EVERLAST

POWER i-MIG 200

CC/CV MIG/STICK WELDER

GMAW/SMAW

CC CV

GMAW

SMAW

IGBT

DC

120/240V DV

Operator's Manual for the Power i-MIG 200
Safety, Setup and General Use Guide

Rev. 2 0 1020101-15

everlastwelders.com

Specifications and Accessories subject to change without notice.

EVERLAST IGBT INVERTER TECHNOLOGY

1-877-755-9353
329 Littlefield Ave. South San Francisco, CA 94080 USA

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NOTE: Environment, Maintenance and Safety: Keep this welder at least 12 inches away from all objects for proper cooling. Do not exceed 40° C in environment or duty cycle will be reduced. Regularly inspect and clean the welder and circuitry on a quarterly basis with dry compressed air. Remove the covers only after the unit has been turned off and unplugged for 30 minutes to discharge the capacitors and to prevent the possibility of electrocution. Do not grind or throw sparks near to the welder to prevent damage to the panel face and internal components. Damage of this nature is not covered by the warranty.

Dear Customer,

THANKS! You had a choice, and you bought an Everlast Product. 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 at the main customer service number in your country. Your unit's warranty will be registered and in full effect. Keep all information regarding your purchase, including date of purchase and receipt. **In the event of a problem with your unit or other issue you must contact technical support before your welder can be a candidate for warranty service and returned. An over-the-phone review/ diagnosis must be performed BEFORE a RMA will be issued or before the unit can be sent in for service.**

Please read the warranty statement published online and other important information found on the Everlast website of the division located in or nearest to your country. This includes the terms of the purchase and warranty procedure. Print it for your records and become familiar of its terms and conditions. Please note that Guns, accessories and torches are covered under a separate, shorter warranty. Please be sure you visit the website and are familiar with all the warranty terms before you call for service.

Everlast offers full technical support, in several different forms. We have online support available through email, and a welding support forum designed for our customers and noncustomers to interact with each other. 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. This support is free to all Everlast customers. For best service call the appropriate support line and follow up with an email, especially during weekends, holidays or any off hours when you cannot reach a live person. In the event you do not reach a live person, leave a message and your call will normally be returned within 24 hours, except for weekends and holidays. Also for quick answers to your basic questions, join the company owned forum available through the website. You'll find knowledgeable staff available to answer your questions. You also may 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: 905-630-8246 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) 6584 2037
After hours support: **0410 661 334**
Everlast Technical Support: support@pickproducts.com

OTHER (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 product to give you the best possible experience. Overall, welding requires experience and common sense to obtain the best results in the safest manner. As thorough as this welding manual may be, it cannot substitute for the time, instruction and knowledge level required to learn how to weld. Exercise extreme caution and care in all activities related to welding or cutting. Your safety, health and even life depends upon it. While an accident is never planned, preventing an accident requires careful planning.
Please read this manual carefully before you operate your Everlast unit. Do not operate this welder until you are thoroughly familiar with its safe and proper operation. If you feel you need more information please contact Everlast.

The warranty does not cover improper use, maintenance or consumables. Accessories such as guns, torches regulators, foot pedals etc. are not covered in the unit warranty. They are covered under a separate warranty. **Do not attempt to alter or defeat or otherwise render any piece or part of your unit unserviceable, particularly any safety device.** Keep all shields and covers in place during unit operation should an unlikely failure of internal components result in the possible presence of sparks and explosions. If a failure occurs, discontinue further use until malfunctioning parts or accessories have been repaired or replaced by qualified personnel.

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

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

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

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

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

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

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

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

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

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

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

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 are 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

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

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

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

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

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

WARNING! **Faulty or poorly maintained equipment can cause injury or death.** Proper maintenance is your responsibility. Make sure all equipment is properly maintained and serviced by qualified personnel. Do not abuse or misuse equipment.

Keep all covers in place. A faulty machine may shoot sparks or may have exploding parts. Touching uncovered parts inside machine can cause discharge of high amounts of electricity. **Do not allow employees to operate poorly serviced equipment.** Always check condition of equipment thoroughly before start up. Disconnect unit from power source before any service attempt is made and for long term storage or electrical storms.

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

Overview of Parameters and Features*

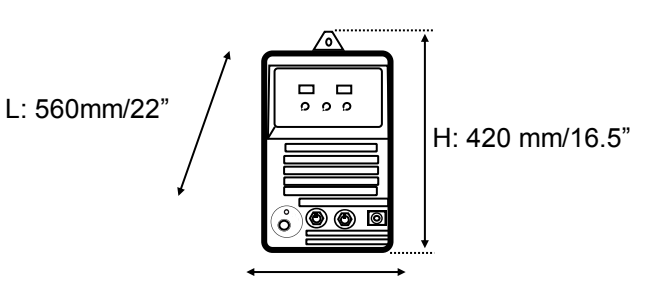
Power i-MIG 200**	
Amp Range (MIG)	110V/120V: 30-125 Amps 220V/240V: 30-200 Amps
Volt Range (MIG)	110/120V: 15.5-20.3V 220V/240V: 15.5-26 Volts
Duty Cycle at Max Rated Amps	MIG: 35% @ 200 Amps Stick 35% @ 160 Amps
Wire Feed Speed	Up to 600 IPM
Input Voltage	120/240V
Welder Type	IGBT inverter type with CC/CV MIG Stick functions
Wire roll size and diameter	.023”-.045” (with optional drive rolls and contact tips) Spools up to 8” in diameter (10-12 lbs)
Additional Features	Burn back control, Auto Pre-flow Post-flow, Arc Force control, Analog input with Digital Micro-controller, Spool gun ready. Euro Quick connector, Stick Function.
Accessories	15 Series MIG torch 10 ft. (3m), Work clamp 10 ft. (3m) 300 A Stick Torch, Regulator , 240/120V adapter

*See next page for complete technical specifications and data.
**Specifications subject to change without notice. Quantity and appearance of the accessories are also subject to change without notice.

EVERLAST
MIG/STICK INVERTER

MODEL: Power i-MIG 200			SERIAL NO.		
1~ f_1/f_2			EN/ IEC60974.1		
		110V: 30-125A; 15.5-20.3V **220V:** 30-200 A; 15.5-26 V			
		X	35%	60%	100%
S	U_0 V 60	I_2 (220V)	200 A	160 A	130 A
		U_2 (220V)	24V	22V	20.5V
		I_2 (110V)	125A	100A	75A
		U_2 (110V)	20.3V	19V	17V
		110V: 10-100A; 20.4V-24V **220V:** 10-160 A; 20.4-24 V			
		X	35%	60%	100%
S	U_0 V 60	I_2 (220V)	160 A	130 A	100 A
		U_2 (220V)	26.4 V	25.2 V	24 V
		I_2 (110V)	100A	80A	60A
		U_2 (110V)	24V	23.2V	22.4V
1~ 50/60 Hz	U_1 110-220V	110 V $I_{1MAX:}$ 33A I_{1EFF} 20 A 220 V $I_{1MAX:}$ 36 A I_{1EFF} 22 A 240 V $I_{1MAX:}$ 34 A I_{1EFF} 20 A			
PROTECTION: IP21S	COOLING METHOD: FULL TIME FAN			INSULATION: F	
WIRE SPEED FEED RATE*: 60-600 INCHES PER MINUTE					

*Wire speed feed rate at minimum setting will be 0. 60 IPM is based on useable minimum feed rate.



1.1 General Description, Purpose and Features. The Power i-MIG 200 is a versatile and compact MIG/Stick welder capable of delivering professional quality welds. Operating on an input of 120V or 240V 50/60Hz (1 phase), the CC/CV IGBT inverter welder is perfectly suited for many MIG and Stick welding tasks anywhere power is available. The Power i-MIG 200 can be used with .023"-.045" wire and features an 8" diameter spool capacity. (Requires additional drive rollers.) The welder is equipped with these standard features:

1) **GMAW Process (MIG).** The digitally controlled MIG components precisely control arc functions and give real-time feed back about the welding output parameters. The welder is also spool gun ready for economical welding of Stainless and Aluminum wires if needed. (Spool gun is optional.) It also may be used with flux core wire when equipped with the optional flux core drive wheel.
2) **SMAW (Stick).** In stick mode the welder delivers a smooth DC low spatter arc. Professional, high-quality welds are obtainable with ER 7018, 7014, 309L, 316, 6011 and many specialty rods that are designed for use with any stick welder.
3) **Arc Force Control.** Used with both MIG and Stick functions, the arc force control adjusts the quality of the arc. In MIG mode, the arc force control is used to adjust the current rise time. This determines how wet or stiff the arc feels and the pinch point of the wiring as it feeds into the puddle. In Stick mode, the arc force is used to adjust the amp reaction by adjusting how much the amps are boosted when the arc is held close and voltage drops below 20 Volts. This helps prevent rod sticking. Just as in MIG mode, in Stick mode, the Arc force helps change the way the arc feels and reacts. This feature is sometimes referred to as "dig".
4) **Burn Back Control.** Burn back control is used to control the length of the wire stick out after the trigger is released. It helps prevent sticking of the wire to the weld and saves the user from having to trim the wire before restarting.

1.2 Basic Design and Construction. The Power i-MIG 20 uses analog input and then couples it with a digitally controlled IGBT inverter to produce a stable arc while consuming less power than equivalent transformer based welders. Everlast utilizes quality components from US, European, and Asian based companies for trusted reliability and parts commonality. Welding parameters can be infinitely and continuously adjusted while the unit is in operation, offering instant welding response for maximum control. The unit also features spool gun compatibility to economically expand it's capability for welding aluminum and other expensive metals that lend themselves well to smaller and less costly spools of wire. It can also be fitted with optional flux-core drive rollers for applications where solid MIG wire is not the best solution.

1.3 Installation. The basic construction of the Power i -MIG is rugged and durable, and is considered ideal for circumstances where portability is of concern. Critical components are protected by coatings to make the welder environmentally resistant and has a water ingress rating of IP21S, (the standard in the welding industry to protect from vertically dripping water). However, some care and common sense should be taken to make sure that the welder offers the safest and best performance. Please note the following items regarding safe operation:

1) Do not use the welder in damp or wet areas. Perspiration and other forms of water in contact with the body can increase the risk of electrocution.
2) Do not use the welder in extremely corrosive environments. To maintain optimum power transfer, check main connections, clamps and cables frequently to ensure that components are not corroded. Excessive dirt, corrosion and oxidation can result in an unstable arc and excessive heat build-up.

1.4 Duty Cycle/Overcurrent. The Power i-MIG 200 has a duty cycle rating of 35% at 200 Amps while welding in MIG mode and a rating of 35% @ 160 Amps while welding in stick mode. The duty cycle rating is the amount of time (expressed as a percentage) out of 10 minutes the unit can weld without a rest. For MIG, the unit is capable of welding 3.5 minutes out of every 10 minutes at the maximum output of 200 Amps. For the balance of the 10 minute period, the unit should be allowed to rest and cool while running. This rating is based off a 40° C maximum temperature. If the unit's duty cycle has been exceeded. the temperature light (identified by the thermometer icon) will come on and unit will cease welding output. If a duty cycle event has occurred, allow the unit to run and cool for 15 minutes. After 15 minutes cooling, cycle the power switch to reset the unit. In the event of an overcurrent, the welding output will cease and the Overcurrent light will come on. (In duty cycle and overcurrent events, the wire will continue to feed). Overcurrent events can be caused by too low of supply voltage, running on undersized extension cords, too large of wire diameter, too high of settings for wire diameter, too high of input voltage, or internal or external electrical fault. When an overcurrent has occurred, turn the machine off immediately, then check and remedy the fault before switching the welder back on.

Table 1 **GENERAL POLARITY RECOMMENDATIONS***

***Consult manufacturer directions of filler material. There are exceptions!**

PROCESS	TORCH POLARITY	WORK POLARITY
MIG (GMAW)	+	-
FLUX CORE (FCAW)	-	+
STICK (SMAW)	+	-

Table 2 **GAS SELECTION GUIDE**

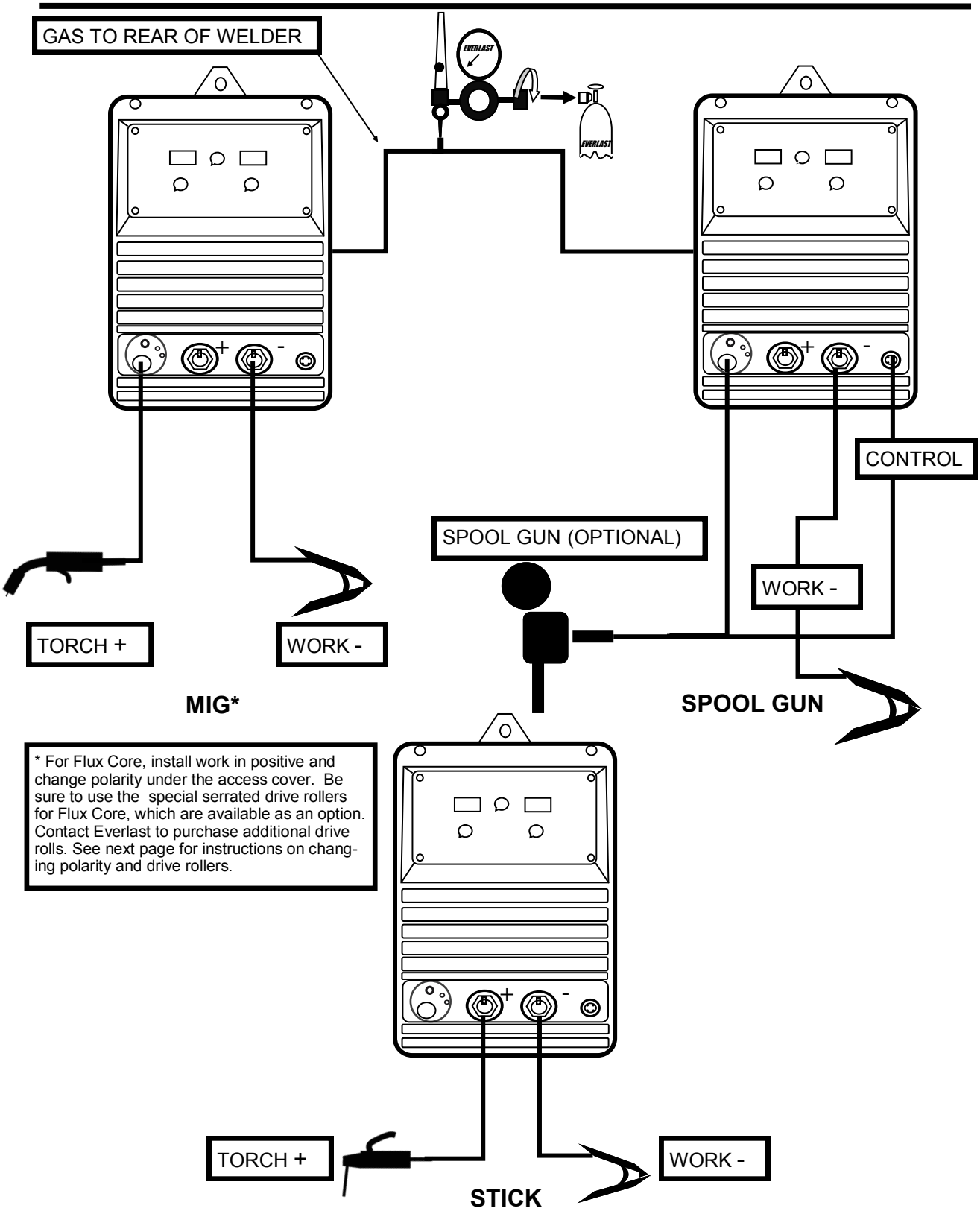
PROCESS	GAS
MIG (GMAW) STEEL	80/20 Ar/CO2 or 75/25 Ar/CO2 for short Circuit MIG
MIG (GMAW) STAINLESS	98/2 Ar/O2 or TriMix
MIG (GMAW) ALUMINUM	100% Argon

Table 3 **MIG (GMAW) CURRENT/WIRE/SINGLE PASSTHICKNESS GENERAL SUGGESTIONS**

WIRE DIAMETER	WELDING AMPS (A)	PLATE THICKNESS	GAS FLOW RATE MAX
.023” (0.6)	25-110	.040”-.063” (1.0-1.6)	15-20 CFH /7-10 lpm
.030” (0.8)	35-200	.040”-.128” (1.0-3.2)	20-25 CFH/ 10-14 lpm
.035” (0.9)	45-250	.040”-.128”.(1.0-3.2)	20-30 CFH/ 10-16 lpm
.040” (1.0)	45-250	.050”-.25”+(1.2-6.0+)	25+ CFH/ 14+ lpm
.045” (1.2)	60-250	.25”+ (6.0+)	25+ CFH/ 14+lpm

Table 4 **DC STICK (SMAW) OPERATION GUIDE**

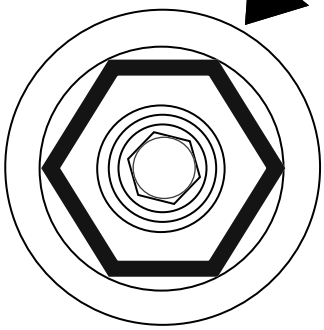
METAL THICKNESS	ELECTRODE SIZE	WELDING AMPS
< 1 mm/.040”	1.5 mm/ 1/16”	20-40
2 mm/.080”	2 mm/3/32”	40-90
3 mm/ 1/8”	3.2 mm/1/8”	90-110
4-5 mm/ 3/16”	3.2-4 mm/ 1/8”-3/16”	90-130
6-12 mm/ 1/4”-1/2”	4–5 mm/ 3/16”	130-200



CONNECTIONS AND POLARITY

TO LOAD WIRE SPOOL:

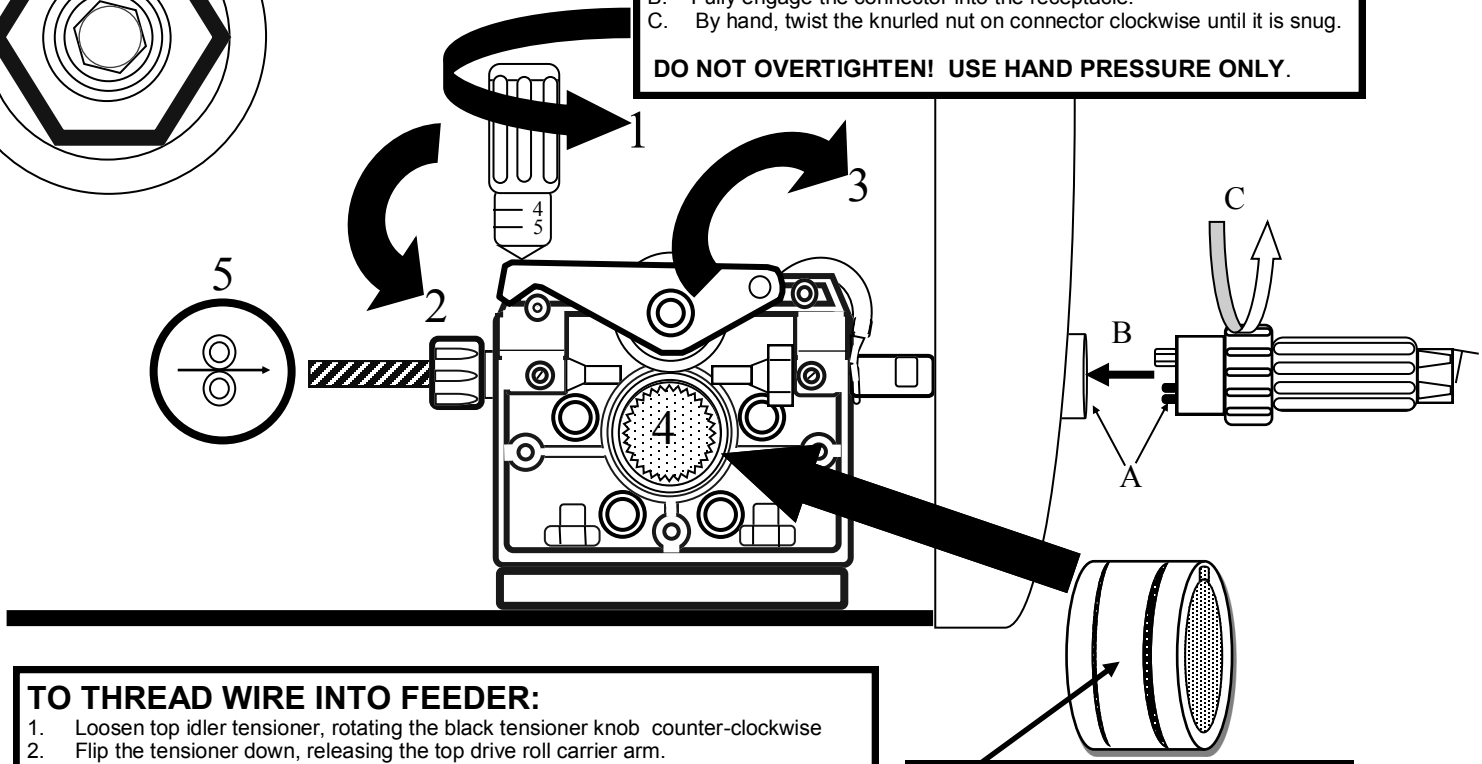
1. Loosen and remove the hand nut by turning it counter-clockwise.
2. Align the locating pin with the hole on the wire spool (if present).
3. Slide spool onto the shaft. Make sure wire is unwinding from the bottom of the spool.
4. Use a 8mm hex wrench to adjust tension (Hex screw located under hand nut)
5. Lightly spin the spool. If it free-wheels more than 1/4 turn, tighten hex screw. If it does not free-wheel at all, loosen hex screw until it free wheels 1/4 turn.
6. Reinstall Hand nut so the spool is retained securely.
7. Locate end of wire and clip the bent end of the wire so that it will feed through the wire feed mechanism smoothly. Carefully hold the spool of wire with one hand so the wire will not despool. Proceed to instructions listed below: "To thread wire into feeder"



TO INSTALL MIG GUN (TORCH):

A. Align pins on the torch connector with the feeder receptacle.
B. Fully engage the connector into the receptacle.
C. By hand, twist the knurled nut on connector clockwise until it is snug.

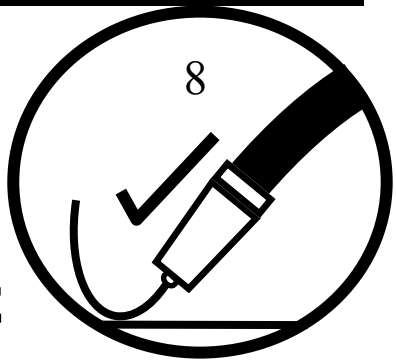
DO NOT OVERTIGHTEN! USE HAND PRESSURE ONLY.



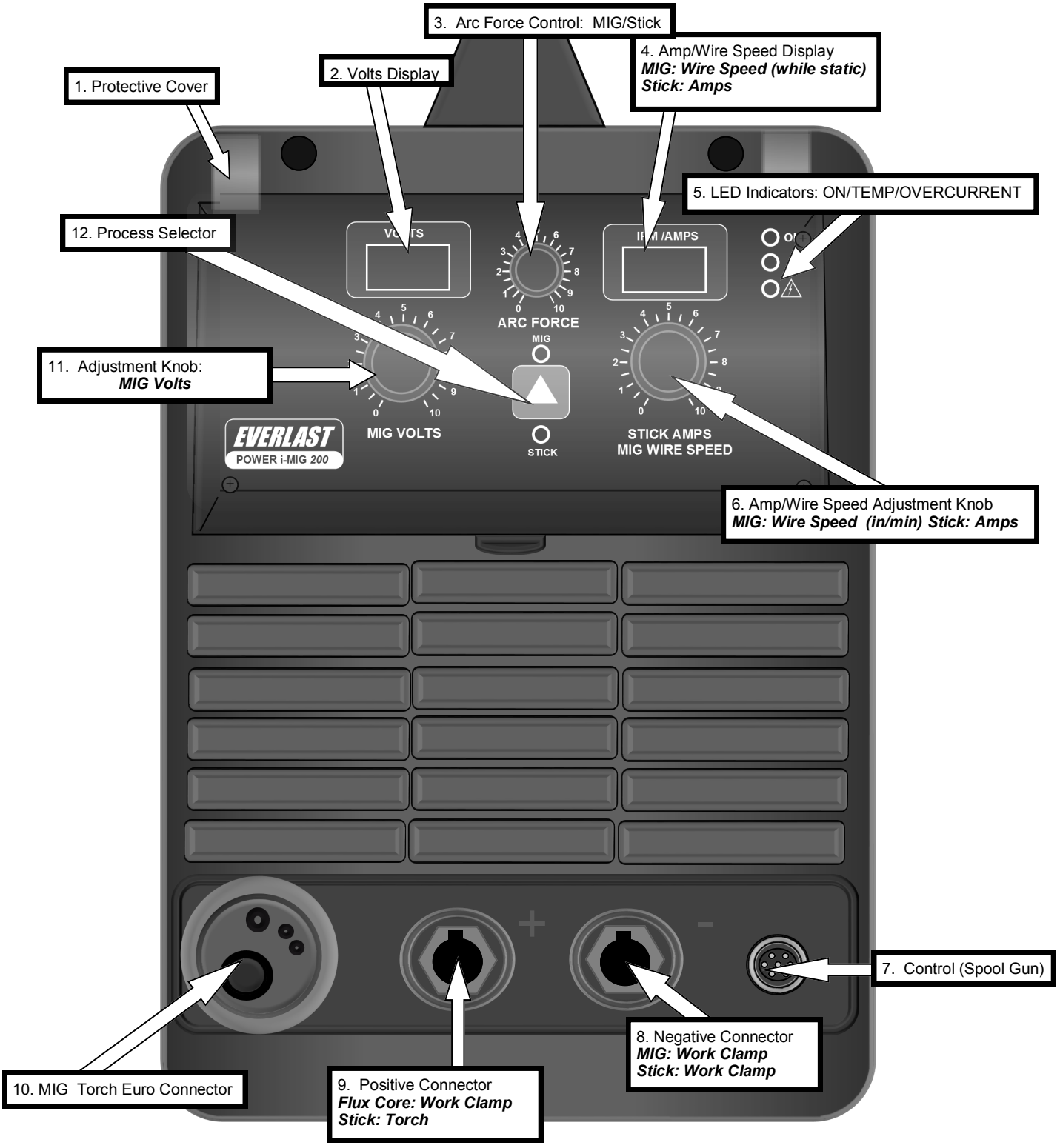
TO THREAD WIRE INTO FEEDER:

1. Loosen top idler tensioner, rotating the black tensioner knob counter-clockwise
2. Flip the tensioner down, releasing the top drive roll carrier arm.
3. Raise top drive idler roller. Inspect the drive roll to make sure that the groove size matches the wire diameter.
4. Reversal of the lower roller may be necessary. To reverse the roller, remove the black thumb screw securing the drive roll. Pull the drive roll off, and flip the drive roll over. Reassemble and tighten roller. If larger roller is needed, contact Everlast.
5. Thread straightened wire into coiled sheath and over grooves in lower drive roll. Thread through until it threads into the gun section 3"-4". Lower the upper drive roll onto lower drive roll, keeping the wire securely fixed in the groove of the feed roller. Make sure the correct size groove has been selected.
6. Raise tensioner back into place. Tighten slightly so wire will feed. Notice markings on tensioner for future reference.
7. Hold torch straight out as possible. Press gun trigger to feed wire until the wire exits the end of the torch.
8. Adjust tensioner clockwise until drive rolls will not slip when the wire comes into contact with a hard surface and the wire will curl up on end. Remember to keep wire away from metal that is attached to the work clamp to prevent the wire from arcing while performing this test.

Bottom Drive Roll (See side for stamped size)
.8mm=.030"-.035" 1.0mm=.040"-.045"
OR
.6mm=.023"-.025" .8mm= .030"-.035"
OR
.9mm-.035" 1.2mm=.045"



INSTALLING MIG WIRE



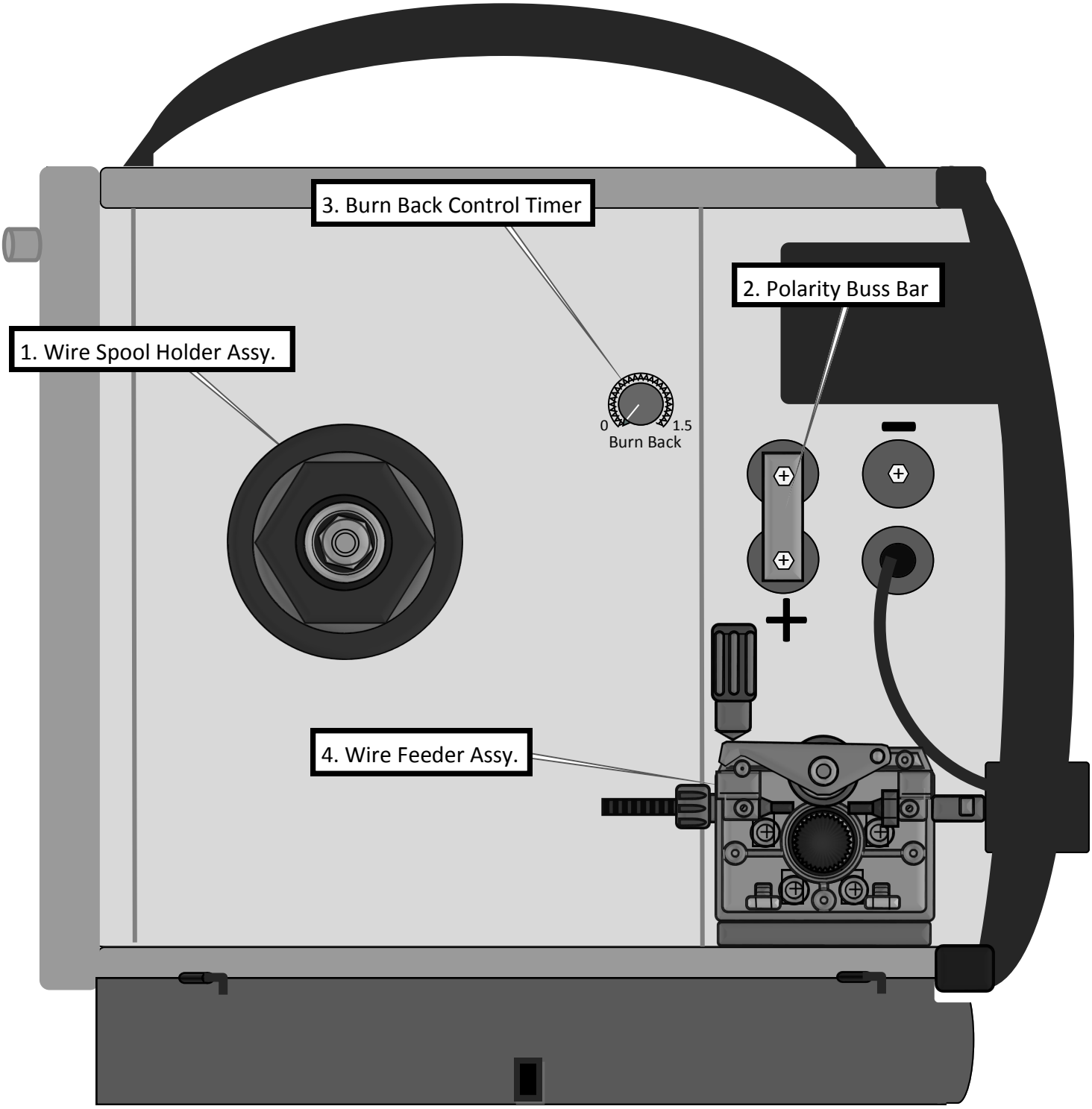
FRONT VIEW/ MAIN PANEL POWER i-MIG 200

Front Panel Description and Explanation:

1. **Protective Cover.** The unit features a protective hinged cover. This cover should be down whenever welding is actively taking place or when the welder is stored for an extended period of time.
2. **Volts Display.** The readout displays MIG volts and Stick volts. The unit voltage will vary as the voltage knob is increased or decreased in MIG mode during setup. In stick mode the volts are not adjustable, but the unit will display the open circuit voltage (OCV). While welding, the volts will display dynamically and show actual output.
3. **Arc Force Control.** Varies the current rise time during MIG welding. It also varies the amp response and arc feel in Stick operation. ***For MIG:*** This affects the actual point where the current potential has risen sufficiently to burn back the wire after pinching off and depositing in the puddle. The point at which it has burned back is considered the "pinch point". This is where the wire will begin to once again melt and transfer. To put it in more practical terms, the user will see that the wire is sticking out longer or shorter from the MIG torch before it burns away, depending upon the exact setting. This controls spatter, penetration and bead profile. When the arc force knob is rotated from one extreme to the other, the operator will observe that the arc is more stiff at one end or more fluid at the other end. Bead profile changes will occur as well. A stiffer arc will produce a deep but narrow profile. A fluid arc will produce a wider, shallower weld, usually with an improved bead appearance and less spatter. Arc force control is also known as inductance control, slope or wave form control (MIG). By changing the level of inductance the user can fine tune the arc performance so the welder responds in a manner that the user is accustomed to with other brands of machines. The arc sound will also change as the arc force is adjusted, going from a pitched whine to a frying sizzle. All MIGs, regardless of brand, without an adjustable arc force, do have some fixed level of inductance, though not all are set at the same level. A person can either adjust the arc force to have a familiar feel, or to improve arc behavior whenever welding position or condition change. ***For Stick:*** The control is used to vary the automatic arc response. While stick welding, the arc force counter acts the drop in voltage experienced when the arc length is too short and falls below 20 volts. The amps are automatically increased to offset the loss of voltage to maintain the welding arc and prevent the rod from going out and sticking. It can also be used to help increase penetration. Too much arc force in stick can or MIG can create a violent arc, so be careful about setting too much. For MIG a good starting point is around 7. For Sick start at 3. Gradually make half increment changes up or down to fine tune the arc. Giant swings in settings will make other parameters harder to dial in properly as the arc force can greatly affect the feel of the welder.
4. **Amp/Wire Speed Display.** This displays wire speed while the unit is not welding and actual output amps while welding in MIG mode. Wire speed is calibrated in inches per minute (IPM). While welding in stick, amps are displayed. While welding, it changes function and reads the active, dynamic amp output of the machine.
5. **LED Indicators.** These LED's indicate the active status of the machine. The On indicator is lit anytime the machine is turned on. The Duty Cycle or Overheat light (represented by a thermometer symbol) will light up when the machine has been pushed beyond its thermal limits. When this happens, welding will be interrupted. In case of an overheat event, allow the unit to cool while switched on for 15 minutes minimum. Do not shut the machine down until it has safely cooled. If the machine experiences an overcurrent, it will be indicated by LED with the triangular warning symbol. The welder will have to be cycled off and the power circuit analyzed for malfunction or inadequate wiring. NOTE: In both the case of over temperature and the overcurrent, the unit will continue to run, but welding output will be interrupted. **The wire feeder will continue to function when the trigger is pulled but the arc will not strike.** In the event of an overheat, wait 15 minutes before turning the unit off. Then reset the welder circuit by turning the unit off, waiting 10 seconds , the turning back on. In the event of an overcurrent, turn the machine off immediately and investigate the cause of the overcurrent. If the overcurrent does not clear when the unit is turned back on, contact Everlast technical support.
6. **Wire speed /Amp Adjustment.** This control adjusts wire speed while in MIG mode, and adjusts amperage in Stick mode. **Since this digitally controlled welder uses an analog input with a finite range of adjustment, a slight change in wire**

speed or amps may result in what appears to be a jump by several amps or inches per minute. This is normal and not something that is critical to fine tuning the machine to where it is needed. Often a light touch will result in the correct setting or within an amp or two.

7. **Control.** This seven pin plug is used to control the MIG gun while connected to the Euro Connector.
8. **Negative Polarity Connector (-).** Connect to the work clamp while in MIG/Stick mode. If using Flux-core check the required polarity. Most flux core wires use a negative polarity. If the flux core wire requires it, change the work clamp to the positive and change the buss bar under the cover to the negative position.
9. **Positive Polarity Connector (+).** Connect to Stick torch in Stick Mode. Connect to work clamp if using flux core. (See comments regarding flux core operation in item 11).
10. **Euro Quick Connect for MIG.** This style of connection makes the i-MIG compatible with many after market MIG torches/guns. Connect the MIG torch by aligning pins on the gun cable with the receptacle and pushing in. Twist the collar on the cable connector to lock in place. Do not use pliers or other tools to tighten. Hand tighten only.
11. **MIG Volts Adjustment.** In each mode, the function of the control changes. In the MIG mode, the control is used to adjust the arc voltage. In stick mode, this control is non-functional.
12. **Process Selector.** This is used to toggle back and forth between MIG operation and Stick operation.

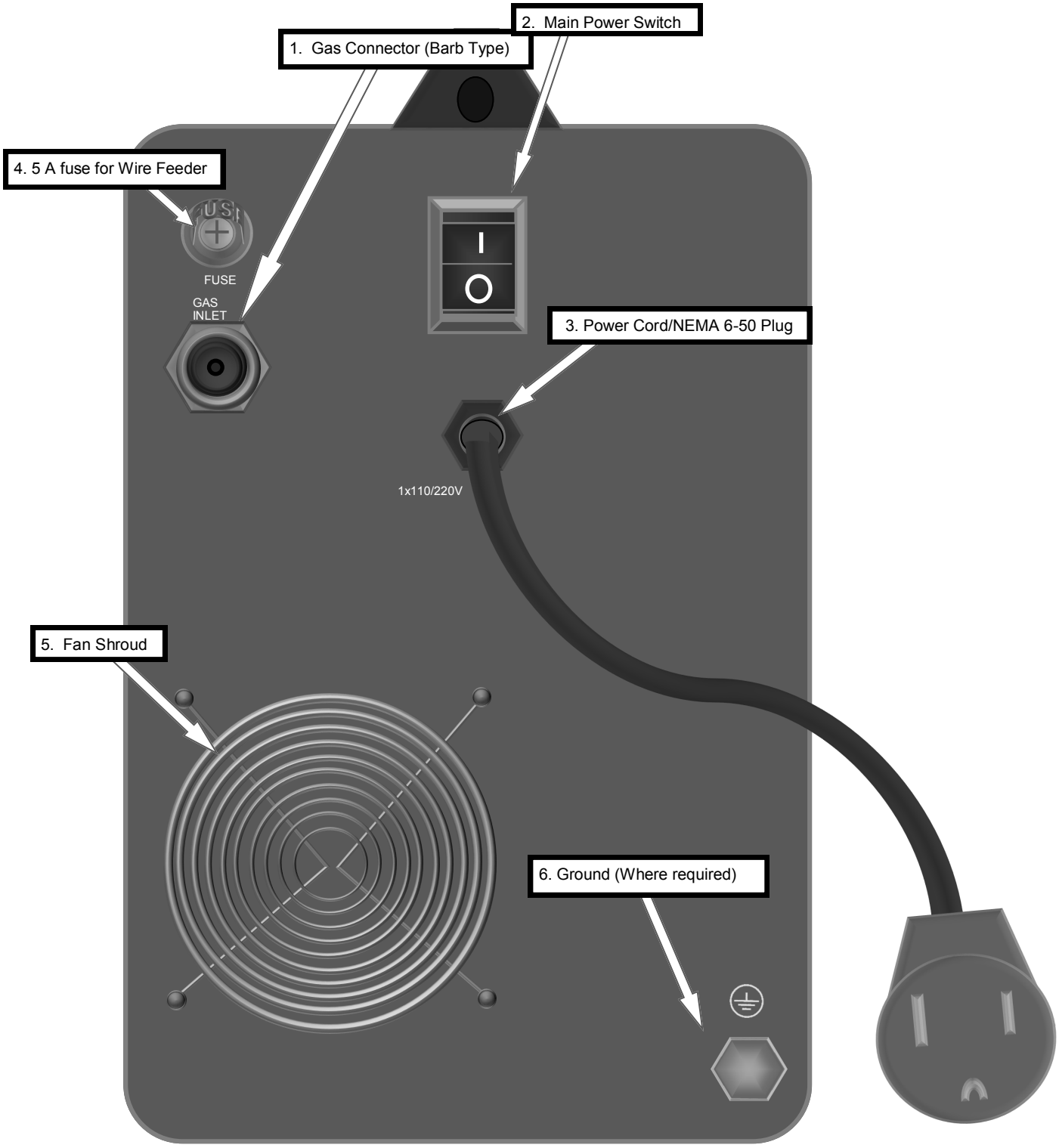


SIDE VIEW POWER i-MIG 200

Side Panel Description and Explanation:

1. **Wire Spool Carrier Assembly.** Make note of the correct assembly order if disassembled. *The order in which they are assembled is important to be able to provide enough resistance to prevent de-spooling of the wire.* When inserting the spool , make sure the small tab on the inside of the spool holder is located in one of the recesses made into the spool, if any. Tighten the hex head screw under the hand nut after installing the wire spool so that the wire will not continue to keep rolling more than a 1/4 turn after wire has stopped feeding. Do not over tighten so that the drive roller slips or the feeder strains to pull the wire due to excessive resistance. The tensioner assembly can accommodate 8" spools of wire (10-12 lbs.) However, a simple center adapter may be easily fabricated from PVC pipe to accommodate the smaller 4" diameter roll (2lb roll). **NOTE:** 4" rolls may cause excessive cast due to the tighter coiling of the wire around a smaller center hub. These can cause issues with the wire corkscrewing while welding and interfere with arc stability as the wire wanders from side to side. It also can create feeding issues as it can be more difficult to thread through the drive roller causing the wire to jump outside the groove if proper pressure is not maintained.
2. **Polarity Buss Bar.** Note the "+" and "-" symbols located on the inside of the unit next to the buss bar terminals. To change the polarity of the MIG torch, simply loosen the middle screw and remove the other screws on the polarity terminals. By pivoting the buss bar on the center loosened screw, swing the buss bar into position over the desired polarity. Reinstall the screws, lining up the holes in the buss bar with the terminal. Tighten all buss bar screws. Always remember to alter your work clamp to reflect the polarity change if using flux core. If the buss bar is connected to negative, then the work clamp should be in the "+" positive output terminal. ***Standard polarity for MIG is "+" (DCEP) with the work clamp in the negative.***
3. **Burn Back Timer Control.** The burn-back control helps to prevent too much stick out when restarting a weld, by keeping the arc energized for a short time after the wire feeder stops feeding . The wire will burn back to the desired length by adjusting the control. This improves re-starts and keeps the user from having to re-trim the wire between welds. **NOTE:** Too much burn back time may cause the wire to burn back to far and seize to the tip.
4. **Wire Feed Assembly.** Note the numbers on the side of the tensioner. These numbers are a reference point to help properly tension the wire so that the drive roller will not slip. Do not over-tension the wire because it can create a condition known as birds nesting, where the wire will tangle up around the feeder and will not slip if the wire burns back into tip, sticks fast in the weld puddle or other resistance is met. This will continue wrap the wire around the drive mechanism or jam wire inside the gun liner until the trigger is released. Considerable effort is usually needed to clear out a bird's nest condition. Too little tension will result in wire slippage and cause rapid wear on the drive components. Do a feed test before beginning a weld. Occasional cleaning of the feeder mechanism is necessary to prevent wear and damage to the feeder and to the MIG gun liner. Regularly monitor any metal flaking and dirt build up that may occur. Clean it away gently with compressed air. Do not use harsh cleaners or solvents. Felt wire lubricators may be bought and used to keep feeding cleanly while using steel or stainless wire. You may purchase additional drive roll sizes from Everlast, including flux core. Each groove will drive at least two sizes of wire. For example if the roller has a .8 mm groove and a 1.0 mm groove, this will allow either .030" and .035" wire to be used in the smaller groove. The larger groove allows .040" and .045" wire to be used. Do not forget to change the contact tip size when changing to a another wire diameter. Depending upon the size wire used, the liner from the MIG gun may need to be changed to work properly. Do not attempt to feed any wire greater than .045" wire with the welder. Most common jobs can be welded with either .030" or . 035" wire.

NOTE: If erratic feeding is experienced, check wire feed tensioner, Spool Tension (rolling resistance) and for correct size groove. Also make sure the wire is riding in the groove and not on the shoulder of the lower drive roll.



REAR VIEW/BACK PANEL POWER i-MIG 200

Rear Panel Description and Explanation:

1. **Gas Supply.** Connect the Gas regulator hose to this point via the brass barb fitting. (Regulator is customer supplied and not provided as standard equipment at time of publication.) The hose barb connection must be tight to prevent gas leakage. Install extra clamp if needed to prevent gas from escaping.
2. **Power Switch**. Turns unit on or off. The "I" mark indicates on. And the "O" mark indicates off. These are universally accepted symbols for On and off.
3. **Power Input Cable and NEMA 6-50P Plug.** The Power i-MIG 205 requires 120V OR 240 V single phase 50/60 Hz power input. If the welder is to be operated on 120V, use the 240V/120V adapter supplied with the welder. This will adapt the NEMA 6-50 plug to the NEMA 5-15 Plug which is used for 120V operation. No other wiring or conversion is necessary to operate on 120V. However, output will be reduced when operating on 120V. See technical specifications for 120V output and maximum output capacity for MIG and Stick. When operating on a generator, the generator must labeled as "clean power" and provide a sine wave with less than 10% variation. Consult your generator manufacturer for information regarding the clean power rating on specific units. Everlast does not provide a list of approved generators. Manufacturers rate their units as clean power independently according to industry standards. The plug is the NEMA 6-50P. This is the standard plug for welders operating on 240V in the US and Canada. Other countries will have different configurations
4. **Fuse.** This fuse controls the wire feeder. If it is blown it will not feed the wire, but gun will still be live when trigger is pressed. A fuse may blow over time, but it is generally a result of too much wire tension resulting in overload of the feeder.
5. **Fan Shroud.** The unit's fan must operate free of obstruction. Keep all objects or restrictions at least 18" from all sides of if the unit for proper cooling. Do not run in an enclosed space such as a cabinet or work box. Do not grind or weld where sparks are directed toward the rear of the unit. Metallic particles will build up on the fan blade and also on interior components. If metal builds up on the fan blades, it can cause the fan to vibrate and ultimately fail.
6. **Ground Bolt.** The unit is equipped with an additional grounding point for applications requiring a bonded ground. Under most conditions, the use of the ground is not required. Consult a local licensed electrician for installation and use of this connection.

BASIC MIG OPERATION

General Setup of Amps and Volts.
When welding with the Power i-MIG, the two main functions that require adjustment are Voltage and Wire feed speed. The function of voltage in MIG welding is to control the overall width and to a great extent, the height of the weld bead. In other words, voltage controls the bead profile. The wire feed speed directly controls the amps, and in turn amps control penetration. When setting the welder up you will notice that the wire speed is displayed in Inches Per Minute. However, while actively welding, the display will change function and display actual amp output. The relationship between wire diameter, wire speed and amps is easily figured with the following approximate industry conversions:

.023": 3.5 x Amps = Inches per minute (IPM)
.025": 3.1 x Amps = Inches per minute (IPM)
.030": 2 x Amps = Inches per minute (IPM)
.035": 1.6 x Amps = Inches per minute (IPM)
.045": 1 x Amps = Inches per Minute (IPM)

To convert wire speed (IPM) into approximate Amps, use the following conversion formula:

.023": IPM ÷ 3.5 = Amps
.025": IPM ÷ 3.1 = Amps
.030": IPM ÷ 2 = Amps
.035": IPM ÷ 1.6 = Amps
.045": IPM ÷ 1 = Amps

Keep in mind these are approximate conversions and do fall off in accuracy as amps are increased into the upper current limits for the given wire diameter.

Even though you will find general recommendations about setting the Amps, Volts and even shielding gas through a variety of free downloadable apps and online calculators, every filler metal manufacturer has its own specific parameters for Volt and Amp settings for each wire diameter and class of wire. The ranges of volt and amp parameters generally varies somewhat from brand to brand, so be sure to read the packaging and/or manufacturer literature to determine what range of settings are recommended. The wire diameter also limits the practical maximum thickness of what can be reasonably welded. The issue with following charts, graphs and calculator recommendations is that most people find them either too hot or too cold. For some people, it may not even close. However, nothing can substitute for watching the arc and listening to the sound of the arc. A crisp, steady sound, frequently referred to as a "Bacon frying sound"" should be heard. The actual frying sound can vary somewhat and may have somewhat of a high pitch whine to it somewhere between the sound of a flying bee and a mosquito. If these sounds are present, look at the arc to see if it is steady, and producing low amounts of spatter. If large amounts of spatter are present, the puddle seems fluid (appears wet) and the wire speed is within the targeted range, decrease volts a little at a time to reduce the spatter. If this does not correct the problem, change the torch angle and torch height. Hold the torch more vertical, with less than a 15 degree deviation from vertical and reduce stickout of wire to 3/8" or less. If this still does not help, reduce the wire speed. Some spatter is normal, though it should be minimal overall.

The wire can also pop and spatter if the voltage is too low for the wire speed and/or wire diameter. This is mostly observed as flying bits of red-hot but unmelted wire, along with popping as the wire inconsistently stubs into the puddle. This is followed by the wire pushing back against your hand pressure while the wire visibly turns white/red hot before burning off. Too low of voltage will also produce a high piled bead with the toes (edges) of the weld not properly wetting in resulting in poor fusion.

Arc Force Control.
The third important variable in setting up the Power i-MIG is the arc force control. This third adjustment can greatly vary the feel of the arc at any given volt and amp setting. It is used to balance the stiffness of the arc against the wetness of the arc. Some professionals refer to the "buttery-ness" of the arc.
" Butteryness" is arguably somewhat a subjective term. However, it generally refers to how smooth and fluid the arc feels and looks. In fact, the inductance alone can affect how much wire speed or voltage is needed in any given application. It does not typically require the altering of the Volts or the Wire Speed settings. However it can expose poorly selected Volt/Wire Speed parameters by magnifying the effects.

BASIC MIG OPERATION

While Everlast uses the term "arc force", it is known by many different terms. Often it is referred to as inductance, choke or slope. Simply put, the arc force (Inductance) adjustment controls how long it takes the current to recover and rise to the established welding current to melt the wire after the wire contacts the puddle and the current falls. This process is happening many times a second so it isn't visible to the naked eye. But the overall effect is visible as the wire burn off height is changed and a change in the wetness of the puddle and how easily the molten metal flows in toward the toes of the weld as it melts off. If the unit has sufficient arc force, the edges of the weld will easily wick into the puddle with little or no spatter with little or no manipulation of the torch required. The pitch of the arc will be medium. With too much inductance the puddle may be uncontrollable and the arc will have a throaty, raspy sound. Too little inductance and the puddle will be narrow and possibly have a high ridge in the center. The pitch will be very high and the puddle will seem sluggish and less fluid.

All MIGs have a preset inductance or arc force that is inherent in the machine's design. But few MIGs have the adjustable Arc force. Arc force is part of the personality of a MIG welder. It's one reason that some people prefer the arc of one brand over the other as people develop personal preferences in arc performance. With that in mind, having an adjustable arc force serves several functions:

1) The arc force allows the user to dial the machine to a performance level that the user is accustomed to. This helps if multiple users are present and improves the operator's performance with the welder.
2) The arc force can help improve control and weldability in out-of-position welds (weld positions other than flat) without having to change other parameters.
3) Different shielding gases require different levels of inductance for optimum performance. The arc force improves performance with different gas mixes by being able to adjust the arc to render the best and smoothest possible arc for the shielding gas being used. This is especially helpful when pure CO2 is used.
4) The arc force can improve weldability of thinner metals without having to step down a size in wire. While ultimately there are limits to what any given wire can weld on the lower end of it's range, it does help improve the low amp welding characteristics of the wire diameter.

For the best possible experience welding with the Power i-MIG, adjust arc force after the wire speed and voltage have been tuned. This will keep the user from constantly having to hunt for the best balance of the other two adjustments. Usually once a particular arc force setting is selected that is suitable to the user, it will work well throughout the range of adjustments and will rarely require readjustment once set to the operator's satisfaction. However, this is not to say that readjusting the arc force from time to time is not beneficial. When the operator must weld out-of-position, readjusting the arc force control can help reduce clogging of the nozzle and even make the puddle more controllable.

Avoid the temptation of setting the control at the mid-point or even full left or full right without performing a few test welds first. Few users will find these settings to their liking. Turning the arc force to the minimum setting does not turn the feature off. A good starting point is somewhere between 6 and 8 with mixed gas. This will usually produce a desirable arc with for most people and will produce minimal spatter. Fine tune the adjustment from there increasing in half increments to find the best performance.

Burn Back Control.

After the trigger is released on the welder, it's natural for a small extra amount of wire to coast out of the gun. This small amount of extra wire may stick fast in the weld as the molten pool begins to cool. This will require the operator to break it loose and spend time trimming the wire. Even if the wire does not stick in the puddle, it will often be left sticking too far out from the contact tip for a proper restart. Trimming is usually required with a pair of MIG pliers or wire cutter before restarting the arc. With burn back control, however, the arc can be kept energized long enough to continue supplying power to the wire long enough to burn the wire back to the desired length after the wire stops feeding. The timer control located under the cover sets the length of time the that the arc remains on after the trigger is

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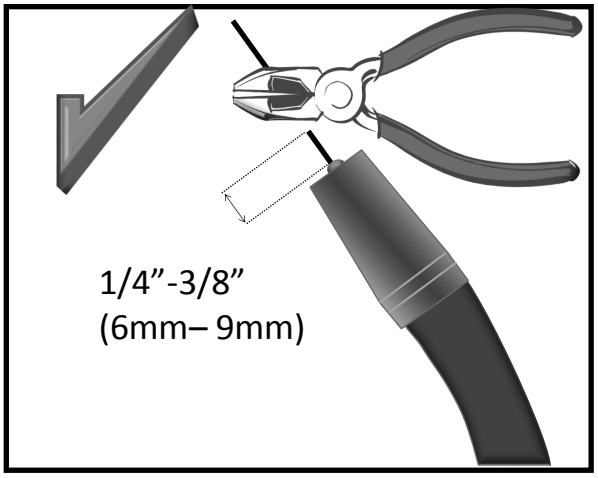
released.

If the burn back control is set too long it can cause the wire to burn back into the tip itself and welding of the wire to the tip. Begin with setting the unit for a little less than a quarter second. If the burn back control is set correctly, it will leave about 1/4”-3/8” wire sticking out beyond the contact tip. If a large ball develops on the end of the wire, reduce the burn back time so that it creates a balance between ball size and stick-out. The short amount of post flow that is built into the programming of the Power i-MIG helps shield while the wire is burning back. This helps control balling and prevents oxidation during burn back. This is a unique feature that is not found in many welders with burn back control. Burn-back control without post flow can cause erratic restarts due to the oxidized or over-balled wire tip.

Even with the burn back control properly adjusted, due to operator error, an occasional quick trim of the wire may be necessary for best arc starts. But overall, when used in a production setting or in a fabrication shop, the burn back control can save on labor and aggravation.

Starting the Arc and Welding.

Starting the arc is a relatively simple process. Before beginning, the wire should initially be trimmed to between 1/4 to 3/8”. Once the wire is trimmed, the gun should be firmly grasped to prevent a phenomenon often referred to as “machine gunning”. A light grasp, especially at start, can cause the arc to stutter as the wire pushes back on the gun, lengthening the wire stick-out and creating an irregular start and a porous weld.



The end of the wire should be positioned just barely above the metal when the trigger is pulled for the cleanest start. This will position the end of the contact tip about 1/2” above the weld. The gun should be in the vertical position, with no more than 5 degrees lean in either side to sidedirection. Holding the wire too far off from the metal will result in rough starting and too long of wire stick out.

Once the arc has been established, the gun can then either be pushed or pulled in the direction of the weld. In either case, the gun nozzle should be positioned directly over the weld without angling the wire to one side or the other of the weld as already mentioned. The gun should have no more than 15 degrees lean pointed into (push) or pointed away from (pull) the direction of travel. In most cases a push motion is desired. However, a lot of texts offer conflicting information on whether to push or to pull the gun. In reality, both are correct if used correctly and with each having particular strength and weakness. Either one done with too much gun angle will result in undesirable results. Most open-minded people who are well versed in MIG quickly develop a sense of when to push and when to pull the gun. Even for novices, a sense of when to push and pull the gun comes quickly with a little practice. Pushing can result in shallower penetration but the molten puddle is easier to see and the arc sits easily on the leading edge. It will usually leave a aesthetically pleasing bead. However, be careful to prevent the gun rom leaning toward or away from the direction of travel too much as spatter will increase and shielding gas flow may become turbulent, creating porosity in the weld. Pulling will result in deeper penetration, but can result in a narrow bead without much side fusion. It also can leave an undesirable “humped” appearance if not done correctly or if travel is too slow. **Whenever MIG welding with Aluminum, whether with the standard MIG gun or the Spool gun ALWAYS push the gun. If using Flux Core, a dragging motion is almost always recommended.**

Weaving (oscillating the torch from side to side in one pattern or the other) particularly a MIG bead is a topic of controversy as much as whether to push or pull the MIG gun. Stringer beads are often best for

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novice welders. Stringers are simply straight beads that move forward with little or no side to side travel or oscillation. These will offer the soundest welds for a beginner. Stringer welds leave little or no room for contaminates to enter the weld and are the fastest to produce without creating an opportunity for cold lap. Moving too quickly however with a stringer can create undercut which will weaken the weld. The best policy is to move a slow steady speed, making sure the sides of the weld are filled. If undercut is present, it is either from too much voltage or moving before the wire has time to fill the area the arc has melted.

Think of weaving as a method of "sewing" the metal together. If weaving is of interest to you, start with the basic weave pattern. Simple weaves using one variation or the other of a cursive "e" motion are best to begin with. Other weave patterns can be used of course. C's, V'S, U's , Triangles and many more weave patterns can be used depending upon the application. Weaves are employed for a number of reasons. Weaves are often considered to have a more pleasing appearance and can help bridge gaps where fit up is a problem. A weave is also frequently used to manage heat build up. For example: when welding vertically weaves are almost always used to prevent the molten metal from sagging due to the force of gravity. The major drawback of weaving is that it introduces a greater possibility of getting inclusions and other forms of contamination in the weld. Properly done weaving is a valuable tool, but it must be practiced before employing it in any structural or critical application.

Metal Cleaning.

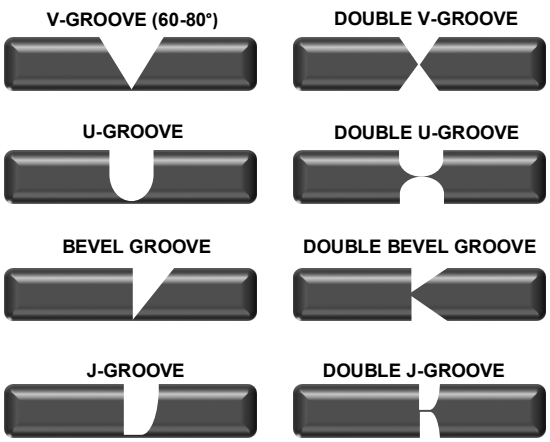
MIG welding requires a well prepped surface to obtain a sound weld. The removal of paint, rust mill scale, or other contaminate such as grease should be done before welding. Stick welding is more forgiving of rust and mill scale, but when MIG welding, contaminates will result in porosity and inclusions in the weld, weakening it. A grinder will usually prep the metal sufficiently to remove oxidation and paint. However, to remove grease a degreaser such as acetone should be used. Do not use any degreaser such a brake cleaner with chlorinated solvents or death or serious injury may occur!

A MIG wire such as ER70S-6 or ER70S-2 includes a sufficient level of deoxidizers such as silicone and copper that are formulated to allow it to handle minor to moderate amounts of rust and mill scale. These deoxidizers will float out most moderate amounts of contaminates out of the weld and will appear in the usual form of glassy like deposits on top of the cooled metal. They are easily brushed off before starting the next pass. They should not be welded over. Any pinholes that appear are a result of trapped gas in the weld and should be ground out before the next pass. It should be noted that some MIG wires such as ER70S-3 have low levels of deoxidizers and must be thoroughly cleaned and ground before welding.

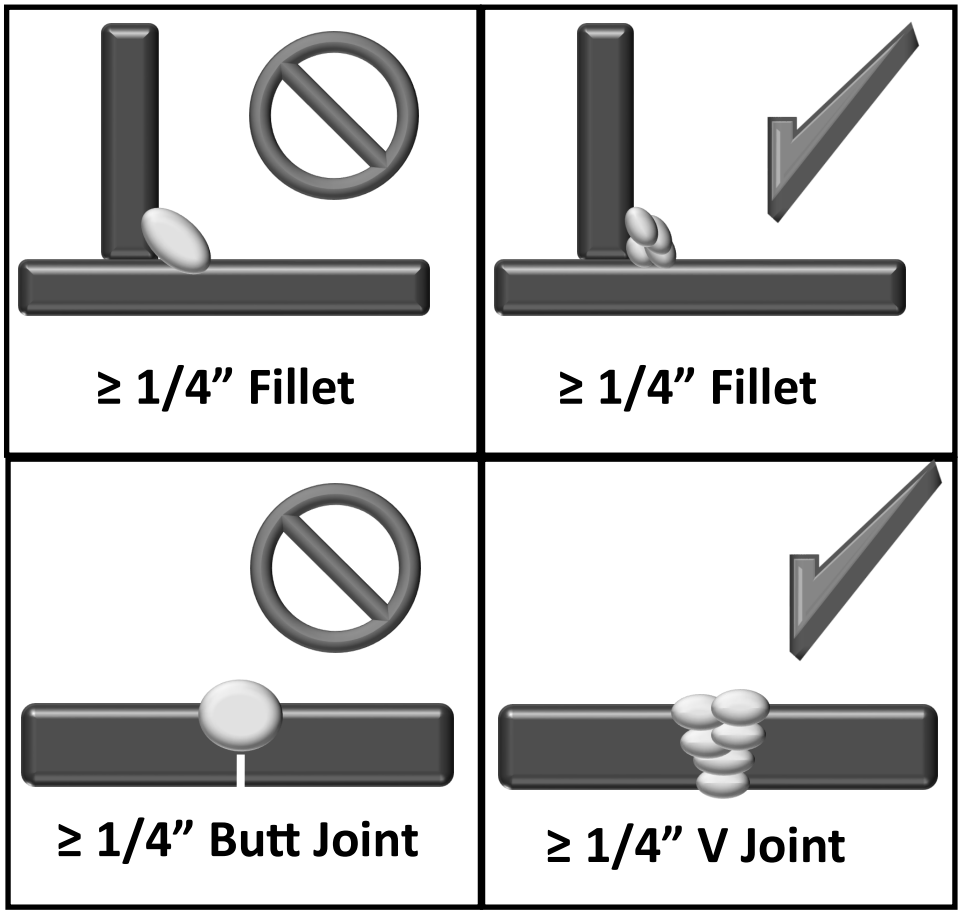
Multiple Pass Welds.

One of the common misunderstandings that people have when beginning to MIG weld is that if the welder has the power, then a single heavy pass will do to weld up in a single pass. This is a primary way to introduce cold lap and incomplete fusion to the weld. Single pass welds should not exceed 1/4" even with the heaviest wire the welder is capable of handling. A thick pass may also begin to cool before contaminates and gas pockets have the time to float out to the surface. It's far better to make multiple smaller passes to complete a plate weld for a higher quality result. For best results, this requires that most joints 1/4" and over be prepared with a grinder to accept multiple weld passes. The weldment edges should be ground to form a V, U or J shaped groove to create a recess where the welds can be welded one on top of another. For welding with .035" wire and under, create a bead no thicker than 3/16" in a single pass, no more than 1/8" with .030" wire, and with .025"wire and smaller no more than 3/32 for best results. This will help maintain proper fluidity of the weld and prevent gas from being trapped in the weld and give time for any minor contaminates to float out of the weld. It will also help to maintain reasonable forward travel speeds. Too slow of travel speeds will create excess build up and can tend to create cold lap at the weld toes resulting in poor tie in. One issue created with a weaving technique even if the metal deposited is the correct thickness s that it can slow the forward progress down. If weaving is too wide, one side of the puddle will cool and oxidize before the torch is brought back across to that side. This is a point where porosity and inclusions can be introduced.

BASIC MIG OPERATION

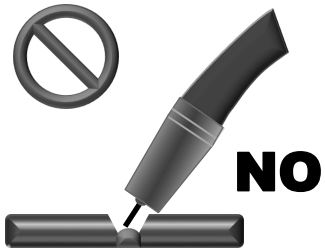


Besides a butt joint and lap joint which are often used for thinner metal gauges, consider using one of these groove joints for best welding results. When grinding or cutting the bevels, especially with a single V-groove, it may be beneficial to leave a small land with a gap between the joint to achieve full penetration. In this case a temporary backer plate can be used to support the bottom of the weld to create the root pass. The root weld will weld the backer to the main plate. This backer can later be ground or cut off. However, in many cases a plain open root can be used as a backer plate adds to the time and labor involved. A knife edge is also acceptable so long as the joint is fully penetrated when the weld is completed. Open root gaps without a backer can range from 1/16" to 1/8" depending upon wire diameter and application.

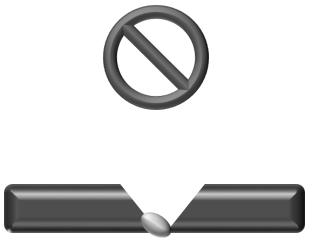


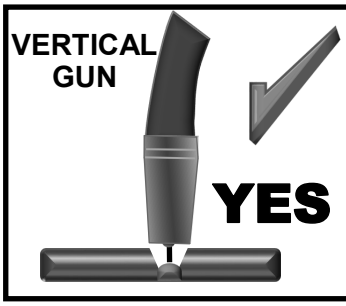
When welding material 1/4" and over be careful about trying to put too much metal down in a single pass. Use multiple passes to complete the weld along with any necessary joint preparation. As metal thickness goes up so does the number of required passes. Depending upon the wire diameter and power settings used, a 1/4" joint may only require 1 or 2 passes, but a 3/8" joint in plate metal or pipe will require not only beveling but 4 to 6 overlapping weld passes including a cap and root pass.

BASIC MIG OPERATION

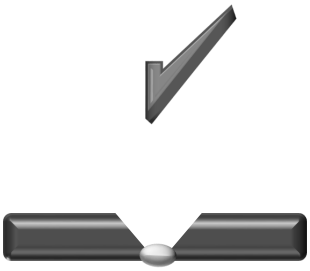


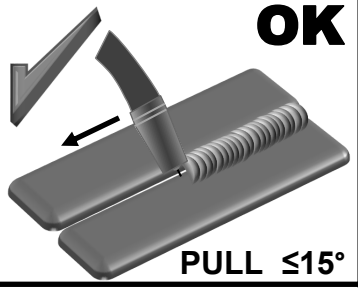
Problem: Gun is not being held vertical from side to side. Wire is not being directed to the center of the puddle. This concentrates heat on one side of the joint and results in poor fusion on the neglected side. It also can create more buildup on one side of the joint than the other.
Correction: Hold the gun so that the angle of the neck stands perpendicular from side to side.



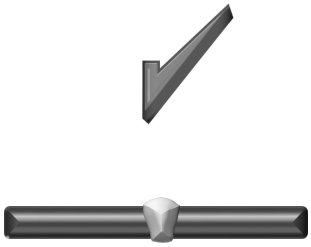


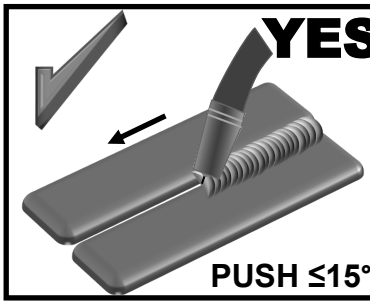
Correct Technique: The gun is held in a near vertical position. A variance of 5 degrees or less is acceptable from side to side. The purpose is to prevent the arc from being concentrated on one side of the weld joint or the other. This balances the heat on both sides of the joint and keeps the bead centered. Don't confuse this with push or pull angle in the travel direction.



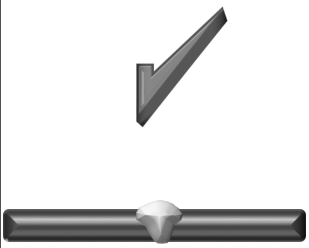


Correct Technique: The gun is angled toward the back of the weld when traveling forward. This angle should not exceed 15 degrees. This provides a narrower but more deeply penetrating weld. Use this method when Flux Core wire is being used. Use this method where the unit may be reaching its maximum welding capacity. Not for use with Aluminum wire.

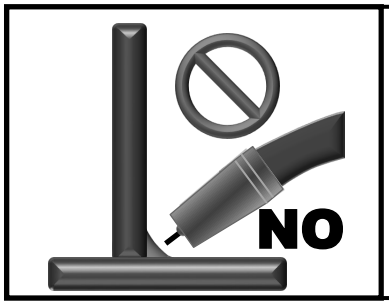




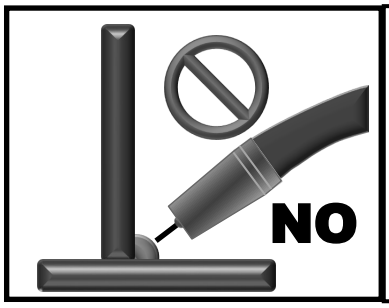
Correct Technique: The gun can be angled toward the front of the weld when traveling forward. This angle should not exceed 15 degrees. This provides a wider and generally more pleasing weld. However it is shallower penetrating. This method typically allows a much better view of the arc. Use for most types of welding unless deeper penetration must be achieved.



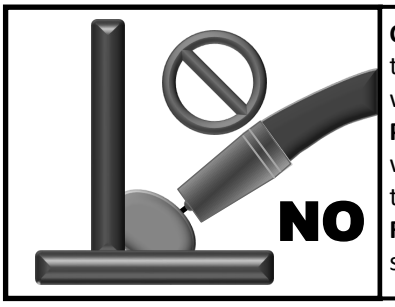
BASIC MIG OPERATION



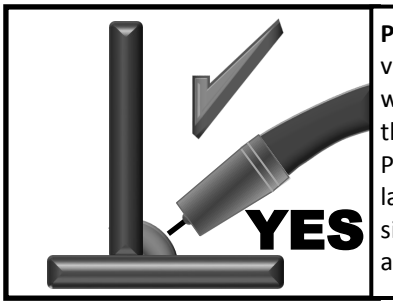
Characteristics: Concave weld, poor filling, possible undercutting resulting in weak weld.
Possible Causes: Voltage too high, not enough wire speed, too short of wire stick out, wrong gun angle.
Remedy: Decrease voltage, use push motion, increase wire speed.



Characteristics: Small Convex weld possibly **with** bulging sides/cold lap and/or an inconsistent arc.
Possible Causes: Not enough Voltage or Amperage. If weld is ropy and thin without bulging at the toes, travel speed is too fast or using a pull technique.
Remedy: Increase voltage and amperage, slow down to fill joint more. Use push technique.



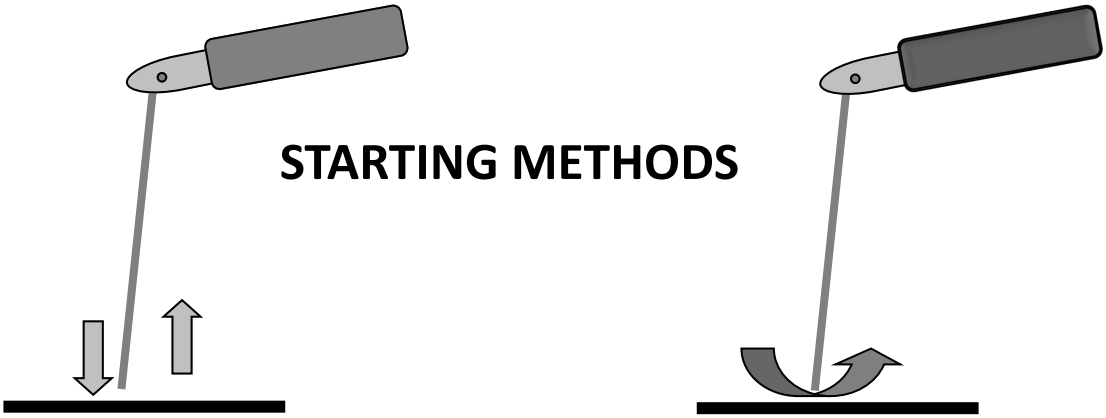
Characteristics: Large convex weld with bulging at toes, weld legs exceed thickness of the metal being welded.
Possible Causes: Not enough voltage, too much wire speed, overfilling due to too slow of forward travel speed, and/or poor weaving technique.
Remedy: Increase voltage, increase forward travel speed, reduce weaving width.



Proper Weld Characteristics: Weld is slightly convex, weld legs (vertical and horizontal width of weld) are equal in length and match the thickness of the metal being welded. No traces of undercutting, Proper tie in of the weld at the toes with no cold lap. Weld is not overfilled or under-filled with no significant amounts of spatter, soot or contaminates around weld. Weld is not oxidized and is bright.

STICK OPERATION

STARTING METHODS



Tapping Method **Scratch/Match Method**

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 electrode holder is in in the Positive connector and the work clamp is in the negative connector.

4. Select the Amp level desired. Use table 5 to determine approximate amps suitable for the rod size selected. Consult the welding electrode manufacturer's recommendation as well for proper amperage. No voltage adjustment is available.

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. Cellulose electrodes may not have the same arc force behavior as other welding electrodes, but each brand and size will weld a little differently. 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 quit welding. This threshold is shorter than most transformers, and an extremely long arc cannot be maintained. However, with a little practice, the advantages of an inverter become clear.

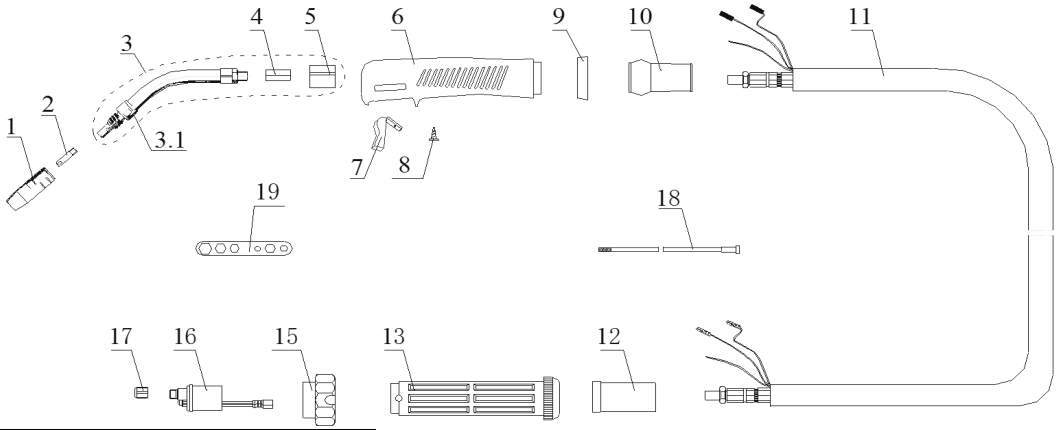
6. Strike the arc with either the tapping method or the match strike method. Beginners usually find that the match strike method yields best results.

NOTE: Arc force is active in both Stick mode and MIG modes. Pay particular attention to the Arc Force setting as it affects the aggressiveness of the arc and the amp response. Though the function of the control is different Stick from MIG, the effect is somewhat similar. In stick mode, reset the Arc force to approximately 3-5 and readjust it from that point to find the optimum setting. Usually, an increase in the arc force for cellulose based flux welding rods is helpful. Lowering the Arc force setting is generally desirable for flux rods. Too much arc force create overheating of the welding rod, and even cause them to flame up. Too little can lead to sticking and arc snuffing. Don't forget to readjust the arc force when returning to MIG.

General Notes Concerning Operation:

1. While welding aluminum with the Spool gun or MIG gun you must use 100% argon. You cannot use a mix as you would with steel or stainless.
2. While welding aluminum with the Spool gun or MIG gun you must use the next size up tip or a special oversize tip for the wire because the heat will cause the aluminum wire to swell and it will either drag or seize in the tip.
3. While welding aluminum with the MIG process, best results are achieved by using a dedicated stainless steel brush to remove the oxide layer and using acetone or aluminum cleaner before welding to remove any residues. Even though aluminum may appear shiny and clean, it still has an oxide layer and a thin layer of oil left over from the manufacturing process. Some soot will appear in most Aluminum MIG welds but if a lot is noticed, you have either contaminated metal, or insufficient gas flow. You can also induce turbulence by having too much of a torch angle. Start with a 90 degree angle and then lean the gun slightly (about 15 degrees) to the "push" position.
4. Welding aluminum is not a short circuit process. It is a spray transfer process. Spray transfer is a process that is can be used to weld many metals, but in Aluminum it must be used to weld correctly. In spray transfer, the wire does not short out against the weld material. Instead a steady "spray" of droplets of molten metal pinches off before the wire can contact the material. It is a much quieter process. If you are not familiar with the spray transfer process, please research it before you try it. If you incorrectly adjust the welder while welding aluminum in the MIG process, you will burn up contact tips almost instantly.
5. When using the optional spool gun, the amp/wire speed control is controlled at the panel. Contact Everlast directly to purchase the correct spool gun for this welder.
6. Flux Core requires the use of serrated drive rollers. These grip the wire and feed it correctly at a steady speed. Flux Core drive rolls are available for purchase as an optional item.
7. 2 lb rolls of wire can be used in the main unit. However the wire spool holder must be disassembled and the cap screw reused as the carrier and the two shouldered spacers can be fitted on either side to center the roll. Alternately two small pieces of PVC and a small spring with a couple washers can be purchased locally to create spacers to provide enough wire tension. There are also wire spool adapters available online from a variety of sources which allow the spool carrier to remain in place without disassembly. Everlast does not currently offer these direct for this machine.
8. When running this unit on a generator, the manufacturer of the generator must certify it as a having " Clean Power" output. This means the unit produces a truer sine wave and is not a modified sine wave generator and is largely free from harmonic distortion. A clean power generator is usually listed as such, but the manufacturer of the generator should be able to clarify the clean power status of the generator through the technical department of the generator manufacturer. Everlast does not keep a list of approved generators nor does it make endorsements of generators that are listed as clean power output. The generator power requirement for this unit is unit is 6500 continuous watts for best results.

EXPANDED VIEW OF MIG TORCH



NO.	PARTS	QTY
1	Diffuser	1
2	Contact Tip	1
3	25 series Goose gun neck assy.	1
4	Adapter for goose neck	1
5	Plastic adapter	1
6	MIG gun handle	1
7	Torch switch 21.8mm	1
8	Screw D.3*10	3
9	Handle locking ring	1
10	Articulating joint 15AK	1
11	Coaxial cable assy /16mmq/3m	1
12	Cable thimble 12-16-25 MMQ	1
13	CO_2 Euro-rear connector handle	1
14	Retaining Screw M4*6 UNI 6107	1
15	Knurled locking nut	1
16	Euro-main connector	1
17	Securing nut for gas input	1
18	Insulated liner 0.6-0.8 3m, Blue	1
19	Contact Tip Wrench	1

Use Twisting motion to remove/install gas nozzle.

NOTE: Some components may appear slightly different as design/ supplier changes are made from time to time. At time of publication, the standard torch provided with Power i-MIG 200 is commonly known as the 15 series. This torch may be supplied by Binzel®, Trafimet®, or other similar manufacturer. However, if it is listed as a "15" consumables and most parts interchange from brand to brand except torch handle design and trigger. The widely used Euro-connecter on the MIG torch also ensures that the customer can fit and install almost any other type MIG torch since most manufacturers offer torches with a Euro connector as an option. Everlast does not recommend installing torch cables longer than 18 ft on the Power i-MIG 200 as feeding issues may **occur.**

TO INSTALL MIG GUN/TORCH:
A. Align pins on #16 with the feeder receptacle.
B. Fully engage the connector into the receptacle.
C. Twist knurled nut (#15) on connector until the nut is snug.
DO NOT OVERTIGHTEN! USE HAND PRESSURE ONLY.

NOTE: Over time, pressure on the drive rolls causes metal fragments from the filler wire's surface to find its way to the gun cable liner. If the wire guide is not cleaned, it can gradually clog up and causes wire feed malfunctions. If feeding difficulty is observed, clean the liner in the following manner:

1) Remove the welding gun's gas nozzle, contact tip and contact tip's adapter.
2) With an air nozzle below compressed air through the wire guide. Wear eye protection!
3) Blow out the wire feed mechanism and reel housing with dry compressed air.
4) Reassemble components. Tighten the contact tip and contact tip's adapter to spanner tightness.

The MIG torch liner may eventually become worn and will need to be replaced. When welding aluminum with the main gun, a Teflon liner must be used, necessitating a liner change. A spool gun is the preferred method to weld Al. To change the liner:

1) Remove the securing nut of the liner (#17) which exposes the end of the wire guide.
2) Straighten the gun cable and withdraw the liner from the gun.
3) Carefully push a new wire guide in to the gun. Make sure that the wire guide travels all the way to the contact tip.
4) Make sure the O-ring at the machine-end of the gun is installed
5) Tighten the wire guide in place.
6) Cut the liner 2mm from the mounting nut and file the sharp edge of the liner.
7) Reattach the gun and tighten all parts.
8) Re-thread wire.

NO.	Trouble		Possible Cause	Solution
1	Unit is switched on, but the power light isn't on		Switch damaged.	Replace.
			Unit Fuse damaged.	Replace.
			Power breaker tripped.	Reset.
2	After welding machine is over-heating and the fan does not work		Fan damaged.	Check fan housing and fan. Replace if necessary.
			Fan power connector is loose.	Tighten wires, check for dislodged connectors.
3	When torch switch is pressed, no gas Flows		No gas in the gas cylinder.	Replace.
			Gas pipe leaks gas.	Resolve .
			Gas solenoid valve damaged.	Check and clean/replace.
			Torch switch damaged.	Repair or Replace.
			Control board damaged.	Inspect the circuit.
4	Wire-feeder does not work	Wire reel does not turn	Motor damaged/Fuse blown.	Check and Replace.
			Control circuit damaged.	Check the board.
		Wire reel turns	The tensioner is loose or wire slips on rollers. Wrong size drive roll. Wire is not mated in drive groove.	Increase tension. Check for proper drive roll size/type. Make sure wire is in groove not riding on top of the drive roller shoulder.
			The drive roller doesn't fit the diameter of weld wire.	Change roller or wire size to match.
			Wire Spool is damaged.	Change out wire spool.
			Gun liner is jammed.	Repair or change it, clear wire from liner/clean liner with compressed air.
			Contact Tip is jammed because of slag or burn back.	Clean or replace. If with Aluminum, increase tip size to next size.
5	No arc, or no output voltage		Work clamp engaged in wrong connector.	Change polarity.
			Control circuit damaged.	Check the circuit.
6	Welding stops and warning light is on, Wire continues feeding but no arc		Self-protection has engaged.	Check over-voltage, over-current, over-temperature, lower-voltage and over-temperature. Allow unit to cool if over heated. If an OC, use a shorter wire stick out or smaller diameter wire or reduce power settings with large diameter wires. Check power plug for problems. If easily tripped the Resistor value too low. (Contact Everlast if OC is tripping regularly with normal settings.)
7	Welding Voltage/Current is uncontrollable		Potentiometer damaged.	Repair or Replace it.
			Control board damaged.	Check the circuit.
9	Intermittent Arc/ Wandering arc		Work Clamp is not secure or it is damaged. Too windy/breezy.	Check and/or Work Clamp, change position of clamp and attach direct to the work. Move out of wind.
10	Excessive spatter		Voltage too high too high arc force/ Too high wire speed. Too much torch angle. Wrong size nozzle	Lower voltage or increase wire speed. Check torch angle for less than 15° push or pull. Change arc force settings to reduce spatter. Change nozzle size.
11	Weld sooty or oxidized looking		Poor metal prep, poor gas flow, too much torch angle, wrong gas type, windy or breezy. Plugged nozzle	Thoroughly clean metal, check gas flow and reposition gun so gas flow is not creating turbulence. Move indoors if necessary. Reposition the welder so its fan will not blow on the weld area. Clean nozzle.
12	Bird nesting of the wire around the drive roll		Jammed gun liner, wire too soft (aluminum), gun hose is kinked or coiled too tightly. Too much tension / pressure on wire feeder .	Reduce wire feed tension so that drive will slip if it encounters too much resistance Check Gun and liner and replace if necessary. Straighten cable.
13	Wire feeds irregularly		Wrong drive roller or wrong size drive roller, too little tension on wire, wire in wrong groove.	Check and match wire size to groove size, increase tension on drive rollers. Check to make sure the wire is not riding on the shoulder of the drive roller.
14	Wire burns back and seizes in tip		Wrong contact Tip size or too much burn back time set.	Match tip size for wire diameter. Reduce burn back time. If using with aluminum, use tip designed for aluminum or use one size larger tip than the wire.
15	Nozzle arcs to work piece welding		Nozzle plugged with spatter	Check/clean nozzle and use a nozzle dip.
16	In Stick mode will not arc		Cables not connected, inverter issue	Check connections.
17	In Stick mode, the rod sticks		Arc force control is set too low, arc striking method is poor, wrong polarity, too low of amperage. Wet welding rods or wrong kind.	Check polarity. Increase arc force control. Change arc striking method. Increase amperage. Use fresh welding rods when possible.