



Cut-30/40 Cut-60j/100 Plasma Cutters

By Shillito Pty Ltd

Operating Manual

Rev.01

Introduction

The Riland Cut series plasma cutter is a revolutionary new approach to plasma cutting technology. Riland introduced a more efficient way to cut metal while keeping the cost of operation lower. This was accomplished using several new approaches to the mainstream technology. One of these methods is our proprietary plug & play main circuit boards which allows ease of repair, reducing the downtime to only hours rather than days, while also reducing repair costs averaging less than \$75! The cut40 uses special safety redundant circuitry with built in auto-protection and self adjusting circuitry to keep your machine running in a safe threshold. This helps protect your machine from over-voltage, power spikes, tip blowouts and shorting.

Warranty

The machine is insured against damage upon shipping. If your machine is damaged in any way when you receive it, you must retain all shipping materials and packing. Call our customer service department and report the damage immediately.

There is a 1 year warranty on all internal electronic parts. The torch, cables, power cord, clamps, air regulator, hoses, case & paint and consumables are not covered under warranty. You must use dry air via the air regulator and empty the reservoir from the water separator frequently to insure proper protection from moisture.

This machine is designed to operate from 200-240vac at 50-60Hz Only. Operating outside of limits will void warranty.

Warranty coverage covers repair or replacement of damaged machine or damaged circuit board. Warranty does not cover shipping from the customer but does cover return shipping within

the Cont. United States. If you are going to return a machine to us for repairs, it must be well packed and insured.

Customers who requires a warranty claim should contact our warranty department by phone on **1800 214 334**

Customers who own an out-of-warranty machine that require repairs should contact us for an estimate.

Safety tips



- With the machine in use, do not switch the machine off or it will damage the internal circuitry.
- Make sure your circuit breaker can handle the required amperage draw of your machine.
- Use a UL approved outlet/receptacle and plug with your machine, do not hard wire the machine to main power.
- Use safety goggles designed to darken the arc generated by your machine.

Electric-shock

- Machine should be grounded via the power cord or ground on machine case.
- No touching electric parts with bare hands, wet hands or wet clothes.
- Do not operate machine with bare feet or on a wet floor.
- Make sure the work area is free of flammable and explosive chemicals.

Smoke—may be harmful to your health.

- Keep your head out of the smoke.
- When welding, make sure the air is flowing away to avoid breathing in the smoke.

Arc-emission---may be harmful to your eyes and skin

- Wear suitable welding mask and clothes to protect your eyes and skin.

- Use suitable screen or curtain to keep the passers by from viewing the emission.
- The arc spray and metal spray from machine use may cause nearby fires. Use caution.

Noises—too much noise may be harmful to your hearing.

- Please wear something to protect your ears from the noises.

Break-down: ask the professional for help

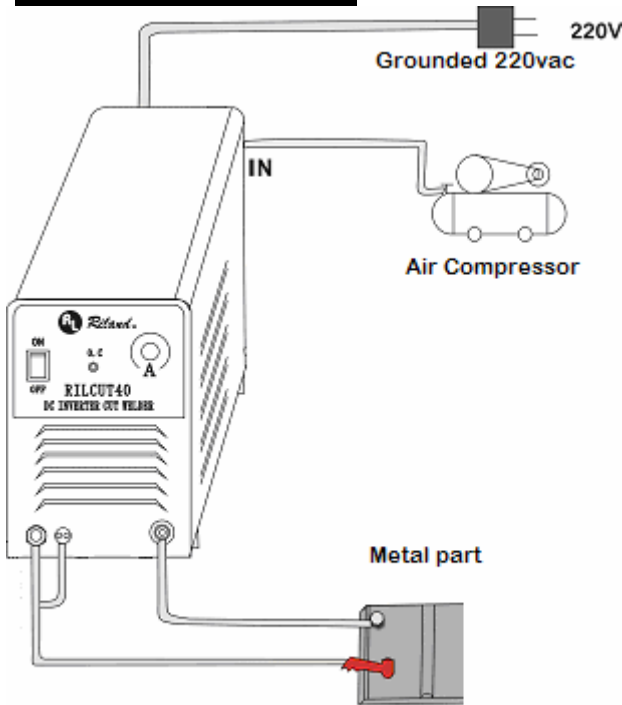
- If you have any problems in setting up or operating, please first consult this manual.

MAIN SPECIFICATIONS

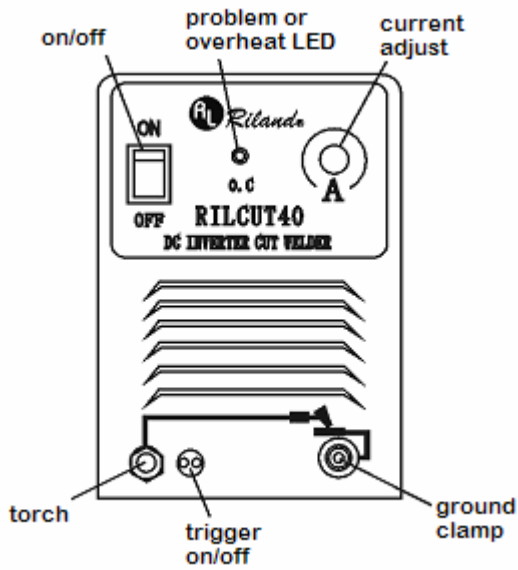
TYPE PARAMETER	CUT-30	CUT-40	CUT60J	CUT-70	CUT-100	CUT-120
input voltage (V)	AC220V±10%		AC220V±10%			
Cut Capacity max/sev	NA	0.5/0.75	1/1.5	NA	2/2.5	NA
Input KVA / AMPS	4/13	6/17	9/31	11/36	15/49	20
No-load voltage (V)	230	230	230	230	230	230
Current range (A)	10-30	10-40	20-60	20-70	20-100	20-120
Rated output voltage (V)	100	100	120	120	130	130
Rated duty cycle (%)	60	60	60	60	60	60
Efficiency	85	85	85	85	85	85
Power factor cosø	0.93	0.93	0.93	0.93	0.93	0.93
Insulation class	B	B	B	B	B	B
Protection class	IP21	IP21	IP21	IP21	IP21	IP21
Arc-starting	Touch arc leading	Touch arc-leading	HF arc-leading	Non-touch arc-leading	Non-touch arc-leading	Non-touch arc-leading
Suggested air pressure (psi)	50-55	55-65	65-70	65-75	65-80	80-95
Suggested air volume (cfm)	2-3	2-4	3-5	3-6	5-7	6-9
Weight (machine) LBS	18	18	42	55	77	78
Size(L×W×H) INCHES	15×6×12	15×6×12	19×8×14	21×9×14	19×13×15	19×13×15

All machines are 220vac input 50/60hz at 1 phase.

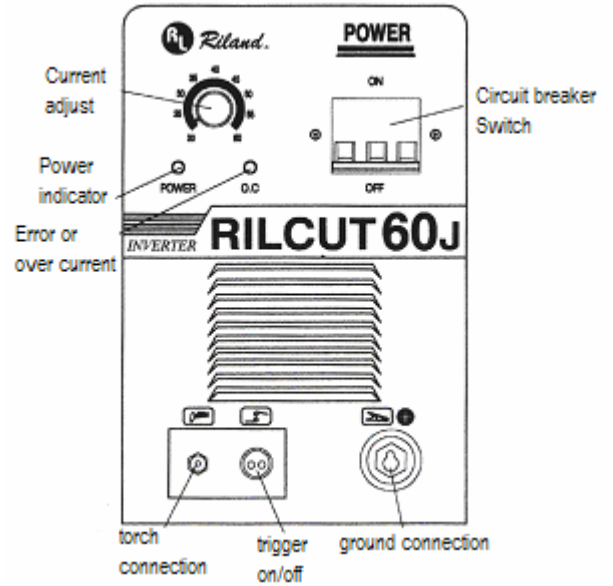
INSTALLATION



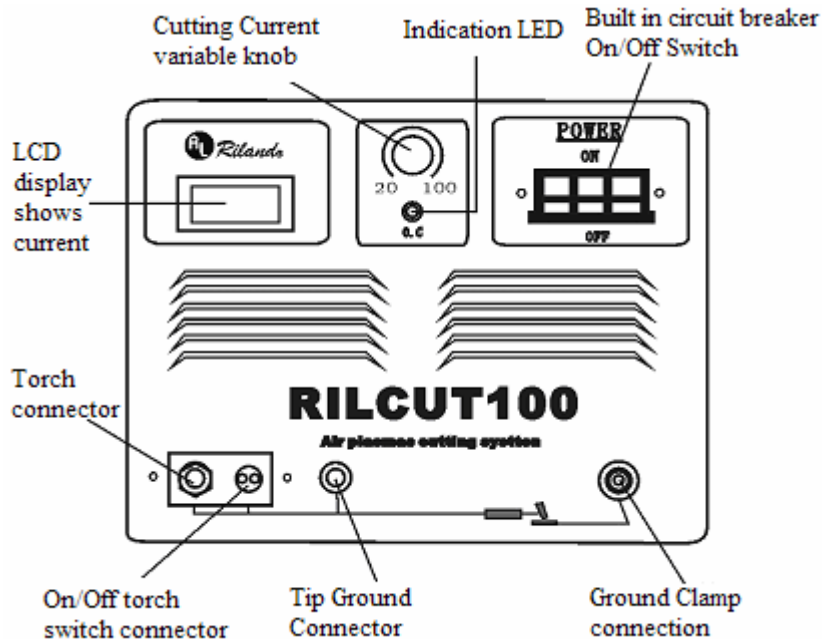
CUT30/40



CUT60J



CUT100



Connecting the Power Cord Plug

You will need to go to a hardware store to locate an electrical plug designed for your outlet. The machine requires either 110v/220vac at a specified amperage rating. Locate a plug rated at the correct voltage and amp rating your machine requires. If you do not know how to connect the plug most stores have representatives that can assist you in determining proper hookup. As a general rule of thumb the green wire or green with yellow stripe is the ground wire.

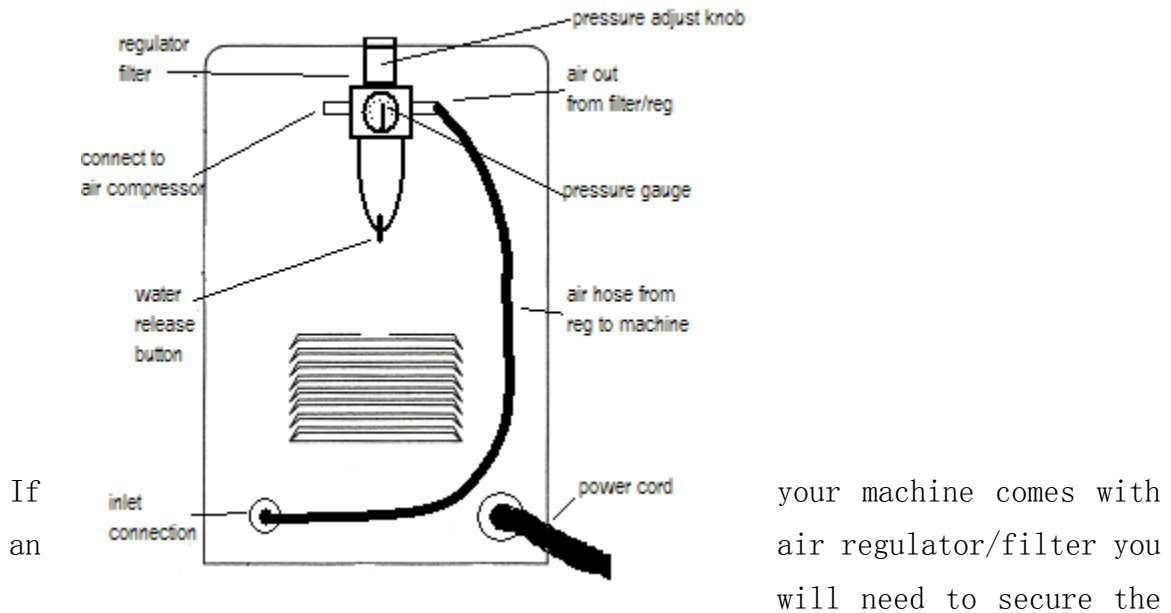
Connecting the Cables to the Machine

Begin by locating the ground clamp and end connection. Place the connector into the machines ground connection and turn it clockwise until it locks into position (about 1/3 turn).

Connect the torch connector to the machine using a wrench or

adjustable wrench. Only tighten snug, do not over tighten nut. Plug in the trigger on/off connector and hand tighten the retainer nut.

Connecting the Air Supply to the Machine

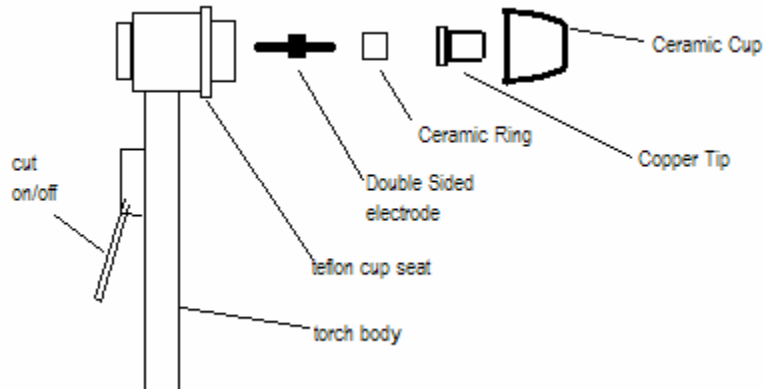


bracket to the machine and then fasten the regulator to the bracket. Locate the in and out labeled on the regulator body. Cut a section of hose long enough to bend around the back of the machine as pictured and secure it to the outlet on the regulator and the inlet to the machine. Next you will need to connect an air compressor to the inlet to the regulator. The air compressor should be set to a higher pressure than the compressor requires.

Set the knob on the regulator to the specified pressure your machine requires.

After each long duration of use you will need to push the water release button to release water from the water separator section of the regulator. It is designed to remove water from the air.

Assembly of the Torch Consumables Cut30/40

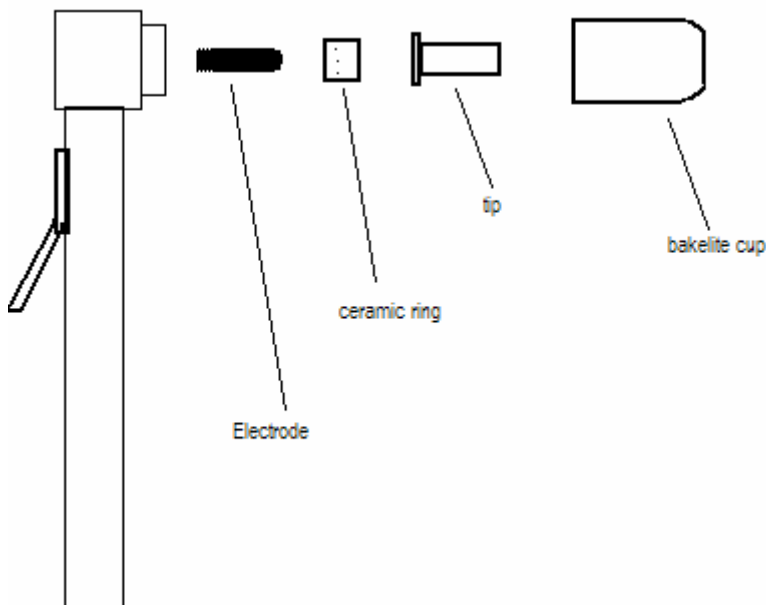


The torch handle is made of bakelite which is fire and heat resistant. Do not drop or strike anything with the torch.

The on/off switch can be positioned on the top, side or bottom of the torch body to allow ease of use.

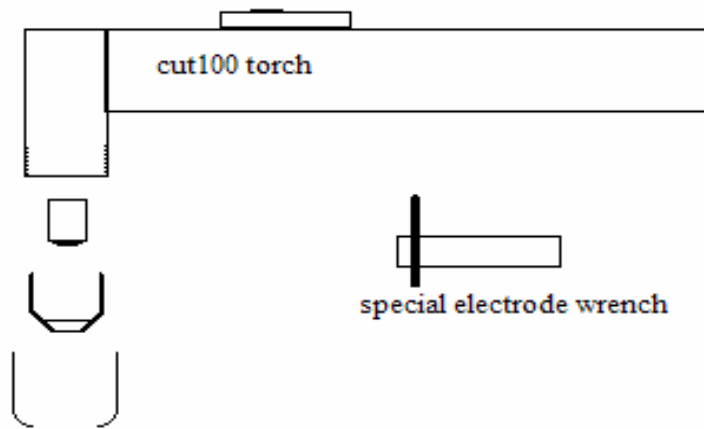
The assembly of the consumables is as pictured. The electrode is inserted in first, then seat the ring on the electrode. The copper tip should be placed on the ring and it should seat well and flat. Last you will secure all parts in place by turning the ceramic cup clockwise until it is snug. Do not over tighten.

Assembly of the cut60j Torch Consumables



The assembly of the consumables for the cut60j and other larger models is as pictured. The electrode is inserted in first and tightened with plyers very snug, then seat the ring on the electrode. The tip should be placed on the ring and it should seat well and flat. Last you will secure all parts in place by turning the cup clockwise until it is snug. Do not over tighten.

Assembly of the Torch Consumables Cut100



The assembly of the consumables for the cut100 and other larger models is as pictured above. The electrode is inserted in first and tightened with special electrode wrench until snug. The tip should be placed on next and it should seat well and flat, tighten it with a wrench until very snug Last you will secure all parts in place by turning the cup clockwise until it is snug. Do not over tighten. The cut100 does not use a ring.

OPERATION

1. Plug the machine to the electrical outlet, first making sure the machine on/off switch is in the off position.
2. Connect the air compressor supply line to the input side of the

- air regulator/filter (if applicable).
3. Turn the on/off switch of your cutter to the ON position. The cooling fan(s) should come on and the ON indicator LED (if applicable) should come on.
 4. At this point you should already have your cables connected to your machine, if they are not then turn off your machine and do this now and start over.
 5. Connect the ground clamp to your work piece to be cut. Make sure there is no rust or paint creating an open circuit. You should clean the contact point on the work piece to ensure a good electrical connection.
 6. Make sure your protective clothing and eye protection is on before going any further. Work in a well ventilated area to avoid smoke.
 7. Bring the torch tip into direct contact with your work piece edge or over a predrilled pilot hole if cutting very thick material. See Cutting Guideline table below for more details about cutting. Depress the button on your torch to start the arc and begin cutting.
 8. After performing the desired cut you may need to clean off slag from the under part of the cut. Do this with a grinder or chisel.

CUT-40 Cutting Guideline Table	
Steel, Stainless Steel, MOLY, Iron, etc...	Aluminum, Copper, Brass, etc...
Thin = 0-1/8"	Thin = 0-1/16"
Medium = 1/8" – 3/8"	Medium = 1/16" – 3/16"
Thick = 3/8" – 1/2"	Thick = 3/16" – 3/8"
Severance cut = 3/4"	Severance cut = 9/16"
<p>When cutting thin material, you may start directly perpendicular to the work piece, there is no need to angle or start on the edge as the arc will pass through quickly.</p> <p>When cutting medium material, you should angle the torch tip to avoid damaging the tip. Once the arc passes through the material you may begin cutting normal.</p>	

When cutting thick material, you should drill a pilot hole to start your arc through or start on the edge of the work piece.

Do not cut any material on a flat surface. The work piece should be raised off the ground to avoid blow back which may burn you or cause fires.

CUT-60j

Cutting Guideline Table

Steel, Stainless Steel, MOLY, Iron, etc...	Aluminum, Copper, Brass, etc...
Thin = 0-1/4"	Thin = 0-1/8"
Medium = 1/4" – 7/16"	Medium = 1/8" – 3/8"
Thick = 7/16" – 1"	Thick = 3/8" – 1/2"
Severance cut = 1.5"	Severance cut = 3/4"

When cutting thin material, you may start directly perpendicular to the work piece, there is no need to angle or start on the edge as the arc will pass through quickly.

When cutting medium material, you should angle the torch tip to avoid damaging the tip. Once the arc passes through the material you may begin cutting normal.

When cutting thick material, you should drill a pilot hole to start your arc through or start on the edge of the work piece.

Do not cut any material on a flat surface. The work piece should be raised off the ground to avoid blow back which may burn you or cause fires.

CUT-100

Cutting Guideline Table

Steel, Stainless Steel, MOLY, Iron, etc...	Aluminum, Copper, Brass, etc...
Thin = 0-1"	Thin = 0-1/2"
Medium = 1" – 1.5"	Medium = 1/2" – 3/4"
Thick = 1.5" – 2"	Thick = 3/4" – 1"
Severance cut = 2.5"	Severance cut = 1.25"

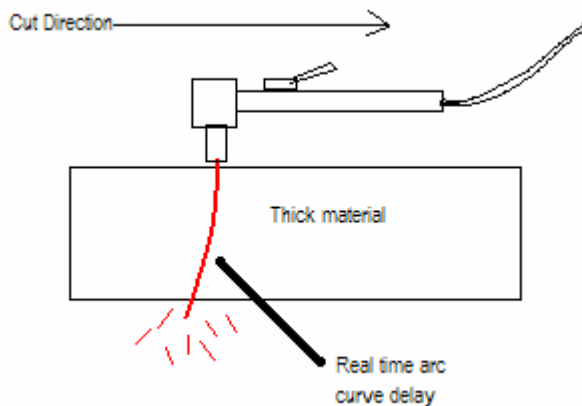
When cutting thin material, you may start directly perpendicular to the work piece, there is no need to angle or start on the edge as the arc will pass through quickly.

When cutting medium material, you should angle the torch tip to avoid damaging the tip. Once the arc passes through the material you may begin cutting normal.

When cutting thick material, you should drill a pilot hole to start your arc through or start on the edge of the work piece.

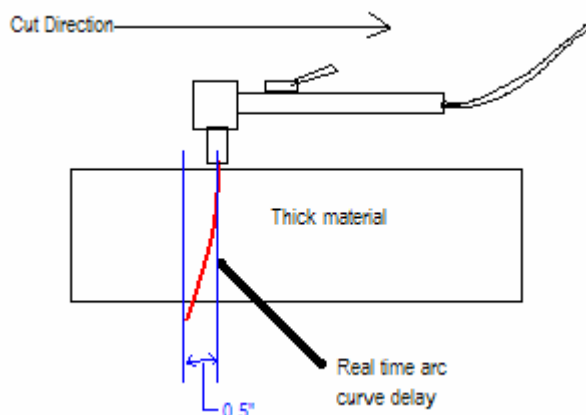
Do not cut any material on a flat surface. The work piece should be raised off the ground to avoid blow back which may burn you or cause fires.

Real time arc curve delay issues



When cutting thick materials you will need to keep a steady pace in the direction of your cut. Do not move the torch too quickly or you will experience an arc curve delay. This delay can cause your work piece to have sections which are uncut and thus you will need to go over those sections a second time which may distort or damage your work piece.

To avoid arc curve delay you should allow the arc to pass completely through the work piece before moving too far ahead. Your arc curve should not lag more than the thickness of the material being cut. Eg... if your work piece is 1/2" thick then you will not



want your arc curve to lag more than 1/2" behind your torch. See below picture for details.

MAINTENANCE

1. Clear dust that may accumulate in the machine at regular intervals with clean and dry compressed air; if the working condition has heavy smoke and pollution, the welding machine should be cleaned once a month.
2. Keep the machine exterior clean with mild soap and water.
3. Do not walk or store items on the cables or cords.
4. Do not jar, drop or stack items on top of your machine.
5. Always use a well grounded electrical outlet for your machine.
6. Always check the torch consumables before and after use and make sure it is clear of obstructions and no parts are broken or cracked.
7. Replace any worn or damaged consumables before using machine to avoid damage or harm.
8. For periods of prolonged non-use please remove cables and store in original box in a cool dry place, free of bug infestation.

TROUBLE SHOOTING

Upon receipt of your machine, you should inspect the outer packaging for damage. Note any damage with the delivery driver and contact us immediately by phone or email to inform us of damage. Keep all packing materials and box. We will start a claim with the shipping company which will cover damage, loss or other issues regarding shipping. Claims generally take 2-4 weeks to resolve completely. We are not responsible for any damage or loss which may arise from improper handling, dropped boxes, shipping damage or other damage. Do not refuse the package to us as we will simply send it back. You must follow proper protocol.

Most problems can be resolved by the customer. Most problems arise due to rough handling by the shipping company. Please call our service dept for suggestions if your machine does not function upon receipt. There are several steps which can be followed

to alleviate the problem before a machine is sent back. The solution may be simple so call or email us.

Cut40 Problems and Solutions

Breakdown	Solution
The power switch is in the ON position but fan does not turn on and machine doesn't work.	Over-voltage protection, turns off the machine for a while, and then restarts it. Simply wait 3-10 minutes. Or the power cord is connected incorrectly (you may have the wires improperly connected to the plug)
The power switch is in the ON position and the fan works. When pushing the cut button on the torch the valve opens and allows air to pass but no arc starts and the error LED comes on.	<ol style="list-style-type: none"> 1. k1170 on the top PCB is damaged. 2. the step-up transformer is damaged. 3. the control board is damaged. 4. wires or connectors have come loose in the machine.
The power switch is in the ON position and the fan works. When pushing the cut button on the torch the valve opens and allows air to pass but no arc starts and the error LED does not come on.	<ol style="list-style-type: none"> 1. the torch consumables are improperly installed. 2. the primary coil of the arc-leading transformer is shorted or not well-connected. 3. the rectifier diode(s) is damaged. 4. the HF capacitor is leaking. 5. the relay(s) is damaged.
The arc doesn't start when I push the torch button.	<ol style="list-style-type: none"> 1. low input voltage. 2. the air compressor pressure is too low or too high.

CUT60J/CUT70/CUT100/CUT120 breakdown and solution

Breakdown	Solution
Power switch is turned on but no activity, no fan, no lights.	<ol style="list-style-type: none"> 1. the assistant transformer on the control board is broken. 2. the power input wires are not connected properly. 3. wires or connectors have come loose inside the machine.
Power switch is on, fan comes on but when pressing the torch button no arc starts and the error LED comes on.	<ol style="list-style-type: none"> 1. the rectifier diode is damaged 2. the high frequency capacitor 1KV/102 is broken 3. K1170 on the top board is broken. 4. the step-up transformer on the bottom board is broken 5. the control model is broken

<p>The power switch is in the ON position and the fan works. When pushing the cut button on the torch the valve opens and allows air to pass but no arc starts and the error LED does not come on.</p>	<ol style="list-style-type: none"> 1. the torch consumables are improperly installed. 2. the primary coil of the arc-leading transformer is shorted or not well-connected. 3. the rectifier diode(s) is damaged. 4. the HF capacitor is leaking. 5. the relay(s) is damaged.
<p>The arc doesn't start when I push the torch button.</p>	<ol style="list-style-type: none"> 1. low input voltage. 2. the air compressor pressure is too low or too high.