

*Eastwood*

DO THE JOB RIGHT.

Part #14100

# TIG 200 DC WELDER

## ASSEMBLY & OPERATING INSTRUCTIONS



TIG Welding is the most controllable, efficient and versatile method of welding many metals including steel, stainless steel and more. Your **Eastwood TIG200 DC Welder** with High-Frequency Inverter Technology is capable of welding thin or heavy gauge steel with precision and ease. The voltage self-sensing circuitry automatically detects a power source range of 110 to 240 volts and delivers from 10 up to 200 Amps DC. The included foot pedal provides the operator with the precise amperage control required when welding. A high frequency start feature guarantees an instant arc strike with no tungsten contamination.

**READ AND UNDERSTAND ALL INSTRUCTIONS AND PRECAUTIONS BEFORE PROCEEDING.**

This unit emits a powerful high voltage and extreme heat which can cause severe burns, dismemberment, electrical shock and death. Eastwood shall not be held liable for consequences due to deliberate or unintentional misuse of this product.

**STATEMENT OF LIMITED WARRANTY**

The Eastwood Company (hereinafter "Eastwood") warrants to the end user (purchaser) of all new welding and cutting equipment (collectively called the "products") that it will be free of defects in workmanship and material. This warranty is void if the equipment has been subjected to improper installation, improper care or abnormal operations.

**WARRANTY PERIOD:**

All warranty periods begin on the date of purchase from Eastwood. Warranty Periods are listed below, along with the products covered during those warranty periods:

**3 Year Warranty on Material, Workmanship, and Defects:**

- Eastwood TIG 200 DC Welder

Items not covered under this warranty: Collets, collet bodies, electrodes, nozzles, and ground clamp and cable. All other components are covered by the warranty and will be repaired or replaced at the discretion of Eastwood.

**2 Years:**

- All Welding Helmets.

**CONDITIONS OF WARRANTY TO OBTAIN WARRANTY COVERAGE:**

Purchaser must first contact Eastwood at 1-800-345-1178 for an RMA# before Eastwood will accept any welder returns. Final determination of warranty on welding and cutting equipment will be made by Eastwood.

**WARRANTY REPAIR:**

If Eastwood confirms the existence of a defect covered under this warranty plan, Eastwood will determine whether repair or replacement is the most suitable option to rectify the defect. At Eastwood's request, the purchaser must return, to Eastwood, any products claimed defective under Eastwood's warranty.

**FREIGHT COSTS:**

The purchaser is responsible for shipment to and from Eastwood.

**WARRANTY LIMITATIONS:**

EASTWOOD WILL NOT ACCEPT RESPONSIBILITY OR LIABILITY FOR REPAIRS UNLESS MADE BY EASTWOOD. EASTWOOD'S LIABILITY UNDER THIS WARRANTY SHALL NOT EXCEED THE COST OF CORRECTING THE DEFECT OF THE EASTWOOD PRODUCT. EASTWOOD WILL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (SUCH AS LOSS OF BUSINESS, ETC.) CAUSED BY THE DEFECT OR THE TIME INVOLVED TO CORRECT THE DEFECT. THIS WRITTEN WARRANTY IS THE ONLY EXPRESS WARRANTY PROVIDED BY EASTWOOD WITH RESPECT TO ITS PRODUCTS. WARRANTIES IMPLIED BY LAW SUCH AS THE WARRANTY OF MERCHANTABILITY ARE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY FOR THE EQUIPMENT INVOLVED. THIS WARRANTY GIVES THE PURCHASER SPECIFIC LEGAL RIGHTS.

THE PURCHASER MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

**SPECIFICATIONS**

Output Amperage Range	Maximum Output No Load Voltage	Input Voltage	Rated Duty Cycle	Pre Gas Flow	Post Gas Flow	Weight	Overall Dimensions
10-200 A DC	50-80 V DC	120 VAC 50-60 Hz /220 VAC 50-60 Hz	60% @ 150 A	0.5 Sec	5 Sec	18 Lbs.	16.9" (430 mm) x 7.3" (185 mm) x 12" (306 mm)

## DUTY CYCLE

The rated Duty cycle refers to the amount of welding that can be done within an amount of time. The Eastwood TIG200 DC has a duty cycle of 60% at 150 Amps. It is easiest to look at your welding time in blocks of 10 Minutes and the Duty Cycle being a percentage of that 10 Minutes. If welding at 150 Amps with a 60% Duty Cycle, within a 10 Minute block of time you can weld for 6 Minutes with 4 Minutes of cooling for the welder. To increase the duty cycle you can turn down the Amperage Output control. Going above 150 Amps will yield a lower duty cycle.

## SAFETY INFORMATION

### **DANGER**

#### FLAMMABILITY HAZARD

- Before beginning, make sure the work surface is cleaned of any oils, coatings or other materials which can ignite and or emit dangerous fumes or vapors.
- Molten metal can be ejected away from the welding area with significant force and speed. Make sure the entire work area is clear from flammable or easily damaged materials or objects.

### **DANGER**

#### HIGH VOLTAGE DANGER

- The unit contains no user serviceable parts!
- Contact with the torch when the button is depressed will result in a serious shock and severe burns!
- This device also produces High-Frequency, Radio-Frequency Emissions which can damage sensitive electronic equipment in the area. Keep all cell-phones, cameras, watches and other electronic equipment at least 6' away from the Power Unit and Torch.
- **IMPORTANT NOTE:** If you have a medical condition or pacemaker check with your doctor before using as the RF emissions may cause interference.

### **DANGER**

#### ELECTRICAL SAFETY DO'S

- **Make sure you, your work area, and your equipment are dry. Avoid welding in high humidity and with excessive perspiration.**
- If you are using an extension cord, make sure it is a grounded cord in sound condition with no damage or frays, and of the correct wire gauge. (220 Volt @ 10 gauge minimum / 110 Volts @ 12 gauge minimum).
- Keep all cords as far away from the welder unit as possible to avoid any possibility of arcing to the internal transformer. This includes the power cord, torch feed cord and ground clamp cord.
- Remove change, watches or other metallic objects from your clothing.
- Sweep up all metal grinding particles and dirt from the floor before beginning welding.
- Use a non-metallic chair.
- To further isolate yourself from ground, position yourself over a rubber mat while welding.
- Ensure that proper sized circuit breakers and wiring are in place prior to use: 20 Amp for 110 Volt operation and 30 Amp for 240 Volt operation. **Single Phase Only.**
- Turn welder off when not in use.

## **⚠ DANGER**

### **ELECTRICAL SAFETY DON'TS**

- **Never bypass the ground plug. Grounding is necessary for proper operation of the unit and reduces shock hazard.**
- **Do not touch the torch tip until after the activation switch is off and the unit is UNPLUGGED.**
- Do not use the unit if any component should become damaged or show signs of excessive wear.
- Never handle the torch and the feed cable, power cord or welder cabinet at the same time. Fatal shock can occur.
- Avoid welding in extreme humidity or while heavily perspired.
- Do not wrap welding cables around your body

## **⚠ DANGER**

### **UV AND IR RAY DANGERS**

The ARC welding process produces Ultra Violet (UV) and Infrared (IR) Rays that can injure your eyes and skin. Do not look at the welding arc without a minimum #10 eye shade and skin protection.

- Always weld with a helmet that covers your entire face and neck.
- Always use a helmet with a lens of Shade 10 or darker.
- Always cover all bare skin with protective clothing. Flame retardant clothing is always the best.
- Never allow anyone around the area you are welding without proper protection.

## **⚠ DANGER**

### **HOT MATERIALS DANGERS**

Materials being welded are very hot and can cause severe burns if handled improperly.

- Do not touch welded materials with your bare hands, use great caution when lifting a piece with gloves. It is best to allow the part to cool completely before handling.
- Do not touch the electrode, electrode holder, or ground clamp with bare hands until it has cooled.

## **⚠ DANGER**

### **HAZARDOUS FUMES AND GASES DANGER**

- Keep your head out of the fumes.
- Use ventilation or an exhaust system to keep the fumes and gasses from your general and breathing area.
- Do not weld painted or plated parts as they can release toxic gases or fumes.

# REQUIRED ITEMS

Before you begin using the Eastwood TIG200 DC, make sure you have the following:

- A properly grounded 110-120 VAC 50/60 Hz. 20 Amp Circuit or a 220-240 VAC 50/60 Hz. 30-50 Amp Circuit.
- **NOTE: Unit must be grounded to work properly and safely!**
- A clean, safe, well-lit, dry and well-ventilated work area.
- A non-flammable, long sleeve shirt or jacket (Eastwood #12762).
- Heavy-Duty Welding Gloves (#12590)
- An Auto Darkening Welding Mask to provide eye protection during welding operations.  
**Note: MUST be a #10 lens or darker.**
- A compressed gas cylinder containing 100% Argon (must be used when TIG welding and is available at any welding supply facility).
- Dedicated stainless steel wire welding brushes for each material to be welded.
- A dedicated fine grit synthetic stone grinding wheel or a Tungsten Sharpener.

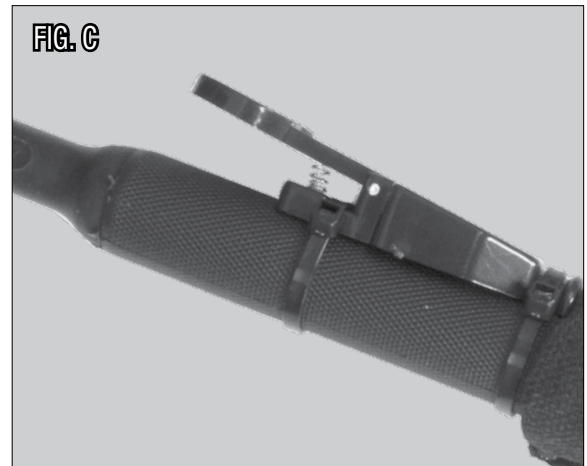
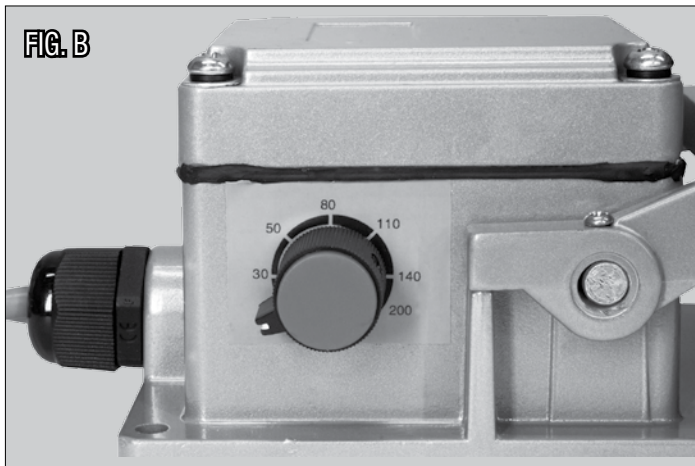
# UNPACKING

Remove all items from the box. Compare with list below to make sure unit is complete.

- Eastwood TIG200 DC Welder with NEMA50-P Plug
- Shielding Gas Regulator
- Shielding Gas Hose
- Ground Cable with Clamp (10')
- #17 TIG Torch (14')
- Foot Pedal for Amperage Control
- 110-120 VAC to 220-240 VAC Adaptor Plug
- Instruction Manual
- Hand Held Shield
- Hammer/Brush
- #7 Cup (7/16")
- #6 Cup (3/8")
- #5 Cup (5/16")
- Long Back Cap
- Short Back Cap
- 3/32" Collet Body
- 3/32" Collet
- 1/16" Collet
- 2.0mm Collet
- 2.0mm Red (Thoriated Tungsten)

# COMPONENTS AND CONTROLS

- 1. Power Switch** – The Power Switch is located at the left of the front panel (Fig A).
- 2. Amperage (Front Panel)** – Set the Output Amperage Knob marked “A” (Fig. A) located at right of the front panel to an appropriate setting based on the thickness and type of the metal being welded. **(Refer to Data Chart for actual settings).**
- 3. Amperage (Foot Pedal) Output** – Same operation as the panel control but is used while the foot pedal is in use (Fig B).
- 4. Gas Flow** – The included regulator limits the shielding gas flow from the bottle and also displays how much gas is left in the bottle. The Gas Flow Indicator Gauge is located on the left side and is generally set between 12 to 20 SCFH. **(Refer to Data Chart for actual settings).** This is explained in further detail in the Preparing to Weld section of this manual. The gauge on the right indicates the pressure left in the tank.
- 5. Foot Pedal/Panel Control** – The Foot Pedal/Panel Control selection switch is located in the center of the front panel and when set in the ‘Foot Pedal’ position, the Foot Pedal control is activated. When set to the ‘Panel Control’ position, the Torch Trigger is activated. (Fig. A)
- 6. Torch Switch** – The switch on the torch (Fig. C) controls starting and stopping the arc. When using the torch switch the Amperage is set on the adjustment knob on the front panel of the welder.
- 7. Foot Pedal** – The foot pedal is for starting and stopping the arc as well as controlling the Amperage during the weld. When using the foot pedal the Amperage is set by the adjustment knob on the side of the foot pedal. (Fig. B)



## DATA CHART (ALSO LOCATED ON TOP OF WELDER)

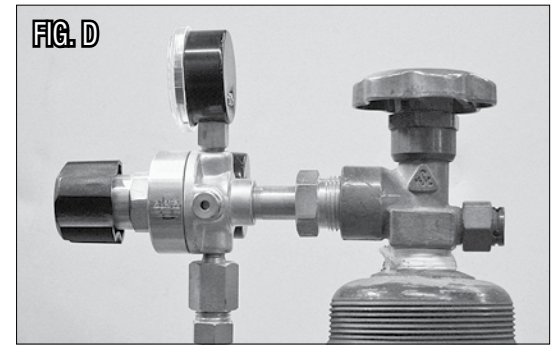
Material	Material Thickness	Polarity	Amperage	Tungsten Color	Tungsten Diameter	Filler Metal	Filler Metal Diameter	Torch Cup Size	Gas Flow Rate (scfh)
Steel	1/16"	DC	45-80	Orange, Red, White	1/16"	ER70S-2	1/16"	1/4-3/8"	12
Steel	3/32"	DC	70-110	Orange, Red, White	1/16"	ER70S-2	1/16"	1/4-3/8"	12
Steel	1/8"	DC	75-125	Orange, Red, White	1/16"	ER70S-2	3/32"	1/4-3/8"	12
Steel	3/16"	DC	110-200	Orange, Red, White	3/32"	ER70S-2	1/8"	1/4-3/8"	14
Stainless Steel	1/16"	DC	50-90	Orange, Red, White	1/16"	ER308/308L	1/16"	1/4-3/8"	12
Stainless Steel	3/32"	DC	80-120	Orange, Red, White	1/16"	ER308/308L	1/16"	1/4-3/8"	12
Stainless Steel	1/8"	DC	85-140	Orange, Red, White	1/16"	ER308/308L	3/32"	1/4-3/8"	12
Stainless Steel	3/16"	DC	125-200	Orange, Red, White	3/32"	ER308/308L	1/8"	1/4-3/8"	14

# SETUP

## SHIELDING GAS CONNECTION

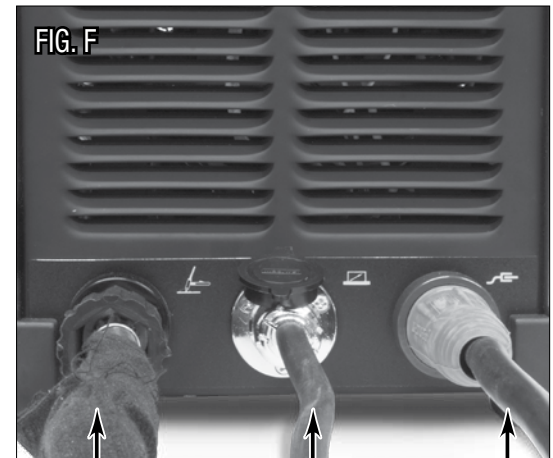
A Shielding Gas Bottle is not included with your Eastwood TIG200 DC but is necessary while TIG welding. A Shielding Gas Bottle can be bought at most local Welding Supply Stores. Eastwood recommends the use of 100% Argon shielding gas when TIG welding Steel and Stainless Steel.

1. Place the Eastwood TIG200 DC in its dedicated area or on a welding cart.
2. Secure your Shielding Gas Bottle to a stationary object or mount to your welding cart if it is equipped to hold one so that the cylinder cannot fall over.
3. Remove the cap from the Shielding Gas Bottle.
4. Insert the large brass male fitting on the Shielding Gas Regulator into the female fitting on the Shielding Gas Bottle. (Fig. D) **NOTE:** Do not use White Teflon Tape on this connection as it is a tapered thread and does not require it, if you have a leak check for burrs or dirt in the threads. If the leak persists, use gas type sealing tape.
5. Tighten the fitting with a wrench till snug, do not over tighten.
6. Connect either end of the Gas Line included with your Eastwood TIG200 DC to the fitting on the regulator and tighten with a wrench until snug.
7. Connect the other end of the gas line to the fitting on the rear of the Eastwood TIG200 DC and tighten with a wrench until snug. (Fig. E)



## TORCH CONNECTION

1. Install the plastic connection cover onto the brass torch fitting on the torch cable.
2. Connect the female brass fitting on the torch cable to the male brass fitting on the welder. (Fig. F)
3. Use a wrench and tighten until snug. **DO NOT OVERTIGHTEN.**
4. Connect the metal plug to the Torch Switch Connection as shown in FIG F. **NOTE:** Omit this step if you will be using the foot pedal for Amperage control



Gas Flow  
Through Power  
Cable

Torch  
Switch/Foot  
Pedal

Ground  
Cable

## GROUND CABLE CONNECTION

1. Locate the Ground Cable and Clamp.
2. The Ground Cable connection is located at the far right of the front panel as shown in FIG F. With the Key on the connector in the 12 O'clock position, insert the connector and turn 180° clockwise to lock the connector in.

## FOOT PEDAL CONNECTION

1. If you are going to be using the switch on the torch to start the welding arc, omit this step.
2. Connect the metal plug on the Foot Pedal to the Switch Connection as shown in FIG F.

# PREPARING TO WELD

## TORCH DISASSEMBLY/ASSEMBLY

### DISASSEMBLY:

1. Make sure the welder is turned off and unplugged.
2. Remove the back cap from the torch.
3. If there is a tungsten installed in the torch pull it out of the front of the torch
4. Slide the collet out of the torch.
5. Unscrew and remove the gas nozzle.
6. Unscrew and remove the collet body.

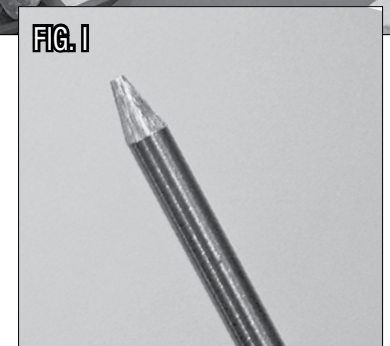
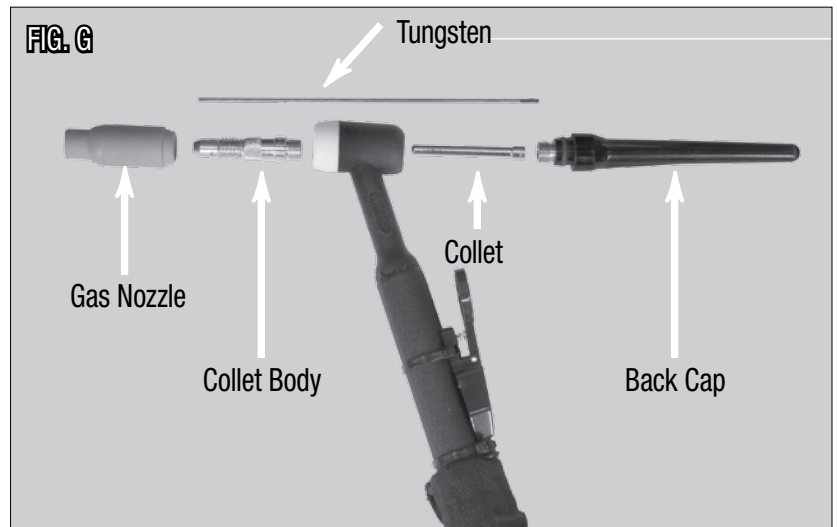
### ASSEMBLY:

1. Select a collet body that matches your tungsten diameter size and thread it back into the front of the torch.
2. Select a collet that matches your tungsten diameter size. Insert the tungsten into the collet and put the collet and tungsten back into the torch.
3. The cup size should be changed according to shielding gas requirements for the material being welded. This size can be referenced on the suggested settings chart. Select the correct gas nozzle and thread it onto the collet body.
4. Reinstall the back cap to lock the tungsten in place. Always make sure the tungsten protrudes 1/8" to 1/4" beyond the gas nozzle.

## SHARPENING THE TUNGSTEN

To avoid contamination of the Tungsten and ultimately the weld, it is imperative to have a dedicated grinding wheel used for Tungsten grinding only. A fine grit standard 6" synthetic stone grinding wheel on a bench top grinder is sufficient or specifically designed Tungsten Grinders are available.

1. Shut off the welder.
2. Make sure the Tungsten and Torch are sufficiently cooled for handling then loosen and remove the Back Cap then the Collet (Fig G) and remove the Tungsten from the FRONT of the Torch only. (Removing from the rear will damage the Collet).
3. If the tungsten is used and the end is contaminated, use pliers or a suitable tool to grip the tungsten above the contaminated section and snap off the end of the Tungsten.
4. Holding the Tungsten tangent to the surface of the grinding wheel, rotate the tungsten while exerting light pressure until a suitable point is formed (Fig H).
5. The ideal tip will have the length of the conical portion of the sharpened area at 2-1/2 times the Tungsten rod diameter (Fig I).
6. Replace the Tungsten in the Collet with the tip extending 1/8"-1/4" beyond the Gas Cup, then re-tighten the Back Cap.





# SETTINGS SELECTION

With the materials selected of which you will be welding you can begin to set up the welder for the specific material.

1. **Foot Pedal / Panel Control** – Determine whether you will be using the switch on the torch or the foot pedal for arc starting and stopping and put the selector switch in the appropriate position. Note that some connections changes will be necessary also when switching the control type. These connection changes are covered in the Set-Up section of this manual.
2. **Amperage** – If welding using the switch on the torch to control the arc, Set the Output Amperage Knob marked “A” (Fig. A) located at upper left of the top panel to an appropriate setting based on the thickness and type of the metal being welded. (Refer to Data Chart for actual settings). If welding using the foot pedal to control the arc, it uses the same operation as the panel control but is adjusted on the side of the foot pedal rather than the front panel. (Fig B).
3. **Power Switch** – Once all of the settings have been selected and the torch assembled and ready to use, the welder can be plugged in and turned on.
4. **Shielding Gas Flow** – Set the Gas Flow Rate to the appropriate value with the Knob located at the left side of the regulator.

## SHIELDING GAS FLOW ADJUSTMENT

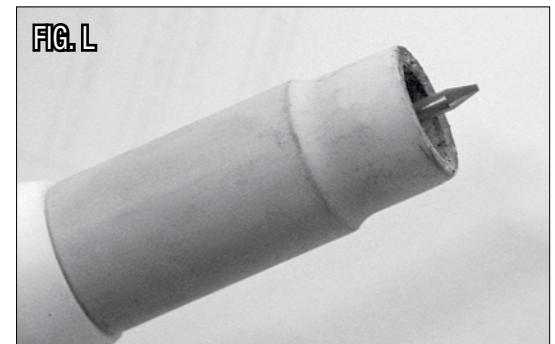
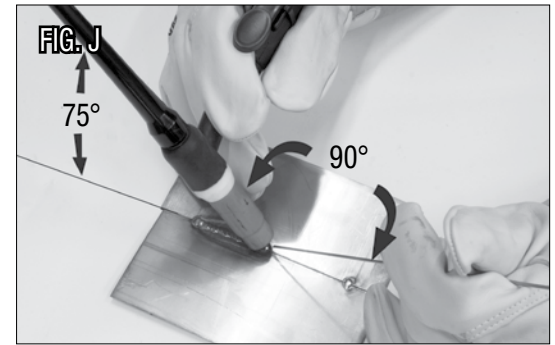
After connecting your Shielding Gas Regulator, the gas flow rate needs to be adjusted so that the proper amount of Shielding Gas is flowing over your weld. If there is too little gas flow there will be porosity in your welds as well as excessive spatter, if there is too much gas flow you will be wasting gas and may affect the weld quality. The included regulator has 2 gauges on it; the gauge on the left is your flow rate while the gauge on your right is your tank pressure.

1. Open your Shielding Gas tank valve all the way.
2. Adjust the knob on the regulator to ~20 CFH.
3. Turn on the welder and trigger the torch switch which will start the gas flow.
4. As you trigger the torch switch you will notice that as the gas flow starts the needle on the gauge drops to a steady reading. The reading while flowing is the value you want to read.
5. The gas flow should be set to 12-20 CFH while flowing. The CFH (Cubic Feet per Hour) scale is the inside scale in red on your flow gauge. 20 CFH is the most typical flow rate but it may need to be adjusted in some cases depending if there is a slight breeze or some other instance where additional shielding gas is required to prevent porosity in the weld.
6. When finished welding remember to close the gas valve on the bottle.

# WELDING

## IMPORTANT NOTE:

These instructions are intended only to provide the user with some familiarity of the Eastwood TIG200 DC. TIG welding is a highly complex procedure with many variables. If you have no experience with TIG welding; it is extremely important to seek the advice of someone experienced in TIG welding for instruction, enroll in a local technical school welding course or study a comprehensive how-to DVD and obtain a good quality reference book on TIG welding as there is a moderate learning curve necessary before achieving proficiency in TIG Welding. Before attempting to use this unit on an actual project or object of value, practice on a similar material as there are many variables present and settings required when TIG welding different metals such as steel and stainless steel. It is also strongly recommended that the user adhere to the American Welding Society guidelines, codes and applications prior to producing welds where safety is affected.



1. Turn the Power Switch to the on position.
2. Slowly open the gas cylinder valve. **NOTE:** Always open valve fully to avoid shielding gas leakage.
3. Depress gun trigger switch or foot pedal and adjust the flow regulator. **(Refer to Data Chart for actual settings).**
4. Grounding is very important, place the Ground Cable Clamp on a clean, bare area of your work piece as close to the welding area as possible to minimize the chance of shock. Scrape, wire brush, file or grind a bare area to achieve a good ground to assure safety.
5. Use a dedicated stainless steel brush or flap-disc to clean the areas to be welded. Do not use the brush or flap-disc for any other purpose.
6. Making sure all your safety gear is in place (Welding Mask, Welding Gloves, non-flammable long sleeve apparel) and the area is completely free of flammable material.
7. Although it is a matter of developing a personal style, a good starting point for best results is achieved by holding the tip at a 75° angle backward and approx. 20° to the right of the weld. Hold the Filler Metal Rod at a 90° angle to the Tungsten Tip (Fig. J). Never allow the Tungsten Tip to touch the welding surface or material rod. Doing so will quickly destroy the tip and contaminate the weld. If this happens, remove the Tungsten and regrind the tip. It is best to hold the tungsten tip 1/8" from the surface.
8. With your Welding Shield and all safety gear in place, depress the foot pedal or trigger and practice "Forming A Puddle" with the Tungsten Tip. Once you become familiar with this step. Practice the "Dip and Pull" technique with the Filler Metal Rod and Torch. "Dip and Pull" is the practice of forming a puddle, moving the torch while maintaining the puddle and adding filler rod metal to the puddle by "dipping and pulling" as you go; being careful not to allow the tungsten to contact the puddle or rod.
9. Keep in mind that you **MUST** let the shielding gas flow over the weld after releasing the trigger or pedal. Failure to do so will allow the welded area to oxidize compromising the weld integrity.
10. Constantly be aware that TIG welding quickly generates heat in the work piece and torch. Severe burns can quickly occur by contacting hot metal pieces.
11. When done, shut off the Power Switch and close the Shielding Gas Tank valve completely.

# TROUBLESHOOTING

<b>Arc is triggered but will not start</b>	Incomplete Circuit	Check Ground connection. Make sure that the ground is on a freshly cleaned surface and close to the welding area. It is suggested to weld towards the ground connection.
	Incorrect Tungsten	Consult chart for proper tungsten for the base metal being welded. In most cases Thoriated will be used for all steels.
	No shielding gas	Make sure the shielding gas cylinder is turned all the way open and set at the correct flow rate.

<b>Arc wanders and it is hard to concentrate heat in a specific area</b>	Poorly prepped tungsten	Follow guidelines for prepping tungsten.
	Poor Gas Flow	Adjust the flow rate of the shielding gas (refer to settings chart). Check for loose fittings where gas could be leaking.
	Contaminated Tungsten	Remove tungsten from torch and break off contaminated section and sharpen.
	Incorrect arc length	Make sure the tungsten is held 1/8 to 1/4 inch off the work piece.
	Incomplete circuit	Check Ground connection. Make sure that the ground is on a freshly cleaned surface and close to the welding area. It is suggested to weld towards the ground connection.
	Contaminated base metal	Clean base metal making sure to remove any oil, debris, coatings, or moisture. If base metal is aluminum make sure all of the oxide is removed using either a dedicated stainless brush or flap wheel.

<b>Porosity in weld bead</b>	Poor Gas Flow	Adjust the flow rate of the shielding gas (refer to settings chart). Check for loose fittings where gas could be leaking.
	Contaminated filler metal	Clean filler metal making sure to remove any oil, debris, or moisture.
	Contaminated base metal	Clean base metal making sure to remove any oil, debris, coatings, or moisture.
	Poor Shielding	Make sure to be in an area with no wind and with any fans turned off. Wind or fans will blow the shielding gas away from the weld causing porosity.
	Incorrect Tungsten Stick Out	Adjust the tungsten so that 1/8 to 1/4 inch is sticking out of the collet.

# TROUBLESHOOTING

<b>Contamination in weld bead</b>	Contaminated Tungsten	Remove tungsten from torch and break off contaminated section and sharpen.
	Contaminated Filler Metal	Clean filler metal making sure to remove any oil, debris, or moisture.
	Contaminated Base Metal	Clean base metal making sure to remove any oil, debris, coatings, or moisture. If base metal is cold rolled steel make sure to remove any mill scale.

<b>Melting Tungsten</b>	Poor Gas Flow	Adjust the flow rate of the shielding gas (refer to settings chart). Check for loose fittings where gas could be leaking.
	Wrong Size Tungsten	Increase tungsten diameter. Refer to chart for proper sizing.
	Incorrect Shielding Gas	Only use 100% Argon when TIG Welding.

<b>Poor Penetration</b>	Low Voltage	Voltage setting is too low for material/thickness. Increase as needed and reference chart on welder.
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<b>Tungsten Contaminated</b>	Contact of Tungsten with Base Metal	Keep tungsten 1/8 to 1/4 inch from the base metal. If tungsten comes in contact break off end and sharpen immediately.
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<b>Poor Weld Appearance</b>	Incorrect positioning	The angle between the filler metal and the torch must be less than 90 degrees otherwise the filler metal will prematurely melt and glob off causing poor weld appearance.
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<b>Crater in the End of the Weld Bead</b>	Insufficient Shielding	Keep the torch on the base metal while the post flow shielding gas flows to protect and cool the metal and tungsten.
	Not Enough Filler Material	Reduce current with pedal and add more filler at end of weld. It may also be beneficial to back step to ensure no crater will form.

<b>Weld Bead is Cracking</b>	Too much heat in material	Reduce heat and allow more time between passes.
	Base Metal is absorbing too much heat	Preheat base metal (consult welding codes for requirements)
	Incorrect Filler Wire	Use appropriate filler wire type and diameter for the joint being welded.

# TROUBLESHOOTING

<b>Material is Warping</b>	Insufficient Clamping	Clamp work piece tightly and weld while clamps are in place.
	Insufficient Tack Welds	Add more tack welds until rigidity and stiffness is developed.
	Too Much Heat in Material	To reduce heat it is best to spread the welding out around the area. This can be done by using stitch welding techniques, alternating sides, and/or taking your time and allowing the pieces to cool between passes.

# NOTES

# NOTES

# ACCESSORIES

## TIG WELDING SUPPLIES:

- **#12253** – ER70S-2 TIG Wire 1/16-36"
- **#12254** – ER70S-2 TIG Wire 3/32-36"
- **#2463** – 308L Stainless TIG Wire 1/16-36"
- **#12464** – 308L Stainless TIG Wire 3/32-36"
- **#12871** – Thoriated Tungsten (Red) 1/16-7" 2pc
- **#12872** – Thoriated Tungsten (Red) 3/32-7" 2pc

## REPLACEMENT ITEMS:

- **#13483** – TIG200 Collet Body (1.6mm; 1/16")
- **#13484** – TIG200 Collet Body (2.4mm; 3/32")
- **#12822** – TIG200 Collet (1.6mm; 1/16")
- **#12824** – TIG200 Collet (2.4mm; 3/32")
- **#12825** – TIG200 Long Back Cap
- **#12819** – TIG200 Gas Nozzle (9.8mm; 3/8")
- **#12821** – TIG200 Gas Nozzle (11.2mm; 1/2")
- **#13953** – TIG Accessory Kit

## OTHER WELDING ACCESSORIES:

- **#11947** – Flap Disc 60 Grit 4.5" Diameter 7/8" Hole
- **#12590** – Welding Gloves Large
- **#12589** – Welding Gloves Medium
- **#13203** – Auto Darkening Welding Helmet
- **#13212** – Large View Auto Darken Welding Helmet
- **#19079S** – Stainless Steel Brush
- **#12762** – L, XL, XXL Welding Jacket
- **#21524** – TIG Welding Basics DVD by Ron Covell
- **#11616** – TIG200 Welding Cart
- **#14106** – Welding Table

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**If you have any questions about the use of this product, please contact**

The Eastwood Technical Assistance Service Department: 800.544.5118 >> email: [techhelp@eastwood.com](mailto:techhelp@eastwood.com)

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