



CUT60Hsv CUT40Hsv



Operator's Manual

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www.weldpro.com




Introduction

Thank you for purchasing the W Weldpro CUT60Hsvplasma cutter. This machine is designed and built using the very best quality components to afford a great cutting experience and great performance.

The purpose of the following information is to provide additional help and understanding for both the set up of this machine as well as for a better understanding of cutting in general. For your safety and that of others, please read this manual carefully.

Attention

Pay attention to the words following the signs below.

Sign	Description
 DANGER	The word following this sign means that there is great potential danger, which may cause a major accident, damage or even death, if the instructions are not followed.
 WARNING	The word following this sign means that there is some potential danger, which may cause bodily injury or property damage, if the instructions are not followed.
 ATTENTION	The word following this sign means that there is potential risk, which may cause malfunctions and/or breakdowns, if the instructions are not followed.

Edition

The contents of this manual are updated regularly in order to include all product updates. The manual is to be used solely as a user's guide, except where indicated otherwise. No warranties of any kind, whether expressed or implied are made in relation to the information, descriptions, suggestions or any other content of the manual.

The images of this manual are for reference only. If there is any inconsistency between the image and the actual product, the actual product will govern.

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SAFETY WARNING

The safety notes contained in this manual are to ensure the correct use of the machinery and to prevent injury to the user or other persons.

The welding machine was designed and manufactured with safety in mind. Please refer to the safety warning contained in the manual to avoid accidents.

The incorrect use of the equipment may cause different injuries, as described below. Please read the user manual carefully to avoid these kind of injuries.

Sign	Description
	<ul style="list-style-type: none"> Any contact with the electric parts may cause fatal electric shock or burns.
	<ul style="list-style-type: none"> The gases and fumes are harmful to health. Operation in confined spaces may cause simple asphyxiation.
	<ul style="list-style-type: none"> Sparks and hot workpieces after welding may cause fire. Incorrectly connected cables may cause fire. The incomplete connection of the workpiece side circuit may cause fire. Never weld in the presence of tinder, as it may cause explosion. Never weld airtight containers such as valves, pipes etc., as they may break.
	<ul style="list-style-type: none"> The arc ray may cause eye inflammation and / or skin burns. Sparks and residue may cause eye and skin burns.
	<ul style="list-style-type: none"> Toppling the gas cylinder may cause physical injuries. The misuse of gas cylinders may lead to high-pressure gas leakage and may cause personal injuries.
	<ul style="list-style-type: none"> Keep fingers, hair, clothes etc. away from moving parts, such as the fan.
	<ul style="list-style-type: none"> Wire shooting out of the welding torch may stab your eyes, face or other exposed body parts.
	<ul style="list-style-type: none"> Never stand in front of or under the suspension hook, as it may fail and cause personal injuries.



DANGER Please observe the following rules to avoid serious accidents

- Never use the equipment for purposes other than welding.
- Follow related regulations regarding the characteristics of the power source, choice of place, usage of high-pressure gas, storage, configuration, safe-keeping of the workpiece after welding and disposal of waste, etc.
- Non-essential personnel shall not enter the welding area.
- Persons using pacemaker are not allowed near the welding machine or welding area without doctor's permission. The magnetism created by energizing the welding machine may have a negative effect on the pacemaker.
- The installation, operation, inspection and maintenance of the equipment must be carried out by authorized personnel.
- For your safety, you must understand the contents of the user's manual.



DANGER Please observe the following rules to avoid electric shock

- Keep away from any electrical parts.
- The machine and workpiece shall be grounded by authorized personnel.
- Cut off the power before installation or inspection, and restart it 5 minutes after finishing that activity. The capacitor is a rechargeable device. Please ensure it has no voltage before starting again even if the power source is cut off.
- Never use wire with inadequate wire gauge, damaged insulation sleeve or exposed conductor.
- Do ensure the proper isolation of wire connections.
- Never use the device when the enclosure is removed.
- Never use broken or wet insulation gloves.
- Welding screens must be used when working in overhead position.
- Check and maintain the equipment regularly. Do not use the equipment until the faulty parts are fixed.
- Turn off the power when not in use.
- Follow the related national and local standards and regulations when using the AC welding machine in confined spaces or overhead position.



DANGER Please observe the following instructions to avoid fire, explosions, etc.

- Remove combustible materials from the welding area.
- Keep away from any combustible materials while welding.
- After welding, keep the hot workpiece away from flammable gases.
- Remove all combustible materials when welding in a patio, on the ground or on a wall.
- The work lead of the base metal should be as close to the welding place as possible.
- Never weld installations with gas pipes or airtight valves.
- Keep a fire extinguisher close to the welding area to prevent fire.



WARNING The gases and fumes are hazardous to health, please wear personal protective equipment according to regulations

- Wear exhaust equipment and respiratory protective equipment to prevent gas poisoning or choke.
- Use suggested exhaust ventilation system and respiratory protective equipment to prevent injuries or poisoning by gas or dust.
- To prevent oxygen deficiency, air out the gas filled space full of CO₂ and argon on the bottom, when operating in trunks, boilers, cabins, etc.
- Request a supervisor's inspection when operating in confined spaces. Air the room and wear respiratory protective equipment.
- Never operate in degreasing, washing or spraying spaces.
- Use respiratory protective equipment while welding armored steel, as this produces poisonous dust and gases.



WARNING The welding arc, sparks, residues and noise are hazardous to health, please wear personal protective equipment

- Eye protection against welding arc is recommended when welding or supervising welding.
- Please wear safety goggles.
- Welder's gloves, welder's goggles, long sleeve clothes, leather apron, and other standard personal protective equipment must be worn during the welding operation.
- A screen to protect other people against the welding arc must be set in the welding area.



WARNING Please observe the following notes to avoid toppling or breaking the gas cylinder

- Use the gas cylinder correctly.
- Use the built-in or recommended gas regulator.
- Read the manual of the gas regulator carefully before using it, and pay attention to the safety notes.
- Secure the gas cylinder with appropriate holder and other related parts.
- Never expose the cylinder to high temperature or direct sunlight.
- Keep your face away from the gas cylinder's valve when opening it.
- Put on the cap when the cylinder is not in use.
- Never put the welding torch on the gas cylinder. The electrode must not touch the gas cylinder.



WARNING Any contact with the rotating parts will cause injury. Please note the following:

- Never use the machine when the enclosure is off.
- The installation, operation, inspection and maintenance of the equipment must be carried out by authorized personnel.
- Keep fingers, hair, clothes etc. away from moving parts, such as the fan.



WARNING The end of the wire may cause personal injuries. Please note the following:

- Never look into the conduction hole when checking if the wire feed is normal, as wire shooting out may stab your eyes and face.
- Keep your eyes, face or other uncovered body parts away from the end of the welding torch when feeding the wire manually or when pressing the switch.



ATTENTION For better work efficiency and power source maintenance, please note the following:

- Take precautions to prevent toppling.
- Never use welding equipment to unfreeze a pipe.
- Lift the power source from side when using a forklift to avoid toppling.
- When using the crane to lift, tie the rope to the ears with an angle smaller than 15° respect to the vertical direction.
- When lifting the welding machine equipped with gas cylinder and wire feeder, disconnect it from the power source and ensure that the machine is in horizontal position. Secure the gas cylinder with a belt or chain when moving it to avoid personal injuries.
- Ensure stability and insulation when lifting the wire feeder by the suspension hook for welding.



ATTENTION Pay attention to electromagnetic interference

- You may need to take extra preventive measures when the equipment is used in a particular location.
- Before installation, assess the potential issues with the electromagnetism in the welding environment as follows:
 - a) Proximity of upper and lower parts of the welding equipment to other nearby power cables, control cables, signal cables and phone cables.
 - b) Wireless radiation-emitting products such as devices emitting and receiving TV signals.
 - c) Computers and other control equipment.
 - d) Protection equipment, etc. equipment to supervise industrial equipment.
 - e) Health of personnel affected, such as personnel using pacemaker or audiphones.
 - f) Instruments for adjusting and measuring instruments.
 - g) Anti-disturb capability of other equipment used. Users should ensure the compatibility of the equipment with the environment, which may require extra preventive measures.
 - h) Practical conditions of the welding and other activities.
- Users should observe the following to decrease radiation interference.
 - a) Connect the welding equipment to the power supply lines by the power supply cable.
 - b) Maintain the welding equipment regularly.
 - c) The cables should be short enough to stay close to each other and to the ground.
 - d) Ensure the safety of all the metal parts to be welded and other parts nearby.
 - e) The workpiece should be properly grounded.
 - f) Shield or protect all other cables and equipment to minimize the effect of possible disturbances. In some special cases, the welding equipment may need to be completely shielded.
- Users are responsible for the interference due to welding.

PRODUCT DESCRIPTION

Congratulations on your purchase.

CUT40Hsv/60Hsv is equipped with the most internationally advanced inverter technology. First the 60Hz frequency is inverted to a higher frequency (a frequency over 100KHz) by the V-MOSFET. Then the voltage is reduced, the current is commuted, and the inverter power supply generates powerful DC welding current using the PWM technology. As reversed power technology is used, the volume and the weight of the main transformer has been reduced substantially and its efficiency has been increased by 30%.

The pilot arc system can start easily using the principle of the high frequency oscillation. Its features allow to supply gas ahead and turn off delayed gas.

The cutting machine has the following characteristics:

1. Stability.
2. Reliability.
3. Lightness.
4. Energy saving and noise-free.
5. High cutting speed.
6. Cuts smoothly, no polishing needed.

The cutting machine can be used widely; it is suitable for cutting stainless steel, alloy steel, mild steel, copper and other color metal materials.

TWO YEAR WARRANTY

WELDPRO Warranty and Return Terms Welders and Plasma Cutters

All Weldpro welders and plasma cutters are covered under the following specific terms of warranty. All welders and plasma cutters are warranted to the original purchaser only, when purchased through an authorized seller of Weldpro products for a period of two (2) years from the date of purchase, to be free of manufacturers defect or failure. Proof of purchase and date of purchase paperwork will be required by Weldpro at the time of the claim.

Extended warranty coverage may be available for Weldpro welders and plasma cutters at an additional cost. Always check with Weldpro.

The Weldpro warranty is limited to defects, malfunctions or failure of the equipment to operate properly based specifically and solely from manufacturer defects. Any malfunctions from improper use, lack of maintenance, incorrect or insufficient source supply power to the units, shipping damage, and similar failures not related to specific manufacturers defect will not be honored.

Weldpro will not be responsible in the event of a product failure, for lost time in operation or use of said product. Rather it will honor solely the product itself only.

Further, the warranty will cover the repair or replacement of the unit in question for the term of the warranty with either a new or a refurbished unit, or in some cases replacement parts of the same model, at the discretion of Weldpro. As a term of the Weldpro warranty, if and when applicable, individual parts are needed, they may be supplied to the customer rather than replacing the entire unit. Situations like this may include, but are not limited to items such as foot pedals, torches, mig wire rollers, feed spools, or any other item Weldpro deems more practical to supply individually.

Weldpro will provide free shipping return of the damaged product due to manufacturers defect for the first 30 days of the warranty term if shipping is within the lower 48 United States. Customers outside this area must check with Weldpro for further shipping instructions. Failures after the initial 30-day period, and due to manufacturers defect, may not enjoy free return shipping.

If it is determined when the product is returned to Weldpro that there is no malfunction, or that the assumed malfunction by the customer was user error, Weldpro may request a shipping fee refund prior to the return of the item to the customer.

Prior to returning any item thought to be malfunctioning or damaged due to manufacturers defect, customers are required to contact Weldpro first, to explain the failure and to obtain a Return Merchandise Authorization number, or the item may not be covered under the terms of this warranty.

Weldpro ships in the USA from third party shippers such as, but not limited to UPS, FedEx, and the USPS. Weldpro is not responsible for damage that occurs during shipping. It is the customer's responsibility to check the item at the time of delivery. If a customer receives an item damaged, they must immediately contact both Weldpro and the shipper to document and report the damage as soon as possible, and in no circumstances later than 48 hours after delivery. All shipping and delivery dates are tracked for arrival. Weldpro may require photo image of the damage at their discretion.

Returned items within the first 30 days. Undamaged items in good working condition may be returned within the first 30 days of purchase. In such a case, these items are not eligible for the free return shipping policy associated with items that have manufacturers defects. A restocking fee will be charged for said return of up to 25% on any item returned with a valid RMA number that are undamaged and not covered or subject under the terms of this warranty. The amount of the restocking fee is solely at the discretion of Weldpro and based on the condition of the returned item and its accessory parts and packaging. Further, should Weldpro receive an item in good working condition that has sustained physical damage, Weldpro has the right to refuse acceptance of said returned item completely, and the customer will be responsible for return shipping of the product to them.

Weldpro does not imply or suggest any interpretation of the above warranty beyond what is stated in this print of its terms.

Weldpro is not responsible for injury due to improper use of the equipment or failure to heed all of the safety precautions associated with the dangers of welding or cutting metals.

The terms and conditions of the Weldpro warranty are subject to change without notice. Be sure to check the terms of the Weldpro warranty prior to your purchase.

TECHNICAL PARAMETERS

Model Parameters	CUT40Hsv		CUT60Hsv	
Supply voltage (V)	1 phase 115V±15%	1 phase 230V±15%	1 phase 115V±15%	1 phase 230V±15%
Frequency (Hz)	60			
Rated input current (A)	20	40	20	40
Open circuit voltage (V)	266			
Output current (A)	14-20	14-40	20	20-50
Output voltage (V)	85.6-92	85.6-96	88-92	88-104
Duty cycle (%)	60			
Power factor	≥0.73			
Efficiency (%)	≥80			
Arc starting mode	HF			
Pressure of the air compressor (psi)	50.7-58		50.7-65.3	
Nozzle orifice - inside (in)	.047		.047	
Cutting thickness (in)	1/4	1/2	1/4	3/4
Housing protection class	Ip21			
Insulation class	F			
Cooling method	Forced Air Fan			
Weight (lb)	22		33.5	
Dimensions (in)	18.5x6.7x12.4		20.3x7.9x15.2	

INSTRUCTIONS FOR THE INSTALLATION

Power cord plug connection (please find installation diagram enclosed)

1. Each machine has been equipped with a power cable which must be connected to the corresponding voltage class according to the input voltage of the cutting machine. If the cutting machine powered by voltage of 115V or 230V is connected to 400VAC, the inside components of the machine may burn out.
2. Ensure that the power cord is properly connected to the power switch to prevent oxidation.
Make sure that the supply voltage is within the specified range.

Connecting the cables to the machine

1. Ensure that the high-pressure tube of the compressed air is connected firmly to the copper connector.
2. Ensure that the copper screw at the opposite end of the welding torch is securely connected to the gas electric integrated terminal, then tighten clockwise (to prevent gas leakage). The mobile plug at one end of the grounding cable must be connected to the positive terminal on the front panel, then it must be tightened.
3. Ensure that the air plug of the welding torch is connected to the switch connector on the panel. (For cutters with pilot arc, the pilot arc cable of welding torch must be connected to the terminal of the pilot arc wiring column.)

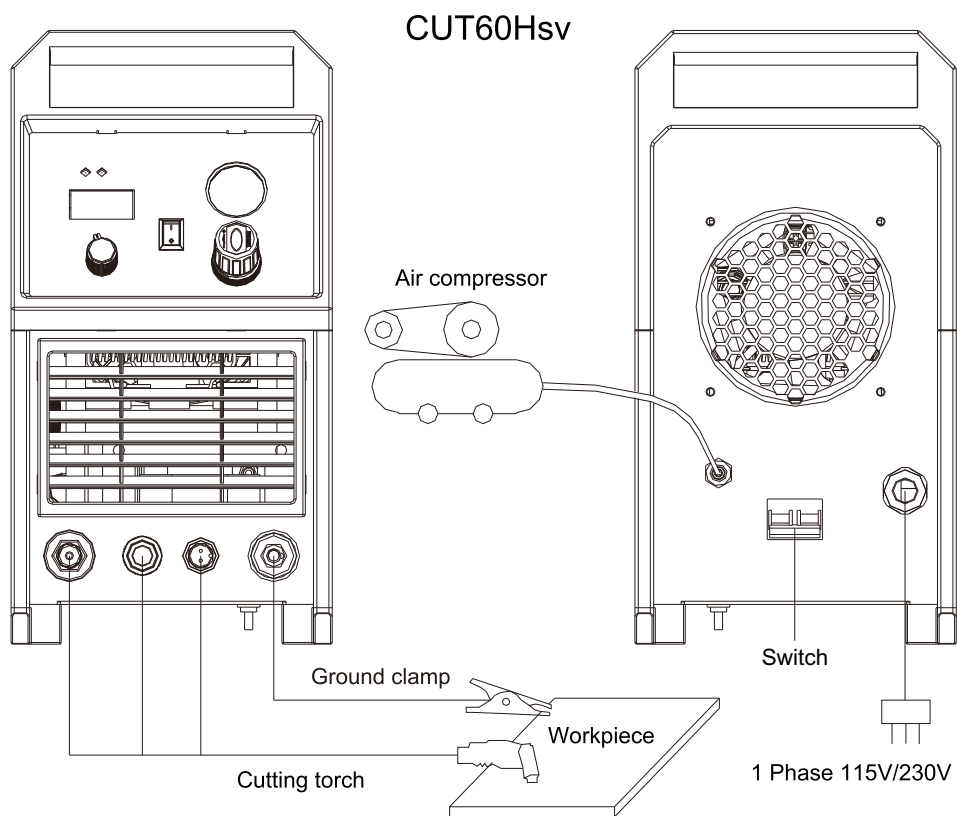
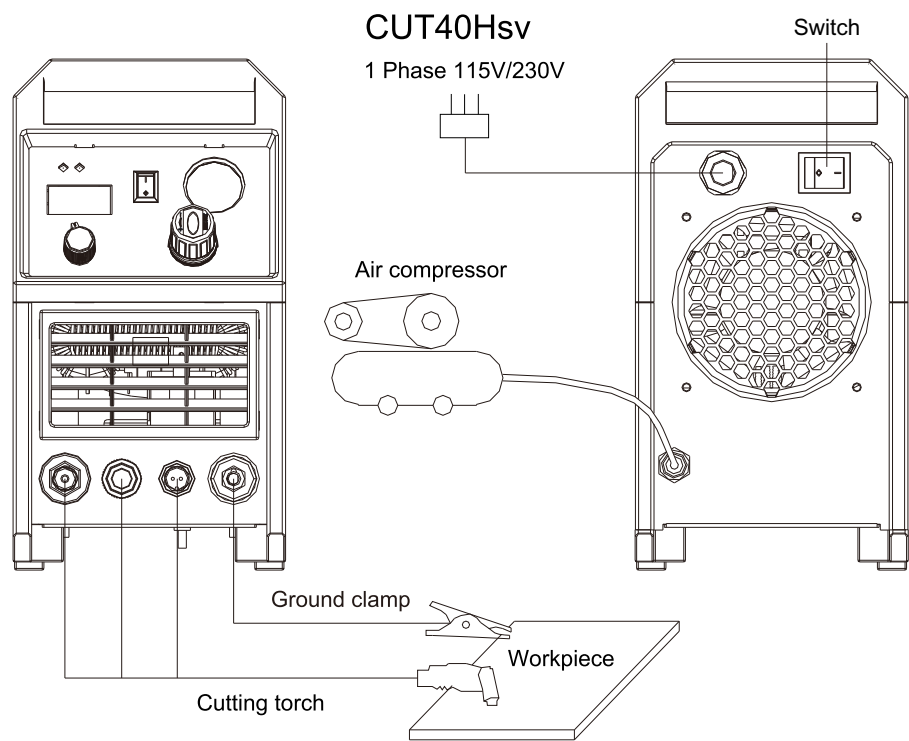
CHECK-LIST BEFORE OPERATION

1. Ensure that the cutting machine is properly grounded.
2. Ensure that all connectors are connected firmly.
3. Ensure that the power voltages are correct.

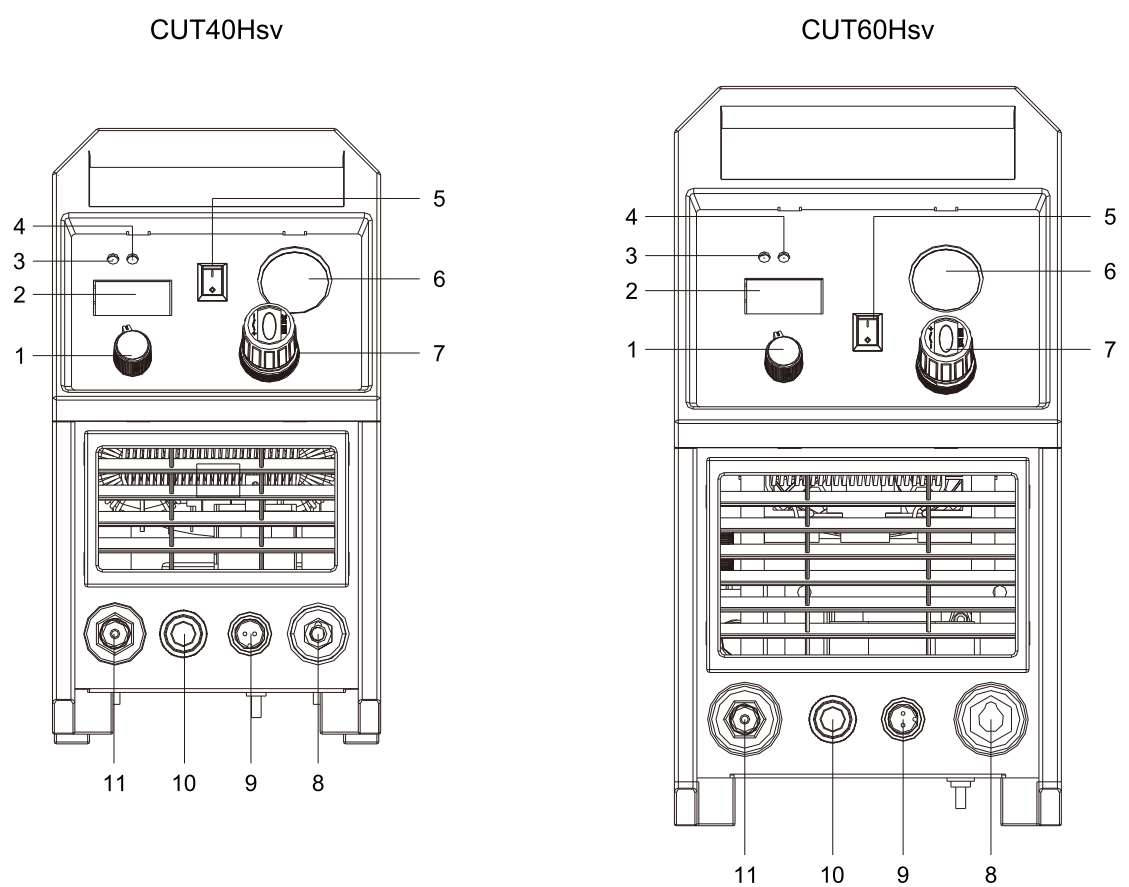
OPERATING THE EQUIPMENT

1. Flip the power switch on front pane in the "on" position. The indicator light of power switch must come on. The front panel should show the machine's electrical current volume.
2. Adjust the gas pressure making sure it is adequate for the machine, then open the valve of the compressed air.
3. Press the control button of the welding torch. The electromagnetic valve activates, the sound of the HF arc is audible and there is gas coming out of the welding torch. (The burner of the pilot arc cutter should spurt fire.)
4. Ensure that the cutting current is adequate for the machine according to the thickness of workpiece.
5. Leave 0.04" between the copper tip and workpiece (leave more space in case of electric arc cutting), press the button on the welding torch. The starting of the HF arc produces sparks, which will immediately diminish. You can start cutting.

Installation drawing for the CUT60/40Hsv



OPERATION



1	Current adjustment knob	7	Pressure adjustment knob
2	Current meter	8	Positive outlet
3	Power indicator light	9	Socket of the torch switch
4	Fault indicator	10	Auxiliary arc
5	Test/2T/4T control switch	11	Gas electric system outlet
6	Pressure meter display		

The panel pictures above are for reference only. If there is any inconsistency between the image and the actual machine, the actual machine will govern.

OPERATING INSTRUCTIONS

1. Operating environment

While the operation of the Weldpro 60 amp high frequency plasma cutter is relatively straightforward, there are a few tips and set-up preferences that will aid in the longevity of the machine and its consumables.

1. The first tip that cannot strongly enough be emphasized is that the supply of air to the plasma cutter needs to be dry. The cutting machine can be used in environments with harsh weather conditions and with outside temperatures between 14 and 104 degrees Fahrenheit with an air humidity level of max. 80%. Avoid using the equipment under direct sunlight and rain, and keep the machine dry and avoid any contact with water.

Moisture is the absolute number one enemy of plasma cutters. Multiple dryers and water separators can and should be used to filter the air prior to its going into the plasma cutter. Doing so will greatly improve the result of your cuts as well as save your equipment from early failure. Placing water separators at both the compressors outlet as well as just before the inlet of the plasma cutter is best. In addition, last in line, just prior to the air entering the plasma cutter, a desiccant filter to absorb whatever moisture is left will be a great final filtering choice. The separators and filters can be assembled black pipe and placed in series to each other.

2. The next thing to be aware of is the air supply itself. Most of the cutting done on this machine will be done most likely between 50 and 70 PSI output pressure. When connecting your air supply to the machine there's no need to have extremely high air pressure going into the back of the machine. Regulating that initial pressure down to the 100 psi range and slowly connecting it to the back of the machine will prevent any internal damage to the plasma cutter.

Output pressure for cutting can be adjusted from Low to high based on the thickness of metal. Many people set it to 50 or 55 psi and just leave it. So in the end the actual outlet pressure setting is flexible and will be a matter of feel and what your particular style of cutting is best with.

Using too small a compressor with too little of reservoir will result in an unfavorable plasma cut. The larger the compressor the better off you will be while cutting your media. Specifications will show you the minimum required but in this case bigger is definitely better as far as compressors go.

2. SAFETY

1. Ensure that the work area is adequately ventilated.
The cutting machine is light and compact, it works with high current which generates electromagnetic fields. Natural airflow is not sufficient to cool down the components. There are two axial fans in the interior of the machine as a refrigeration system.

Note : The exhaust shutter must never be blocked or covered, keep a distance of 11.8" between the machine and other objects. Ensure a well ventilated environment to avoid damages to the equipment.

2. Do not overload!
Never exceed the maximum allowable current in any kind of duty cycle.
Do not put excess workload on the equipment to avoid shortening its lifetime or damaging it.

3. Avoid surging!
The input voltage of the cutting machine must match the ranges provided on the main technical data sheet. The automatic voltage compensation circuit will prevent from exceeding the allowable range. If the input voltage is too high, that may damage components. Use with care.
4. There is a grounding screw on the back side of the cutting machine. To avoid electric leakage and static electricity, ensure that the enclosure is connected to the ground with a cable, which has a cross sectional area of at least 10 AWG.
5. If the machine is overused, the overheat protection activates.
This will cause the cutting machine to suddenly stop working and a red indicator light will come up. Do not disconnect from the power supply, so that the fan may continue working in order to cool down the machine. Once the temperature is reduced to the allowable range, the machine can be operated again.
6. Lastly, do not use the cutting machine in environments polluted with high concentration of dust or corrosive gases.

3. NOTES ON CUTTING

As far as cutting with a plasma cutter the best technique is to start just off the edge of your work, begin your cut and pull toward you keeping the angle of the torch 90° perpendicular to the work.

Ensure that the copper tip is not in direct contact with the workpiece while cutting. Incline the welding torch and leave a distance of 0.04" between the inside orifice of the copper tip and the workpiece to prevent damages to the copper tip.

If the arc generated by the cutting machine is too weak, or can't be generated, remove the accumulated oxide layer from the electrode using sanding paper. After this the machine can be operated again as usual.

You will tell easily enough if your outlet pressure and cutting speed, gap and angle is correct by the direction of the sparks produced from the cut. If the Sparks are being sent straight down, you are cutting correctly if they are fluctuating and jumping from side to side, adjustments to your body and or outlet pressure and amperage will have to be adjusted accordingly.

As you approach the end of your cut, tilt the very end of the handle end of the torch in an upward angle which would in turn begin to point the torch tip towards you, all the while maintaining the same small space between your work and the cutting tip. This will ensure a clean ending to your cut.

Lastly a very helpful technique is to clamp a piece of scrap metal to your work and use it as a fence to guide the torch tip as you cut doing so will offer and even straighter cleaner cut.

MAINTENANCE AND TROUBLESHOOTING

Maintenance:

1. Remove dust regularly using compressed air. If the cutting machine is used in an environment polluted with smoke and/or dust, dust must be removed from the machine every day.
2. The air pressure must be appropriate to avoid damages to the small components.
3. Check the electrical sockets and ensure that the connectors are connected firmly (especially the components of the connectors and the inserted components). Tighten the connectors, if necessary.
4. Prevent water from entering the machine and the machine from getting wet at all times. If the machine becomes damp, it must be dried and the insulation must be measured by a meter. Once the issue is resolved, the machine can be operated again.
5. If the machine will not be in use for a longer period of time, it should be placed in its own package and stored in a dry environment.

Troubleshooting:

Fault description	Measures to take
1. The indicator light of the interrupter is on, the fan is not working and control switch is not responding	1. The surge protector is working. Turn off the machine then, after several minutes turn it on again.
2. The indicator light of the interrupter is on and the fan is working. However, when pressing the control switch of the welding torch, the sound of the HF arc is not audible and the electromagnetic valve is not working.	<ol style="list-style-type: none"> 1. Ensure that the welding torch is connected to an open circuit. 2. Ensure that the control switch of the welding torch is not damaged. 3. The component of auxiliary power supply on the top board is damaged and there is no 24VDC output.
3. The indicator light of the interrupter is on and the fan is working. However, when pressing the control switch of the welding torch, the sound of the HF arc is not audible and the red indicator light is on.	<ol style="list-style-type: none"> 1. Ensure that the MOS or the IGBT on the top board is not damaged (the controller mold is damaged). 2. The set-up transformer on the bottom board is damaged. 3. The controller mold is damaged.
4. The indicator light of the interrupter is on, the fan and the electromagnetic valve are working. However, the sound of the HF arc is not audible and the red indicator light is on.	<p>There is a problem with the arc starting process, such as:</p> <ol style="list-style-type: none"> 1. The discharge nozzle is too far or it's covered with residue. 2. The main coil of the arc starting transformer is damaged or it's not well-connected. 3. Ensure that the four diodes of the voltage rectifier are not damaged. 4. Ensure that there is no high frequency leakage of 102/10kV. The relay is damaged.
5. The machine works properly, but no arc is generated.	<ol style="list-style-type: none"> 1. Input voltage is too low. 2. The pressure of air compressor is too high or too low.