



DO THE JOB RIGHT.®

Item #54500

ELITE MP250i WELDER

ASSEMBLY AND OPERATING INSTRUCTIONS



The **EASTWOOD ELITE MP250i WELDER** provides the ability to MIG, TIG or ARC (Stick) weld all from a single, high-powered, self-contained unit. Inverter Technology provides the capability of welding thin or heavy gauge steel with precision and ease. Designed with two complete and independent MIG and TIG gas systems allows the Welder to be always configured with the proper gas for quick MIG welding or precision TIG welding. The TIG welding capability features advanced High Frequency Start Circuitry and an included Foot Pedal.

For additional versatility and aluminum welding capability, add the optionally available Eastwood #20172 Spool Gun.

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 Eastwood-branded tools and chemicals (collectively called the "products") that each 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 product delivery 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 MIG 135 Welder | • Eastwood TIG 200 DC | • Eastwood MIG 175 Welder | • Eastwood TIG 200 AC/DC |
| • Eastwood MIG 250 Welder | • Eastwood MP140i Welder | • Eastwood TIG 200 Digital | • Eastwood MP200i Welder |
| • Eastwood Versa-Cut 20 | • Eastwood Elite MP250i Welder | • Eastwood Versa-Cut 40 | • Eastwood 90A Flux Core Welder |
| • Eastwood Versa-Cut 60 | • Eastwood ARC 80 Stick Welder | • Eastwood Rotisserie | • Eastwood Contour SCT® |
| • Concours Pro HVLP Paint Gun | | | |

Items not covered under this warranty: Consumables, unless deemed defective, are not covered by the 3-year warranty. Abuse, neglect, and lack of maintenance is not covered under this warranty. All other components are covered by the warranty and will be repaired or replaced at the discretion of Eastwood.

2-Year Warranty on Material, Workmanship and Defects:

- | | | | |
|--|--------------------------------------|--------------------------------------|--------------------------------------|
| • Eastwood Air QST-30/60 Scroll Compressor | • Eastwood 80 Gal. 7.5 HP Compressor | • Eastwood 80 Gal. 5 HP Compressor | • Eastwood 60 Gal. 4.7 HP Compressor |
| • Eastwood 60 Gal. 3.7 HP Compressor | • Eastwood Panoramic Welding Helmet | • Eastwood 30 Gal. 1.9 HP Compressor | • Eastwood XL View Welding Helmet |
| • Eastwood Lg View Welding Helmet | • Eastwood Auto Darkening Helmet | • Concours 2 HVLP Paint Gun | |

Items not covered under this warranty: Consumables, unless deemed defective, are not covered by the 2-year warranty. Abuse, neglect, and lack of maintenance is not covered under this warranty.

1-Year Warranty on Material, Workmanship and Defects:

- | | |
|-------------------------------------|-------------------|
| • Eastwood Tools Not Included Above | • Fairmount Tools |
|-------------------------------------|-------------------|

Items not covered under this warranty: Consumables, unless deemed defective, are not covered by the 1-year warranty. Abuse, neglect, and lack of maintenance is not covered under this warranty.

90-Day Warranty on Material, Workmanship and Defects:

- | | |
|-------------------------------|------------------|
| • Eastwood Paints & Chemicals | • Rockwood Tools |
|-------------------------------|------------------|

Items not covered under this warranty: Consumables, unless deemed defective, are not covered by the 90-day warranty. Abuse, neglect, and lack of maintenance is not covered under this warranty.

Lifetime Warranty on Material, Workmanship and Defects:

- Selected Eastwood Hand Tools carry a Limited Lifetime Warranty

Items not covered under this warranty: Abuse, neglect, and lack of maintenance is not covered under this warranty.

CONDITIONS TO OBTAIN WARRANTY COVERAGE:

- Proof of purchase must be provided for all warranty claims
- Purchaser must first contact Eastwood at 1-800-343-9353 for an RMA Number before Eastwood will accept any warranty 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.

CONTENTS

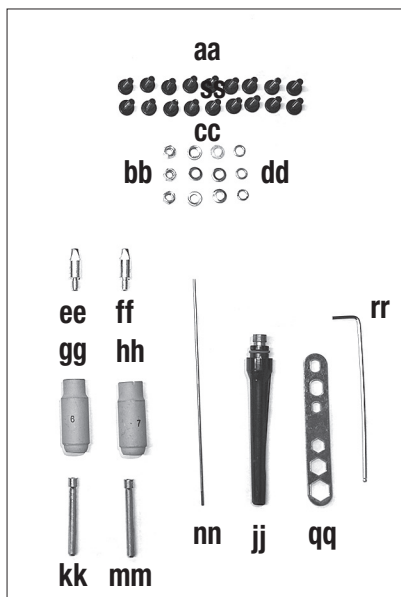
COMPONENTS

- (1) Elite MP250i Welder **[A]**
- (1) Front Caster Assembly **[B]**
- (1) Rear Wheel/Gas Cylinder Tray Assembly **[C]**
- (2) Gas Cylinder Brackets **[D]**
- (2) Gas Cylinder Chains, 36" [0.9m] **[E]**
- (2) Cable/Hose Hangers **[F]**
- (1) Foot Pedal Ass'y, 15.9' [4.85m] Cable **[G]**
- (2) Shielding Gas Hoses, 4.6' [1.4m] **[H]**
- (2) Shielding Gas Regulators **[J]**
- (1) TIG Welding Gun (WP17) with 12' [3.65m] cable **[K]**
- (1) #5 Gas Nozzle (5/16") (installed in TIG Gun)
- (1) Short Black TIG Cap (installed on TIG Gun)
- (1) 3/32" [2.4mm] Collet Body (installed in TIG Gun)
- (1) 3/32" [2.4mm] Collet (installed in TIG Gun)
- (1) MIG Gun (ERG024) with 14.8' [4.5m] Cable **[L]**
- (1) 0.030" [0.8mm] Contact Tip (installed in MIG Gun)
- (1) Ground Clamp with 10' [3m] Cable **[M]**
- (1) Electrode Holder with 10' [3m] Cable **[N]**
- (1) Adapter Cord, 8" [0.2m] **[P]**



HARDWARE/ACCESSORIES

- (15) M5 x 12mm Screws **[aa]**
- (3) M5 Nuts **[bb]**
- (6) M5 Flat Washers **[cc]**
- (3) M5 Lock washers **[dd]**
- (1) Spare 0.030" [0.8mm] MIG Gun Contact Tip **[ee]**
- (1) Spare 0.035" [0.9mm] MIG Gun Contact Tip **[ff]**
- (1) #6 TIG Gun Gas Nozzle (3/8") **[gg]**
- (1) #7 TIG Gun Gas Nozzle (7/16") **[hh]**
- (1) Long Black TIG Gun Cap **[jj]**
- (1) TIG Gun Collet, 1/16" [1.6mm] **[kk]**
- (1) TIG Gun Collet, 5/64" [2.0mm] **[mm]**
- (1) 3/32" x 6" [2.4mm x 150mm] Tungsten (Red) **[nn]**
- (1) MIG Contact Tip Wrench **[qq]**
- (1) 2mm Hex Key **[rr]**



SPECIFICATIONS

POWER SUPPLY

Power Voltage (V)	1 phase 240V±10%	1 phase 120V±10%
Frequency (Hz)	50/60	
No Load Voltage (V)	61	
Rated Input Current (Amps)	MIG = 47.3 TIG = 35.7 Arc = 53.5	MIG = 42 TIG = 31.2 Arc = 51.1
Output Current Adjustment (Amps)	MIG = 50-250 TIG = 15-250 Arc = 25-250	MIG = 50-140 TIG = 15-140 Arc = 25-140
Output Voltage (V)	MIG = 16.5-26.5 TIG = 10.6-20 Arc = 21-30	MIG = 16.5-21 TIG = 10.6-15.6 Arc = 21-25.6
Duty Cycle (%)	60% @ 250 Amps	60% @ 140 Amps
Power Factor	0.73	
Efficiency (%)	80	
Wire Feed Speed (ft/min)	78-629	
Post Flow Time (seconds)	1.0 ± 0.5	

MIG WELDING WIRE

Type	Solid	Stainless	Flux Core
Diameter	0.030-0.045" [0.8-1.2mm]	0.030-0.045" [0.8-1.2mm]	0.030-0.045" [0.8-1.2mm]

SPOOL GUN (OPTIONAL) WELDING WIRE

Type	4043 Aluminum
Diameter	0.030-0.035" [0.8-0.9mm]

ARC WELDING RODS

Type	E6010	E6011	E6013	E7014	E7018
Diameter	1/16", 3/32", 1/8", 7/32"	1/16", 3/32", 1/8", 7/32"	1/16", 3/32", 1/8", 7/32"	1/16", 3/32", 1/8", 7/32"	1/16", 3/32", 1/8", 7/32"
Polarity	DCEN	DCEN	DCEN, DCEP	DCEN, DCEP	DCEP

DUTY CYCLE

The rated Duty cycle refers to the amount of welding that can be done within an amount of time. The Eastwood Elite MP250i has a duty cycle of 60% at 250 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 250 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.

If the Duty Cycle is exceeded, the Welder will automatically shut off, however the fan will continue running to cool the overheated components.

When a safe temperature has been reached, the Welder will automatically switch the Welder output back on. To increase the duty cycle you can turn down the Voltage Output control.

SAFETY INFORMATION

IMPORTANT NOTE:

These instructions are intended only to provide the user with some familiarity of the Eastwood Elite MP250i. Electric Welding is a highly complex procedure with many variables. If you have no prior experience with Electric Welding, it is extremely important to seek the advice of someone experienced in Electric Welding for instruction, enroll in a local technical school welding course or study a comprehensive how-to video and obtain a good quality reference book on Electric Welding as there is a moderate learning curve necessary before achieving proficiency in Welding different metals such as steel, stainless steel and aluminum. 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.

Welding can be dangerous to you and other persons in the work area. Read and understand this instruction manual before using your Eastwood welding machine. Injury or death can occur if safe welding practices are not followed. Safety information is set forth below and throughout this manual. Save these instructions for future reference.

To learn more about welding safety, read OSHA Title 29 CFR 1910, available at www.osha.gov; ANSI Z49.1, "Safety in Welding, Cutting and Allied Processes" available at www.aws.org; and the consumable manufacturer's Safety Data Sheets.

The following explanations are displayed in this manual, on the labeling, and on all other information provided with this product:

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.



DANGER ELECTRIC SHOCK CAN CAUSE INJURY OR DEATH!

- Improper use of an electric Welder can cause electric shock, injury and death! Read all precautions described in the Welder Manual to reduce the possibility of electric shock.
- Disconnect Welder from power supply before assembly, disassembly or maintenance of the torch, contact tip and when installing or removing nozzles.
- Always wear dry, protective clothing and leather welding gloves and insulated footwear. Use suitable clothing made from durable flame-resistant material to protect your skin.
- If other persons or pets are in the area of welding, use welding screens to protect bystanders from sparks.
- Always operate the Welder in a clean, dry, well ventilated area. Do not operate the Welder in humid, wet, rainy or poorly ventilated areas.
- The electrode and work (or ground) circuits are electrically "hot" when the Welder is on. Do not allow these "hot" parts to come in contact with your bare skin or wet clothing.
- Separate yourself from the welding circuit by using insulating mats to prevent contact from the work surface.
- Be sure that the work piece is properly supported and grounded prior to beginning an electric welding operation.
- Always attach the Ground Clamp to the piece to be welded and as close to the weld area as possible. This will give the least resistance and best weld.



DANGER WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION!

- Electric welding produces sparks which can be discharged considerable distances at high velocity igniting flammable or exploding vapors and materials.
DO NOT operate electric arc Welder in areas where flammable or explosive vapors are present.
DO NOT use near combustible surfaces. Remove all flammable items from the work area where welding sparks can reach (minimum of 35 feet).
- Always keep a fire extinguisher nearby while welding.
- Use welding blankets to protect painted and or flammable surfaces; rubber weather-stripping, dash boards, engines, etc.

SAFETY INFORMATION



⚠ WARNING ELECTROMAGNETIC FIELDS CAN BE A HEALTH HAZARD!

- The electromagnetic field that is generated during arc welding may interfere with various electrical and electronic devices such as cardiac pacemakers. Anyone using such devices should consult with their physician prior to performing any electric welding operations.
- Exposure to electromagnetic fields while welding may have other health effects which are not known.



⚠ WARNING ARC RAYS CAN INJURE EYES AND BURN!

- Arc rays produce intense ultraviolet radiation which can burn exposed skin and cause eye damage. Use a shield with the proper filter (a minimum of #11) to protect your eyes from sparks and the rays of the arc when welding or when observing open arc welding (see ANSI Z49.1 and Z87.1 for safety standards).
- Use suitable clothing made from durable flame-resistant material to protect your skin.
- If other persons or pets are in the area of welding, use welding screens to protect bystanders from sparks and arc rays.



⚠ WARNING FUMES AND WELDING GASES CAN BE A HEALTH HAZARD!

- Fumes and gasses released during welding are hazardous. Do not breathe fumes that are produced by the welding operation.
- Prolonged inhalation of welding fumes above safety exposure limits can injure the lungs and other organs.
- Use enough ventilation and/or exhaust at the arc to keep fumes and gases from your breathing area.
- Use an OSHA approved respirator when welding in confined spaces or where there is inadequate ventilation.
- Never weld coated materials including but not limited to: cadmium plated, galvanized, lead based paints.



⚠ WARNING BUILDUP OF GAS CAN INJURE OR KILL!

- Shut off gas supply when not in use.
- Ensure adequate ventilation
- Do not weld in confined areas.
- Always turn your face away from valve outlet when opening cylinder valve.



⚠ WARNING CYLINDERS CAN EXPLODE IF DAMAGED!

Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. As gas cylinders are a normal component of the welding process, use extra care to handle them carefully.

- Protect compressed gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, sparks and arcs. Keep away from any welding or other electrical circuits.
- Install cylinders in an upright position by securing to a specifically designed rack, cart or stationary support to prevent falling or tipping over.
- Never weld on a pressurized cylinder or explosion will occur.
- Use only correct shielding gas cylinders, regulators, hoses and fittings designed for the specific application; maintain them and all related components in good condition.
- Keep protective cap in place over valve except when cylinder is in use.
- Use proper equipment, procedures and have adequate help when moving or lifting cylinders.

SAFETY INFORMATION



⚠ CAUTION HOT METAL AND TOOLS WILL BURN!!

- Electric welding heats metal and tools to temperatures that will cause severe burns!
- Use protective, heat resistant gloves and clothing when using Eastwood or any other welding equipment. Never touch welded work surface, torch tip or nozzle until they have completely cooled.



⚠ CAUTION FLYING METAL CHIPS CAN CAUSE INJURY!

- Grinding and sanding will eject metal chips, dust, debris and sparks at high velocity. To prevent eye injury wear approved safety glasses.
- Wear an OSHA-approved respirator when grinding or sanding.
- Read all manuals included with specific grinders, sanders or other power tools used before and after the welding process. Be aware of all power tool safety warnings.



⚠ NOTICE FIRST AID

- If exposed to excessive fumes move to an area with fresh air. Follow safety information on manufacturer's Safety Data Sheet.
- For other injuries follow basic first aid techniques and call a physician or emergency medical personnel.

CONNECTING THE WELDER TO A POWER SOURCE

The Eastwood Elite MP250i Welder has dual current capability and requires a dedicated 120 VAC, 20 Amp or a 240 VAC, 50 Amp, 60HZ grounded outlet protected by a circuit breaker. The plug installed on the Welder is a NEMA 6-50P and should be used with a NEMA 6-50R receptacle. If using an extension cord, use a minimum 6 AWG cord for up to 25 feet.

ASSEMBLY

FRONT WHEELS

- Pull Welder [A] from packaging, lift front end and support it securely.
- Using three M5 Nuts [bb] and Washers [cc], located over studs and attach the Front Caster Assembly [B] to the underside of the cabinet (FIG 1).

REAR WHEELS

- Lift and support rear end of Welder [A].
- Use nine M5 x12 Screws [aa] and washers [cc]; five at the underside (FIG 2), four at the rear (FIG 3) to attach the Rear Wheel/Tray Assembly [C] to the underside and rear of the cabinet.

GAS CYLINDER BRACKETS

- With flanges facing downward, attach the two Gas Cylinder Brackets [D] to the rear of the cabinet with three M5 x 12mm screws [aa] for each bracket (FIG 4).

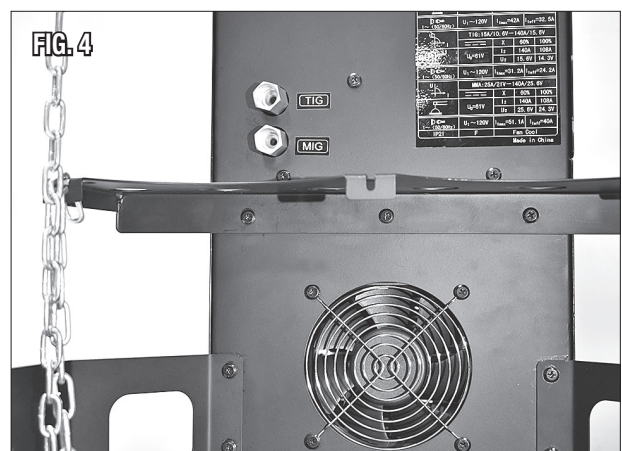
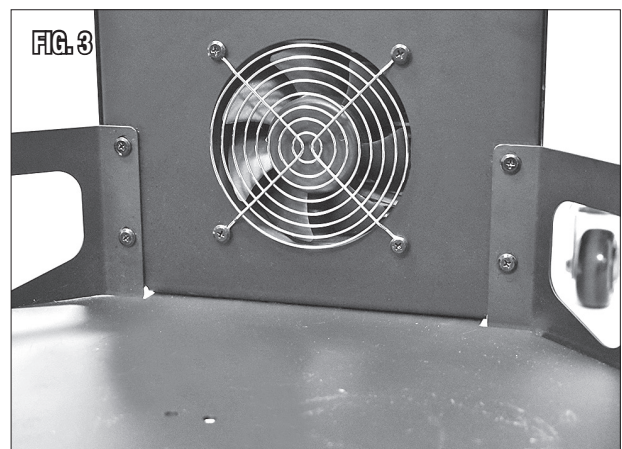
GAS CYLINDER CHAINS

- Hook ends of the two Gas Cylinder Chains [E] into the slots on the outer corners of the Gas Cylinder Brackets (FIG 4).

INSTALLING CABLE/HOSE HANGERS TO THE CABINET

Two included Cable/Hose Hangers [F] are optional and may be added to the cabinet if desired. To do so:

- Remove four existing M5 screws from the upper right side of the Welder Cabinet [A] and set aside for re-use.
- Locate the Cable/Hose Hangers with the offset up and outward and secure with the previously removed M5 Screws. **NOTE:** Upper Front Screw is longer.

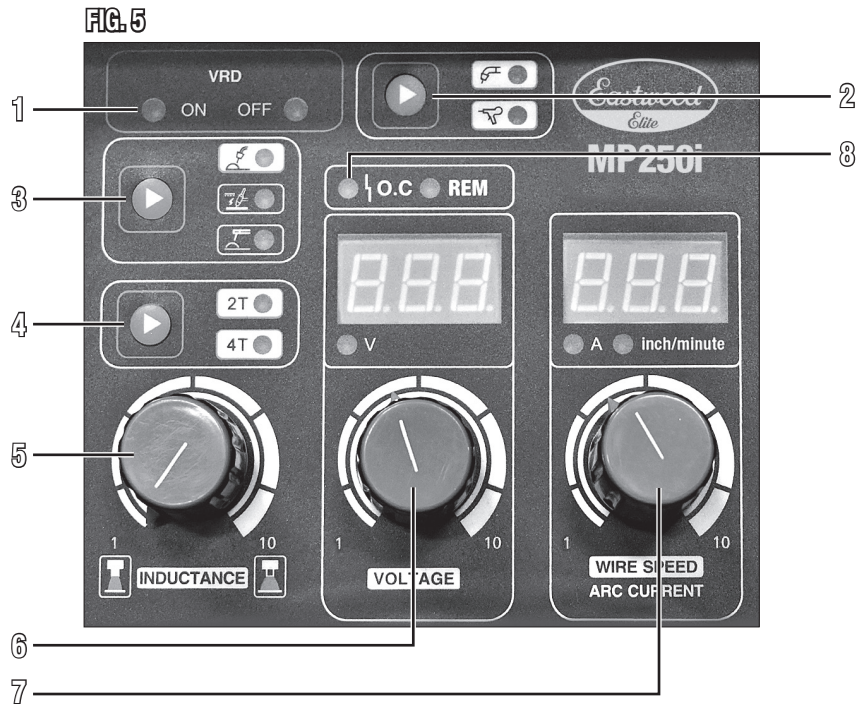


CONTROL AND DISPLAY PANEL

The Eastwood Elite MP250i Front Panel is arranged with 8 major groups of Function Controls and LED Indicators.

(FIG 5) They are as follows:

1. VRD Switch
2. MIG Torch/Spool Gun
3. MIG / TIG/ ARC (Stick)
4. 2T/4T Switch
5. Inductance
6. Voltage
7. Wire Speed / Arc Current (Multi-Function)
8. Overload Condition Indicator
9. Remote Foot Pedal Indicator



1. **VRD INDICATOR:** VRD = voltage reducing device. This function drops voltage when not welding to help prevent potential ARC start or shock when replacing an electrode. Normal output is 60v, while VRD drops the no-load voltage to roughly 24v.
 - In Stick Mode, set current to 108A, press and hold 2T/4T Selector Button to turn ON/OFF
2. **MIG TORCH/SPOOL GUN SWITCH:** (MIG/TIG/ARC Switch Must be in MIG mode). Select for Wire Feed Torch or optional Spool Gun (not included).
3. **MIG/TIG/ARC (STICK) SWITCH:** Used to select between MIG, TIG or ARC (Stick) welding functionality.
4. **2T / 4T 2T/4T SWITCH:**

2T: For 2-step operation of short welding.

 - Depress trigger and hold in. Pre-flow begins if selected. Arc begins at selected start-amps and amperage increases at slope-up setting. If slope-up and pre-flow settings are zero, the arc begins immediately at full set amperage.
 - To end arc, release trigger and amperage will slope-down at rate selected. If slope-down is zero, the arc will stop as soon as trigger is released. Post-flow always occurs and extends for as long as pre-selected.

4T: For 4-step operation of long welding.

 - Depress trigger and hold in. Pre-flow begins if selected. Amps rise only to initial amp setting and allows you to make final adjustments before delivering main amperage setting.
 - Releasing trigger causes main amperage to slope-up to set value. If slope-up is set to zero, amps raise to main value instantly. Zero slope-up is best for thicker metal and clear anodized aluminum.
 - Depress trigger once again and hold to complete weld. Amperage will decrease according to set slope-down value and will hold at your set end amps value until trigger is released.
 - Releasing trigger at this point will stop arc however post-flow shielding gas continues for as long as determined by the preset interval.
5. **INDUCTANCE SETTING KNOB:** The inductance setting controls the rate of current rise following the short-circuit state. That is during the time when the wire is short circuiting into the weld puddle. This setting affects the arc time too. That is the amount of time the short circuit cycle spends arcing and providing heat to the puddle. A high inductance setting increases the time of each individual arc cycle and therefore can improve wetting of the puddle. This produces a "softer" puddle which is excellent for smooth fillet welds. A low inductance increases the frequency of each short circuit/arc cycle and can be useful for pinpointing a narrow bead in some joints. Offers greater penetration however it will produce more spatter.
6. **VOLTAGE CONTROL KNOB:** Controls the voltage output range for MIG; 15 to 30 Volts. Voltage value is indicated by the digital LED display.
7. **WIRE SPEED / ARC CONTROL KNOB:** Dual Function Control and Display

Press "A" Button to select Arc Current. The Knob controls the Amperage output while the Digital LED displays the Amperage value. Current Range; 15 to 250 AMPS. The Knob controls the Wire Speed when MIG welding while the Digital LED displays the Wire Speed value. Speed range; 78 in/min to 627 in/min.
8. **OVERLOAD INDICATOR:** Illuminates GREEN when Duty Cycle has been exceeded, the Welder is overloaded or if other abnormalities exist.
9. **REM INDICATOR:** Illuminates when the remote Foot Pedal control is connected and activated.

Elite MP250i Welding Guide

Should the instruction manual for this tool become lost or unavailable, contact Eastwood Tech @ 1-800-343-9353 and request document #54500Q

Welding Parameters									
Material	Wire Type	Polarity	Shielding Gas	Wire Size	24ga .022"	22ga .025"	20ga .035"	18ga .045"	16ga .075"
MIG	Steel	Solid Wire ER70S-6	DCEN	0.022" (0.6mm)	15120	157160	16215	20360	--
				0.030" (0.8mm)	--	--	16170	20360	22215
				0.035" (0.9mm)	--	--	16170	19170	22060
				0.045" (1.2mm)	--	--	--	19125	19170
				0.050" (1.3mm)	--	--	--	17170	19170
	Stainless Steel	C25 (75% Ar / 25% CO2) ER 308L	DCEN	0.022" (0.6mm)	--	--	29350	22395	24440
				0.030" (0.8mm)	--	--	--	22215	22260
				0.035" (0.9mm)	--	--	--	22215	24260
				0.045" (1.2mm)	--	--	--	--	24260
				0.050" (1.3mm)	--	--	--	--	24260
TIG	Stainless Steel, Steel, Chromoly	C25 (75% Ar / 25% CO2) ER 308L	DCEN	0.022" (0.6mm)	--	--	29350	22395	24440
				0.030" (0.8mm)	--	--	--	22215	22260
				0.035" (0.9mm)	--	--	--	22215	24260
				0.045" (1.2mm)	--	--	--	--	24260
				0.050" (1.3mm)	--	--	--	--	24260
	Aluminum	Solid Wire 4043 R	DCEN	0.022" (0.6mm)	--	--	--	18350	22440
				0.030" (0.8mm)	--	--	--	18350	22440
				0.035" (0.9mm)	--	--	--	18350	22440
				0.045" (1.2mm)	--	--	--	--	24485
				0.050" (1.3mm)	--	--	--	--	24485
ARC	Stainless Steel, Steel	6010, 6013, 7018	DCEN	0.022" (0.6mm)	--	--	--	--	--
				0.030" (0.8mm)	--	--	--	--	--
				0.035" (0.9mm)	--	--	--	--	--
				0.045" (1.2mm)	--	--	--	--	--
				0.050" (1.3mm)	--	--	--	--	--
	Acidic Electrode	3/16" (5mm)	DCEN	0.022" (0.6mm)	--	--	--	--	--
				0.030" (0.8mm)	--	--	--	--	--
				0.035" (0.9mm)	--	--	--	--	--
				0.045" (1.2mm)	--	--	--	--	--
				0.050" (1.3mm)	--	--	--	--	--

MIG Gun Consumables

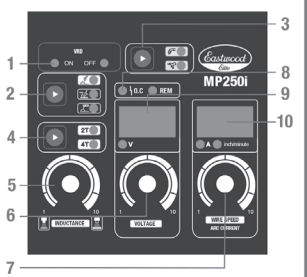
Wire Diameter	Welding Current	Nozzle Distance	Gas Flow Rate(CO2)	Gas Flow Rate(Ar)
0.022"	30-50	1/4" - 5/16"	16-21	13-19
0.6mm	100-130	5/16" - 3/8"	21-30	16-21
0.030"	50-100	5/16" - 3/8"	17-25	13-19
0.8mm	100-160	3/8" - 1/2"	25-30	19-25
0.035"	70-100	3/8" - 1/2"	25-30	16-21
0.9mm	100-250	1/2" - 5/8"	30-40	21-32

TIG Torch Consumables

Tungsten Diameter	Welding Current	Distance between Tungs and Workpiece	Gas Flow Rate(Ar)
1/16"	10-50	1/8"	12
1.6mm	50-100	3/16"	14
3/32"	30-80	1/8"	12
2.4mm	80-180	1/4"	16
1/8"	30-100	1/8"	14
3.2mm	100-250	1/4"	18

Welding Description

MIG Welding	For material thickness greater than 1/4", adopting a grooved weld is preferred. Use a multi-pass welding process will insure proper penetration. For solid wire use DCSP and shielding gas. For flux core welding, use DCEN. Shielding gas is not needed for flux core welding but can be used.
TIG Welding	For material thickness greater than 5/32", adopting a grooved weld is preferred. Use a multi-pass welding process will insure proper penetration. DC is suitable for welding carbon steel and stainless steel. AC is suitable for aluminum and aluminum alloy and other non-ferrous metals.
ARC Welding	For material thickness greater than 1/4", adopting a grooved weld is preferred. Use a multi-pass welding process will insure proper penetration. When using acidic electrodes, DCSP and DCEN can be used. Alkaline electrodes use DCEN and cellulosic electrodes use DCSP.



Front Panel Instruction

- VRD Indicator: In Stick Mode, set current to 108A, press and hold 2T/4T Selector Button to turn ON/OFF
- MIG/TIG/ARC Selector Button
- MIG Torch/Spool Gun Selector Button
- 2T/4T Selector Button
- Current/Wire Speed Adjustment Knob
- Inductance Adjustment Knob
- Current/Wire Speed Adjustment Knob
- Overload Condition Indicator
- Voltage Meter
- Current/Wire Speed Meter

FIG. 6

SET UP AND OPERATION FOR MIG WELDING

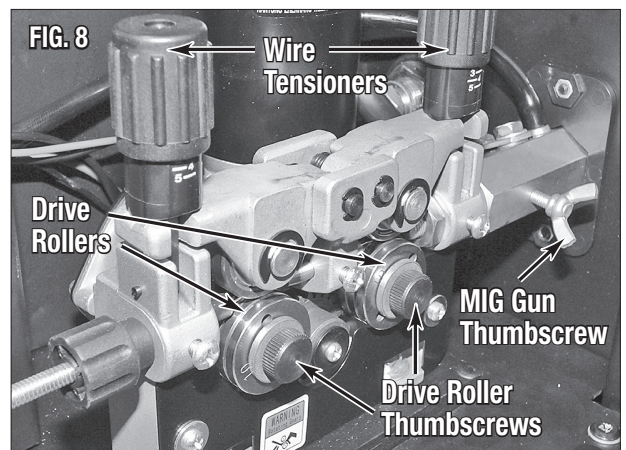
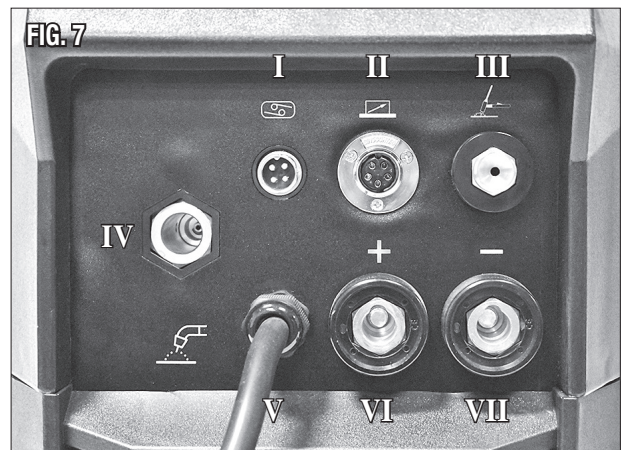
FRONT LOWER PANEL (FIG 7)

- MIG Gun Trigger Wire Connection
- TIG Trigger and Foot Pedal Connection
- TIG Torch Power/Gas Connection
- MIG Gun Power/Gas/Wire Feed Socket
- Polarity Jumper Lead
- Positive Connection
- Negative Connection

SET UP FOR MIG WELDING

Installing the MIG Welding Gun

- Open the side door of the Welder and loosen the Welding Gun Thumb Screw (FIG 8).
- Slide the brass body of the Welding Gun in through the front of the Welder into the Welding Gun Power Connection located at the lower front panel "IV". (FIG 7). Be sure to insert until it bottoms against the drive assembly or a gas leak may occur.
- Tighten the Welding Gun Torch Tensioner securely.
- Connect the male metal plug to the MIG Gun Trigger Wire Connection "I" on the front of the Welder. (FIG 7).
- Switch the "MIG/TIG/ARC" Selector Button located on the Front Panel to the MIG Position and switch "MIG Torch/Spool Gun" Switch to "MIG Torch".



INSTALLING THE GROUND CABLE AND CLAMP FOR SOLID WIRE MIG WITH SHIELDING GAS

MIG (DCEP) (FIG MIG DCEP)

- Locate the Ground Clamp with Cable and connect the plug on the cable end into the (-) Negative Connection “VII” on the Front Panel of the Welder. To connect the plug, line up the key on the plug with the keyway on the socket of the Welder, insert the plug and twist Clockwise until it is tight (**FIG MIG DCEP**).
- Attach the MIG Torch connector to the MIG Gun Power/Gas/Wire Feed Socket “IV” on the Lower Left Front Panel. To connect the plug, line up the key on the plug with the keyway on the socket of the Welder, insert the plug and twist Clockwise until it is tight.
- Install the Polarity Jumper Lead “V” into the (+) Positive Connection “VI” by inserting the keyed brass connector and rotating to lock in place (**FIG MIG DCEP**).

CHANGING THE POLARITY

To use a Flux Cored wire, the Polarity must be changed to the DCEN configuration:

⚠ DANGER ELECTRIC SHOCK CAN CAUSE INJURY OR DEATH!
Disconnect Welder from power supply before beginning.

FLUX-CORED MIG (DCEN) (FIG FLUX DCEN)

- Remove the Ground Clamp Cable connection from the lower Front Panel by rotating and pulling out.
- Install the Ground Clamp Cable connector by inserting the keyed brass connector into the (+) Positive Connection “VI” and rotating to lock in place (**FIG FLUX DCEN**). Install the Polarity Jumper Lead “V” into the (-) Negative Connection “VII” by inserting the keyed brass connector and rotating to lock in place (**FIG FLUX DCEN**).

INSTALLING THE SHIELDING GAS SUPPLIES

⚠ WARNING BUILDUP OF GAS CAN INJURE OR KILL!

- Shut off gas supply when not in use.
- Ensure adequate ventilation
- Do not weld in confined areas.
- Always turn your face away from valve outlet when opening cylinder valve.

⚠ WARNING CYLINDERS CAN EXPLODE IF DAMAGED!

Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. As gas cylinders are a normal component of the welding process, use extra care to handle them carefully.

- Protect compressed gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, sparks and arcs. Keep away from any welding or other electrical circuits.
- Install cylinders in an upright position by securing to a specifically designed rack, cart or stationary support to prevent falling or tipping over.
- Never weld on a pressurized cylinder or explosion will occur.
- Use only correct shielding gas cylinders, regulators, hoses and fittings designed for the specific application; maintain them and all related components in good condition.
- Keep protective cap in place over valve except when cylinder is in use.
- Use proper equipment, procedures and have adequate help when moving or lifting cylinders.

FIG.
MIG DCEP

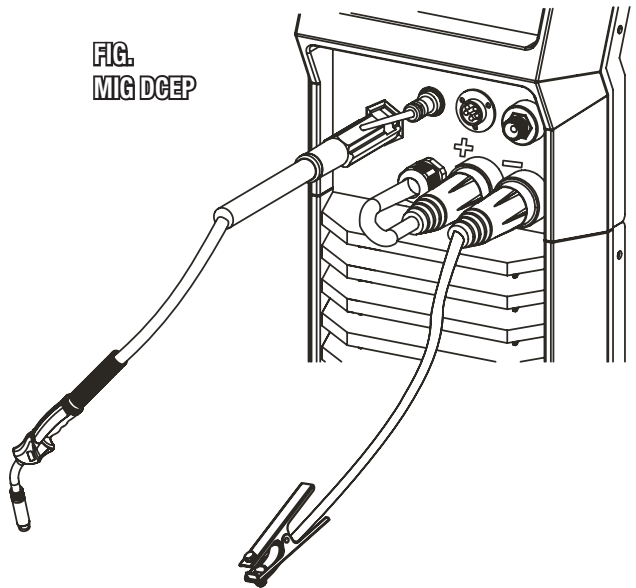


FIG.
FLUX DCEN

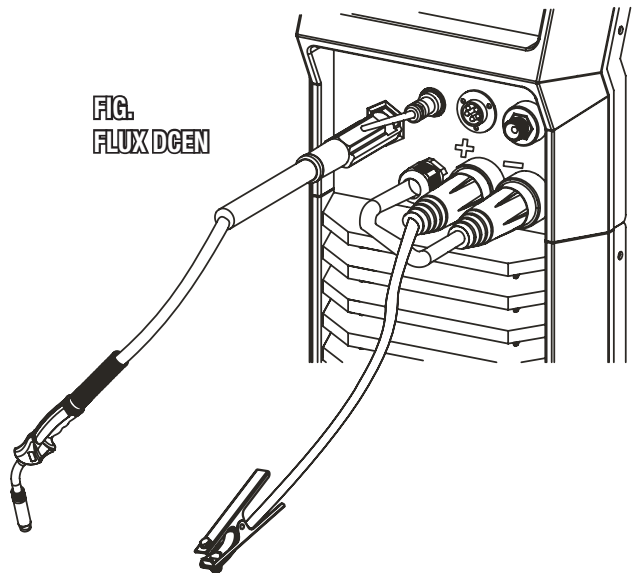


FIG. 9

AC120/240V
50/60Hz

ON
OFF

TIG
MIG

Mode	MP2501	NO.
MIG	MIG: 50A/16.5V-250A/26.5V	
Wire feed	U ₁ =61V	X 60% 100% I ₂ 250A 194A U ₂ 28.5V 23.7V
TIG	TIG: 15A/10.6V-250A/20V	
Wire feed	U ₁ =240V	I _{max} =47.3A I _{ref} =36.6A
MMA	MMA: 25A/21V-250A/20V	
Wire feed	U ₁ =240V	I _{max} =35.7A I _{ref} =28A
MIG	MIG: 50A/16.5V-140A/21V	
Wire feed	U ₁ =61V	X 60% 100% I ₂ 140A 108A U ₂ 21V 19.4V
TIG	TIG: 15A/10.6V-140A/15.6V	
Wire feed	U ₁ =120V	I _{max} =42A I _{ref} =32.5A
MMA	MMA: 25A/21V-140A/25.6V	
Wire feed	U ₁ =120V	I _{max} =31.2A I _{ref} =24.2A
MIG	MIG: 50A/16.5V-140A/25.6V	
Wire feed	U ₁ =61V	X 60% 100% I ₂ 140A 108A U ₂ 15.9V 14.3V
TIG	TIG: 15A/10.6V-140A/15.6V	
Wire feed	U ₁ =120V	I _{max} =31.1A I _{ref} =24.2A
MMA	MMA: 25A/21V-140A/25.6V	
Wire feed	U ₁ =120V	I _{max} =31.1A I _{ref} =24.2A
Fan	F	Fan Cool

IP21

Made in China

-

THREADING WIRE THROUGH THE DRIVE MOTOR TO THE WELDING GUN

DANGER ELECTRIC SHOCK CAN CAUSE INJURY OR DEATH!

- Disconnect Welder from power supply before beginning.

This Welder uses wire sizes ranging from 0.030" to 0.045" (0.8mm to 1.2mm). To install the welding wire follow the procedure outlined below:

1. Turn the power switch on the Upper rear Panel to the off position and unplug the Welder from the power supply.
2. Set the process selector button on the Front Panel to "MIG".
3. Remove the Contact Tip and Nozzle from the end of the MIG Torch.
4. Unlock the Pressure Adjusters and raise the Tension Arms (**FIG 10**).
5. Pull out a length of welding wire from the wire spool carefully. **IMPORTANT NOTE:** Do not let go of the wire or the entire spool could unravel.
6. Cut off the small piece of the curved segment at the front of welding wire and straighten the welding wire approximately 3.0" long.
7. Thread the welding wire through the Wire Inlet Tube and over the wire Drive Rollers and into the Torch Hole (**FIG 10**).
8. Swing the Tension Arms back into place and reset the Pressure Adjusters (note and record the tension level numbers indicated for future reference).
9. Connect the Welder to a power supply and turn on the machine. Set the wire speed to about "5".
10. With the gun pointed away from you and others, depress the trigger to begin feeding wire. The Red, Quick Feed button located at the Upper Interior Panel may also be used (**FIG 10**). **NOTE:** Watch the drive roller to see if any slipping is occurring between the roller and the wire- if so turn the machine off, unplug it and tighten the Pressure Adjusters 1/4 turn and test again.
11. Once the wire exits the end of the torch, reinstall the contact tip and nozzle. Cut the wire about 1/4" from the end of the contact tip.

MIG WELDING OPERATION

DANGER ELECTRIC SHOCK CAN CAUSE INJURY OR DEATH!

- Improper use of an electric Welder can cause electric shock, injury and death! Read all precautions described in the Welder Manual to reduce the possibility of electric shock.
- Disconnect Welder from power supply before assembly, disassembly or maintenance of the torch, contact tip and when installing or removing nozzles.
- Always wear dry, protective clothing and leather welding gloves and insulated footwear. Use suitable clothing made from durable flame-resistant material to protect your skin.
- If other persons or pets are in the area of welding, use welding screens to protect bystanders from sparks.
- Always operate the Welder in a clean, dry, well ventilated area. Do not operate the Welder in humid, wet, rainy or poorly ventilated areas.
- The electrode and work (or ground) circuits are electrically "hot" when the Welder is on. Do not allow these "hot" parts to come in contact with your bare skin or wet clothing.
- Separate yourself from the welding circuit by using insulating mats to prevent contact from the work surface.
- Be sure that the work piece is properly supported and grounded prior to beginning an electric welding operation.
- Always attach the ground clamp to the piece to be welded and as close to the weld area as possible. This will give the least resistance and best weld.

DANGER WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION!

- Electric welding produces sparks which can be discharged considerable distances at high velocity igniting flammable or exploding vapors and materials.
- Do not operate electric arc Welder in areas where flammable or explosive vapors are present.
- Do not use near combustible surfaces. Remove all flammable items within 35 feet of the welding area.
- Always keep a fire extinguisher nearby while welding.
- Use welding blankets to protect painted and or flammable surfaces; rubber weather-stripping, dash boards, engines, etc.
- Ensure power supply has properly rated wiring to handle power usage.

⚠ WARNING ELECTROMAGNETIC FIELDS CAN BE A HEALTH HAZARD!

- The electromagnetic field that is generated during arc welding may interfere with various electrical and electronic devices such as cardiac pacemakers. Anyone using such devices should consult with their physician prior to performing any electric welding operations.
- Exposure to electromagnetic fields while welding may have other health effects which are not known.

⚠ WARNING ARC RAYS CAN BURN!

- Arc rays produce intense ultraviolet radiation which can burn exposed skin and cause eye damage. Use a shield with the proper filter (a minimum of #11) to protect your eyes from sparks and the rays of the arc when welding or when observing open arc welding (see ANSI Z49.1 and Z87.1 for safety standards).
- Use suitable clothing made from durable flame-resistant material to protect your skin.
- If other persons or pets are in the area of welding, use welding screens to protect bystanders from sparks and arc rays.

⚠ WARNING FUMES AND WELDING GASES CAN BE A HEALTH HAZARD!

- Fumes and gasses released during welding are hazardous. Do not breathe fumes that are produced by the welding operation. Wear an OSHA-approved respirator when welding.
- Always work in a properly ventilated area.
- Never weld coated materials including but not limited to: cadmium plated, galvanized, lead based paints.

⚠ CAUTION HOT METAL AND TOOLS WILL BURN!

- Electric welding heats metal and tools to temperatures that will cause severe burns!
- Use protective, heat resistant gloves and clothing when using Eastwood or any other welding equipment. Never touch welded work surface, torch tip or nozzle until they have completely cooled.

Your Eastwood Elite MP250i can be used to form a large number of different joints and welds all of which will require practice and testing before using on an actual project piece. This following welding process is just a baseline to get you started.

- Refer to the 'Suggested Settings' chart which is located inside the side door of your Eastwood Welder. From the chart select your baseline starting point for the recommended settings described in the chart.
- Connect your ground clamp to the work pieces that are to be welded. Make sure the ground clamp contacts are placed on a clean piece of metal free of paint, grease, rust, oils, etc. It is recommended to place your ground clamp as close to the weld area as possible.
- Assess your weld area and make sure the welding area is also cleaned of any paint, grease, rust, oils, etc.
- Plug in the Welder and move the power switch to the "ON" position.
- Make sure the shielding gas cylinder is connected and open. Depress the MIG Gun trigger and adjust the Knob on the Shielding Gas Regulator to set the gauge on the left to ~20 CFH while flowing.
- Depress the MIG Gun trigger pointing the welding gun away from your body and then let go of the trigger and cut the wire back to ~1/4" stick out length.
- Wearing your welding helmet, gloves, and long sleeve shirt and pants, put the end of the wire sticking out of the gun into the joint to be welded.
- Position the MIG Gun so that it is perpendicular to the base metal with ~20° tilt back.
- Depress the trigger to start the wire feed which starts the arc. **NOTE:** A push, perpendicular, or drag technique can be used to weld the pieces together; the type used depends on the type of joint as well as other influential conditions.
- Once you depress the trigger and the arc has started, you will notice a molten puddle will form; this puddle is the weld bead and will follow the motion of the MIG Gun. Watching the size of the puddle dictates how fast you should be moving with the torch. If you burn through the material you are either moving too slow or you need to make some setting adjustments to the Welder settings. If you're not penetrating the base metal you're either moving too fast or you need to make adjustments to the Welder settings.
- Release the trigger on the MIG Gun to stop the weld.
- After welding is complete, turn off the Welder and disconnect from power source.

SHEET METAL WELDING TECHNIQUES

When welding sheet metal a different approach is usually taken to account for how thin the metal is and it's susceptible to warping it is. The technique most often used is called Stitch Welding and this process is described below:

- Clean the metal to be welded of any paint, rust, oil, grease, dirt or any other contaminants that may be on the surface of the piece.
- Secure the pieces to be welded in place using clamps. Be sure to leave a small gap between the two pieces of sheet metal for the weld to flow into, this will result in a lower bead height which will require minimal finishing.
- Consult the Suggested Settings Chart and set the Voltage and Wire Speed knobs appropriately.
- Get some pieces of scrap metal of the same thickness and verify that the settings will work for the specific weld you will be making.
- Once the settings have been fine-tuned, tack weld your final pieces in places and remove the clamps if they are in the way of the weld.
- The Stitch Welding technique can now be utilized which is basically a series of tacks connecting together. To perform the technique, trigger the gun to form a tack weld and then continue to trigger on and off the gun making a series of connected tack welds following along the path of the weld joint. Continue the series of tacks for an inch or so and then move to a different section of the weld and perform the process there. It is essential to keep moving around to spread out the heat making sure not to get one section too hot and warp the metal.
- Once the entire weld has been completed allow the metal to cool. If necessary follow up with a flap disc to grind the weld bead flush.

HEAVY GAUGE METAL WELDING TECHNIQUES

When welding heavy gauge metal, a continuous bead is formed using a 'push' method. This process is described below:

- Clean the metal to be welded of any paint, rust, oil, grease, dirt or any other contaminants that may be on the surface of the piece.
- Secure the pieces to be welded in place using clamps. Be sure to leave a small gap between the two pieces of metal for the weld to flow into, this will result in a lower bead height which will require minimal finishing. Any material thicker than 1/8" should be beveled using an angle grinder.
- Consult the Suggested Settings Chart and set the Voltage and Wire Speed knobs appropriately.
- Get some pieces of scrap metal of the same thickness and verify that the settings will work for the specific weld you will be making.
- Once the settings have been fine-tuned tack weld your final pieces in places and remove the clamps if they are in the way of the weld.
- When welding heavy gauge metal there are two basic approaches to creating the weld. The first is a continuous bead with steady gun movement along the length of the joint. The second type of weld is a Stringer or Weave bead. This is accomplished by moving the torch in a circular or zig zag pattern. Either of these techniques will create strong welds but in some cases the Stringer or Weave type will create a more aesthetically pleasing weld bead.
- Once the entire weld has been completed, allow the metal to cool. If necessary, follow up with a flap disc to grind the weld bead flush.

SET UP AND OPERATION FOR STICK WELDING

⚠ DANGER ELECTRIC SHOCK CAN CAUSE INJURY OR DEATH!

- Improper use of an electric Welder can cause electric shock, injury and death! Read all precautions described in the Welder Manual to reduce the possibility of electric shock.
- Disconnect Welder from power supply before assembly, disassembly or maintenance of the torch, contact tip and when installing or removing nozzles.
- Always wear dry, protective clothing and leather welding gloves and insulated footwear. Use suitable clothing made from durable flame-resistant material to protect your skin.
- If other persons or pets are in the area of welding, use welding screens to protect bystanders from sparks.
- Always operate the Welder in a clean, dry, well ventilated area. Do not operate the Welder in humid, wet, rainy or poorly ventilated areas.
- The electrode and work (or ground) circuits are electrically “hot” when the Welder is on. Do not allow these “hot” parts to come in contact with your bare skin or wet clothing.
- Separate yourself from the welding circuit by using insulating mats to prevent contact from the work surface.
- Be sure that the work piece is properly supported and grounded prior to beginning an electric welding operation.
- Always attach the ground clamp to the piece to be welded and as close to the weld area as possible. This will give the least resistance and best weld.

⚠ DANGER WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION!

- Electric welding produces sparks which can be discharged considerable distances at high velocity igniting flammable or exploding vapors and materials.
- Do not operate electric arc Welder in areas where flammable or explosive vapors are present.
- Do not use near combustible surfaces. Remove all flammable items within 35 feet of the welding area.
- Always keep a fire extinguisher nearby while welding.
- Use welding blankets to protect painted and or flammable surfaces; rubber weather-stripping, dash boards, engines, etc.
- Ensure power supply has properly rated wiring to handle power usage.

⚠ WARNING ELECTROMAGNETIC FIELDS CAN BE A HEALTH HAZARD!

- The electromagnetic field that is generated during arc welding may interfere with various electrical and electronic devices such as cardiac pacemakers. Anyone using such devices should consult with their physician prior to performing any electric welding operations.
- Exposure to electromagnetic fields while welding may have other health effects which are not known.

⚠ WARNING ARC RAYS CAN BURN!

- Arc rays produce intense ultraviolet radiation which can burn exposed skin and cause eye damage. Use a shield with the proper filter (a minimum of #11) to protect your eyes from sparks and the rays of the arc when welding or when observing open arc welding (see ANSI Z49.1 and Z87.1 for safety standards).
- Use suitable clothing made from durable flame-resistant material to protect your skin.
- If other persons or pets are in the area of welding, use welding screens to protect bystanders from sparks and arc rays.

⚠ WARNING FUMES AND WELDING GASES CAN BE A HEALTH HAZARD!

- Fumes and gasses released during welding are hazardous. Do not breathe fumes that are produced by the welding operation. Wear an OSHA-approved respirator when welding.
- Always work in a properly ventilated area.
- Never weld coated materials including but not limited to: cadmium plated, galvanized, lead based paints.

⚠ CAUTION HOT METAL AND TOOLS WILL BURN!

- Electric welding heats metal and tools to temperatures that will cause severe burns!
- Use protective, heat resistant gloves and clothing when using Eastwood or any other welding equipment. Never touch welded work surface, torch tip or nozzle until they have completely cooled.

SET UP

⚠ DANGER ELECTRIC SHOCK CAN CAUSE INJURY OR DEATH!

- Disconnect Welder from power supply before beginning.

Polarity Selection

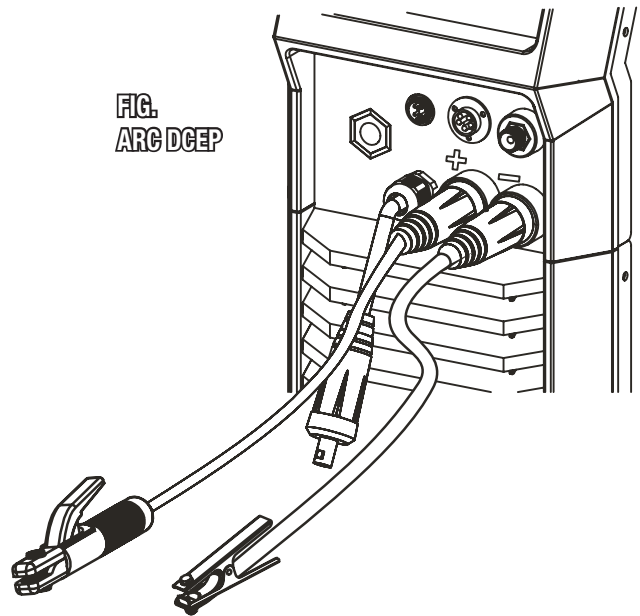
The Eastwood Elite MP250i can weld in both Direct Current Electrode Positive (DCEP) and Direct Current Electrode Negative (DCEN). The electrode, or rod, when welding in DCEP is positive and the grounded surface is negative. This polarity is used with electrodes that specify it and is usually the most commonly used polarity when ARC welding for general purpose use. The electrode when welding in DCEN is negative and the grounded surface is positive. This polarity is used with electrodes that require using this polarity and is usually used for building up heavy deposits of material with less penetration.

ARC (DCEP) (FIG ARC DCEP)

- Switch the “MIG/TIG/ARC” Selector Button located on the Front Panel to the ARC (Stick) Position.
- Remove any MIG or TIG Torch that may be connected.
- Remove the Polarity Jumper Lead if connected.
- Locate the Ground Clamp with Cable and connect the plug on the cable end to the (–) Negative Connection “VII” on the Lower Front Panel of the Welder. To connect the plug line up the key on the plug with the keyway on the socket of the Welder, insert the plug and twist until it is tight.
- Locate the Electrode Holder with Cable and connect the plug on the cable end to the (+) Positive Connection “VI” on the Lower Right Front Panel of the Welder. To connect the plug line up the key on the plug with the keyway on the socket of the Welder, insert the plug and twist until it is tight.

ARC (DCEN):

- Locate the Ground Clamp with Cable and connect the plug on the cable end to the (+) Positive Connection “VI” on the Lower Front Panel of the Welder. To connect the plug line up the key on the plug with the keyway on the socket of the Welder, insert the plug and twist until it is tight.
- Locate the Electrode Holder with Cable and connect the plug on the cable end to the (–) Negative Connection “VII” on the Lower Right Front Panel of the Welder. To connect the plug line up the key on the plug with the keyway on the socket of the Welder, insert the plug and twist until it is tight.



STICK WELDING OPERATION

ELECTRODE SELECTION

Before beginning welding with your Eastwood Elite MP250i, you will need to purchase electrodes as these are a consumable item in the ARC welding process. There are a variety of different types of rods available and should be selected depending on the project on hand. The chart below is an overview of some of the most popular electrodes.

Electrode	Polarity	Usage
E6010	DCEP	This electrode works well for welding rusty, dirty, painted, or greasy steels.
E6011	DCEP	This electrode is a general purpose rod used for carbon and galvanized steel. It is recommended for use when deep penetration is necessary.
E6013	DCEP, DCEN	This electrode is a general purpose rod used for welding carbon steel with poor-fitting joints. It is capable of light penetration.
E7014	DCEP, DCEN	This electrode can be used where a high deposition is necessary along with fast travel speed. It is capable of light penetration.
E7018	DCEP	This electrode is best for use with clean, bare steel and is suitable for moderate penetration.

Electrode/Amperage Chart							
Electrode	Diameter		Amperage Range				
	IN	MM	MIN.	50 A	100 A	150 A	200 A MAX.
6010 & 6011	3/32	2.4					
	1/8	3.2					
	5/32	4.0					
	3/16	4.8					
6013	1/16	1.5					
	5/64	2.0					
	3/32	2.4					
	1/8	3.2					
	5/32	4.0					
	3/16	4.8					
7014	3/32	2.4					
	1/8	3.2					
	5/32	4.0					
7018	3/32	2.4					
	1/8	3.2					
	5/32	4.0					
7024	3/32	2.4					
	1/8	3.2					
	5/32	4.0					
Ni-CI	3/32	2.4					
	1/8	3.2					
	5/32	4.0					
	3/16	4.8					
308L	3/32	2.4					
	1/8	3.2					
	5/32	4.0					

⚠ DANGER ELECTRIC SHOCK CAN CAUSE INJURY OR DEATH!

- Improper use of an electric Welder can cause electric shock, injury and death! Read all precautions described in the Welder Manual to reduce the possibility of electric shock.
- Disconnect Welder from power supply before assembly, disassembly or maintenance of the torch, contact tip and when installing or removing nozzles.
- Always wear dry, protective clothing and leather welding gloves and insulated footwear. Use suitable clothing made from durable flame-resistant material to protect your skin.
- If other persons or pets are in the area of welding, use welding screens to protect bystanders from sparks.
- Always operate the Welder in a clean, dry, well ventilated area. Do not operate the Welder in humid, wet, rainy or poorly ventilated areas.
- The electrode and work (or ground) circuits are electrically “hot” when the Welder is on. Do not allow these “hot” parts to come in contact with your bare skin or wet clothing.
- Separate yourself from the welding circuit by using insulating mats to prevent contact from the work surface.
- Be sure that the work piece is properly supported and grounded prior to beginning an electric welding operation.
- Always attach the ground clamp to the piece to be welded and as close to the weld area as possible. This will give the least resistance and best weld.

⚠ DANGER WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION!

- Electric welding produces sparks which can be discharged considerable distances at high velocity igniting flammable or exploding vapors and materials.
- Do not operate electric arc Welder in areas where flammable or explosive vapors are present.
- Do not use near combustible surfaces. Remove all flammable items within 35 feet of the welding area.
- Always keep a fire extinguisher nearby while welding.
- Use welding blankets to protect painted and or flammable surfaces; rubber weather-stripping, dash boards, engines, etc.
- Ensure power supply has properly rated wiring to handle power usage.

⚠ WARNING ELECTROMAGNETIC FIELDS CAN BE A HEALTH HAZARD!

- The electromagnetic field that is generated during arc welding may interfere with various electrical and electronic devices such as cardiac pacemakers. Anyone using such devices should consult with their physician prior to performing any electric welding operations.
- Exposure to electromagnetic fields while welding may have other health effects which are not known.

⚠ WARNING ARC RAYS CAN BURN!

- Arc rays produce intense ultraviolet radiation which can burn exposed skin and cause eye damage. Use a shield with the proper filter (a minimum of #11) to protect your eyes from sparks and the rays of the arc when welding or when observing open arc welding (see ANSI Z49.1 and Z87.1 for safety standards).
- Use suitable clothing made from durable flame-resistant material to protect your skin.
- If other persons or pets are in the area of welding, use welding screens to protect bystanders from sparks and arc rays.

⚠ WARNING FUMES AND WELDING GASES CAN BE A HEALTH HAZARD!

- Fumes and gasses released during welding are hazardous. Do not breathe fumes that are produced by the welding operation. Wear an OSHA-approved respirator when welding.
- Always work in a properly ventilated area.
- Never weld coated materials including but not limited to: cadmium plated, galvanized, lead based paints.

⚠ CAUTION HOT METAL AND TOOLS WILL BURN!

- Electric welding heats metal and tools to temperatures that will cause severe burns!
- Use protective, heat resistant gloves and clothing when using Eastwood or any other welding equipment. Never touch welded work surface, torch tip or nozzle until they have completely cooled.

- Set up a clean well lit work area.
- Prepare the parts to be welded by cleaning the weld joint area of any rust, dirt, grease, or paint.
- Select the proper electrode for the weld joint.
- Turn on the Welder and select the appropriate amperage. To determine proper amperage it is best to practice on some similar metals to set up the machine before welding on an actual part of value.
- Attach the ground clamp to a clean bare metal section on the work piece.
- Insert the electrode into the electrode holder being careful not to allow the electrode to contact the grounded area.
- To start welding an arc must be struck, to do this a motion similar to striking a match will have to be performed with the electrode. Slowly bring the electrode closer to the weld joint and then contact and drag the electrode across the piece to strike the arc. Once the arc has been struck you can continue feeding the electrode into the weld joint.
- While moving along the weld joint the electrode will burn down, while it is burning you will need to continue moving the electrode closer to the joint trying to keep a 1/8" gap between the end of the electrode and the weld joint. The electrode holder must be held so that the electrode is in a downward angle moving in the direction of the weld joint.
- To stop welding simply lift the electrode away from the work piece. When finished welding remove the electrode from the holder and turn off the Welder.

SET UP AND OPERATION FOR TIG WELDING

TIG TORCH ASSEMBLY/DISASSEMBLY

Assembly:

- Select a Collet body that matches your Tungsten diameter size and thread it into the front of the Torch.
- 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.
- The Gas Shielding Nozzle size should be changed according to shielding gas requirements for the material being welded. Thicker material requires a larger Nozzle. Select the correct Gas Shielding Nozzle and thread it onto the Collet body.
- Install the back cap to lock the Tungsten in place. Always make sure the Tungsten protrudes 1/8" to 1/4" beyond the Gas Shielding Nozzle.

Disassembly:

- Make sure the welder is turned OFF and unplugged.
- Remove the Back Cap from the Torch.
- If there is a Tungsten installed in the Torch pull it out of the front of the Torch.
- Slide the Collet out of the Torch.
- Unscrew and remove the Gas Shielding Nozzle.
- Unscrew and remove the Collet body.

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. The Eastwood #33307 Corded or #58878 Cordless Tungsten Grinders are excellent for this purpose.

- Shut off the welder.
- Make sure the Tungsten and Torch are sufficiently cooled for handling then loosen and remove the Back Cap then the Collet and remove the Tungsten from the FRONT of the Torch only (removing from the rear will damage the Collet).
- 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.
- Holding the Tungsten tangent to the surface of the grinding wheel, rotate the Tungsten while exerting light pressure until a suitable point is formed. The ideal tip will have the length of the conical portion of the sharpened area at 2-1/2 times the Tungsten rod diameter.
- Replace the Tungsten in the Collet with the tip extending 1/8"-1/4" beyond the Gas Shielding Nozzle, then re-tighten the Back Cap.

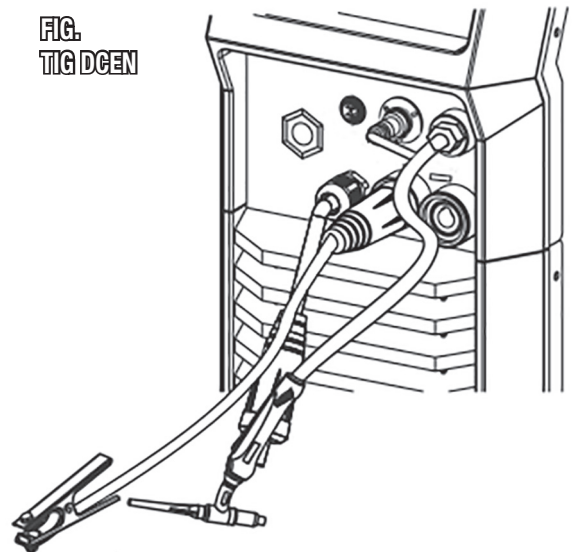
SET UP FOR TIG WELDING

⚠ DANGER ELECTRIC SHOCK CAN CAUSE INJURY OR DEATH!
• Disconnect Welder from power supply before beginning.

TIG (DCEN) (FIG TIG DCEN)

- Switch the "MIG/TIG/ARC" Selector Button located on the Front Panel to the "TIG" Position (FIG 5).
- Connect the TIG Torch to the TIG Torch Power/Gas Connection "III" at the front panel of the Welder (FIG 7).
- Install the Ground Clamp Connector to the (+) Positive Connection "VI" on the Lower Front Panel of the Welder. To connect the plug line up the key on the plug with the keyway on the socket of the Welder, insert the plug and twist until it is tight (FIG TIG DCEN).
- Connect the TIG Torch Trigger or Foot Pedal plug to the TIG Trigger and Foot Pedal Connection "II".

FIG.
TIG DCEN



TIG WELDING

⚠ DANGER ELECTRIC SHOCK CAN CAUSE INJURY OR DEATH!

- Improper use of an electric Welder can cause electric shock, injury and death! Read all precautions described in the Welder Manual to reduce the possibility of electric shock.
- Disconnect Welder from power supply before assembly, disassembly or maintenance of the torch, contact tip and when installing or removing nozzles.
- Always wear dry, protective clothing and leather welding gloves and insulated footwear. Use suitable clothing made from durable flame-resistant material to protect your skin.
- If other persons or pets are in the area of welding, use welding screens to protect bystanders from sparks.
- Always operate the Welder in a clean, dry, well ventilated area. Do not operate the Welder in humid, wet, rainy or poorly ventilated areas.
- The electrode and work (or ground) circuits are electrically “hot” when the Welder is on. Do not allow these “hot” parts to come in contact with your bare skin or wet clothing.
- Separate yourself from the welding circuit by using insulating mats to prevent contact from the work surface.
- Be sure that the work piece is properly supported and grounded prior to beginning an electric welding operation.
- Always attach the ground clamp to the piece to be welded and as close to the weld area as possible. This will give the least resistance and best weld.

⚠ DANGER WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION!

- Electric welding produces sparks which can be discharged considerable distances at high velocity igniting flammable or exploding vapors and materials.
- Do not operate electric arc Welder in areas where flammable or explosive vapors are present.
- Do not use near combustible surfaces. Remove all flammable items within 35 feet of the welding area.
- Always keep a fire extinguisher nearby while welding.
- Use welding blankets to protect painted and or flammable surfaces; rubber weather-stripping, dash boards, engines, etc.
- Ensure power supply has properly rated wiring to handle power usage.

⚠ WARNING ELECTROMAGNETIC FIELDS CAN BE A HEALTH HAZARD!

- The electromagnetic field that is generated during arc welding may interfere with various electrical and electronic devices such as cardiac pacemakers. Anyone using such devices should consult with their physician prior to performing any electric welding operations.
- Exposure to electromagnetic fields while welding may have other health effects which are not known.

⚠ WARNING ARC RAYS CAN BURN!

- Arc rays produce intense ultraviolet radiation which can burn exposed skin and cause eye damage. Use a shield with the proper filter (a minimum of #11) to protect your eyes from sparks and the rays of the arc when welding or when observing open arc welding (see ANSI Z49.1 and Z87.1 for safety standards).
- Use suitable clothing made from durable flame-resistant material to protect your skin.
- If other persons or pets are in the area of welding, use welding screens to protect bystanders from sparks and arc rays.

⚠ WARNING FUMES AND WELDING GASES CAN BE A HEALTH HAZARD!

- Fumes and gasses released during welding are hazardous. Do not breathe fumes that are produced by the welding operation. Wear an OSHA-approved respirator when welding.
- Always work in a properly ventilated area.
- Never weld coated materials including but not limited to: cadmium plated, galvanized, lead based paints.

⚠ WARNING FUMES AND WELDING GASES CAN BE A HEALTH HAZARD!

- Fumes and gasses released during welding are hazardous. Do not breathe fumes that are produced by the welding operation.
- Prolonged inhalation of welding fumes above safety exposure limits can injure the lungs and other organs.
- Use enough ventilation and/or exhaust at the arc to keep fumes and gases from your breathing area.
- Use an OSHA approved respirator when welding in confined spaces or where there is inadequate ventilation.
- Never weld coated materials including but not limited to: cadmium plated, galvanized, lead based paints.

⚠ WARNING BUILDUP OF GAS CAN INJURE OR KILL!

- Shut off gas supply when not in use. Ensure adequate ventilation. Do not weld in confined areas. Always turn your face away from valve outlet when opening cylinder valve.

⚠ WARNING CYLINDERS CAN EXPLODE IF DAMAGED!

- Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. As gas cylinders are a normal component of the welding process, use extra care to handle them carefully.
- Protect compressed gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, sparks and arcs. Keep away from any welding or other electrical circuits.
- Install cylinders in an upright position by securing to a specifically designed rack, cart or stationary support to prevent falling or tipping over.
- Never weld on a pressurized cylinder or explosion will occur.
- Use only correct shielding gas cylinders, regulators, hoses and fittings designed for the specific application; maintain them and all related components in good condition.
- Keep protective cap in place over valve except when cylinder is in use.
- Use proper equipment, procedures and have adequate help when moving or lifting cylinders.

⚠ CAUTION HOT METAL AND TOOLS WILL BURN!

- Electric welding heats metal and tools to temperatures that will cause severe burns!
- Use protective, heat resistant gloves and clothing when using Eastwood or any other welding equipment. Never touch welded work surface, torch tip or nozzle until they have completely cooled.

- Turn the Power Switch to the ON position.
- Slowly open the gas cylinder valve. **NOTE:** Always open valve fully to avoid shielding gas leakage.
- Adjust the flow regulator built-in to the Torch Handle. Rotate Counter-clockwise to open, Clockwise to Close.
- Set the welder to TIG mode. Depress the TIG Torch trigger or Foot Pedal and adjust the Knob on the Shielding Gas Regulator to set the gauge on the left to ~20 CFH while flowing.
- 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.
- 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.
- 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.
- 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 45° angle backward and approx. 20° to the right of the weld. Hold the Filler Metal Rod at a 60° angle to the Tungsten Tip. 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.
- With your Welding Shield and all safety gear in place, 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.
- To stop welding, pull the Tip back over the weld approx. 1/2" [13mm] then lift to break the arc. Keep shielding gas flow in place for approx. 10 seconds.
- Keep in mind that you MUST let the shielding gas flow over the weld for approx. 10 seconds. Failure to do so will allow the welded area to oxidize as it cools, compromising the weld integrity.
- 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.
- When done, shut off the Power Switch, close the Regulator in the Torch Handle then close the Shielding Gas Tank valve completely.

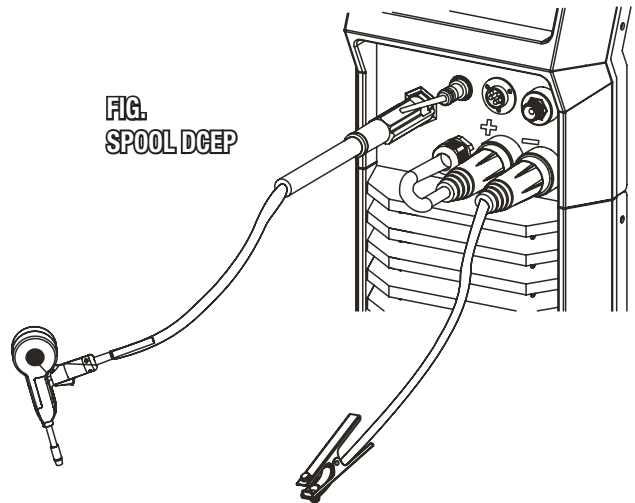
SET UP & OPERATION FOR SPOOL GUN WELDING (Available separately, not included)

SET UP FOR SPOOL GUN WELDING

The Eastwood Elite MP250i is designed to use a #20172 Spool Gun (available separately, not included) which allows for easy feeding of aluminum wire to expand your welding capabilities. This is an optional accessory and can be purchased separately from Eastwood.

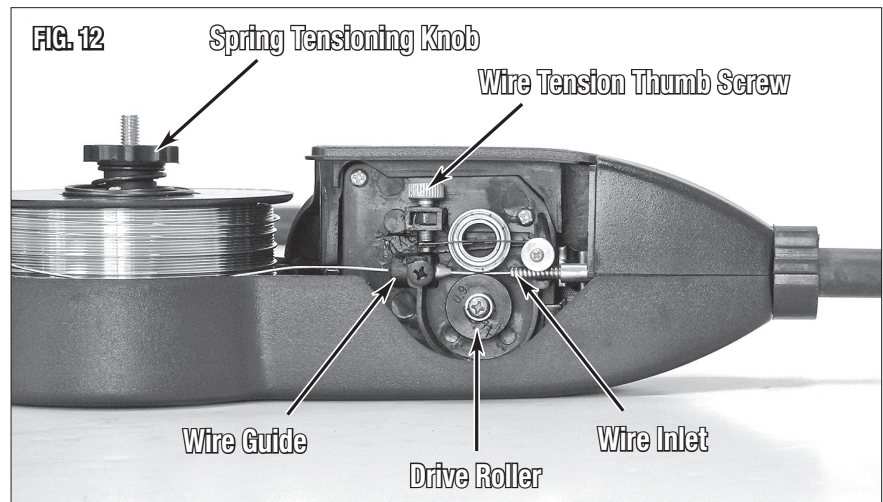
Spool Gun (DCEP) (FIG SPOOL DCEP)

- Install the Ground Clamp with Cable to the (-) Negative Connection "VII" on the Front Panel of the Welder. To connect the plug, line up the key on the plug with the keyway on the socket of the Welder, insert the plug and twist Clockwise until it is tight (**FIG SPOOL DCEP**).
- Attach the Spool Gun connector to the MIG Gun Power/Gas/Wire Feed Socket "IV" on the Lower Left Front Panel. To connect the plug, line up the key on the plug with the keyway on the socket of the Welder, insert the plug and twist Clockwise until it is tight (**FIG SPOOL DCEP**).
- Install the Polarity Jumper Lead "V" into the (+) Positive Connection "VI" by inserting the keyed brass connector and rotating to lock in place (**FIG SPOOL DCEP**).
- Switch the Selector Switch Button located on the Front Panel to the Spool Gun position.
- Verify the Shielding Gas Hose supplying 100% Argon gas is connected to the "MIG" fitting (**FIG 9**).
- Connect Trigger Plug to the MIG Gun Trigger Wire Connection "I" on the front of the Welder.



Threading Welding Wire through the Spool Gun

- Turn off Welder and unplug from power source.
- Set the switch on the Front Panel to the Spool Gun setting.
- Remove the Cover Retaining Knob and clear plastic Wire Spool Cover.
- Remove the Knob and Tension Spring that retains the Wire Spool.
- Place wire spool on Spindle and replace the Tension Spring and Tensioner Knob then tighten until the point that the Wire Spool has some tension on it (**FIG 12**).
- Loosen the brass tensioner thumb screw until it is possible to feed the welding wire through the Drive Roller grooves (**FIG 12**).
- Feed the wire by hand from the Spool into the Wire Guide, past the Drive Rollers and into the Wire Inlet (**FIG 12**).
- Tighten the brass Wire Tension Thumb Screw until it applies light pressure onto the welding wire. If this is too tight it will deform the wire and cause feeding issues, if it is too loose the drive roller will slip on the wire (**FIG 12**).
- Remove the Nozzle and Contact Tip.
- Replace the Wire Spool Cover.
- Plug in welder to your power source and turn on the welder.
- Trigger the Spool Gun to feed the wire.
- Replace Contact Tip and Nozzle.



SPOOL GUN WELDING OPERATION

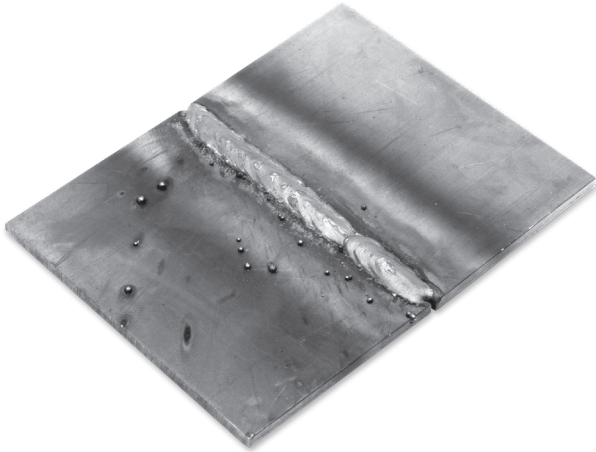
Your Eastwood Elite MP250i can be used to weld aluminum utilizing the # 20172 Spool Gun (not included). The Spool Gun is sold as an accessory to the MP250i, and you will also need to purchase a cylinder of 100% Argon gas from your local welding supplier. This following welding process is just a baseline to get you started.

- Refer to the 'Suggested Settings' chart which is located inside the side door of your Welder. From the chart select your baseline starting point for the recommended settings described in the chart.
- Ensure that the polarity is configured for DCEP welding.
- Set the process selector switch to MIG.
- Set the MIG / Spool Gun Selector Switch to 'Spool Gun' on Front Panel.
- Make sure the shielding gas cylinder is connected and open. Depress the Spool Gun trigger and adjust the Knob on the Shielding Gas Regulator to set the gauge on the left to ~20 CFH while flowing.
- Connect your ground clamp to the work pieces that are to be welded. Make sure the ground clamp contacts are placed on a clean piece of metal free of paint, grease, rust, oils, etc. It is recommended to place your ground clamp as close to the weld area as possible.
- Assess your weld area and make sure the welding area is also cleaned of any paint, grease, rust, oils, etc. Aluminum has a layer of oxide on the surface that should be removed prior to welding.
- Plug in the Welder and turn the switch on the Rear Panel to the "ON" position.
- Open your gas valve on the bottle and adjust the flow rate if necessary.
- Depress the Spool Gun trigger for a few seconds pointing the welding gun away from your body and then let go of the trigger and cut the wire back to ~3/4" stick out length.
- Wearing your welding helmet, gloves, and long sleeve shirt and pants, put the end of the wire sticking out of the Spool Gun into the joint to be welded.
- Position the Spool Gun so that it is perpendicular to the base metal with 10-15° angle in the direction of push travel.
- Depress the trigger to start the wire feed which starts the arc.
NOTE: When welding aluminum with a Spool Gun it is recommended to use a push technique. Using a drag technique will result in poor, dirty welds.
- When welding aluminum a spray arc transfer is preferred rather than short arc transfer that can be more commonly used on steels. This method involves using a longer wire stick out (~3/4"). When the Welder settings and technique have been dialed in the spray arc transfer should create a hissing sound and little or no spatter. Once positioned the trigger can be pulled and the weld started.
- Release the trigger on the Spool Gun to stop the weld.
- After welding is completed, close the valve completely on the Shielding Gas Bottle, turn Power Switch to the "OFF" position and unplug Welder.

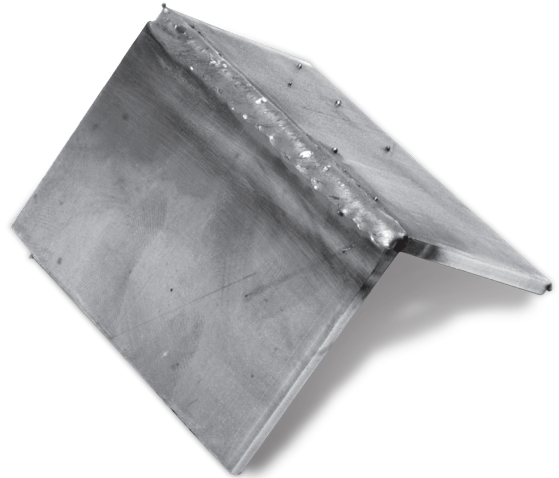
OVERLOAD PROTECTION

Your Eastwood Elite MP250i Welder is equipped with an internal overload breaker and an external circuit breaker. These devices will protect your Welder if the duty cycle is exceeded. If the output is exceeded, the internal breaker will trip and stop power supply to the drive motor although the fan will still run to cool the unit. If the breaker tripped resulting from an overload, the circuit breaker the Overload Indicator on the Front Panel will illuminate GREEN and the Circuit Breaker on the Rear Panel of the Welder will trip. This circuit breaker must be reset manually. Before resetting the circuit breaker button allow the Welder to cool for a minimum of 15 minutes.

TYPES OF WELD JOINTS



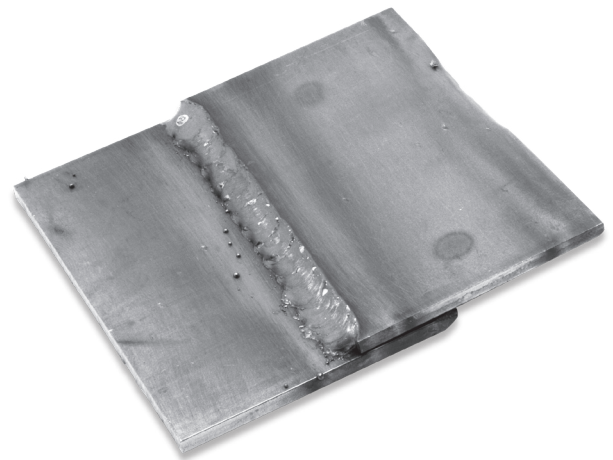
BUTT WELD is a joint between two pieces that are laying in the same direction.



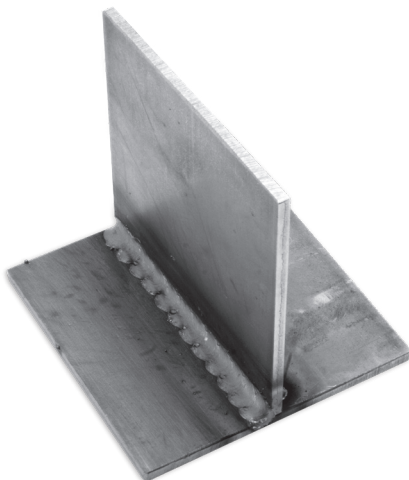
CORNER WELD is a joint between two pieces that meet at or near perpendicular at their edges.



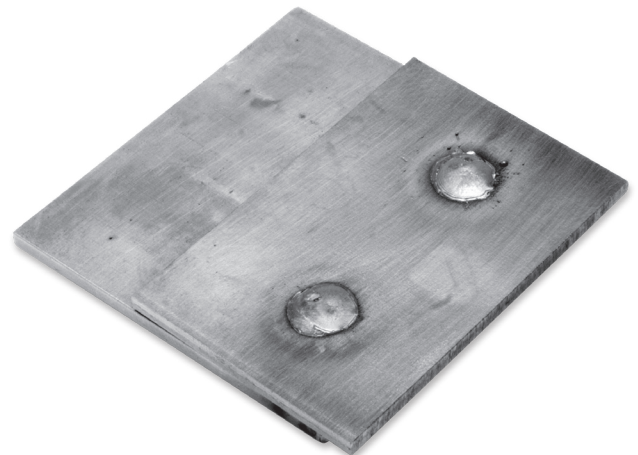
EDGE WELD is a joint between two pieces where the edges are being joined.



LAP WELD is a joint between two overlapping pieces.



TEE WELD is a joint between two pieces where one is perpendicular to the other.



PLUG WELD is a joint which joins two overlapping pieces by filling in a hole punched in the top piece.

MIG WELD TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTION
Burn Through	High Voltage	Adjust voltage output to lower setting.
	Fast Wire Speed	Adjust wire speed to slower setting.
	Slow Gun Travel	Increase your travel speed with the Welding Gun.
Lack of Penetration	Low Voltage	Adjust voltage output to higher setting.
	Slow Wire Speed	Adjust wire speed to faster setting.
	Fast Gun Travel	Slow your travel speed of the Welding Gun making sure to pull or drag the molten metal puddle.
	Excessive Wire Protruding	Move the Contact Tip on the Welding Gun closer to the work piece to shorten the length of exposed wire.
	Material Too Thick	The Elite MP250i is rated for a maximum thickness of 1/2", exceeding this will result in poor penetration.
	Poor Material Prep	If welding heavy gauge metals, it may be necessary to increase the welding gap between the two pieces and also bevel the edges on the weld side of the pieces.
Excessive Penetration	High Voltage	Adjust voltage output to lower setting.
	Fast Wire Speed	Adjust wire speed to slower setting.
	Slow Gun Travel	Increase your travel speed with the Welding Gun.
Warping	Lack of Tack Welds	Tack weld the pieces in multiple areas to keep the pieces from pulling apart.
	No Clamping	Use welding clamps to secure the pieces in the proper shape.
	Poor Technique	To prevent warping, allow the workpiece to cool after welding small sections at a time. Move your welding areas around by not completing all the welding in one section all at once, rather, welding a small amount in one area and then move to another section area to spread out the heat in the piece.

STICK WELD TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTION
Electrode Sticking	Arc Too Short	While welding, keep the ignited end of the electrode further from the weld joint.
	Current Too Low	Adjust the current on the front of the Welder to a higher current setting.
Holes in Weld Bead (Porosity)	Arc Too Long	While welding, keep the ignited end of the electrode closer to the weld joint.
	Moisture in Electrode	Replace electrode with a new one.
Excessive Spatter	Arc Too Long	While welding, keep the ignited end of the electrode closer to the weld joint.
	Current Too High	Adjust the current on the front of the welder to a lower current setting.
Poor Penetration	Poor Joint Preparation	Clean the weld joint of any dirt, grease, paint or other possible contaminants. If the pieces being Welder are of a heavy gauge it may be necessary to bevel the edges of the pieces.
	Current Too Low	Adjust the current on the front of the welder to a higher current setting.
	Travel Speed Too Fast	Slow down the travel speed of the electrode while welding.
GREEN Overload Indicator Illuminated	Duty Cycle Exceeded	Allow the Welder to cool for a minimum of 15 minutes before attempting to use again.

TIG WELDING TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTION
Arc is Triggered but Will Not Start	Incomplete Circuit	Check Ground connection. Verify polarity is correct for the application. All TIG welding and most stick welding is done with the ground cable installed to the Positive (+) connection at the front panel. 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.
Arc wanders and it is Hard to Concentrate Heat in a Specific Area	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, break off contaminated section, and sharpen.
	Incorrect Arc Length	Make sure the Tungsten is held 1/8 to 1/4" off the work piece.
	Incomplete Circuit	Check Ground connection. Verify polarity is correct for the application. All TIG welding and most stick welding is done with the ground cable installed to the Positive (+) connection at the front panel. 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.
Porosity in Weld Bead	Poor Gas Flow	Adjust the flow rate of the shielding gas. 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 Exposure	Adjust the Tungsten so that 1/8" to 1/4" protrudes from the Collet.
Contamination in Weld Bead	Contamination 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.
Melting Tungsten	Poor Gas Flow	Adjust the flow rate of the shielding gas. 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.
Poor Penetration	Low Voltage	Voltage setting is too low for material/thickness. Increase as needed.
Tungsten Contaminated	Contact of Tungsten with Base Metal	Keep Tungsten 1/8 to 1/4" from the base metal. If Tungsten comes in contact break off end and sharpen immediately.
Poor Weld Appearance	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.

TIG WELDING TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTION
Crater in the End of the Weld Bead	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 and add more filler at end of weld. It may also be beneficial to back step to ensure no crater will form.
Weld Bead is Cracking	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.
Material is Warping	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.

[illegible]

[illegible]

ADDITIONAL ITEMS

R&D MUST-HAVE ACCESSORIES



#58878
Cordless Tungsten Grinder



#98020
TIG Cooler with WP18F Torch
(**#98021** with WP20F Torch)



#60002
Rolling Parts
Storage Rack

Visit eastwood.com for complete info and pricing.

MIG CONSUMABLES

#12211	0.023" Contact Tips (5 Pack)
#21832	0.030" Contact Tips (5 Pack)
#21833	0.035" Contact Tips (5 Pack)
#21834	0.045" Contact Tips (5 Pack)
#21831	Nozzle
#21829	MIG Consumables Kit (2 Nozzles, 2 Insulators, 2 Tip Holders, 20 Contact Tips)

MIG WIRE

#23025	0.023" Solid MIG Wire 8" Spool
#23036	0.030" Solid MIG Wire 8" Spool
#23027	0.035" Solid MIG Wire 8" Spool

TIG TUNGSTEN & FILLER ROD

#33331 / 33333	1/16" Multi-Mix Tungsten (3 Pack / 10 Pack)
#33332 / 33334	3/32" Multi-Mix Tungsten (3 Pack / 10 Pack)
#33337 / 33340	0.045" ER70S-2 Filler Rod (1lb / 10lb)
#33338 / 33341	1/16" ER70S-2 Filler Rod (1lb / 10lb)
#33339 / 33342	3/32" ER70S-2 Filler Rod (1lb / 10lb)
#33347 / 33348	1/16" ER308L Filler Rod (1lb / 10lb)
#33348 / 33350	3/32" ER308L Filler Rod (1lb / 10lb)
#33335	1/16" Silicon Bronze Filler Rod 1lb
#33336	3/32" Silicon Bronze Filler Rod 1lb

TIG TORCH CONSUMABLE ITEMS

#20284	#6/8 Gas Lens Components Kit
#20652	#10/12 Gas Lens Components Kit
#20653	TIG Torch #6 "Gas Lens-Style" Gas Cup 10 Pack
#20654	TIG Torch #8 "Gas Lens-Style" Gas Cup 10 Pack
#20655	TIG Torch #10 "Gas Lens-Style" Gas Cup 10 Pack
#20658	TIG Torch #12 "Gas Lens-Style" Gas Cup 10 Pack
#12822	1/16" Collet
#12824	3/32" Collet
#12825	Long Back Cap

OPTIONAL ITEMS

#19015	MIG Welders Pliers
#55070 / 55071	Leather MIG Welding Gloves (M / L)
#55068 / 55068	Leather TIG Welding Gloves (M / L)
#12762	L, XL, XXL Cotton Welding Jacket
#55065	L, XL, XXL Leather Welding Jacket
#21484	XL View Auto Darkening Welding Helmet
#21483	Large View Auto Darkening Welding Helmet
#20077	Stainless Steel Wire Brush
#20172	Spool Gun
#51139	Copper 3 x 3 Welders Helper Set
#33307	TG1800 Tungsten Grinder
#20640	10' Long Ground Cable Extension
#31739	25' Long 110V Heavy Duty Welder Extension Cord
#20029	25' Long 220V Heavy Duty Welder Extension Cord
#20285	40' Long 220V Heavy Duty Welder Extension Cord

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

The Eastwood Technical Assistance Service Department: 800.343.9353 >> email: tech@eastwood.com

PDF version of this manual is available at eastwood.com

The Eastwood Company 263 Shoemaker Road, Pottstown, PA 19464, USA 800.343.9353 eastwood.com