EVERLAST

POWERARC 140ST*i*

DC Stick/DC TIG Inverter Welder

CC

GTAW

SMAW

IGBT

1 PHASE

DC

120V / 240V

Operator's Manual for the PowerARC 140STi
Safety, Setup and General Use Guide

Rev. 2. 1 00-010719– JAN. 19

everlastwelders.com

EVERLAST IGBT INVERTER TECHNOLOGY

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

Dear Customer,

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

Please go directly to the Everlast website to register your unit and receive your warranty information. Your unit registration is important should any information such as product updates or recalls be issued. It is also important so that we may track your satisfaction with Everlast products and services. If you are unable to register by website, contact Everlast directly through the sales department through the main customer service number in your country. Your unit will be registered and warranty will be issued and in full effect. Keep all information regarding your purchase. **In the event of a problem you must contact technical support before your welder can be a candidate for warranty service and returned.**

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

Everlast offers full technical support, in several different forms. We have online support available through email, and a welding support forum designed for customers and noncustomer interaction. Technical advisors are active on the forum daily. We also divide our support into two divisions: technical and welding performance. Should you have an issue or question concerning your unit, please contact performance/technical support available through the main company headquarters available in your country. For best service call the appropriate support line and follow up with an email, particularly 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 cannot 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 US:
Everlast consumer satisfaction email: sales@everlastwelders.com
Everlast Website: everlastwelders.com
Everlast Technical Support: tech@everlastwelders.com
Everlast Welding Support: performance@everlastwelders.com
Everlast Support Forum: http://www.everlastgenerators.com/forums/index.php
Main toll free number: 1-877-755 WELD (9353)
Sales: Ext 201 9am—5pm PST M-F
Tech Support: Ext 207 9am—5pm EST M-F
Welding Support: Ext 204 9am—5pm EST M-F

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Other Numbers (Please record here for your records):

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 welder to give you the best possible experience. Much of the welding related activities you will encounter are based upon experience and common sense. As thorough as this welding manual may be, it is not a substitute for either. Exercise extreme caution and care in all activities related to welding. 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 in its entirety before you operate your Everlast unit.** This manual is not only intended to outline the functions of the machine, but to assist you in obtaining the best performance out of your unit. Do not operate the unit until you have read this manual and are thoroughly familiar with the safe operation of the unit. If you feel you need more information about operating your unit, please contact Everlast Support.

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

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

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

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

Welding and cutting processes produce high levels of ultraviolet (UV) radiation that can cause severe skin burn and damage. There are other potential hazards involved with welding such as severe burns and respiratory related illnesses. Therefore, always wear Proper Personal Protective Equipment (PPE) and 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!**

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 fully 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. Unchained cylinders may be damaged in fall and can cause damage, injury or death. 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. Do not transport without safety caps in place.

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.
- Keep cylinders turned off when not in use.
- Turn off all cylinders and remove regulators when the machine is expected not to be used for more than 24 hours. Do not transport cylinders uncapped.

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. Immediately label all recently welded or cut material as "Hot" with soapstone or a marker suitable for marking metal, when left unattended.

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. The warranty does not cover lightening strike damage.

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.

PERFORMANCE AND FEATURE COMPARISON

Specification	PowerARC 140STi
Inverter Type	Digitally Controlled IGBT
Input Voltage (±10); Phase/Frequency	120/240V; 1PH/50-60Hz
Maximum Inrush Amps (I_1max)	28.1A @ 120V/ 24.2A @ 240V
Maximum Effective (rated running) Amps (I_1eff)	17A @ 120V/ 15A @ 240V
Duty Cycle @ Rated Amps/Volts	120V: 35% @ 80A/ 23.2V 60% @ 65A/ 22.6V 100% @ 50A/ 22V 240V: 35% @ 140A/25.6V 60% @ 110A/24.4V 100%@ 85A/23.5V
DC Output Range	120V: 5-80A, 20.2-23.2V 240V: 5-140A, 20.2-25.6V
Open Circuit Voltage	70 V
Lift TIG/ HF Start Feature	Live Lift. (must use a gas valve torch) No HF Start.
TIG Pulse	No Pulse
Welding Accessory Package	INCLUDES: Electrode holder (stick) with 10ft cable and connector work clamp with 10 ft cable and connector. 17V Series 12.5 ft TIG torch. Carry Case. **NOTE: Argon Regulator is not included. Must purchase separately.**
Current Output Type	DC (±)
Cellulose Electrode Capable (6010,6011)	6011 only, may be brand/flux formulation dependent.
DINSE Connector Type	10-25mm² (DINSE 25 STYLE)
Hot Start	Adjustable Intensity (0-100%), Duration is auto selected
Arc Force Control	Adjustable (0-100%)
Voltage Reduction Device (VRD) for Stick	None
Anti-Stick Function	None
Maximum Rod Diameter (Stick Electrode)	120V: 3/32" 240: 1/8" (depending on electrode type.)
Dimensions (nominal)	6"W x 10"H x 12"L (152mm W x 255mm H x 305mm L)
Weight	20 Lbs. (9 KG) Bare Unit Weight.
Protection Class	IP21S
Insultation Grade	F
Input Cable Length	6 ft.
Minimum Recommended Generator Surge Watts	6000 Watts. (240V) Must be clean power output rated by the generator manufacturer (clean power is considered ≤5% THD) or warranty is void.

IMPORTANT:
This unit is DC output only. Although technically possible, DC TIG is not recommended for welding aluminum or magnesium.

2.1 General Description, Purpose and Features.

PowerARC 140STi:
The PowerARC 140ST*i* is a digitally controlled inverter welder that provides DC stick and DC TIG welding capability (DC SMAW/DC GTAW) wrapped up in a completely portable design. The new digital design has allowed the incorporation of extra features and improve overall performance. It has also improved serviceability and reliability of the unit by reducing internal circuitry and discrete structures. The welder is ideal for welding tasks where portability and medium range performance capability are required. With 120V/240V single phase connectivity, the unit can be operated almost anywhere a power outlet is found, and can be used with small clean powered generators rated for at least 6000 surge watts (240V). (USA/ Canada models only. Other regions may vary.)

Stick Features.
The digitally managed arc performance of the PowerARC 140ST*i* creates a perfect arc for most daily welding chores. The smooth and stable Stick welding characteristics of the PowerARC welder performs well with iron powder type rods. This means that the unit welds well with rods such as E7014 and E7018. It is not designed for E6010 and other cellulose rods. **Although E6011 is a rod with cellulose based flux, some brands may produce a satisfactory and stable arc with this welder**. **Some brands of E6011 will not work with this welder.** However, this is dependent on specific formulation of the flux chemistry regarding the level of arc stabilizing components included in the flux. So if you wish to use E6011 welding rods, try several different brands to determine the suitability of this unit for your application and welding style. Not all E6011 rods may work equally well, if at all. To achieve best results with E6011, try keeping a short arc.

The addition of features such as adjustable arc force control, and hot start intensity the performance of the machine in stick mode. Adjustable hot start in stick mode reduces rod sticking while striking an arc by providing a controlled surge of amps to temporarily increase welding wattage. Similarly, the adjustable arc force controls the intensity of the amp reaction to the arc length and by providing extra current to the arc when the arc length is shortened and voltage begins to fall below 20 volts. This prevents the arc from extinguishing and helps to improve overall arc performance in all position welds by increasing amps to maintain a level welding wattage (Remember: Volts x Amps = Watts).

TIG Features.
The low contamination Live lift function provides a continuous live arc and allows the arc to be struck without the use of a foot pedal or torch switch. The torch will always remain live, and when contact is sensed, the current is lowered to allow an easier time of lifting the torch without the tungsten sticking fast in the target weld area. The torch is simply placed on the metal and lifted up to start the arc. Then, the current automatically increases once contact is broken. This is typically used where a foot pedal is not practical, such as pipeline or boiler work, under vehicles or on roll cages. The disadvantage is that the Tungsten is live all the time and an arc could be accidentally struck, causing eye flash, burn or serious injury if the torch is mishandled.
NOTE: This unit is DC output only. This unit is not intended to TIG weld aluminum or magnesium. However, the unit can be used to stick weld aluminum with specially designed aluminum stick welding electrodes (rods). Flux-coated aluminum stick welding rods are expensive. Other than occasional use for emergency repair, are not generally considered a economically viable alternative to AC TIG welding or MIG welding aluminum. While DC+ and DC– TIG have both been used to weld aluminum in the past, both have technical and practical issues. AC TIG is generally considered to be far superior, and is generally considered by professionals the best method of welding aluminum.

2.2 Basic Overview and operation.

Basic Welding Package.
The PowerARC 140ST*i* package includes a stick welding package as standard equipment. It also includes a 17V type torch (which means that the gas valve is built into the handle). This is not a complete TIG package, and a regu-

lator will need to be ordered separately. **The TIG torch will need to be configured to work with the Regulator. The additional connector (s) are not provided.** The TIG torch can be connected via a 5/8" RH female to female CGA coupling which is standard in the USA and Canada. An additional male 5/8" CGA male to 1/4" hose barb fitting will need to be fitted to the the torch to couple the torch to the coupling. This will mean that the user will need to remove and replace the existing fitting on the torch. The fittings are not supplied to do this. However, the fittings needed are available from most local welding supply stores and online welding supply sources. If this is not available, the same thing may be accomplished with similar brass gas fittings available from most hardware stores, but will also require refitting the regulator fitting to match up. The stick package includes a stick electrode holder with cable, and a work clamp with cable. Work clamp and electrode cables are approximately 6 ft. in length. Longer cables lengths can be added to the electrode holder and work clamp and accompanying DINSE 25 connectors, if desired. These also can be readily sourced at almost any local welding supply store. Do not surpass 25 ft lengths on welding cables for best arc behavior and starting. The included TIG torch is a 17V series TIG torch with 12.5 ft cables and DINSE 25 Connector. Any 17,26, or 18 series compatible consumables will fit this torch. The foot pedal and gas regulator are optional as well. **Note: 100% argon must be used while operating in TIG mode. MIG gas mixes do not work with TIG. (Argon is customer supplied.)** The unit also includes a pigtail adapter for adapting the unit to operate on 120V. No changeover other than the pigtail adapter is needed to operate on 120V power.

Basic TIG Operation Information:

Attention: This unit does not include remote operation capability with torch switches, torch amptrols, or foot pedals. For this type of operation, see our PowerARC 141STL. This unit uses a "Live-type" lift start and variable amp control is not used. Amp control during welding is only able to be made on the panel.

The welder features Live Lift TIG operation. No gas solenoid is provided on this unit making it necessary to use the manually controlled gas valve torch to control Pre-flow and Post-glow of shielding gas. Gas flow is manually actuated by twisting the torch mounted knob counter-clockwise to provide a flow of gas a "pocket" of shielding gas before, during and after the weld. Before starting the arc, the knob should be opened briefly for a second or two. This is the Pre-flow period. The Post-Flow period, likewise, provides shielding after the arc is terminated and the weld cools. If proper flow of shielding gas is not used or established before, during, and after the weld, porosity of the weld or rapid consumption of the tungsten will be experienced. Always make sure the torch gas valve is fully closed after terminating the weld. To turn the torch gas flow off, twist the valve clockwise until it closes and the valve is snug (be careful not to overtighten). Check the gas flow on the regulator to confirm gas is not flowing (if using a ball type regulator). With a torch rig like this, the arc is terminated by quickly snapping the torch up and away from the weld with a flick of the wrist, so the torch ends up roughly parallel to the weld surface. Be sure to turn the torch back down to the work for a few seconds for the Post-Flow to work correctly. **Be sure to remember to close the valve!** A sudden rush of gas may be heard when the gas valve is first turned on, especially if the valve is opened quickly. The sound should dissipate within the pre-flow cycle or shortly after the arc starts. The "surge" of gas is normal, and you will not normally hear the gas flowing while welding. If the sound of continuous gas flow is easily distinguishable from background noises, this may be wasting too much gas and creating turbulence while destabilizing the arc. If you are worried that you are not getting gas flow while welding, have someone look at the flow meter to verify that the regulator ball is continuing to float while welding. You may also be able to do this if you have an auto-darkening helmet. If you take a glance, keep your welding helmet (hood) in the down position. As a good rule of thumb, set the welder Post-flow time for 1 second for every 10-20

amps of power. See the page later in the manual for proper TIG arc starting technique.

To get started in TIG mode, stand to the side of the Argon cylinder (never in front of the discharge side!) and purge the gas by quickly twisting the valve open and then back closed to dislodge any particles of dirt or metal shavings from the connection and valve seat. Then, connect the regulator to the unit by hand and complete the tightening process with a wrench. Never use pliers to tighten. Make sure all gas connections are tight, including the torch connections. Apply soapy water to the connections to determine if there is any leakage. Leaking gas can create contamination issues. So, this step should not be overlooked. Use cylinders that are considered pure Argon or 100% compressed Argon only. Medical grade gas is usually not required. Many issues with TIG welding result from wrong gas selection or cross contaminated cylinders that were not purged properly before use. Never use a mixed shielding gas for MIG welding, especially any with CO2 in the mix. Shielding gases that include Argon and Helium or pure helium are permissible. However Helium can destabilize the arc and make are starting more difficult in larger amounts. It is also much more expensive and just isn't necessary. The torch valve can also be used to fine tune gas flow, but it will not be as accurate or repeatable. In most cases, the torch valve should be opened to the point for maximum flow and so as not to restrict gas flow when in use. (Do not open too far as the valve can unscrew completely and fall apart.)

To set the machine up to TIG weld, press the green button directly above the adjustment knob and select the icon which resembles a TIG torch. (When selected the LED associated with the process will be lit.) If Live Lift is selected, no foot pedal pedal, amptrol or torch switch is necessary. In Live Lift mode, variable amp control via the foot pedal or weld sequencer control will not be possible. Amps will only be set and controlled at the panel. With TIG, always check to see the torch cable is fully engaged in the negative terminal of the welder and the work clamp cable is located in the positive terminal. (Twist the connector about 1/4 turn clockwise to lock it in place). Make sure the gas cylinder is open and the regulator is adjusted to 10-20 CFH (5-10 lpm). To start, place the cup on the metal, then lightly roll the tip of the tungsten to the metal to start the arc and quickly roll back and lift up to a distance of 1/8" or less to begin welding.

Basic Stick Operation Information:

The stick function of this machine features stable smooth performance with minimum spatter. To get started, be sure to select the stick icon before starting to weld or arc starting be difficult. Arc striking can be done quite easily with practice. **See information included later in the manual for more information on arc striking and stick welding techniques**. This unit includes two extra features to improve overall arc welding characteristics. The Hot Start helps to reduce sticking during initial arc striking. The Hot Start is adjustable for intensity only on this model. The duration of the hot start is managed by the machine programming. The intensity of the Hot Start can be set from 0-100% over available hot start amperage. Old welding electrodes (rods) or dirty, rusted or painted metal may require greater action. For most purposes, hot starts less than 50% are generally used. However, higher settings are not uncommon and can be successfully used. As amperage increases, the available Hot Start action will be diminished due to the fact there is less overall amperage available in the upper amp range of the machine. In short, if amperage is raised to or approaches the maximum output limit of the welder, the hot start action will be less noticeable. This is most apparent when welding with 120V. To achieve better starting with 120V, smaller welding electrodes may need to be used to achieve a better start.

Hot start works well to improve starts, but maintaining the arc in less-than-favorable conditions where the arc length must be held short is the job of the arc force control. The action of the arc force control is similar to the hot start in the fact it boosts amps to prevent arc outage. But it only does so when the arc volt-

age drops below a threshold of approximately 20V. The amp rise responds in proportion to the drop in voltage to maintain overall wattage. Be sure to double check (especially after TIG welding) that the electrode holder cable is located in the positive terminal, and the work clamp is located in the negative terminal. In general most iron powder fluxed rods and titania fluxed rods require arc force settings of 30% or less. For best operation with E6011, higher arc force values from 40 to 60% may be desirable. This unit operates best with welding rods up to 1/8" in diameter (on 240V input). In some cases 5/32" may be used, but arc force action and hot start action may be muted or limited. If necessary, drop down to the next smaller electrode for best results. See the page dealing with arc striking technique and general rod size selection later in this manual. Briefly, the welding rod size while operating on 120V is generally limited to 3/32" max diameter electrode. Oversizing a rod will increase sticking and can create undesirable cold lap (lack of fusion at the weld toes). As with any type of welding, practice will usually improve the results. **Remember, Arc force and Hot Start are functions of Amperage, so when welding at high Amp settings, the amount of arc force and hot start available will be reduced to prevent over currenting the machine and damaging the electronics. In these cases, where more arc force and hot start is needed or desired, drop down to a smaller rod and reduce amperage for best welding results and consistency of function. This is especially true when operating on 120V. For best results on 120V, consider using easy striking rods that require low arc force settings such as E7014.**

2.3 Handling and General Maintenance.

Duty Cycle and Overcurrent:
Be careful to observe the duty cycle of the welder. Do not intentionally overheat the welder. Intentional or repeated overheating will eventually damage the unit. This damage is apparent upon inspection and not covered under warranty.

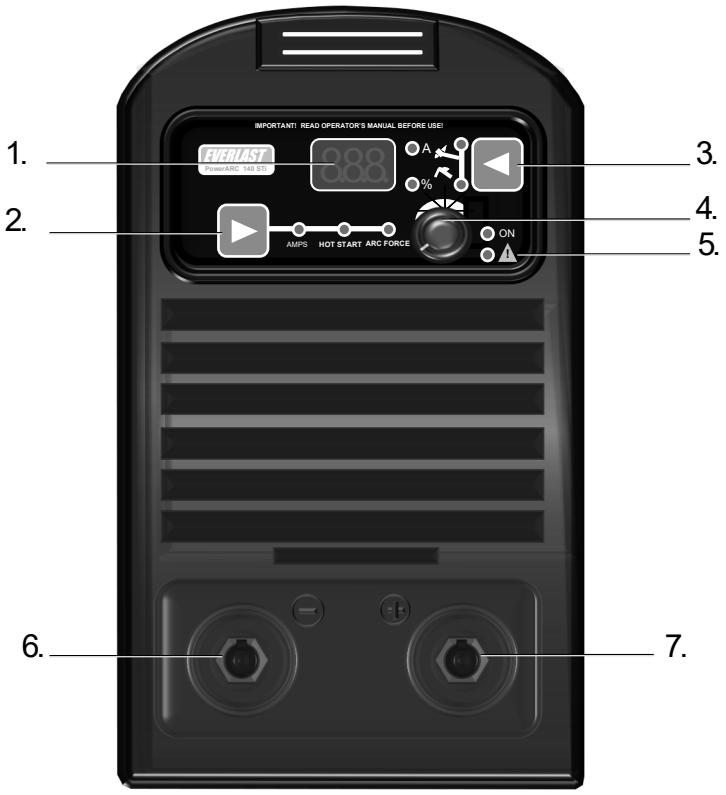
Overheating may occur if the duty cycle is exceeded. Overheating will cause the unit safety cut-out to engage, will subsequently interrupt output. Allow the unit to rest while remaining switched on for at least 15 minutes if the duty cycle safety has triggered. After that, reset the unit by cycling the main power switch on the rear. Even though the duty cycle rating is made at 104°F (40°C) ambient temperature, high localized heat, air flow restrictions around the welder and humid conditions will also affect the duty cycle of the welder. If the unit overheats or an overcurrent condition is experienced, an error code will be triggered and the unit will stop welding. An over current or under current condition is usually caused by dirty power conditions, over/under, voltage power supply, faulty breaker or an internal fault. If the light is green or yellow green, this a duty cycle issue. In either case, if the light/code does not clear and the unit does not resume welding output, by cycling the power switch (after the required amount of rest, if any), contact Everlast. **Note: The duty cycle is 35% at the maximum output of 140 amps while operating on 240V. Maximum Amp output will be reduced to 80 Amps while operating on 120V to limit current draw. The Duty cycle is readjusted to 35% at 80 Amps while operating on 120V.**

The unit should be stored in a dry place where temperatures do not drop below 0°F (-17°C) for long term storage. Do not operate below 21°F (-6C°). 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, and is not designed for wet environment use. **Use the carry strap or handle provided to lift the welder.** Do not suspend the unit in the air by the strap.

Make sure that the unit's cooling fan and exhaust vents are kept free of obstruction. Before every operation, inspect unit for unexpected obstructions such as insect and vermin nests. Once a month, or as needed, clean the machine thoroughly inside and out with compressed air. To do this, remove the rear plastic

cover first (check for screws on the bottom). Then remove the screws on the metal cover. Pull the cover off by slightly spreading/flexing the bottom "flaps" of the metal cover with your fingers. Pull up and to the rear to remove the cover. Do not attempt to remove the front cover or front panel of the machine. The front panel is part of the structure of the unit and requires significant effort and time to remove. **Removing the cover to clean the welder will not void the warranty. However, neglecting periodic cleaning of the welder may cause damage to the machine's circuit board from metallic dust or particles settling on the traces over time. The boards are coated with protective conformal coatings to protect against these issues, but even with the protective coating, dust and metal particles can still affect the unit if they continue to build up. This type of neglect may be grounds to deny warranty service as it is considered the part of routine maintenance. *However*, before removing the covers, unplug the welder for 30 minutes allowing the internal capacitors to discharge to prevent shock, injury or death.** Never remove and circuit boards unless authorized. But, while you are inside the unit for maintenance, always check all plugs and connections for tightness before replacing the covers. Do not pinch any wires when reinstalling the covers. Wear safety glasses to prevent eye injury from flying particles that may get dislodged while cleaning with compressed air. Do not concentrate compressed air on the skin or injury may occur. Using "canned-air" is acceptable as well, but do not allow components to freeze. Keep moving the nozzle back and forth to keep components from freezing up.

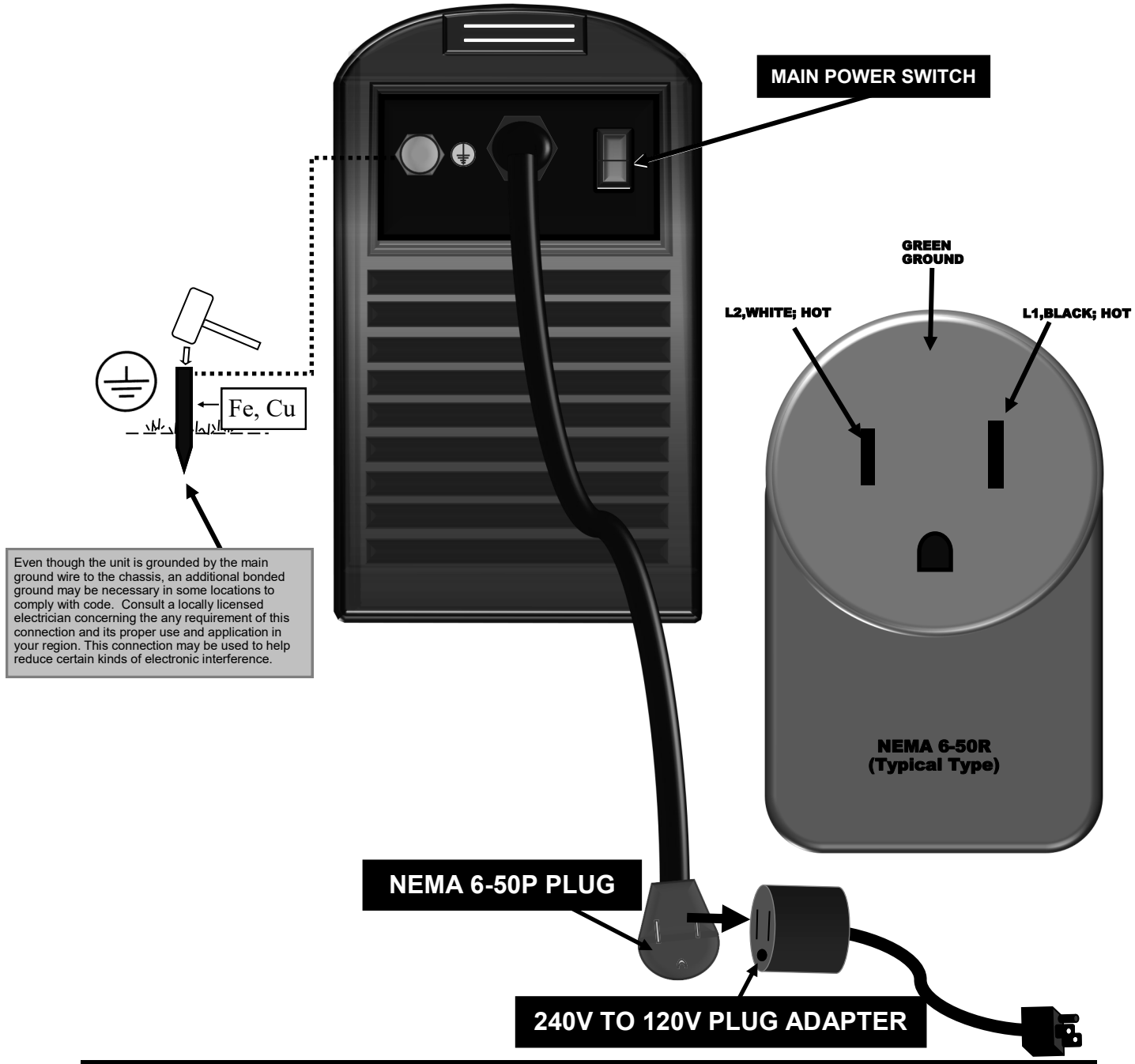
PowerARC 140ST*i*
Front Panel View



1. Display and LEDs indicate function value and function being adjusted. Values indicated: Percent(%), Amps (A).
2. Selector toggles between functions for adjustment.
3. Mode selector selects between Stick or TIG welding modes. Indicated by Stick or TIG torch icon.
4. Parameter adjustment. Increases or decreases value of the parameter selected for adjustment.
5. ON and Warning LED indicates machine operational status. ON confirms unit is on and will remain lit for several seconds after shutdown as capacitors begin to drain. The Warning LED lights up and is accompanied by an ERROR code in Display. These codes will be usually be related to exceeded duty cycle (over temperature) or power issues (Over current). NOTE: Welding output will be interrupted if warning light is illuminated. Use diagnosis code at the end of the manual to determine issue. If the over-temp code has been triggered, leave machine on for 15 minutes before shutting down or cycling power switch. If overcurrent is triggered, determine source and correct. If the code cannot be cleared, call Everlast for further diagnosis as cause may be internal.
6. The Negative Terminal (DINSE 25 type) is used to connect to the TIG torch in TIG mode. In Stick mode, the work clamp is connected here.
7. The Positive Terminal (DINSE 25 type) is used to connect the Stick electrode holder in Stick mode. In TIG mode the work clamp is connected here.

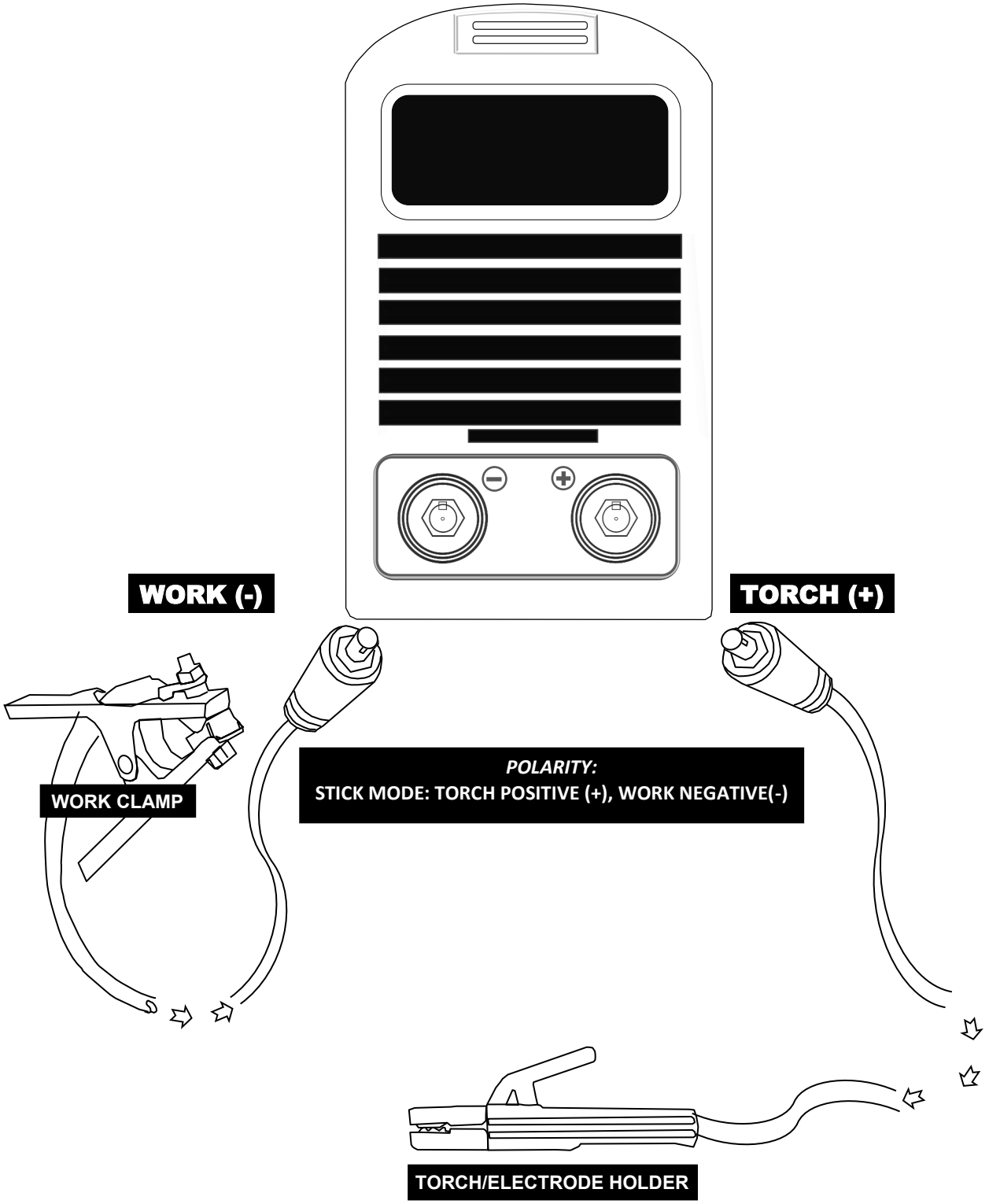
PowerARC 140ST*i*
Rear Panel View

**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.**



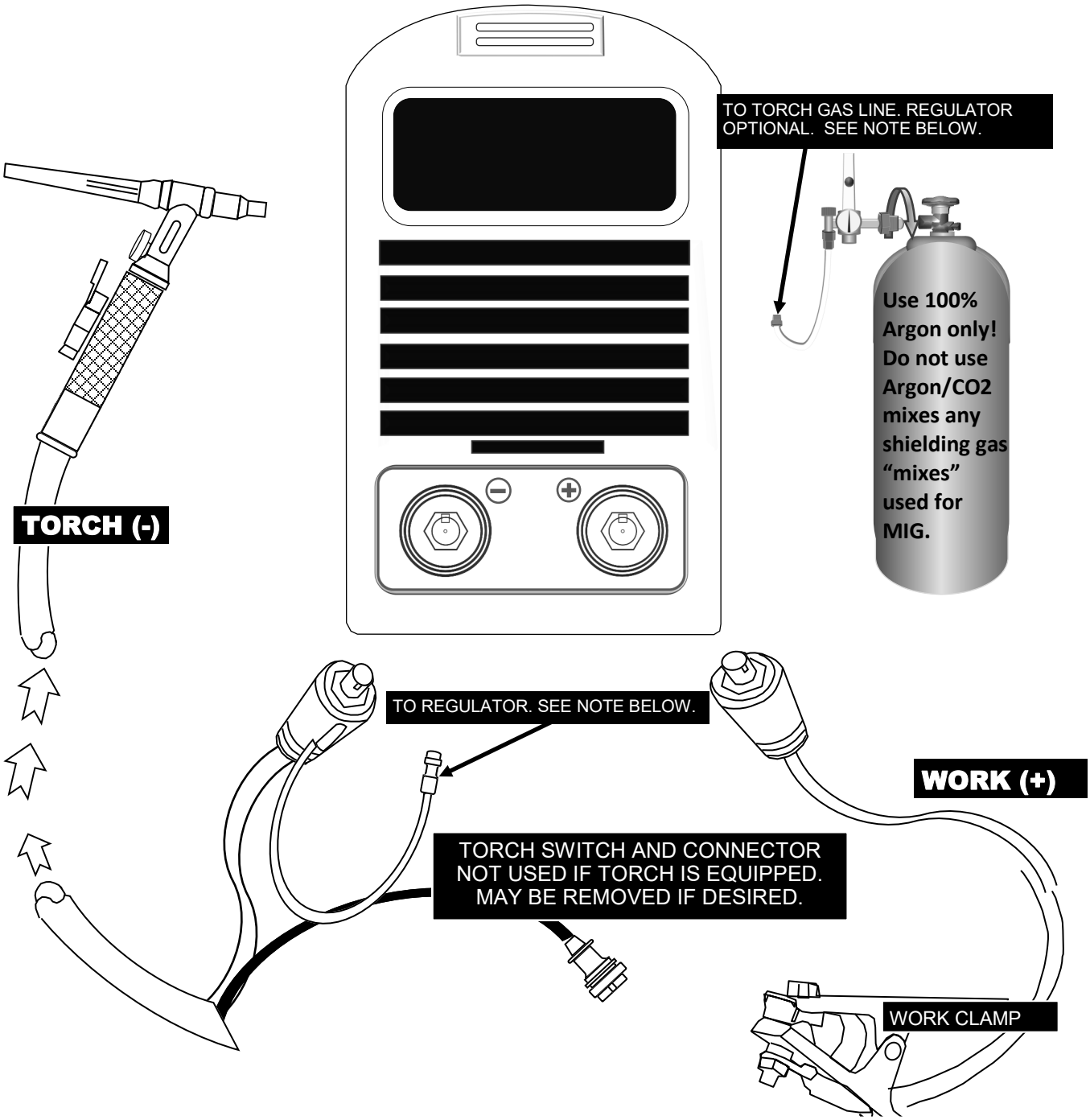
IMPORTANT: USE THE 240V TO 120V ADAPTER TO SAFELY ADAPT THE NEMA 6-50P (INDUSTRY STANDARD 240V WELDER PLUG) TO THE STANDARD NEMA 5-15P WHEN OPERATING ON 120V. THIS PLUG ADAPTER PRESERVES THE POLARITY REQUIREMENT FOR OPERATION ON 120V.
NOTE: THE UNIT AUTOMATICALY SENSES THE VOLTAGE INPUT, AND NO MANUAL SELECTION OF INPUT VOLTAGE IS NEEDED.

PowerARC 140ST*i*
STICK WELDING CONFIGURATION



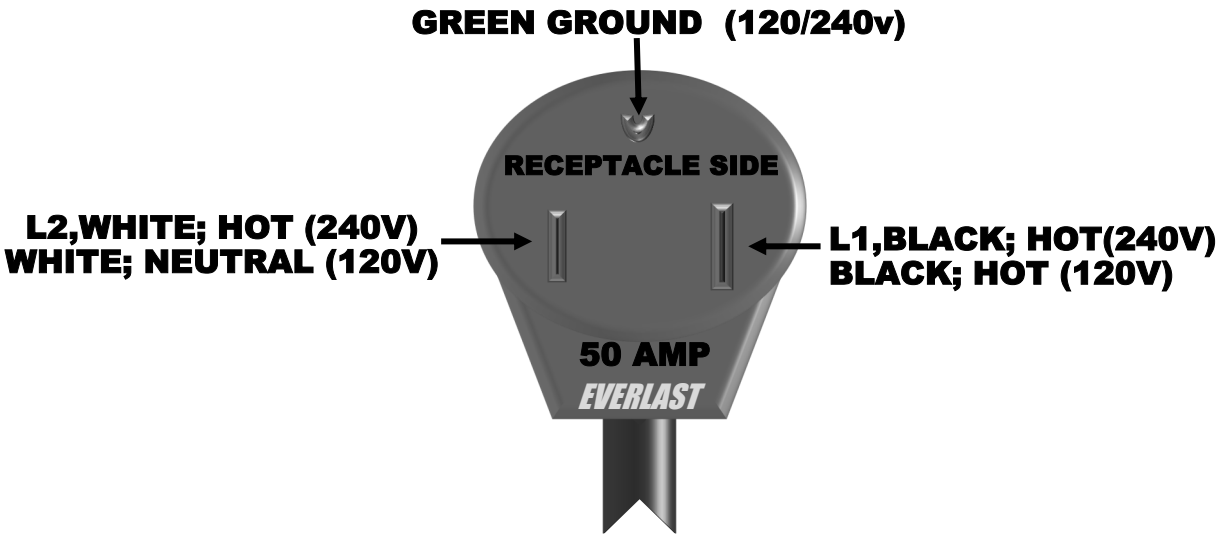
PowerARC 140ST*i*

Torch Configuration with Torch Switch/Optional Foot Pedal



NOTE: The supplied torch may be equipped with a quick connect gas fitting. This unit does not use a gas solenoid valve. In lieu of a gas solenoid the torch is equipped with a gas valve torch which manual controls gas flow. This requires that the torch gas line be connected directly to a regulator (optional, must be purchased separately from Everlast or may be purchased locally.) To connect the torch directly to the regulator, the customer must cut the clamp off the fitting, and remove the fitting. Additionally, the customer must supply at least two additional fittings. The first is a 5/8" RH to 5/8" RH female-to-female inert gas coupling. The second is a 5/8" RH male to 1/4" Hose barb connection type fitting. The tubing will stretch and slide over the hose barb with slight effort. It may be necessary to warm the line slightly before attempting. Use the clamping method (ferrule or clamp) provided to secure the connection to the gas line. Then connect both the regulator and the newly installed gas fitting together via the 5/8" RH female to female coupling. These common parts are available from most local welding supply stores or from a variety of online sources.

PowerARC 140ST*i* Wire Connection



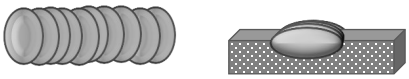
IMPORTANT: While using the PowerARC 140STi on 120V power, be sure to maintain polarity and use the white wire as the common/neutral, with the black as the "hot" and the green serving as the ground or damage and malfunction may occur. Do not remove the NEMA 6-50 plug to operate on 120V. Use the 240V-120V adapter available from Everlast to adapt the plug to standard 120V power. No other wiring is required. The unit automatically senses the voltage change and adjusts the output accordingly. The unit is provided with a NEMA 6-50P welder plug for 240V operation. This is a standard 50 amp welder plug with a ground, without a neutral. (Neutrals are not used in welders.) Care should be exercised when wiring a new plug and making any modifications to existing wiring**. A licensed electrician that is familiar with local wiring codes should be consulted before using, adding to or making any changes to existing circuits.** The information given on the graphic located on the welder supplies the necessary information for breaker and wire sizing. This information is found in the **I1max** and the **I1eff** current input ratings on the graphic. The NEC supplies special rules on wiring of welder circuits, but local codes and special circumstances may require a heavier or independent circuit.

Striking the Arc

1. Make sure the unit is turned on and the startup cycle has finished.
2. Select the Stick icon on the Process Selector.
3. Make sure the electrode holder is in the Positive connector and the work clamp is in the negative connector.
4. Select the Amp level desired. Use the guide on this page to determine approximate amps suitable for the rod size selected. You should consult the welding electrode manufacturer's recommendation for proper amperage as the ultimate authority. No voltage adjustment is available. Select Hot Start Amps % (Intensity) to improve starting reliability.
5. Use the arc force control to select the desired arc characteristics, creating the desired arc characteristic and amp response needed to maintain the arc. Typically E6011 will require a setting over 50% for best results. The arc force control setting will vary from person to person as well, with different rod angles, positions, and arc lengths all factoring into the arc force control performance. If you are new to using a transformer welder, there are some aspects that will seem different. One of the main ones is that the arc is better controlled in most situations by "pushing in" when the arc seems to get weak or unstable and the arc force will kick in as the voltage drops. Holding too long of an arc will signal the inverter to shut down and to terminate welding output. This threshold is shorter than most transformers, and an extremely long arc cannot be maintained. However, with a little practice, the arc will be easy to manage.

Stick Welding. Pay particular attention to the Arc Force setting as it affects the aggressiveness of the arc and the amp response. Set the Arc force to approximately 30-50% and readjust it from that point to find the optimum setting. Adjust in increments of 5% up or down from there to obtain the best results Usually, an increase in the arc force is needed if the user is attempting E6011 welds. Lowering the Arc force setting is generally desirable for rods with Iron powder based flux. Too much arc force will create overheating of the welding rod, and even cause them to flame up. Too little can lead to sticking and arc snuffing. Use the Hot Start features to improve arc starting and cut down on failed arc strikes. Hot Start Amps refers to the % over the set amps that the amps will be boosted during arc striking until the arc is established. Hot Start Intensity controls the amount of time that the Hot Start stays engaged after the arc is struck. Start by setting Hot Start to somewhere between 30% and 50%. Adjust in increments of 5% up or down to obtain best starting results.

Keep in mind that when stick welding, allow the metal to fill the puddle as the rod travels forward. Be sure to try to separate the difference between the slag and the molten pool of metal. The slag will coalesce behind the puddle if travel and rod angle is correct. Do not let the slag travel in front of the puddle. Keep the top of the rod inclined to the direction of travel around 10-20 degrees while welding in the flat position (Electrode holder should be in front and inline of the puddle). To begin, simply start the arc, and then drag the rod slowly and carefully along the metal, allowing the rod flux to provide a standoff between the metal filler and the puddle. Be sure to keep feeding the rod steadily downward into the puddle as the rod melts. When experience is gained, numerous manipulation methods may be used with rods such as E7018, 7014, 6013, and 7024. Weave the rod no more than 2.5 times the width of the welding rod. To begin weaving, weave small, tight patterns similar to C's, cursive E's, V's, or even figure 8's. Your bead should looks similar to the beads below. V shaped beads are a result of running Amps too high. Flattened U or C shapes are examples of moving too slow.



DC 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"	40-90
3 mm/ 1/8"-1/4"+	3.2 mm/1/8"	70-140

Basic TIG Operation

General Setup. The process to set up the welder for the basic TIG mode is much less involved than for basic MIG or Stick. TIG voltage is not conventionally adjustable and is a product of the arc length. This is not to say voltage is not important to TIG welding, but it is not something that can be adjusted on the unit. In practical terms, voltage is not a concern to the user as it is self regulating. Amperage however, is adjustable. Setting up Amperage correctly for TIG is different as there is no "sound" to listen for. But for each given thickness of metal, there is an acceptable range of adjustment for TIG. Traditionally, a general rule of thumb for TIG setup is to set approximately 1 amp for every .001" of metal thickness. For modern inverter technology, that may be too many amps in all but the thickest weld material, particularly for a DC inverter TIG welder such as this one. In many cases, you will only need to use 75% to 80% of that amperage. But if you are setting up the unit to use a foot pedal, use the rule of thumb to begin with as you can always back off the amperage as you are welding by letting up some on the foot pedal. If needed, there are several online TIG apps and calculators that you can give you starting points for welding almost any thickness as well as general settings for tungsten size, and gas flow rates. Use the general information on the following pages to help guide you through arc starting, tungsten preparation and .

Welding. If you are new to TIG welding, it's important that you understand that TIG welding is much slower than forms of welding. It requires patience and steady practice to become proficient at TIG welding. However, most people can achieve some level of proficiency at TIG welding if they are patient, and are willing to analyze and adjust the way they are welding. To start welding, set the amps desired for the metal thickness you are about to weld. Before striking the arc, make sure the shielding gas is on at the cylinder, and the flow is properly set. Also adjust your Tungsten stick-out to about 1/8"-1/4" to begin with. If a gas lens is used, the stick out may increase up to 1", depending upon gas lens size. Crack the gas valve on the torch so that gas if flowing then follow the live lift arc starting method on page 24. Once the arc is started, keep a loose but sure grip on the TIG torch to prevent cramping. An underhand hold is good, similar to the way a pencil is held. A foregrip may be used as well, but offers less fine control at the beginning and requires more propping to keep the torch steady. Practice running slowly without filler metal first. Keep the torch head inclined away from the direction of travel, so the Tungsten stays just above the puddle, pointed toward the front of the puddle. Move slowly and methodically, gauging your forward movement to make sure it is steady and paced. Imagine a thick coin is able to be placed between the tip of the Tungsten and the weld puddle. As your skill progresses, you will want to add filler wire to your practice. The angle created between the filler rod should be about 90 degrees. You should insert your head in between the rod and torch, so that your head is about at the 45 degree mark so that it bisects the angle. This will allow you clearly see the arc. Do not try to sit back and view the arc from above as detail may be easily seen and puddle will be obscured. When the puddle develops, feed the filler rod into the front edge of the puddle, being careful not to place the filler on top of the Tungsten, or touch it in any way. If you dip the tungsten into the filler rod or into the puddle, you must stop and regrind it or the ar will become unstable. Feed the filler in regular, timed dips as the puddle forms. If you need, count as you time your dips until you can do it without thinking. As you proceed to dip your rod into the edge of the puddle, keep the rod close to the puddle, within the gas cone. If the filler metal starts to melt before you dip, you have it too close, or you have the TIG torch inclined so much that heat is being directed too far in front of the puddle. As you add the filler, be sure to pause momentarily with the forward travel of the torch. If desired, a tiny back step motion of the torch may be used to improve weld appearance. There are other ways to add filler and to create a sound weld. You can keep the filler wire in the puddle, with the rod laying in a flatter profile and weld. As

Basic TIG Operation

the torch moves forward and the rod melts, the filler can be slid, with gentle pressure, into the puddle as needed to fill the weld. This is known as the Lay-Wire technique. Another method of welding has more to do with torch manipulation than it does filler addition, is called walking the cup. The cup is rested on the metal while the torch head is oscillated in a figure 8 pattern. This will require a forehand grip typically, and a good bit of motion of your forearm to accomplish. The filler metal should be moved from side to side to provide an evenly filled puddle under the Tungsten. This method requires much practice and effort, but yields beautiful welds when performed correctly. If you cannot see the puddle or your helmet flashes (auto darkening types), you need to change your settings. Practice feeding the filler wire without actually welding. Manipulating the wire takes practice and concentration at first. The wire should be held so that a flicking motion of two fingers and the thumb can propel the rod forward into the puddle without loosing grip on the filler rod. The rod should rest on the two fingers most away from the thumb, while the index and middle finger are used to advance the rod by sliding them down the rod while they fingers lightly pinch the rod against the thumb. If you need, count as you time your rod dips until you can do it without thinking. As you proceed to dip your rod into the edge of the puddle, keep the rod close to the puddle, within the gas cone. If the filler metal starts to melt before you dip, you have it too close, or you have the rod inclined too much so that heat is being directed too far in front of the puddle. As you add the filler wire, be sure to pause momentarily with the forward travel of the torch. If desired, a tiny back step motion may be used to improve weld appearance. There are other ways to add filler and to create a sound weld. You can keep the filler wire in the puddle, with the rod laying in a flatter profile and weld. As the torch moves forward and the rod melts, the filler can be slid, with gentle pressure, into the puddle as needed to fill the weld. This is known as the Lay-Wire technique. Another method of welding has more to do with torch manipulation than it does filler addition, is called walking the cup. The cup is rested on the metal while the torch head is oscillated in a figure 8 pattern. This will require a forehand grip typically, and a good bit of motion of your forearm/wrist to accomplish. The filler metal should be moved from side to side to provide an evenly filled puddle under the Tungsten. This method requires much practice and effort, but yields beautiful welds when performed correctly. If you cannot see the puddle or your helmet flashes (auto darkening types), you need to change your settings. Practice feeding the filler wire without actually welding. Manipulating the wire takes practice and concentration at first. The wire should be held so that a flicking motion of two fingers and the thumb can propel the rod forward into the puddle without loosing grip on the filler rod. The rod should rest on the two fingers furthest from the thumb, while the index and middle finger grasp the rod with the thumb propelling it forward. Other rod manipulation variations may be used, but the key is to develop a comfortable, natural movement that is regular and consistent. If feeding difficulty is encountered, there are some feeding devices that reduce the effort to feed the filler wire and smooth out the feeding process. Do

METAL THICKNESS (STEEL)	WELDING AMPS (A)	TUNGSTEN DIA. (mm/inch)	Ar FLOW RATE (CFH/LPM)
1-3 mm/.040”-3/32”	30-80	1.5-2 mm/ 1/16”-3/32”	8-15 CFH /4-7 LPM
3-4 mm/ 3/32”-1/8”	50-120	2-3 mm/ 3/32”-1/8”	15-25 CFH/ 7-14 LPM
>4mm/ >1/8”	120-200	1/8”	15-25 CFH/7-14 LPM

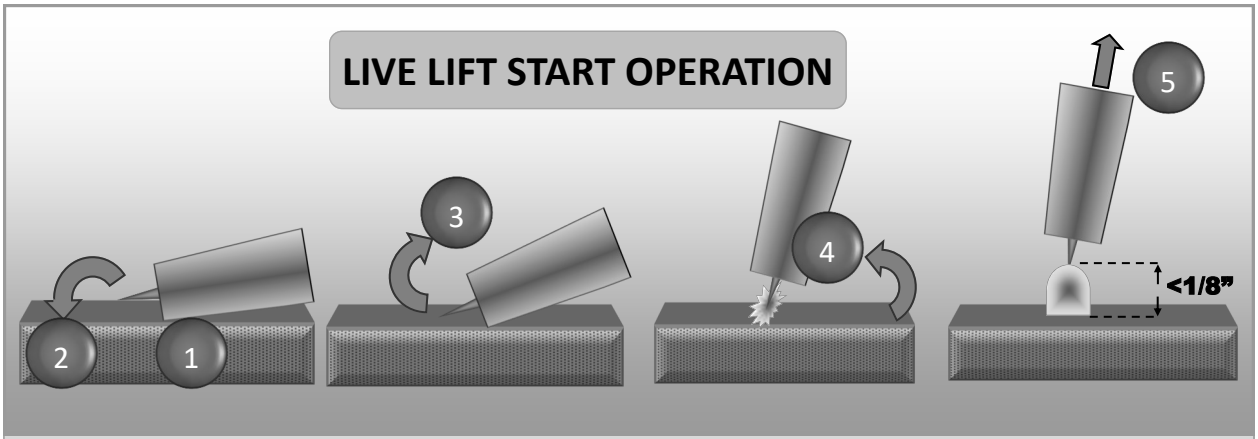
Note: These ranges are approximate, and not absolute. There is a range of overlapping capability with each tungsten size, metal thickness and amp settings. Experience will eventually dictate the best range and choice of Tungsten size, filler size etc. As a general rule, select a filler metal that is no more than 1/32” larger or smaller than the Tungsten diameter. Do not use “pure” (green) Tungsten in an inverter. Use only Lanthanated, Thoriated, or Ceriated Tungsten.

Basic TIG Operation

not let feeding the filler wire hold up the learning process. There are numerous accounts of welders making home-made jigs or devices that help feed the TIG rod smoothly. One helpful hint is to make sure you have gloves that offer protection without compromising dexterity. With a proper fitting TIG glove, you should be still able to pick the filler wire up from the table top with your fingers.

There are a lot of hurdles to becoming a proficient TIG welder. But if you will practice when you are not tired, and are comfortable in your surroundings, it will help you learn the art a lot faster than if you are practicing when you are too tired, or not alert.

Note: A TIG lift start should use a nearly seamless motion. Use a light touch and a quick motion for best results.

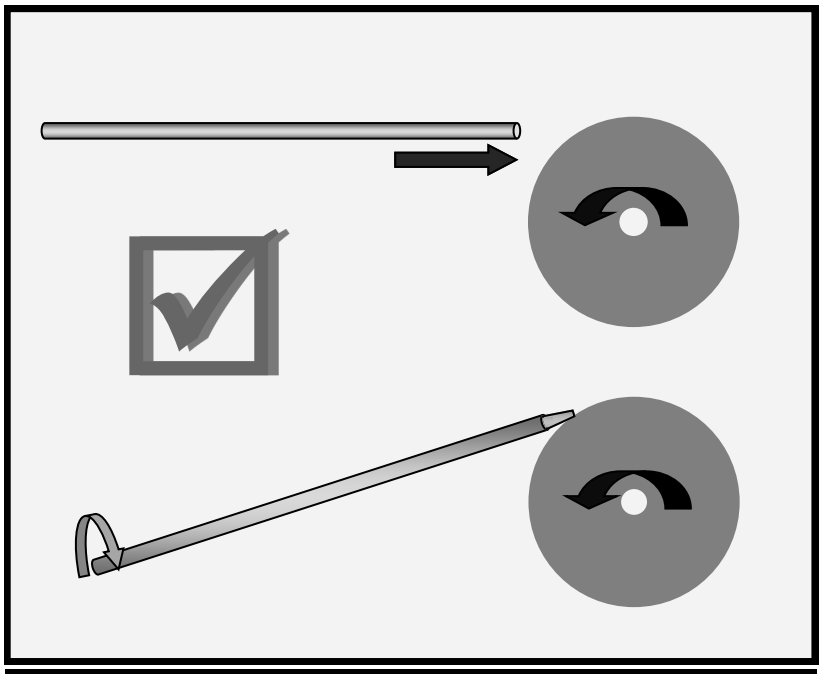


1. Position the edge of the ceramic cup on the metal, in a more or less horizontal position, keeping the tungsten from touching. Manually twist open the gas valve on the torch, wait briefly for the gas to stabilize. **NOTE: If using live lift, no pedal or torch switch is used.**
2. Quickly rotate cup down so that the tungsten comes in brief contact (< .5 seconds) 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 tip of the Tungsten and the metal. Proceed with welding, leaving the torch inclined at a 15° angle.

General TIG Tips

1. Turn unit on, allow time for power up cycle to complete its start up process before selecting TIG mode
2. Adjust amps to the desired maximum settings. Select desired gas flow time.
3. Start arc as depicted above and add filler ***to the front edge of the puddle*** as the base metal is melted.
4. To end the weld, hover over the weld and add a couple of extra "dabs" of filler metal.
5. Terminate the arc with a quick snapping motion of your wrist so the torch tungsten is rotated away and up until the ending with the torch horizontal (parallel) to the weld surface. This will break the arc off cleanly. If done too slowly, the arc will stretch out and terminate poorly, leaving porosity and stray arc marks. Depending upon your stand-off distance, size of your hands, etc, you may have to actually twist the torch and pull away from the puddle at the same time to end the arc. This must be done quickly and cleanly.

TUNGSTEN PREPARATION

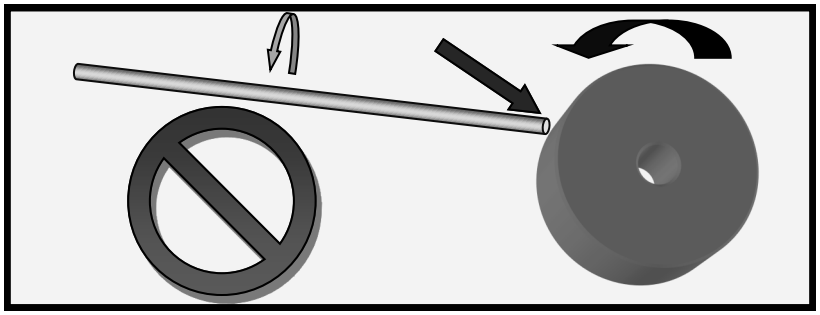


1. Use a dedicated grinding wheel or contamination may result. Do not breath grinding dust! Wear eye protection and gloves.

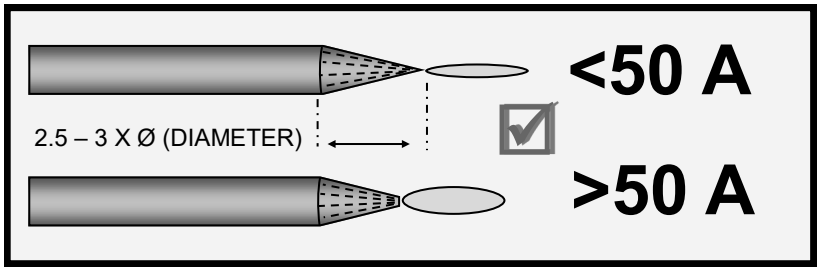
2. Hold Tungsten firmly.

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

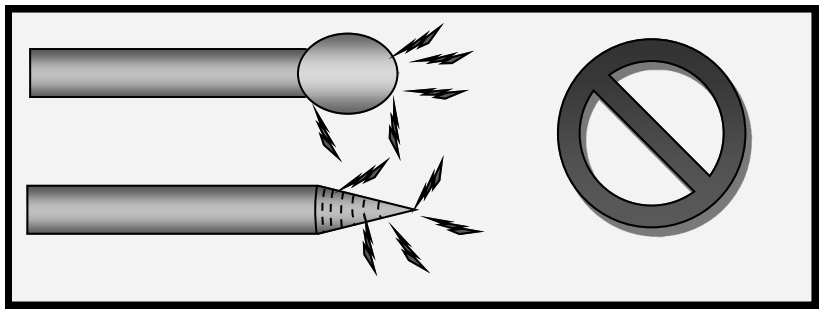
4. Rotate tungsten quickly as it is being ground to keep point even and symmetrical.



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



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



DO NOT BALL TUNGSTEN WHILE USING AC. ERRATIC ARC WILL RESULT. MAKE SURE GRINDING MARKS RUN PARALLEL TO TIP. CONCENTRIC MARKS WILL CAUSE AN ERRATIC ARC.

NEVER USE PURE (GREEN) TUNGSTEN IN ANY INVERTER WELDER.

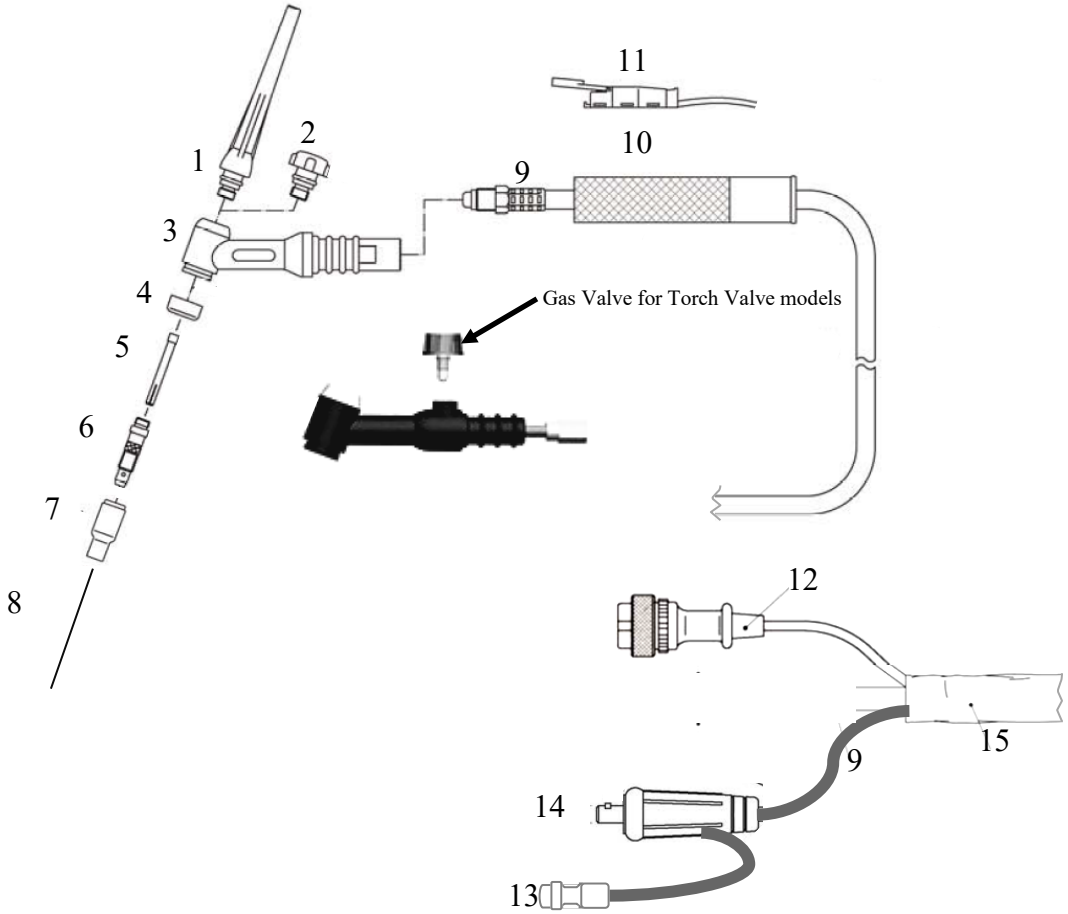
PowerARC 140ST*i* Box Contents

Qty.	Description
1	Tong style Stick electrode holder and cable, 6 ft
1	Steel work clamp and cable, 6 ft
1	PowerARC 140STi DC Stick/DC TIG Inverter Welder
1	Manual (may be downloaded from website for free)
1	240V-120V Adapter (optional in some markets)
1	17V Series TIG torch 12.5 ft with 25 DINSE style adapter
1	Impact Resistant Carry Case

NOTE: Kit contents, appearance, size length and quantity are subject to change without notice. Accessories are covered under a separate, shorter warranty and does not fall under the terms and conditions of the welder warranty. See website for details of all warranties.

EXPANDED VIEW OF TIG TORCH

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



NO.	PARTS FOR 17, 17V, 26, and 26V Series Torch (Appearance may vary due to improvements from manufacturer.)	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, 3/32, or 1/8”	1
6	Collet Holder	1
7	Ceramic Cup #5,6, or 7	1
8	Tungsten (customer supplied)	0
9	Torch Cable 12.5 ft	1
10	Torch Handle	1
11	Torch Switch (Removeable, Not used on 140STi, 200STi)	1
12	Torch Switch Connector (Not used on 140STi, 200STi)	1
13	9mm (1/8”) quick connect coupling (male), Gas IN	1
14	Power Connector, DINSE 25	1
15	Protective Denim or Braided Nylon Cover	1

Trouble:	Possible Cause/Solution
Machine will not turn on	Check cords and wiring to the plug and receptacle. Check circuit breaker. Check power input. Poor quality power input
Machine runs, but will not weld in either mode. Green "ON" LED is illuminated	Check for sound work clamp connection. Make sure work/Torch cable is securely fastened to DINSE connector. Reset main power switch. Contact Technical Support if light does not go out.
Stick arc has difficulty establishing, welding rod sticking	Wet welding rods. Too low of amperage. Too high of amperage. Use fresh rods. Adjust amps. Wrong polarity. Change Hot Start settings.
TIG arc will not start	No Power, or wrong wiring. Check. Poor work clamp connection. Grind and clean area. Mount work clamp directly to metal being welded. Poor starting technique. Too much wind or strong draft.
Welding rod is rapidly consumed.	Too small of welding rod. Too high of amperage setting. Wrong polarity. Too small of welding rod.
Tungsten is rapidly consumed.	No/low gas flow. Contaminated gas (CO_2 or moisture in gas). Wrong torch polarity (+). Open gas valve, readjust flow meter. Change polarity so torch is in negative (-). Breeze/draft/or welder is mounted to close to work area (fans)
Porosity of the Weld. Discolored weld color. Too much spatter. Additional TIG symptom: Tungsten is discolored.	Stick: Too long of arc length. Too high of amps. TIG: Same as above/ Low flow rate of shielding gas. Too short of post flow period. Wrong TIG cup size. Draft.
Weld quality is poor, unstable arc. Weld is dirty/oxidized.	Clean paint/rust from weld. Make sure work clamp has good contact. Too low of amps/Too large of tungsten. Incorrect wiring of welder. Tungsten (TIG) is poorly ground/contaminated. Draft or welder fans are blowing on weld area.
LED illuminates yellow/green. Machine runs, but no weld power. Error code.	Duty cycle exceeded. Allow machine to cool. Reset main power switch after full cool down period (10-15 minutes). Make sure fan is not blocked. If light does not reset after cool down period contact technical support .
Slight whine or squeal to arc or to welder while turned on.	Normal. Sound may vary.
Circuit breaker trips.	Wiring fault. Too small of wire or circuit breaker. Welder internal short. Contact Everlast Technical Support before resuming use.

Error Code	Meaning	Possible Cause
E01	Over Voltage/Under Voltage	Check Power Source, Correct Wiring.
E02	Over Current	Operating machine on too small of a conductor. Internal machine fault
E04	Over Temperature	Duty Cycle exceeded. Blocked cooling. Fans not operating properly.
E05	Stuck Switch	Gun switch is held too long without attempting to strike an arc.

NOTES: