

*Eastwood*<sup>®</sup>

DO THE JOB RIGHT.<sup>®</sup>

Item #12740

# VERSA-CUT 40 PLASMA CUTTER

## SERVICE MANUAL



The **Eastwood Versa-Cut 40 Plasma Cutter** makes clean, fast cuts through steel, stainless or aluminum as thin as 24-gauge, or as thick as 3/8". Compared to mechanical cutting, our Versa-Cut Plasma Cutter works significantly faster, and makes curved and intricate cuts more easily and precisely. Inverter technology offers superior arc stability and cutting power using either 110 or 220 volts, making this a portable unit that is also light weight. A built in pilot arc system allows for instant arc striking and ease of use when cutting rusty material and expanded metal. The internal moisture separator helps to ensure clean dry air gets to the torch to give you consistent results.

### 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 Versa-Cut Plasma Cutter

Items not covered under this warranty: Electrodes, nozzles, diffuser, and external nozzle.

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

Amperage Output Range	Output Voltage	Weight	Duty Cycle	Overall Dimensions	Electrical Input	Air Requirements
14-40 Amps	96 V	29 Lbs.	60% @ 40 A	20" (508mm) x 9.75" (248mm) x 20" (508mm)	110 VAC or 220 VAC	5-7 CFM @ 60 psi

## DUTY CYCLE

The rated Duty cycle refers to the amount of plasma cutting that can be done within an amount of time. The Eastwood Versa-Cut 40 Plasma Cutter has a duty cycle of 60% at 40 Amps. It is easiest to look at your cutting time in blocks of 10 Minutes and the Duty Cycle being a percentage of that 10 Minutes. If cutting at 40 Amps with a 60% Duty Cycle, within a 10 Minute block of time you can cut for 6 Minutes with 4 Minutes of cooling for the cutter. To increase the duty cycle you can turn down the Amperage Output control.

# SAFETY INFORMATION

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

This unit emits powerful high current 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.

## IMPORTANT NOTE

These instructions are intended only to provide the user with some familiarity of the Eastwood Cut 40 Plasma Cutter. Electric arc cutting is a highly complex procedure with many variables. If you have no experience with electric arc cutting; it is extremely important to seek the advice of someone experienced in electric arc cutting 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 welding plasma cutting and welding as there is a moderate learning curve necessary before achieving proficiency. 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 cutting or 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.

## SAFETY INFORMATION

Plasma cutting can be dangerous to you and other persons in the work area. Read and understand this instruction manual before using your Eastwood Plasma Cutter. Injury or death can occur if safe welding practices are not followed. Safety information is set forth below and throughout this manual. To learn more about welding safety, read OSHA Title 29 CFR 1910, available at [www.osha.gov](http://www.osha.gov); ANSI Z49.1, "Safety in Welding, Cutting and Allied Processes," available at [www.aws.org](http://www.aws.org); and the consumable manufacturer's Safety Data Sheet.

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 used with the safety alert symbol, 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 a Plasma Cutter can cause electric shock, injury and death! Read all precautions described in the Plasma Cutter Manual to reduce the possibility of electric shock.
- Disconnect Plasma Cutter 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 plasma cutting, use welding screens to protect bystanders from sparks.
- Always operate the Plasma Cutter in a clean, dry, well ventilated area. Do not operate the Plasma Cutter in humid, wet, rainy or poorly ventilated areas.
- The electrode and work (or ground) circuits are electrically "hot" when the Plasma Cutter is on. Do not allow these "hot" parts to come in contact with your bare skin or wet clothing.
- Separate yourself from the arcing 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 a plasma cutting operation.
- Always attach the ground clamp to the piece to be cut and as close to the cutting area as possible. This will give the least resistance and best cut.

# SAFETY INFORMATION



## **⚠ DANGER WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION!**

- Plasma cutting produces sparks which can be discharged considerable distances at high velocity igniting flammable or exploding vapors and materials.  
DO NOT operate electric arc Plasma Cutter 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 plasma cutting.
- 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 plasma cutting 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 plasma cutting.
- Exposure to electromagnetic fields while plasma cutting 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 plasma cutting or when observing an open plasma arc (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 a plasma arc, 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 plasma cutting are hazardous. Do not breathe fumes that are produced by the plasma cutting operation.
- Prolonged inhalation of plasma cutting 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 plasma cutting in confined spaces or where there is inadequate ventilation.
- Use extrema caution when plasma cutting coated materials including but not limited to: cadmium plated, galvanized, lead based paints.



## **⚠ CAUTION HOT METAL AND TOOLS WILL BURN!**

- Electric plasma cutting heats metal and tools to temperatures that will cause severe burns!
- Use protective, heat resistant gloves and clothing when using Eastwood or any other plasma cutting equipment.  
Never touch a cut 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 plasma cutting process. Be aware of all power tool safety warnings.



## **⚠ NOTICE FIRST AID**

- If exposed to excessive fumes move to an area with fresh air.
- For burns other injuries follow basic first aid techniques and call a physician or emergency medical personnel.

## REQUIRED ITEMS

Before you begin using the Eastwood Versa Cut Plasma Cutter make sure you have the following:

- A clean, dry air supply source for the torch. An air compressor capable of delivering 5-7 CFM @ 60 PSI is required. You can even use a portable air tank with regulator. The air supply must be dry and the use of a moisture trap is strongly recommended.
- Eastwood recommends at a minimum a properly grounded 110-120 VAC 50/60Hz., 20 Amp circuit or 220-240 VAC 50/60Hz., 30 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.
- Heavy Duty Welding Gloves (#12590 or equivalent)
- Auto Darkening Welding Mask (#13203) or glasses (#13948) to provide eye protection during cutting operations.

## POWER REQUIREMENTS

The Eastwood Versa-Cut Plasma Cutter is voltage sensing; it will automatically operate on 110-120 VAC, 50/60Hz., or 220-240 VAC, 50/60 Hz. Our Versa-Cut Plasma Cutter is supplied with the popular NEMA 6-50P plug, requiring a NEMA 6-50R receptacle. If a 220-240 VAC, 30 Amp outlet is used a UL listed 30 Amp plug may be installed by a licensed and qualified electrician.

## BEFORE YOU BEGIN

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

- Versa-Cut Plasma Cutter
- Torch and 20' Supply Line.
- 240 Volt to 120 Volt grounded adapter cord.
- 10' Ground Lead and clamp.
- Instruction Booklet
- Face Shield
- Extra Electrode and Nozzle

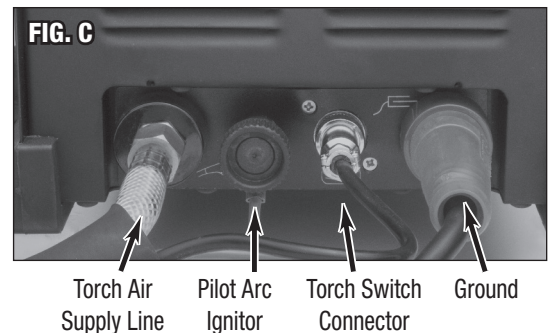


## SET UP

- After the desired current source is determined, be sure the proper plug is used and the appropriate circuitry and breakers are in place.
- Do not plug unit in at this time and make sure the Power Switch on the left side of The Front Panel is in the OFF position (**FIG. A**).
- Install an air fitting compatible with your air line into the 1/4" NPT fitting on the rear of the plasma cutter (**FIG. B**).
- Attach the Torch Air Supply Line to the lower left of the front panel and tighten (**FIG. C**).
- Attach the Torch Switch Connector Cable to the Multi-Pin Connector located at the third from left of the lower front panel (**FIG. C**).
- Remove the black threaded knob (2nd from left) and place the terminal of the red lead over the post, then replace the knob and tighten (**FIG. C**).
- Attach the Ground Lead Connector to the terminal located at the lower right of the front panel (**FIG. C**).

## OPERATION

1. Before attempting to use this unit on an actual project or object of value, practice on a similar material as there is a moderate learning curve necessary before achieving proficiency in cutting.
2. Place the Ground Cable Clamp on a clean, bare area of your workpiece. Scrape, wire brush, file or grind a bare area if necessary to achieve a good ground.
3. Set the Air Pressure to the appropriate pressure with the Knob located at the upper right side of the front panel (**FIG. C**). The Pressure Indicating Gauge is located directly above the Air Pressure Knob and is set at 60 PSI.
4. Set the Output Amperage Knob (**FIG. C**) located at the center of the upper panel to an appropriate setting based on the thickness of the metal being cut; lower amperage for thinner metals, higher amperage for thicker metals. Keep in mind that "more is not always better" as too high of an amperage setting will result in a lower duty cycle.
5. Make sure all your safety gear is in place (Shaded Eye Protection, Welding Gloves, non-flammable long sleeve apparel) and the area is completely free of flammable material.
6. The best results are achieved by holding the tip at a 90° angle to the cut line (**FIG. D**).
7. To begin cutting, depress the Torch Trigger to ignite the pilot arc. The tip of the torch must be touching or within a short distance to the work piece to begin the cut.



### **⚠ 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 plasma cutting or when observing an open plasma arc (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 a plasma arc, 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 plasma cutting are hazardous. Do not breathe fumes that are produced by the plasma cutting operation.
- Prolonged inhalation of plasma cutting 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 plasma cutting in confined spaces or where there is inadequate ventilation.
- Use extrema caution when plasma cutting coated materials including but not limited to: cadmium plated, galvanized, lead based paints.

### **⚠ CAUTION** HOT METAL AND TOOLS WILL BURN!

- Electric plasma cutting heats metal and tools to temperatures that will cause severe burns!

1. With practice, you will be able to exercise precise control over this extremely powerful device, harnessing its energy to create clean, precise and intricate cuts in many forms of steel and iron up to 3/8" thick.
2. While you practice, experiment with different speeds. You will find that thinner materials will allow a faster motion while thicker materials will require a slower motion to achieve a through cut.
3. A good form of practice is to attempt a series of straight lines while creating the cleanest edge possible with a minimum of molten material remaining on the cut edge. This minimizes the cleanup of the edge with a grinder or file. Another excellent technique is to practice cutting your initials out of a piece of steel.

### Versa-Cut Plasma Cutter - Air Pressure and Amperage Settings\*

Metal Thickness	1/32"	1/16"	3/32"	1/8"	5/32"	3/16"
Amps	20	20	20	20	20	20
PSI	60	60	60	60	60	60

Metal Thickness	7/32"	1/4"	9/32"	5/16"	11/32"	3/8"
Amps	30	30	30	40	40	40
PSI	60	60	60	60	60	60

\*These settings are guidelines and may need to be adjusted based on your techniques.

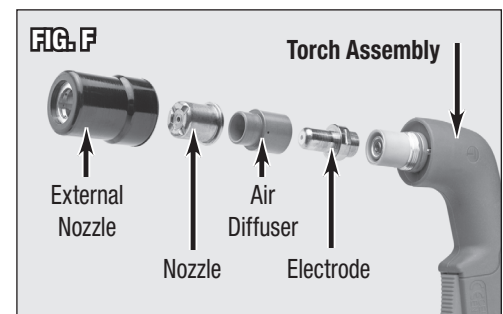
## CARE & MAINTENANCE

- It is extremely important that the air supply be clean and dry. A separate moisture trap, water/oil separator or desiccant system should be used. The Versa-Cut Plasma Cutter has a built-in "last-chance" moisture separator which drains automatically when the air source is removed.
- Draining the water/oil separator while the unit is pressurized is recommended so that all oil or water is discharged. To do this, raise the unit so that you are able to see the drain fitting on the bottom/rear of the unit (**FIG. E**). Use a screwdriver to press the drain fitting into the unit, which will discharge any oil or water from the separator.
- Constantly inspect the torch tip for excessive erosion, molten metal accumulation or burning. If damaged, it must be replaced.
- Before each use, inspect ALL electrical connections, cables, supply line, torch, air supply, housing and controls for damage. If any damage or wear is noted, DO NOT USE THE UNIT.
- Always store the unit in a safe, clean and dry environment.



## TORCH MAINTENANCE

The Eastwood Versa Cut Plasma Cutter has a number of consumable parts that will need to be replaced over time. If wear or slag build up is noticed on any of the torch components, replace them immediately to avoid damage to the torch. Worn components will also contribute to poor cutting and difficult arc starting. See the torch components (**FIG. F**) exploded view for a reference of all of the components and the assembly order.



### **⚠ DANGER** ELECTRIC SHOCK CAN CAUSE INJURY OR DEATH!

- Improper use of a Plasma Cutter can cause electric shock, injury and death! Read all precautions described in the Plasma Cutter Manual to reduce the possibility of electric shock.
- Disconnect Plasma Cutter 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 plasma cutting, use welding screens to protect bystanders from sparks.
- Always operate the Plasma Cutter in a clean, dry, well ventilated area. Do not operate the Plasma Cutter in humid, wet, rainy or poorly ventilated areas.
- The electrode and work (or ground) circuits are electrically "hot" when the Plasma Cutter is on. Do not allow these "hot" parts to come in contact with your bare skin or wet clothing.
- Separate yourself from the arcing 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 a plasma cutting operation.
- Always attach the ground clamp to the piece to be cut and as close to the cutting area as possible. This will give the least resistance and best cut.

# TROUBLESHOOTING TABLE



See page 11 for test points and values.  
See page 12 for parts location.

SYMPTOM	POTENTIAL PROBLEM	DIAGNOSTIC TEST	SOLUTION
Nothing happens when power switched on	No or low A/C Voltage Source (120 or 240V AC)	Check A/C Voltage at Wall Outlet (0V AC)	Reset or replace circuit breaker or repair wall circuit.
	Loose or open connections at Power Switch	Visual and continuity test at switch connection	Repair loose/open connection
	Faulty Power Switch	Verify power switch function	Replace faulty power switch
	Faulty Fan	Check for 24V DC at X3 on Bottom Board	If 24V DC at X3, and Fan not running, replace Fan.
Unit powers up but fan not running	Open or Loose Connection in Fan Circuit	Visual/Continuity Check of Fan Connections	Repair loose/open in Fan Circuit
	Faulty Fan	24V DC at X3 on Bottom Board, Fan Circuit has Continuity	Replace Fan
	Faulty Control Board	0V at X3 on Bottom Board	Replace Bottom Board
Unit trips circuit breaker immediately when switched on	Internal Wiring Short Circuit	Inspect power circuit inside unit for short circuit and connectors on Bottom Board	Repair Internal Wiring or Replace Bottom Board if connector damaged
	Short Circuit on Bottom Board	Inspect Bottom Board for Short/Damage	Replace Bottom Board
	Short Circuit on Top Board	Inspect MOSFETs on Top Board for Signs of Damage	Replace Top Board
Unit turns on but power light not on	Open or Loose Connection in Power Light Circuit	Inspect Power Light circuit for loose or open connection	Repair loose/open circuit
	Faulty Top Board	0V DC at X9 on Top Board	Replace Top Board
	Faulty Power Indicator Light	2V DC at X9 on Top Board	Replace Power Indicator Light
Overload light on	Duty Cycle Exceeded	Wait 5 Minutes for Unit to Cool	Restart Unit after Cooling Off
	Open or Loose connection between Top Board and Middle Board	Check connection between X5 on Top Board and Con 1 on Middle Board	Repair loose/open circuit
	Faulty Top Board	Inspect Top Board for signs of damage	Replace Top Board
	Faulty Middle Board	Inspect Middle Board for signs of damage	Replace Middle Board
	Faulty Bottom Board	Inspect Bottom Board for signs of damage	Replace Bottom Board



# TROUBLESHOOTING TABLE



See page 11 for test points and values.  
See page 12 for parts location.

SYMPTOM	POTENTIAL PROBLEM	DIAGNOSTIC TEST	SOLUTION
No air flow or pilot arc when trigger pulled	Faulty Torch Trigger	Measure resistance across trigger terminal when trigger puller (should = 0 ohms)	Replace Torch if switch faulty
	Loose or Open Connection in Torch Trigger Circuit	Visual and continuity check of trigger wiring and connection	Repair loose/open connection
	Faulty Trigger isolation board	Short across pins 1 and 3 on Con 6 on the Bottom Board	If unit operates, replace Trigger Isolation Board
	Loose connection between Top Board and Bottom Board	Check connection from X2 on Top Board and Con 7 on Bottom Board	Repair Loose Connection
	Faulty Bottom Board	Check Voltage across pin 1 and 7 on X3 on Top Board (Should be 310V DC)	If Voltage = 0V DC, Replace Bottom Board
	Faulty Top or Bottom Board	On top board, measure voltage between pin 2 on X4 and metal top (drain) of MOSFET Q17. Voltage should drop from 27V to 15V when triggering unit.	If Voltage Drops, replace Top Board. If no drop, change Bottom Board. If unit still doesn't work, change both boards.
Pilot Arc but no Air Flow when Trigger Pulled	Air Supply Off or Blocked	Check air lines and connections for blockage for loose connections (including torch)	Re-attached, unblock, or replace air supply lines as needed
	Faulty Air Solenoid	When trigger pulled, listen for Gas Solenoid click and check for 24V DC at Con 8 on Bottom Board	If 24V DC at Con 8 and no Click, Replace Gas Solenoid
	Faulty Bottom Board	Check for 24V DC at Con 8 on Bottom Board	If 0V DC at Con 8, replace Bottom Board
Air flow but no Pilot Arc when trigger pulled	Open or Loose Internal Connection Between Top Board and Bottom Board	Check connection between X2 on the Top Board and X7 on the Bottom Board. Check connections at PCON 3 and PCON 4 on the Bottom Board.	Repair loose connection.
	Faulty Capacitors	Visually check 4 large capacitors on bottom board	Replace Bottom Board if damaged
	Faulty Reed Switch	Unplug reed switch (Con 11 on Bottom Board). Touch reed switch with a strong magnet. Switch should close when touched by magnet.	If switch does not close replace Reed Switch
	Faulty Arc Gap on Bottom Board	Arc Gap should be 1/16" and free of dirt and oxidation	Clean and adjust Arc Gap as necessary
	Faulty Bottom or Top Board	No pilot arc after above actions	Replace Bottom Board. If unit still doesn't work, replace Top Board.

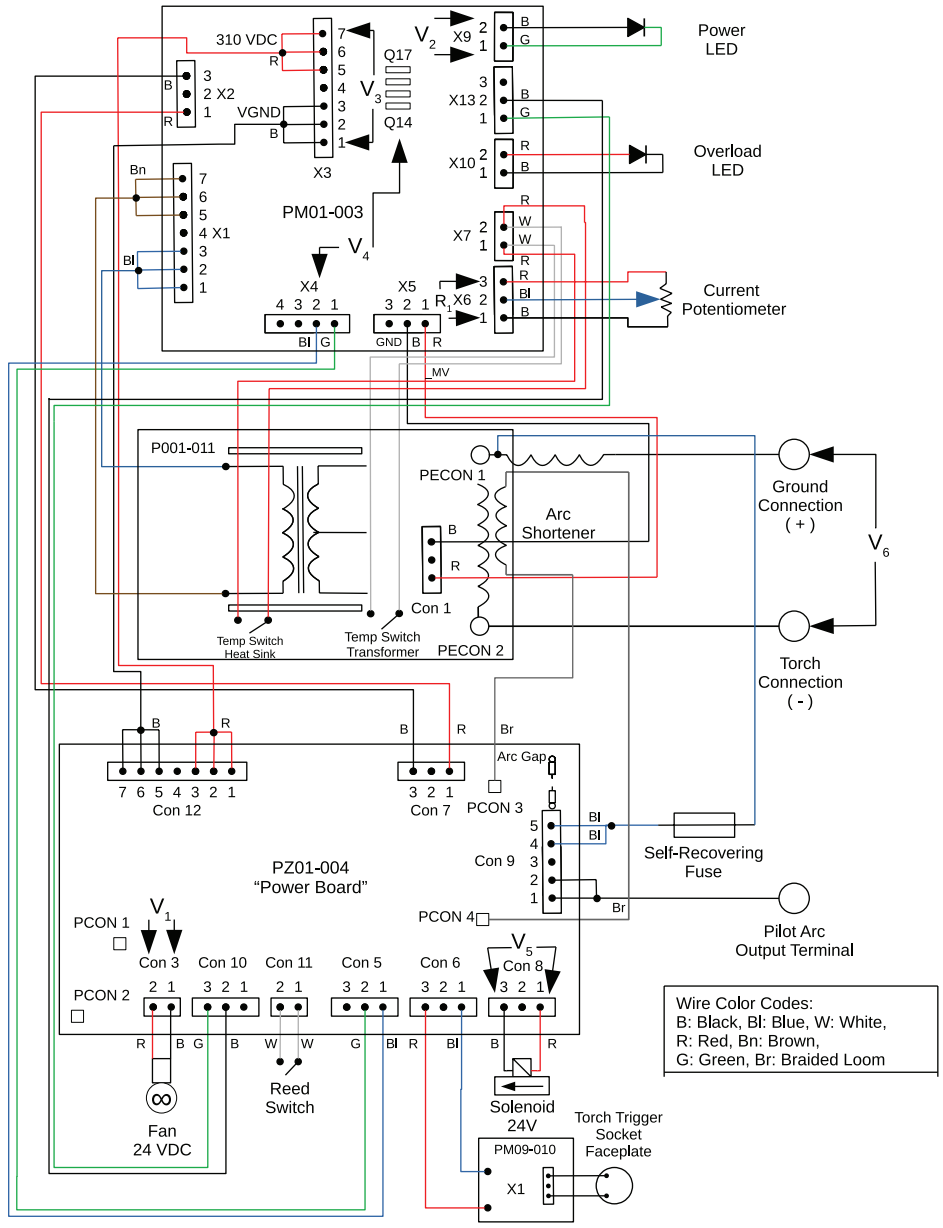
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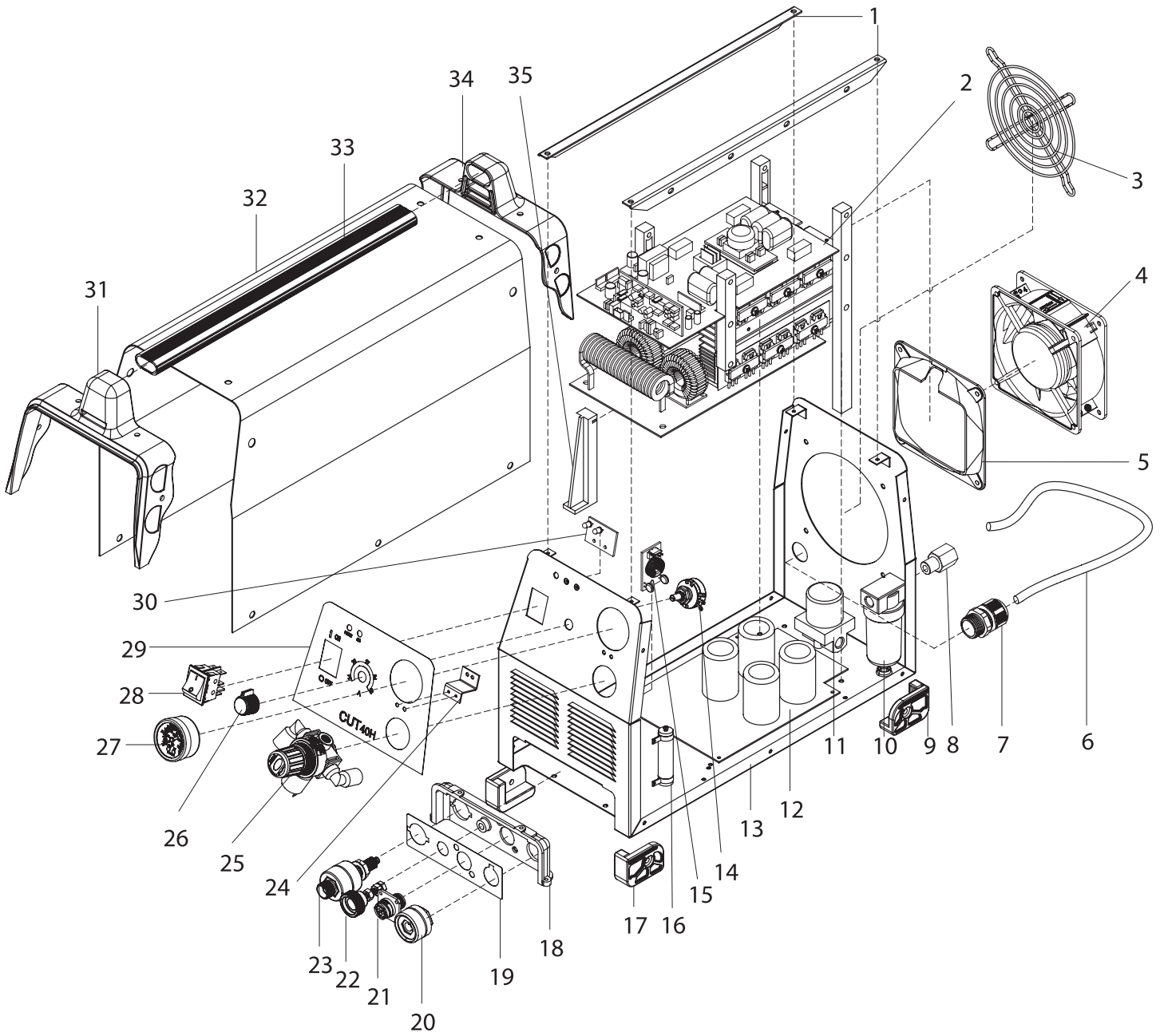
SYMPTOM	POTENTIAL PROBLEM	DIAGNOSTIC TEST	SOLUTION
Weak or unstable cutting arc	Low Supply Voltage (possible undersized wiring or extension cord)	Check input voltage (120 or 240V AC).	If less than 120V/240V AC address line voltage
	Loose internal connections	Check for loose connections in internal power circuit	Repair loose connection
	Faulty Current Potentiometer	Check function of Potentiometer, 0 to 1 kOhm	Replace Potentiometer if Faulty
	Faulty Bottom Board	Check Voltage between pins 1 and 7 of X3 on Top Board	If <310V DC, Replace Bottom Board
	Faulty Top Board		If 310V DC, Replace Top Board
No delay in air flow shut off when trigger released	Faulty Bottom Board	Operate unit. Ensure normal operation noting delay time in solenoid closing after trigger released. Delay should be approximately 10 sec.	If no delay, Replace Bottom Board
Pilot arc but no cutting arc	Loose or Damaged Torch Connections	Inspect Torch for damage or loose connections	Repair loose connections
	Loose or Poor Ground Connection	Inspect ground circuit for poor or loose connections	Repair loose connections
	Torch Nozzle or Electrode Damage	Inspect Torch nozzle and electrode for damage	Replace damaged components
	Faulty 20W 1.8 Ohm Resistor	Disconnect lead from 1 side of resistor from Bottom Board and check resistance	Replace Resistor if <1.8 Ohm
	Faulty Top Board	Steps above fail to correct problem	Replace Top Board
	Faulty Bottom Board	Steps above fail to correct problem	Replace Bottom Board
Pilot arc continues while cutting	Faulty Reed Switch	Unplug reed switch (Con 11 on Bottom Board). Touch reed switch with a strong magnet. Switch should close when touched by magnet.	If switch does not close, replace Reed Switch
	Faulty Arc Gap on Bottom Board	Arc Gap should be 1/16" and free of dirt and oxidation	Clean and adjust Arc Gap as necessary
	Faulty Bottom Board	Steps above fail to correct problem	Replace Bottom Board

# CIRCUIT DIAGRAMS WITH TEST VALUES



VOLTAGE READINGS	
V1	Fan Voltage – 24V DC Input Voltage – 120V AC with Power Switch ON
V2	Power LED Voltage – 2V DC with Power Switch ON
V3	Power to Top Board – 310V DC
V4	Voltage from Ground to MOSFET Drains – 27V DC untriggered, 15V DC triggered
V5	Gas Solenoid Voltage – 24V DC with Gun Trigger Pulled
V6	Output Voltage – 390V DC <b>NOTE:</b> Disconnect plug X2 on top board before measuring
R1	Potentiometer Resistance – 0 to 1 kOhm
R2	20W Resistor – 1.8 Ohm

# EXPLODED VIEW WITH PARTS LIST



REF #	ITEM #	DESCRIPTION
1	Not Available	Support Beam (2)
2	22514	Upper Board
2	22515	Middle Board
3	Not Available	Fan Guard
4	22517	Fan
5	Not Available	Air Deflector
6	Not Available	Power Cable
7	Not Available	Power Cable Strain Relief
8	Not Available	Gas Inlet
9	Not Available	Left Plastic Foot
10	21265	Moisture Separator
11	33104	Air Solenoid
12	22516	Power (Bottom) Board
13	Not Available	Housing Base Plate
14	22519	Potentiometer
15	Not Available	Torch Trigger Isolation Board
16	Not Available	Resistor
17	Not Available	Right Plastic Foot
18	Not Available	Lower Front Panel
19	Not Available	Lower Front Panel Face Plate
20	Not Available	Ground Cable Quick Connector
21	Not Available	Torch Switch Connector
22	Not Available	Pilot Arc Ignitor
23	Not Available	Torch Connector
24	Not Available	Air Gauge Support
25	21261	Air Regulator Valve
26	Not Available	Output Knob
27	Not Available	Air Pressure Gauge
28	22513	Power Switch
29	Not Available	Front Panel Upper Face Plate
30	Not Available	Front Panel Indicator Light Board
31	Not Available	Upper Front Plastic Cover
32	Not Available	Upper Housing
33	Not Available	Handle
34	Not Available	Upper Rear Plastic Cover
35	Not Available	Circuit Board Support
Not Shown	20173	Plasma Torch (Metal Connector)
Not Shown	21263	Ground Cable
Not Shown	22510	Capacitor
Not Shown	Not Available	Gas/Air Hose
Not Shown	Not Available	Reed Switch







## REPLACEMENT ITEMS:

- #20173 Plasma Cutter Torch Assembly
- #12812 Electrode (10pk)
- #12814 Nozzle (10pk)
- #13787 External Nozzle
- #13788 Air Diffuser(2pk)
- #20282 Cut 40 Consumables Kit
- #20619 Plasma Cut 40 Cover

See our complete line of consumables and parts at [www.eastwood.com](http://www.eastwood.com)

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**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](mailto:tech@eastwood.com)

The Eastwood Company 263 Shoemaker Road, Pottstown, PA 19464, USA

800.343.9353 [eastwood.com](http://eastwood.com)