

*Eastwood®*

DO THE JOB RIGHT.®

Item #66725

# VERSA-CUT 40 CNC PLASMA CUTTER

## ASSEMBLY AND OPERATING INSTRUCTIONS



The **EASTWOOD VERSA-CUT 40 CNC PLASMA CUTTER** is the best solution for making clean, fast cuts through steel, stainless or aluminum as thin as 24-gauge, or as thick as 3/8" using a hand torch while adding CNC operation features and functionality. Compared to our standard Versa-Cut 40 with high frequency start, the Versa-Cut 40 CNC features a blowback pilot arc to minimize the possibility of interference. Additionally, the rear mounted 12-pin plug is ideal for hardwiring dedicated CNC plasma table controls with or without a height controller. Dual voltage capability allows the versatility to plasma cut with 120V household outlets and receptacles, or full 240V power when available.

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

This units emits a powerful high voltage and extreme heat which can cause severe burns, electrical shock and death.

## 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 (or to the extent required by applicable law, the delivery of the product) 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:

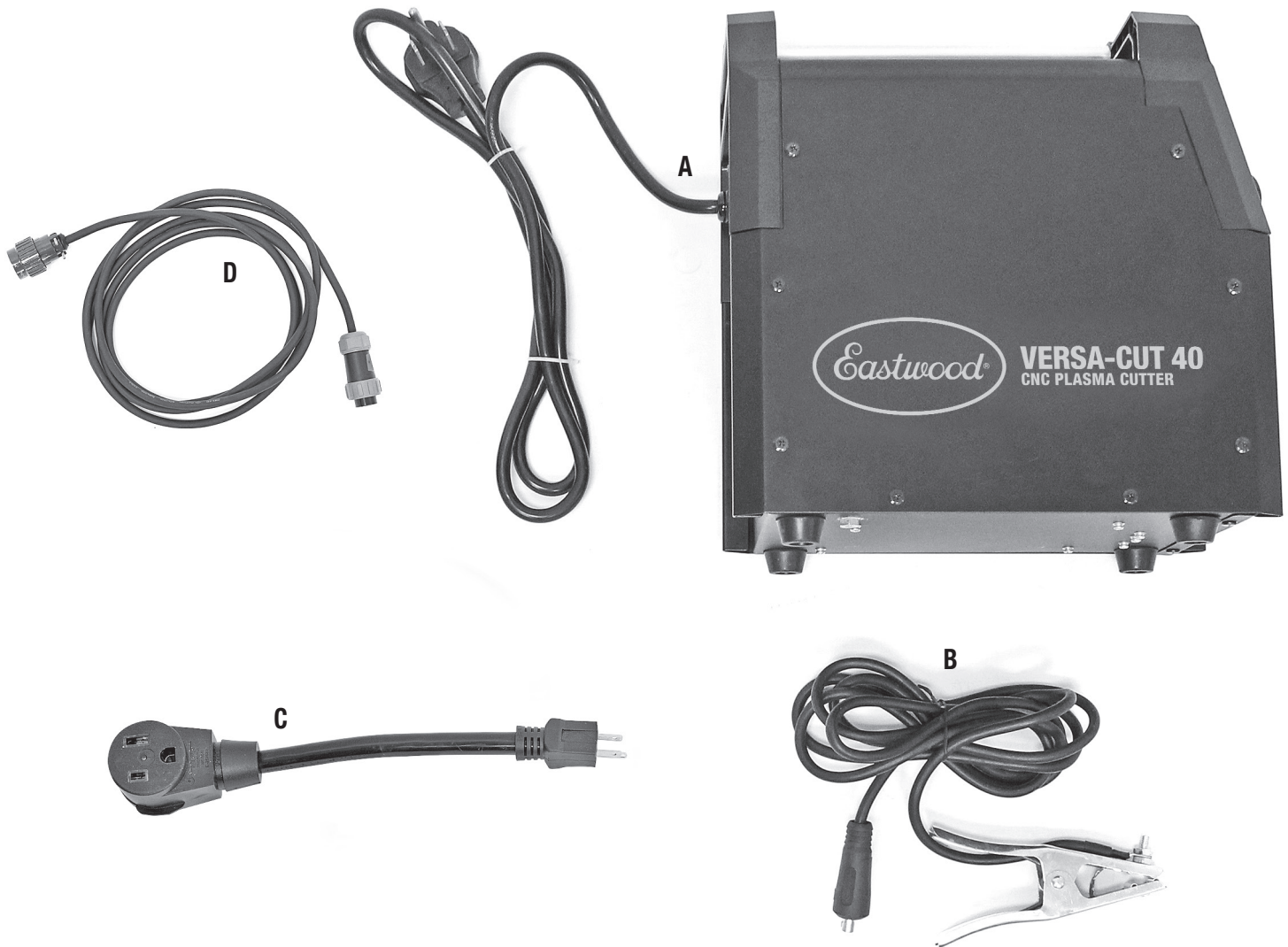
The purchaser is responsible for shipment to and from Eastwood.

### 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.

## INCLUDES

- (1) Versa-Cut 40 CNC Plasma Cutter [A]
- (1) Ground Clamp with 10' [3m] Cable [B]
- (1) Adapter Cord, 8" [0.2m] [C]
- (1) Plasma Cutter to CNC Table Cable 10' [3m] [D]



## SPECIFICATIONS

<b>Power Voltage (V):</b>	<b>120V</b> ±10% VAC, 50/60 Hz, 1 Phase	<b>240V</b> ±10% VAC, 50/60 Hz, 1 Phase
<b>Maximum Output No Load Voltage (V):</b>	339V DC	
<b>Rated Input Current (Amps):</b>	<b>120V:</b> 19.7 Amps	<b>240V:</b> 27.4 Amps
<b>Output Voltage:</b>	<b>120V:</b> 86V to 92V	<b>240V:</b> 86V to 96V
<b>Output Current Range (Amps):</b>	<b>120V:</b> 15 to 30 Amps	<b>240V:</b> 15 to 40 Amps
<b>Duty Cycle (%) 120V:</b>	60% @ 16 Amps, 100% @ 15 Amps	
<b>Duty Cycle (%) 240V:</b>	60% @ 40 Amps, 100% @ 31 Amps	
<b>Air Requirements:</b>	5 - 7 CFM @ 60 psi	
<b>Maximum Material Thickness:</b>	3/8"	
<b>Weight:</b>	24.47 lbs. [11.1kg]	
<b>Dimensions:</b>	14.06" x 8.46" x 14.69" [357mm x 215mm x 373mm]	

## DUTY CYCLE

The rated Duty cycle refers to the amount of plasma cutting that can be done within an amount of time. It is easiest to look at your plasma cutting time in blocks of 10 Minutes and the Duty Cycle being a percentage of that 10 Minutes. If plasma cutting at 40 Amps with a 60% Duty Cycle, within a 10 Minute block of time you can plasma cut for 6 Minutes with 4 Minutes of cooling for the Plasma Cutter.

If the Duty Cycle is exceeded, and the built-in Breaker is tripped, allow the unit to cool for a minimum of 15 minutes. When a safe temperature has been reached, the Plasma Cutter can be switched back on. To increase the duty cycle, turn down the Amperage Output control.

## OVERLOAD PROTECTION

The Eastwood Versa-Cut 40 CNC Plasma Cutter is equipped with an overload protection. This device will protect the plasma cutter if the duty cycle is exceeded. If the output is exceeded, the breaker will trip, the AMBER Overtemp Indicator will illuminate and cut off the power supply to the torch although the fan will still run to cool the unit. This protection circuit must be reset manually by switching the unit back ON. Before restarting the unit allow the Plasma Cutter to cool for a minimum of 15 minutes or until the AMBER Overtemp Indicator goes out.

## SAFETY INFORMATION

### IMPORTANT NOTE:

These instructions are intended only to provide the user with some familiarity of the Eastwood Versa-Cut 40 CNC Plasma Cutter. Electric arc cutting, interchangeably known as plasma cutting, is a highly complex procedure with many variables. If you have no prior 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 video and obtain a good quality reference book on electric arc cutting as there is a moderate learning curve necessary before achieving proficiency. Many welding practices, especially safety practices, transfer over to electric arc cutting directly. It is also strongly recommended that the user adhere to the American Welding Society guidelines, codes and applications prior to making cuts where safety is affected.

Plasma cutting can be dangerous to you and other persons in the work area. Read and understand this instruction manual before using this Eastwood plasma cutting machine. Injury or death can occur if safe plasma cutting 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](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 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

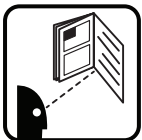
WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

### 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.



### READ INSTRUCTIONS

- Thoroughly read and understand these product instructions before using the Eastwood Versa-Cut 40 CNC Plasma Cutter.
- Keep these product instructions for future reference.

# SAFETY INFORMATION



## **⚠ 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, when installing or removing electrodes and 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 and arc rays.
- 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 plasma cutting 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 plasma cutting operation.
- Always attach the Ground Clamp to the piece to be cut and as close to the plasma cutting area as possible. This will give the least resistance and best cut.



## **⚠ DANGER** PLASMA CUTTING SPARKS CAN CAUSE FIRE OR EXPLOSION!

- Plasma cutting produces sparks which can be discharged considerable distances at high velocity igniting flammable or explosive vapors and materials.  
**DO NOT** operate the 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 plasma cutting 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.



## **⚠ 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 plasma cutting operations.
- Exposure to the electromagnetic fields generated while plasma cutting may have other health effects which are not known.



## **⚠ WARNING** ARC RAYS CAN INJURE EYES AND CAUSE BURNS!

- 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 #5) to protect your eyes from sparks and the rays of the arc when plasma cutting or when observing the plasma arc cutting (see ANSI Z49.1 and Z87.1 for safety standards).
- Use suitable clothing (long pants, long sleeves, closed toe shoes, gloves) made from durable flame-resistant material for skin protection.
- If other persons or pets are in the area of plasma cutting, use welding screens to protect bystanders from sparks and arc rays.



## **⚠ WARNING** FUMES AND PLASMA CUTTING 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 extreme caution when plasma cutting coated materials including but not limited to: cadmium plated, galvanized, lead based paints, powder coat.



# SAFETY INFORMATION



## **⚠ WARNING FIRE HAZARD!**

- The heat and sparks of plasma cutting operations can easily start a fire.  
**DO NOT** allow the plasma cutter to operate unsupervised as part of a CNC plasma cutting table or by any computer-controlled means.
- Always disconnect the Plasma Cutter from the electrical power supply before leaving it unattended for long periods of time.



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

- 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.



## **⚠ CAUTION INJURY HAZARD!**

- Use caution not to trip on plasma cutter cables, air hoses or wires when in use plasma cutting.
- Accidental triggering of the plasma cutter by a computer-controlled device could result in personal injury.  
Unplug the Plasma Cutter to CNC Table Cable before performing manual cutting operations with the plasma cutter.



## **⚠ NOTICE FIRST AID!**

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

# CONNECTING THE PLASMA CUTTER TO A POWER AND AIR SOURCE

The Eastwood Versa-Cut 40 CNC Plasma Cutter requires a dedicated 240 VAC, 50 AMP, circuit breaker protected outlet. The plug installed on the Welder is a NEMA 6-50P and should be used with a NEMA 6-50R receptacle. If unsure about your electrical setup contact a licensed electrician.

As an alternative, by using the included Adapter Cord, the Versa-Cut 40 CNC can be used with a 120 VAC, 20 AMP grounded NEMA 5-15R outlet protected by a circuit breaker.

If using an extension cord is required, we recommend using our Welder Extension Cords for optimal performance: Eastwood items #31739 25ft Heavy Duty 110V Extension Cord, #20029 25ft Heavy Duty 220V Extension Cord, and #20285 40ft Heavy Duty 220V Extension Cord.

Plasma cutting also requires a pressurized air source. The air must be clean and dry and requires 5-7 CFM @ 60 psi. Usage of a moisture trap is strongly recommended. Air is connected via the rear panel mounted 1/4" Female NPT input.

## CONTROL PANEL AND FEATURES

### FRONT PANEL (FIG 1)

- [1] **Pressure Control.** Pull out then turn knob to increase (+) or decrease (-) pressure. To lock, push in.
- [2] **Pressure Gauge.** Adjust the pressure control while air is flowing through the torch to get 60psi.
- [3] **Amperage Control.** Adjust amperage from 15A to 40A on 240VAC power, 15A to 30A on 120VAC power.
- [4] **Amperage Display.** Shows the set plasma cutting amperage.
- [5] **Plasma Cutting Mode Setting.** Push button switches between TEST, 2T, and 4T modes.
- [6] **Overload Indicator.** Illuminates AMBER when the Duty Cycle has been exceeded, the plasma cutter is overloaded or if other abnormalities exist.
- [7] **Plasma Torch Air/Power Connection.**
- [8] **Pilot Arc Ignitor Connection.**
- [9] **Plasma Torch Trigger Connection.**
- [10] **Ground Clamp Connection.**

### REAR PANEL (FIG 2)

- [a] 120/240 VAC Power Cord
- [b] Input Air Connection
- [c] ON/OFF Switch
- [d] 12-Pin CNC Control Connection

FIG. 1



FIG. 2



# CUT 40 CNC SET-UP

The Eastwood Versa-Cut 40 CNC Plasma Cutter is factory set-up for plasma cutting any material and thickness after the connections are attached.

## INSTALLING THE GROUND CABLE AND CLAMP

- Locate the 10 ft. Ground Cable/Clamp Assembly [B] and connect the plug on the brass end to the Ground Clamp Connection on the Plasma Cutter [10]. Align the key of the brass ferrule with the notch of the receptacle at the 12:00 position, insert the plug and twist Clockwise 1/2 turn until it is tight (FIG 3).

## CONNECTING AIR SUPPLY

- Place the Eastwood Versa-Cut 40 CNC Plasma Cutter in a secure dedicated area or on a welding cart (not included).
- Install a quick connect 1/4" Male NPT fitting, or directly connect an air line with a 1/4" Male NPT fitting to the 1/4" Female NPT port at the rear of the plasma cutter [b]. Usage of White Thread Sealing Tape, or similar, on this connection is recommended for a complete seal.
- Tighten the fitting with a wrench until snug, do not over tighten.
- For best consumable life, 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 40 CNC Plasma Cutter has an internal, built-in "last-chance" moisture separator with the outlet port located at the rear underside of the unit (FIG 4). This drains automatically whenever the compressed air source is removed.

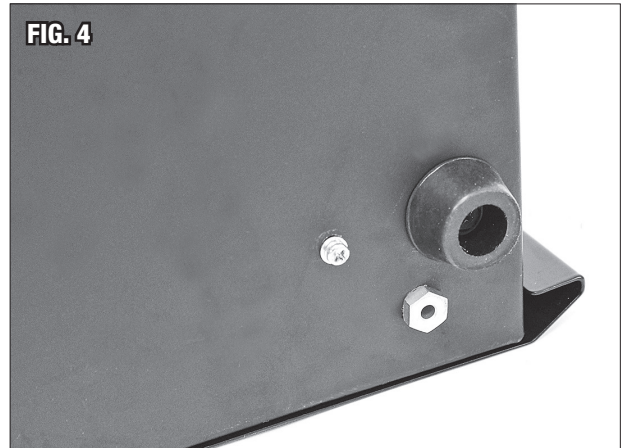
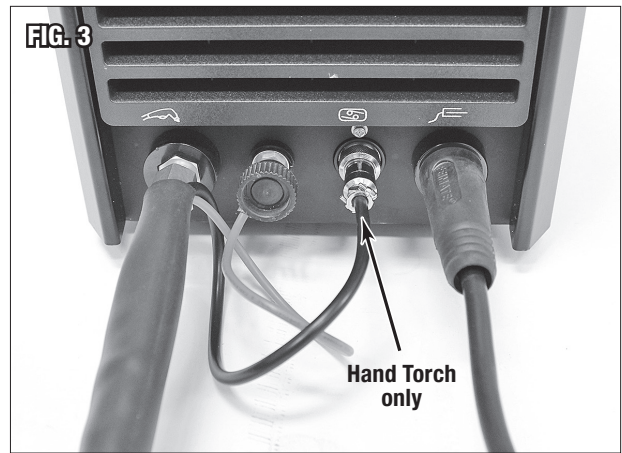
## INSTALLING A PLASMA CUTTING TORCH

The Eastwood Versa-Cut 40 CNC Plasma Cutter **does not include** a plasma cutting torch. You must purchase the torch separately. Eastwood offers two torches, one for making manual cuts by hand and one for use with a CNC plasma table. Use the following steps to connect either torch.

The Hand Plasma Torch (#66724) is similar to the torches included with our other plasma cutters. It features a manual trigger, with the nozzle perpendicular to the grip for ergonomic use. The length of the cable is 20' [5.9m].

The Machine Plasma Torch(#66723) is designed strictly for use in a CNC plasma table. It has no trigger, and the nozzle is inline with the torch body for easy mounting. The consumables are larger and more durable than that of the hand torch, ideal for the high demand use on a CNC plasma table. The length of the cable is 20' [5.9m].

- Thread the brass air/power fitting onto the connection at the front of the plasma cutter [7] and snug the connection with a wrench. White thread sealing tape is not necessary as the connection utilizes an integral spherical sealing joint. Do not over tighten.
- Remove the thumb knob on the pilot arc ignitor connection [8] and install the pilot arc line ring terminal on the stud, reinstall the thumb knob.
- If the hand plasma torch is being installed, connect the plasma torch trigger connector to the connection point at the front of the plasma cutter [9] and thread the lock ring finger tight. For the machine plasma torch this step may be ignored because it does not have a manual trigger.
- All connections should now be installed as (FIG 3) shows.





## CONNECTING CNC CONTROLS

Included with the Versa-Cut 40 CNC is the Plasma Cutter to CNC Table Cable 10' [3m] [D]. This cable plugs into the 12-Pin CNC Control Connection [d] and allows for direct connection to Eastwood Versa-Cut 4'x 4' CNC Plasma Tables.

- To connect the 12-Pin cable line up the keyed connection and insert. Fasten the plug lock to prevent accidental disconnection (FIG 5).

The Plasma Cutter to CNC Table Cable 10' [3m] [D] may also be modified for use with other manufacturers' CNC Plasma tables and its factory wiring configuration is shown in (FIG 6). The pinout of the rear mounted 12-Pin CNC Control Connection [d] is shown in (FIG 7) and described below:

### **⚠ WARNING** ELECTRIC SHOCK CAN CAUSE HARM!

- Improper wiring practices can lead to electrical shock or start fires. Wiring should only be modified by a licensed electrician.
- Do not connect any leads directly to the plasma cutter front panel outputs.
- Do not connect any wire from a controller directly to the plasma cutter chassis, especially a ground lead.
- Do not install any additional converter or divider inside the machine.

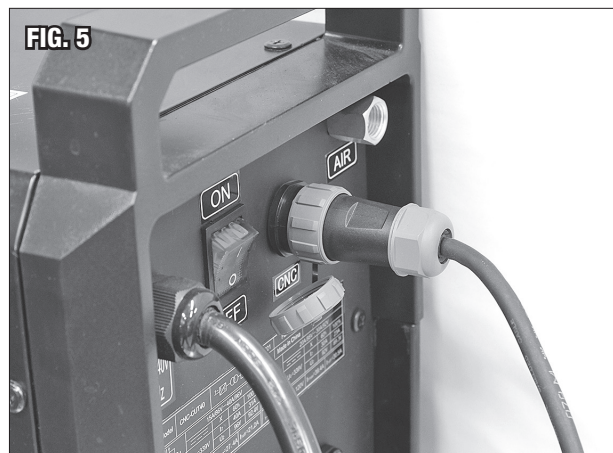
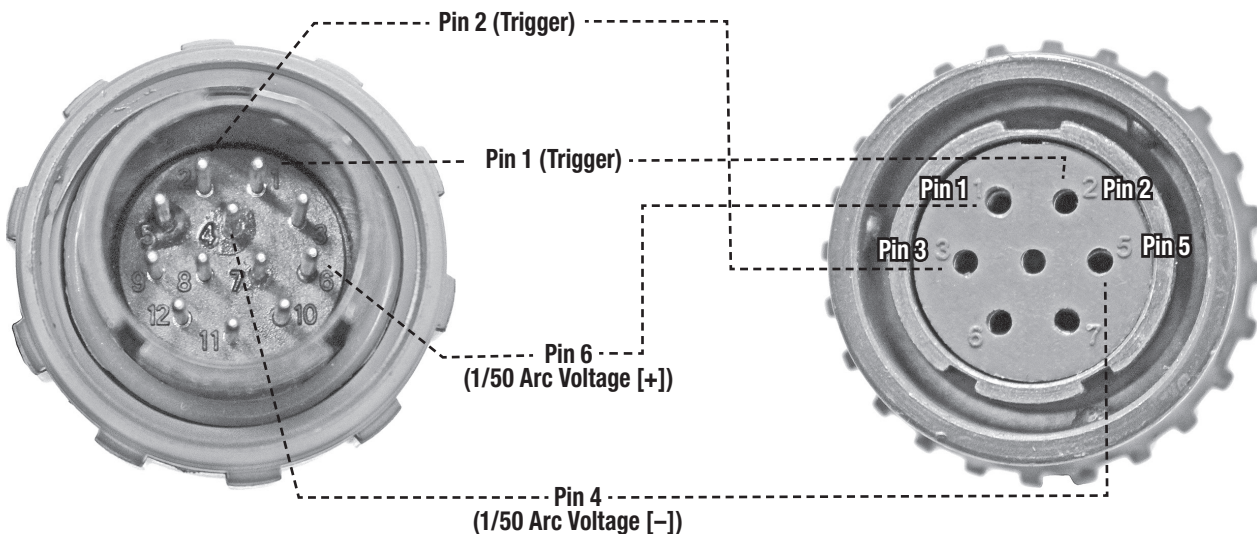


FIG. 6



- When shorted, Pins 1 & 2 activate (trigger) the plasma cutter on.
- Pin 3 is a grounding pin connected internally to the ground clamp lug, which is positive (+) polarity in plasma cutting operations.
- Pins 4 & 6 provide the arc voltage divided by 50 (1/50 arc voltage) for torch height control (THC) operation. Pin 4 is negative (-) polarity and Pin 6 is positive (+) polarity.
- Pins 5 & 7 provide undivided arc voltage for torch height control (THC) operation. The arc voltage goes through a 100kΩ resistor on each side to prevent arcing at the plug. Pin 7 is negative (-) polarity and Pin 5 is positive (+) polarity.
- Pin 8 is unused.
- Pins 9 & 10 are normally open, but close when the plasma cutter transfers from the pilot arc to the cutting arc. This can be used as an "Ok to move" signal with some plasma cut controllers.
- Pins 11 & 12 provide the arc voltage divided by 16 (1/16 arc voltage) for torch height control (THC) operation. Pin 12 is negative (-) polarity and Pin 11 is positive (+) polarity.

## REAR SOCKET

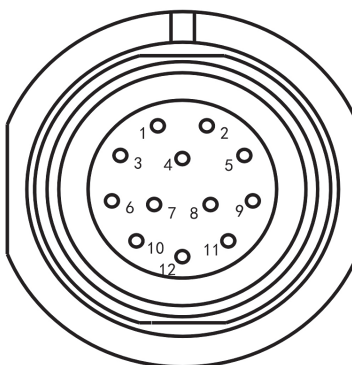
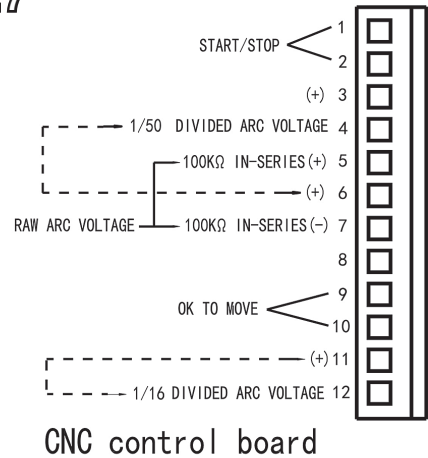


FIG. 7



Pin and Board numbers correspond to each other.  
8 is not used.

# OPERATING THE CUT 40 CNC PLASMA CUTTER

## AIR FLOW ADJUSTMENT

After connecting the air supply, the air flow rate needs to be adjusted so that the proper amount of air is flowing out through the torch.

- With the unit powered on and air supply connected, press the Plasma Cutting Mode Button [5] to cycle to **TEST** mode. Air should now be flowing through the torch.
- Pull the air pressure adjustment knob outward to unlock rotation, adjust pressure on the Pressure Gauge [2] to 60 psi.
- Push the adjustment knob back in to lock it. The air pressure is adjusted correctly.

## PLASMA CUTTING MODES

The Eastwood Versa-Cut 40 CNC Plasma Cutter has multiple trigger modes to select from utilizing the Plasma Cutting Mode Button [5].

Find the best mode for your project by reading the descriptions below.

- **TEST** - This mode is only utilized for testing air flow and making air pressure adjustments.
- **2T** - As with 2T mode on a welder, it will activate plasma cutting for as long as the trigger is held. Good for short duration cuts in open areas. Use this mode for CNC plasma cutting unless your table manufacturer recommends otherwise.
- **4T** - This mode requires one press of the trigger until the plasma cutting has started and the trigger can be released. To stop plasma cutting press the trigger again. 4T mode is helpful for long hand cuts that are fatiguing to hold the trigger for the entire duration, or a tight spot where you physically cannot hold the trigger down.

## HAND PLASMA CUTTING

### **⚠ WARNING** 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, and when installing or removing electrodes and 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.
- 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 plasma cutting 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 plasma cutting operation.

- Start off learning plasma cutting on some scrap metal before moving on to a project or object of value. There is a moderate learning curve before achieving proficiency in plasma cutting.
- Place the Ground Cable Clamp on a clean, bare area of the workpiece. Scrape, wire brush, file or grind to bare metal if necessary to achieve a good ground.
- Verify the air pressure has been adjusted as described in **AIR FLOW ADJUSTMENT**.
- Adjust the output amperage to a suitable level for the material at hand; see the **Versa-Cut 40 CNC Plasma Cutter - Air Pressure and Amperage Settings** chart following this section.
- Make sure all required safety gear is in place (Eye Protection, Welding Gloves, non-flammable long sleeve apparel) and the area is completely free of flammable material.
- To begin plasma 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.
- The best results are achieved by holding the tip at a 90° angle to the cut line (FIG 8).



- The thicker the material, the longer it takes the plasma arc to fully penetrate. This is especially true when starting on the inside of a workpiece. While starting the arc hold the torch steady until it blows completely through, then continue the cut steadily, maintaining full penetration.
- Heavy plate is cleanest to start from an edge, the free space allows for the arc to steadily come into contact with the material and an easy route for the slag to be evacuated from the cut.
- 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 metal up to 3/8" thick.
- While practicing, 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.
- 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 plasma cutting your initials out of a piece of steel.

#### Versa-Cut 40 CNC Plasma Cutter - Air Pressure and Amperage Settings\*

Metal Thickness	1/32"	1/16"	3/32"	1/8"	5/32"	3/16"
Amps	15	15	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

#### ⚠ NOTICE

These settings are base guidelines and may need to be adjusted based on individual techniques.

## MACHINE TORCH CNC PLASMA CUTTING

#### ⚠ WARNING 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, and when installing or removing electrodes and 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.
- 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 plasma cutting 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 plasma cutting operation.

#### ⚠ WARNING FIRE HAZARD!

The heat and sparks of plasma cutting operations can easily start a fire. DO NOT allow the plasma cutter to operate unsupervised as part of a CNC plasma cutting table or by any computer-controlled means.

#### ⚠ NOTICE

Refer to your CNC Plasma Table manual for further use guidance and hazards.



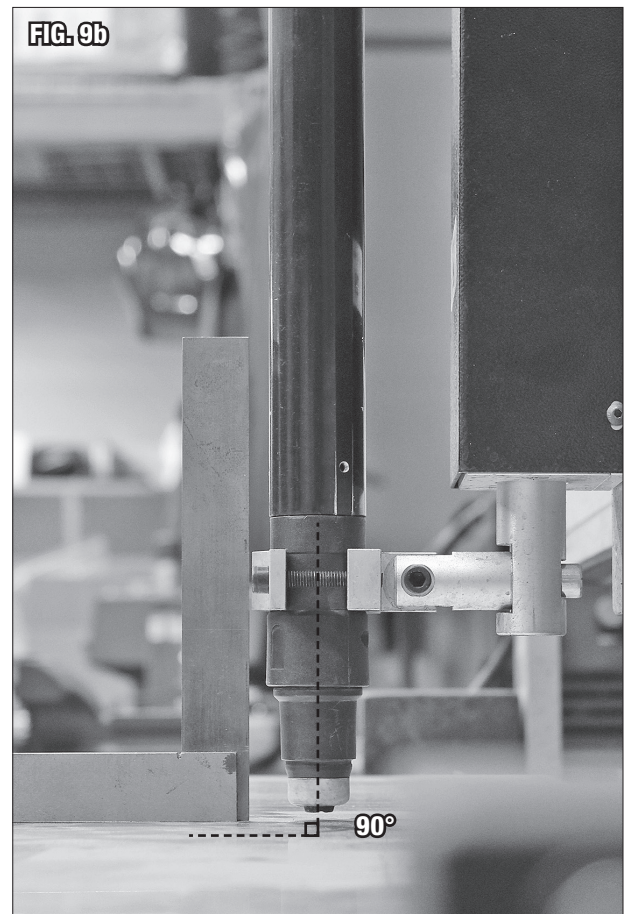
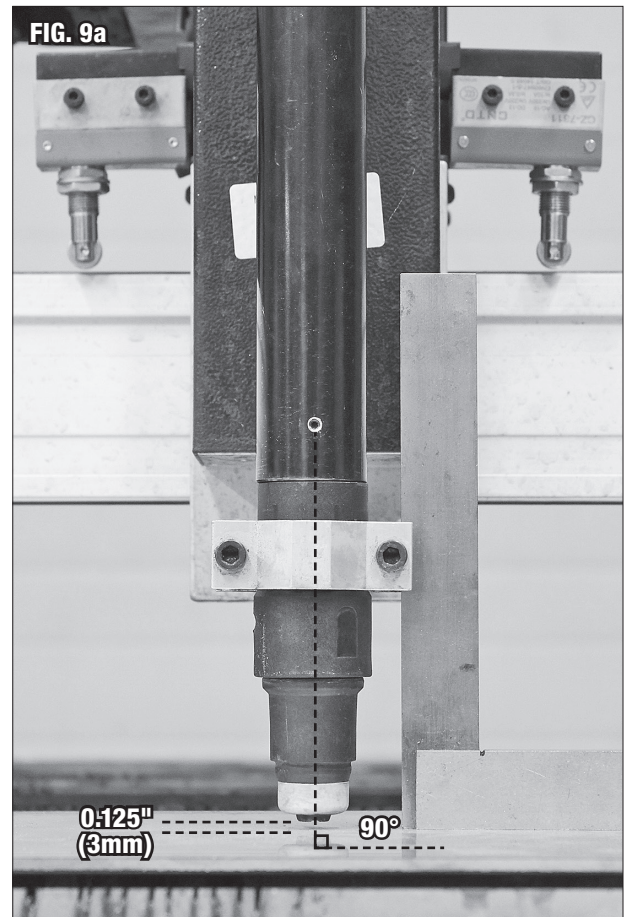
- For best results when CNC plasma cutting make sure the torch is as close to perpendicular (90°) to the workpiece as possible. This will give more consistent, straighter cuts (**FIG 9**).
- Set the torch height to approximately 1/8" [3mm] offset from the workpiece either manually or via automatic height control (**FIG 9**).
- The table below can be used as a baseline reference for setting speeds and pierce times at 40A based off the material thickness being cut. Fine tuning may be required based on the setup, cut goals, workpiece and consumable condition.

Cut Speed Reference Table			
Thickness (inch) - [mm]	Amperage (A)	Cut Speed (ipm) - mm/min]	Pierce Time (sec)
0.0375 (20 gauge) [0.925]	40	(137) - [3500]	0.1
0.050 (18 gauge) [1.27]		(98) - [2500]	0.3
0.0625 (16 gauge) [1.59]		(67) - [1700]	0.5
0.109 (12 gauge) [2.77]		(51) - [1300]	0.8
0.125 [3.18]		(47) - [1200]	0.9
0.25 [6.35]		(39) - [1000]	1.2

**NOTE:** Using this unit to CNC plasma cut material exceeding 1/4" thickness requires significantly reduced travel speeds. This will result in excess dross; consistent with that of a hand cut.

Additionally, the increased pierce time required will greatly accelerate consumable wear and increase the risk of torch damage from slag blow-back. Starting the plasma arc on the edge of thick materials (commonly know as an edge start) reduces wear and risk of damage.

**DO NOT** attempt to cut thicker material than 3/8" when hand cutting or CNC plasma cutting.





# MAINTENANCE

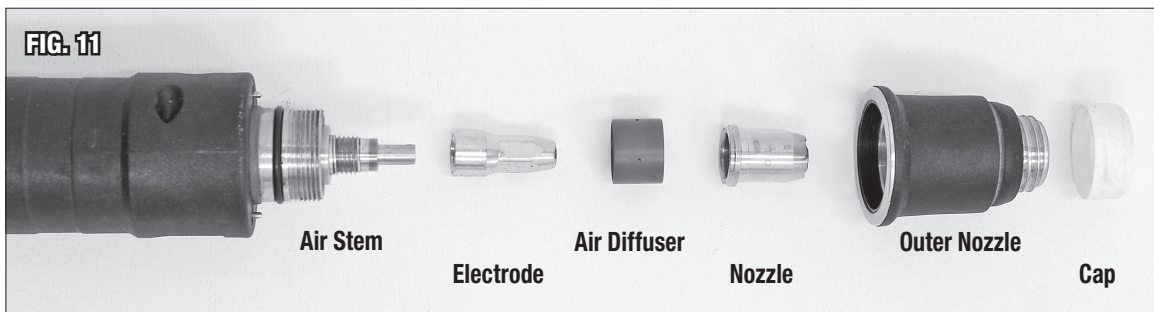
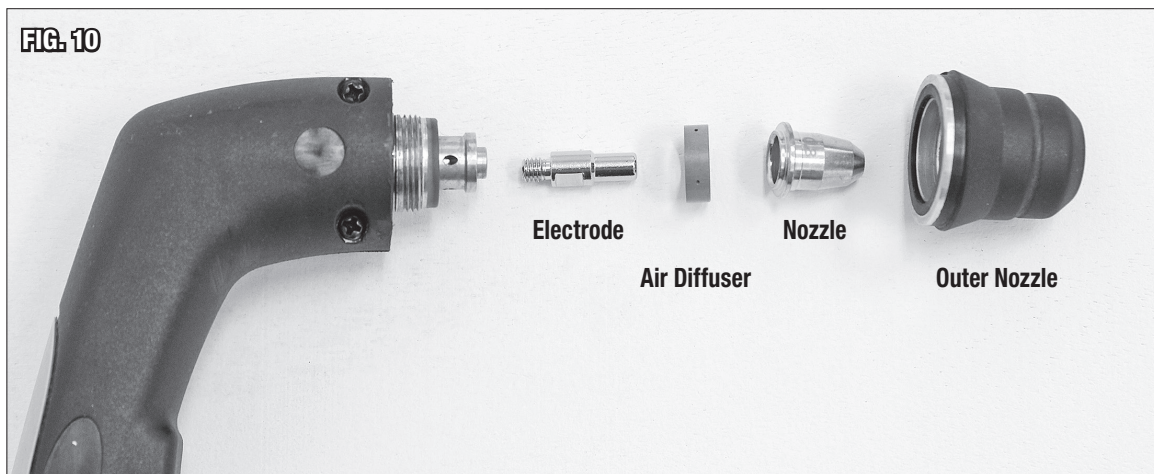
- Constantly inspect the torch nozzle for excessive erosion, molten metal accumulation or burning. If damaged, it must be replaced.
- Before each use, inspect ALL electrical connections, cables, supply line, torch, air supply, housing and controls for damage. If any damage or wear is noted, **DO NOT USE THE UNIT.**
- Always store the unit in a safe, clean and dry environment.

## TORCH MAINTENANCE

The Eastwood Versa-Cut 40 CNC Plasma Cutter torches have several 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 plasma cutting and difficult arc starting.

This plasma cutter has a blowback start, meaning the electrode and nozzle contact until air pressure separates them. The electrode is mounted onto a sprung stem that should depress with finger pressure and spring back unassisted. If it gets stuck in either position the plasma cutter will not function correctly. It is easy to verify this mechanism is working when swapping consumables. If service is needed, pressurized air, brushes, and rubbing alcohol or acetone based products may be used to clean it.

See the hand torch (**FIG 10**) and machine torch (**FIG 11**) exploded view for a reference of all the components and the assembly order.



# TROUBLESHOOTING

## OPERATIONAL PROBLEMS

PROBLEM	CAUSE	CORRECTION
<b>Plasma Cutter Will Not Power Up; GREEN Indicator Does Not Illuminate Power Supply Amp Circuit</b>	Plasma Cutter Not Plugged into Proper Power Supply	Check power supply. The Eastwood Versa-Cut 40 CNC Plasma Cutter requires a properly grounded, 120 Volt AC, 20 Amp or 240 Volt AC, 50 Amp circuit.
	Power Supply Breaker Tripped	Reset breaker.
	Power Switch Not Fully On	Check that Power Switch is fully <b>ON</b> , GREEN indicator illuminates.
	Duty Cycle Exceeded; Plasma Cutter Overheated; AMBER Indicator Illuminated	Turn Power switch <b>OFF</b> , allow Plasma Cutter 5 minutes to cool, then re-try.
<b>Plasma Cutter Shuts Off During Use While the Power Switch is ON, AMBER Indicator Illuminated</b>	Plasma Cutter Duty Cycle Has Been Exceeded	Turn Power switch <b>OFF</b> , allow Plasma Cutter 5 minutes to cool, then re-try.
<b>Water Drips from the Rear Underside of the Unit</b>	The Internal Moisture Trap is Draining	No action required. This feature activates whenever the compressed air source is disconnected.

## CUTTING PROBLEMS

PROBLEM	CAUSE	CORRECTION
<b>Quality of Cut has Degraded/ Cut 40 CNC is Underperforming</b>	Improperly Installed Replacement Consumables	Refer <b>MAINTENANCE</b> for the for proper assembly of torch and consumables.
	Worn or Damaged Consumables	Replace necessary consumables. <b>NOTE:</b> Replace the Nozzle and Electrode as a set together for best performance.
	Poor Panel Connections on Cut 40 CNC Unit	Check that all fittings and connections for torch and ground clamp are fully attached to the Plasma Cutter unit.
	Poor Ground Connection on Workpiece	Check that the ground clamp is properly positioned, and a good ground is established on clean bare metal of workpiece.
	Incorrect Amperage or Air Pressure Settings	Refer to <b>MANUAL PLASMA CUTTING</b> or <b>CNC PLASMA CUTTING</b> for the guideline settings charts.
	Incorrect Cutting Speed	Slow down or speed up Torch movement speed as determined by the work piece material and thickness. Refer to <b>CNC PLASMA CUTTING</b> for the guideline settings charts.
	The Use of an Undersized Gauge and or Too Long of an Extension Cord Causing an Under-voltage Condition	Use only UL approved, 3 conductor grounded Extension cords. We recommend using our Welder Extension Cords for optimal performance: Eastwood items #31739 25ft Heavy Duty 110V Extension Cord, #20029 25ft Heavy Duty 220V Extension Cord, and #20285 40ft Heavy Duty 220V Extension Cord.
	Power Source Voltage Too Low	Check power source voltage. Do not attempt to operate the Cut 40 CNC outside of: 120±10% Volt AC, minimum 20 Amp circuit 240±10% Volt AC, minimum 50 Amp circuit.
	Supply Air Pressure Too Low to Support Plasma Arc	Check air supply pressure. Do not attempt to operate the Versa-Cut 40 CNC below 60 psi while air is flowing.

# TROUBLESHOOTING

## CUTTING PROBLEMS

PROBLEM	CAUSE	CORRECTION
<b>Inconsistent/ Fluctuating Arc</b>	Improperly Installed Replacement Consumables	Refer <b>MAINTENANCE</b> for the for proper assembly of torch and consumables.
	Worn or Damaged Consumables	Replace necessary consumables. <b>NOTE:</b> Replace the Nozzle and Electrode as a set together for best performance
	Poor Panel Connections on Cut 40 CNC Unit	Check that the ground clamp is properly positioned, and a good ground is established on clean bare metal of workpiece.
	Poor Ground Connection on Workpiece	Check that the ground clamp is properly positioned, and a good ground is established on clean bare metal of workpiece.
	Excessive Moisture in the Air Supply	Install an effective moisture separator in the air supply to the Versa-Cut 40 CNC such as the #31633.
	Supply Air Pressure Too Low to Support Plasma Arc	Check air supply pressure. Do not attempt to operate the Versa-Cut 40 CNC below 60 psi while air is flowing.
<b>Plasma Arc Blows Out, Easily Re- Ignites on Successive Trigger Pulls</b>	Torch Being Held Too Far from Workpiece.	Hold torch closer to workpiece, dragging the tip when possible.
	Improperly Installed Replacement Consumables	Refer <b>MAINTENANCE</b> for the for proper assembly of torch and consumables.
	Worn or Damaged Consumables	Replace necessary consumables. <b>NOTE:</b> Replace the Nozzle and Electrode as a set together for best performance.
	Air Supply Line to Cut 40 CNC Undersized	To provide adequate flow, an air supply line with a minimum of 3/8" I.D. is required.
	Supply Air Pressure Too Low to Support Plasma Arc	Check air supply pressure. Do not attempt to operate the Versa-Cut 40 CNC below 60 psi while air is flowing.
<b>Arc Will Not Transition from Pilot to Cutting Arc</b>	Poor Ground Connection on Workpiece	Check that the ground clamp is properly positioned, and a good ground is established on clean bare metal of workpiece.
	Worn Out or Damage Ground Clamp	Replace or repair ground clamp.
	Torch Being Held Too Far from Workpiece	Hold torch closer to workpiece, dragging the tip when possible.
	Supply Air Pressure Too Low to Support Plasma Arc	Check air supply pressure. Do not attempt to operate the Versa-Cut 40 CNC below 60 psi while air is flowing.

# TROUBLESHOOTING

## CUTTING PROBLEMS

PROBLEM	CAUSE	CORRECTION
<b>Cut Will Not Continue All The Way Through the Workpiece</b>	Improperly Installed Replacement Consumables.	Refer <b>MAINTENANCE</b> for the for proper assembly of torch and consumables.
	Worn or Damaged Consumables.	Replace necessary consumables. <b>NOTE:</b> Replace the Nozzle and Electrode as a set together for best performance.
	Incorrect Amperage or Air Pressure Settings.	Refer to <b>MANUAL PLASMA CUTTING</b> or <b>CNC PLASMA CUTTING</b> for the guideline settings charts.
	Incorrect Cutting Speed.	Slow down or speed up Torch movement speed as determined by the work piece material and thickness. Refer to <b>CNC PLASMA CUTTING</b> for the guideline settings charts.
	Poor Panel Connections on Cut 40 CNC Unit.	Check that all fittings and connections for torch and ground clamp are fully attached to the Plasma Cutter unit.
	Poor Ground Connection on Workpiece.	Check that the ground clamp is properly positioned, and a good ground is established on clean bare metal of workpiece.
	Air Supply Line to Cut 40 CNC Under-sized.	To provide adequate flow, an air supply line with a minimum of 3/8" I.D. is required.
	Supply Air Pressure Too Low to Support Plasma Arc.	Check air supply pressure. Do not attempt to operate the Versa-Cut 40 CNC below 60 psi while air is flowing.
	Maximum Recommended Material Thickness Exceeded.	Do not attempt to exceed the cutting thickness capability of the Versa-Cut 40 CNC: 120VAC: 1/8" 240VAC: 3/8"



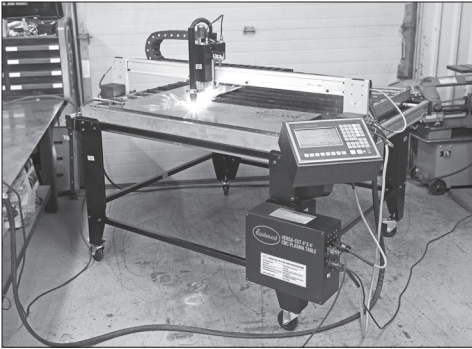
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# ADDITIONAL ITEMS

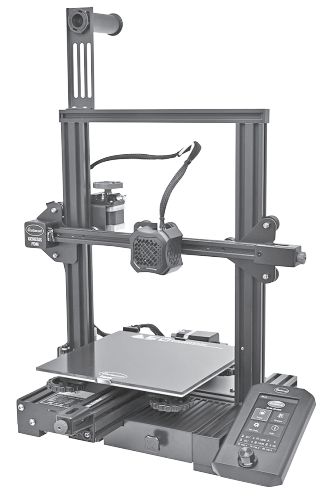
## R&D MUST-HAVE ACCESSORIES



**#66276**  
Eastwood Versa-Cut 4' x 4' CNC Plasma Table



**#65375**  
Eastwood Elite AC/DC MP200i Welder



**#60381**  
Eastwood Genesis FDM 3D Printer

Visit [eastwood.com](http://eastwood.com) for complete info and pricing.

## TORCHES

- #66724** Hand Plasma Torch
- #66723** Machine Plasma Torch

## CONSUMABLE ITEMS

- #66721** Hand Torch Electrode (5 Pack)
- #66720** Hand Torch Nozzle (5 Pack)
- #66719** Hand Torch Air Diffuser (2 Pack)
- #66718** Hand Torch Wire Guide (2 Pack)
- #66717** Hand Torch Outer Nozzle (2 Pack)
- #66716** Machine Torch Electrode (10 Pack)
- #66715** Machine Torch Nozzle (10 Pack)
- #66714** Machine Torch Air Diffuser (2 Pack)
- #66713** Machine Torch Air Stem (2 Pack)
- #66712** Machine Torch Cap (5 Pack)
- #66711** Machine Torch Outer Nozzle Pack (2 Pack)

## OPTIONAL ITEMS

- #13689** Eastwood Plasma Cutting Guide
- #13848** Plasma Cutting Glasses
- #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
- #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

## REPLACEMENT ITEMS

- #66722** Plasma Cutter to CNC Table Cable 10' (3m)

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)

PDF version of this manual is available at [eastwood.com](http://eastwood.com)

The Eastwood Company 263 Shoemaker Road, Pottstown, PA 19464, USA 800.343.9353 [eastwood.com](http://eastwood.com)

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