive (+) side of the cycle. This may be different from some other brands that refer to percent negative. If you are accustomed to running a balance setting that refers to electrode negative, simply subtract that setting from 100% and the remaining number is the equal setting on the PowerTIG 185.

13. **Duty Cycle/Over Current Indicator.** This lamp will illuminate when the temperature sensor indicates that 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/green LED duty cycle indicator is triggered, cease welding, even if the unit does not interrupt automatically. Do not turn the machine off. Allow 10 full minutes of cooling before turning off the machine. Then, cycle the machine off and back on with the switch on the back of the unit to reset the duty cycle lamp. Do not attempt to shorten the cooling cycle by prematurely cycling the switch. The machine can be “tricked” into re-setting once the temperature at the sensor is below a given level, and before the full 10 minutes expires. However, it may not have been able to adequately dissipate some of the residual heat transferred to the circuits. 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 un-

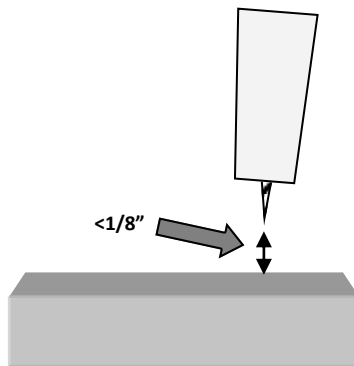
dersized wiring, particularly while operating on 110V. Attempting to operate the welder on a generator not recognized by its manufacturer as clean power can also trigger this condition. If no known fault exists, contact Everlast if cycling the welder on and off does not correct the problem.

14. **On 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.

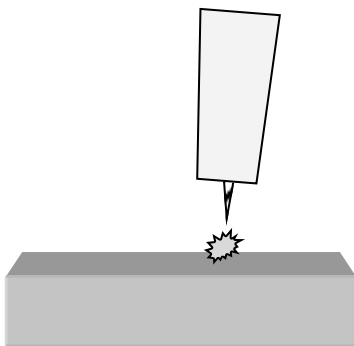
NOTES:

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 torch 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.
3. Never use pure tungsten, even for welding AC in the PowerTIG 185.
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.

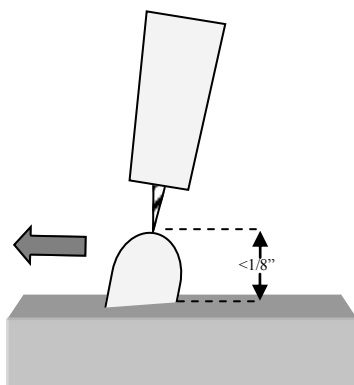
HIGH FREQUENCY START TIG OPERATION

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



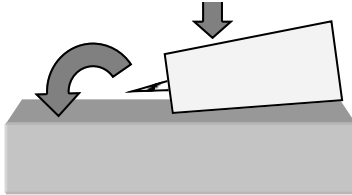
4. Leave 1/8" or less gap between the tungsten tip and the metal and proceed with welding, leaving the torch inclined at a 15° angle.

LIFT START TIG OPERATION

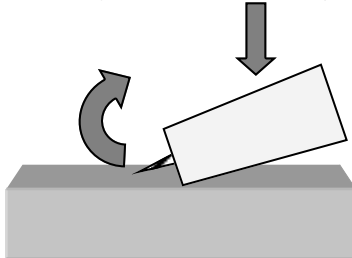
Note: This method takes some practice to master to initiate the arc on the first try. However, an arc can usually be struck fairly easily by the beginner, though it may take 2 or 3 times to get one to initiate properly at first. After it is mastered, arc striking can be done with a light, seamless motion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

DO NOT USE THIS METHOD WITH AC!

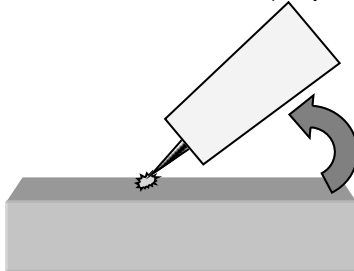
1. Position the edge of the ceramic cup on the metal. Press and hold the torch switch or press the foot pedal. Wait for the Prewflow to start. (Make sure preflow is set for a short < .5 seconds or start will be delayed.)



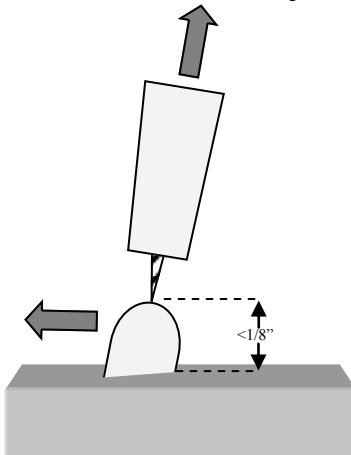
2. Quickly rotate cup so that the tungsten come in contact with the metal.



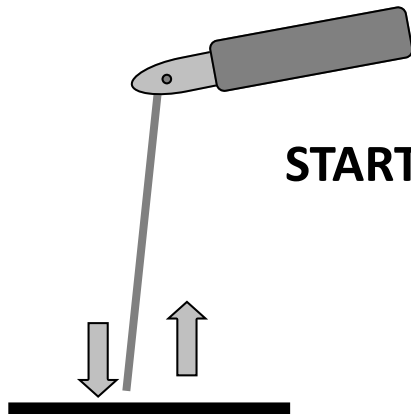
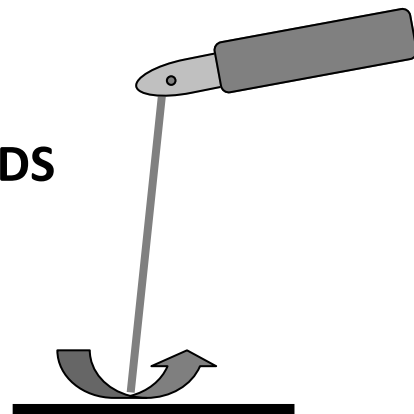
3. After contact with the metal, quickly rock the torch back so that the tungsten breaks contact with the metal.



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.

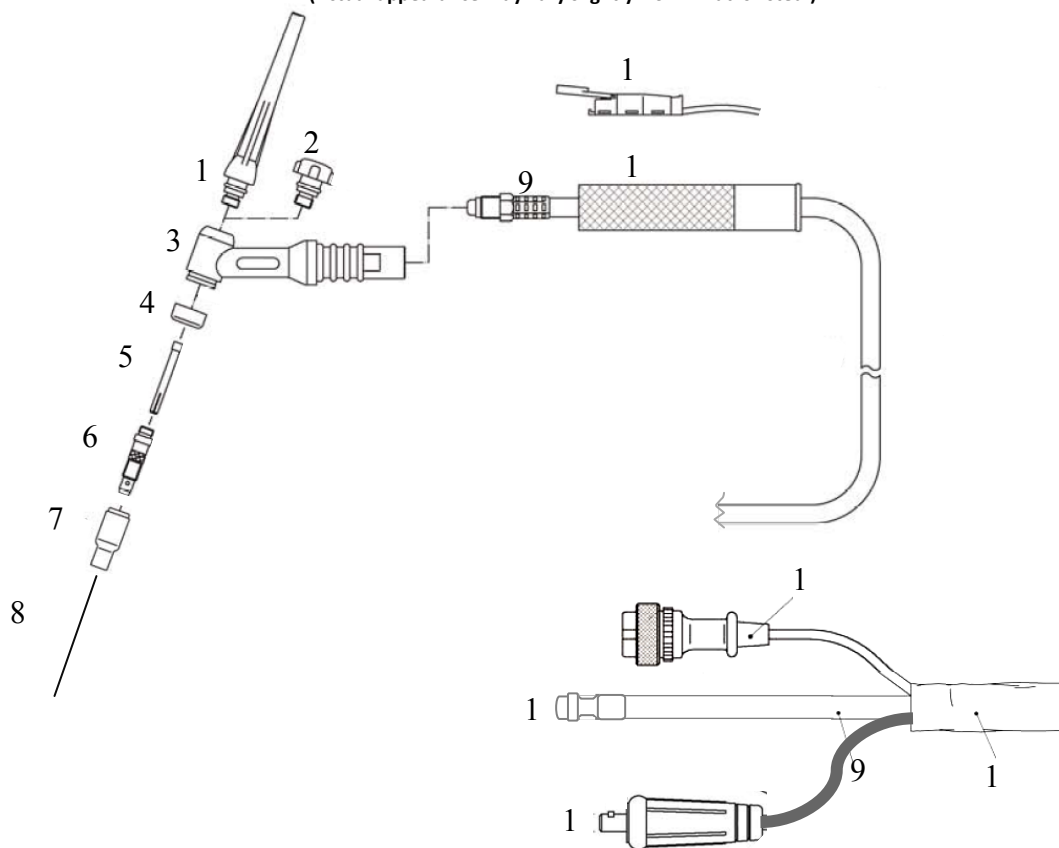
STICK OPERATION**STARTING METHODS****Tapping Method****Scratch/Match Method**

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.

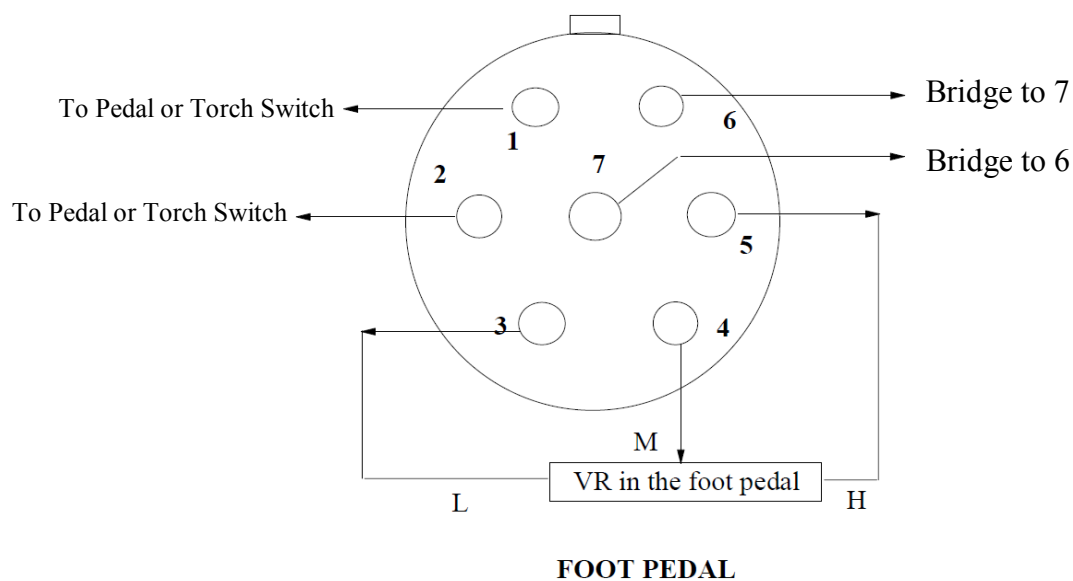
EXPANDED VIEW OF TIG TORCH

(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



SECTION 4**TROUBLE SHOOTING**

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 HF point gap. Set to .035" See addendum 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.

