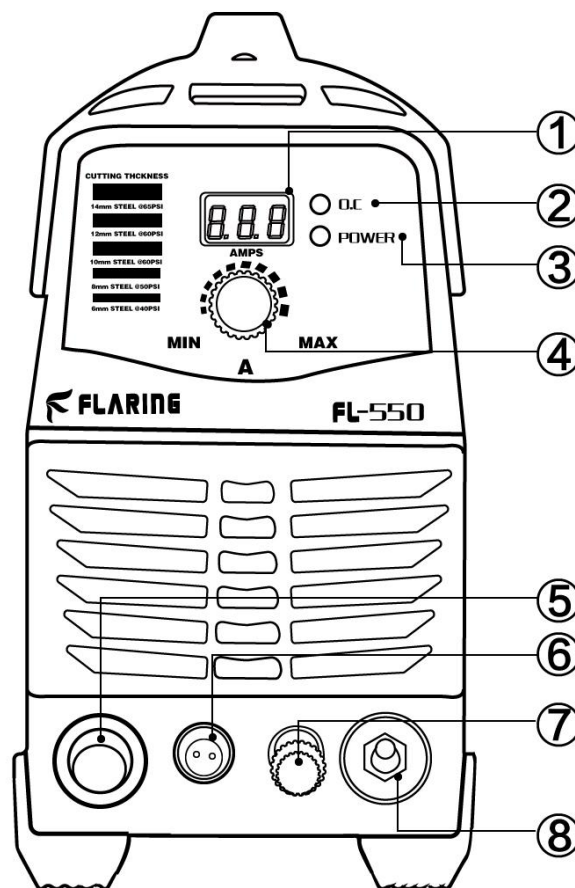


Operation Manual

Flaring FL550 Air plasma cutting technology Plasma cutters work by passing an electric arc through a air/gas that is passing through a constricted opening. The gas can be air, nitrogen, argon, oxygen. etc. The electric arc elevates the temperature of the gas to the point that it enters a 4th state of matter. We all are familiar with the first three: i.e., Solid, liquid, and gas. Scientists call this additional state plasma. As the metal being cut is part of the circuit, the electrical conductivity of the plasma causes the arc to transfer to the work. The restricted opening (nozzle) the gas passes through causes it to squeeze by at a high speed, like air passing through a venturi in a carburettor. This high speed gas cuts through the molten metal.

Plasma cutting was invented as the result of trying to develop a better welding process. Many improvements then led to making this technology what it is today. Plasma cutters provide the best combination of accuracy, speed, and afford ability for producing a variety of flat metal shapes. They can cut much finer, and faster than oxy-acetylene torches.

Part 1: Machine Introduction



1. Current display meter

The digital Ammeter is used to display the actual output current of the power source.

2. Fault light

When the welding load is overloaded and the output current of the machine is too large, this light will be on. This situation is normal and the machine can be restored; when there is damage inside the machine, this light will be on. In this case, the machine is abnormal and requires maintenance.

3. Power indicator light

Turn on the power, this light will be on.

4. Adjust the value knob

Clockwise rotate to enlarge the current, and anti-clockwise rotate to reduce the current

5. Cutting gun cable and gas connection seat.

Remove the black cap and connect the cutting gun

6. Cutting gun control socket







Two-core aviation socket, cutting gun trigger switch control connection







7. Cutting gun pilot arc connection seat**8. Negative Welding Terminal**

Negative Welding Terminal. Welding current flows from the Power Source via heavy duty bayonet type terminals. It is essential, however, that the male plug is inserted and turned securely to achieve a sound electrical connection.

Note: FL550D: input voltage is AC 110V or AC 220V , FL550: input voltage is AC220V .

Part 2: Introduction to the product and configuration list

No.	Picture	Name	Qty	Remark
1		FL550	1	Please check outside of the whole machine no scratch and break , it can power on normally.
2		AG60 Cutting gun	1	4m AG60 Cutting gun.
4		Ground clamp	1	2m 16MM2 cable, 300A Ground clamp +10-25mm2 European quick plug.
5		Transparent hose	1	2m 8*12 transparent network hose.
6		Hose clamp	4	Used to fix the trachea to prevent air leakage.
7		Electrode	2	Spare parts, need to be replaced frequently, please keep inventory.

8		Copper nozzle	2	Spare parts, need to be replaced frequently, please keep inventory.
9		Pressure reducing valve	1	Adjust cutting air pressure.
10		Pressure reducing valve outlet connector	1	
11		Pressure reducing valve inlet connector	1	Quick gas connector, direct plug-in
12		wrench	1	Install or remove the electrode and nozzle
13		Manual	1	Normally provides manuals in English, if you need other language like French, German, Italian, Spanish, and Russian please contact us to get electronic version documents.

Part 3: Simple test for powering on the machine

Flaring FL550 Plasma cutting machines will be subjected to strict various tests when they leave the factory to ensure that each welding machine that reaches the user is of high quality, because our machine has to go through tens of thousands of kilometers of long-distance transportation from the factory to the delivery to you. It's inevitable that some uncontrollable factors will cause some internal components of the machine to become loose or even damaged in the process. We recommend that you check the external device as soon as you get the welder, and turn on the power to check to ensure that you receive It is a qualified product.

Precautions for power-on inspection:

- 1、 Please make sure your power supply voltage is 110V+-15% or 220+-15%. Flaring FL550D supports 110V and 220V input voltage in North America and Japan, and Flaring FL550 supports 220V input voltage in the UK, EU and other regions; if you have a generator power supply, please ensure that the generator is not less than 6000w.
- 2、 It is recommended to choose 50A circuit breaker protection when your power supply voltage is 110V, and 30A circuit breaker protection when 220V.
- 3、 For the current machine, please choose the power plug that suits your local electrical law requirements
- 4、 Extension cord: #12 AWG or larger; 25' (8m) or shorter.



Turn on the power switch of the machine and the fan on the back of the machine rotates, and the digital display on the panel indicates that the power is normal.

Note:

- 1) The digital display shows irregular changes at the beginning, and then returns to the digital display after 3 seconds, which is normal.
- 2) In order to reduce the working temperature of the machine, it is normal for the fan to continue to rotate for a few seconds after the power is turned off.
- 3) During high-strength continuous welding, machine protection may occur. After continuous heat dissipation, the machine will return to normal, which is normal.

Attached table: Self-examination of abnormal conditions without response when turning on the machine:

1. The machine's power switch is not turned on.
2. The power input voltage is wrong.
3. The power plug is loose.
4. The internal circuit is loose (due to long-distance transportation, bumps), you need to open the cover and check the internal connection line.

Part 4: Technical specifications

TYPE	FL550D		FL550
Input power voltage (V)	AC115, 50/60Hz	AC220, 50/60Hz	AC220, 50/60Hz
Rated input current (A)	45	40	40
Rated power capacity (KVA)	4.3	6.5	6.5
Current adjustment range (A)	20-35	20-45	20-45
Welding thickness (mm)	Carbon Steel≤12.0 Stainless Steel≤12.0 Aluminum≤8.0 Copper≤4.0	Carbon Steel≤16.0 Stainless Steel≤16.0 Aluminum≤10.0 Copper≤6.0	Carbon Steel≤16.0 Stainless Steel≤16.0 Aluminum≤10.0 Copper≤6.0
Voltage adjustment range (V)	94V	98V	98V
No-load voltage (V)	280±20	280±20	280±20
Rated duty cycle	60%	60%	60%
Efficiency (%)	80%	80%	80%
Power factor	0.7	0.7	0.7
Protection class	IP21S	IP21S	IP21S
Insulation class	F	F	F
Size (mm)	490*290*340	490*290*340	490*290*340
Weight (Kg)	9.6	9.6	9.6

PART 5: safety precautions

CAUTION

1. Working Environment.

- 1.1 The environment in which this welding equipment is installed must be free of grinding dust, corrosive chemicals, flammable gas or materials etc, and at no more than maximum of 80% humidity.
- 1.2 When using the machine outdoors protect the machine from direct sun light, rain water and snow etc; the temperature of working environment should be maintained within -14°F to +104°F.
- 1.3 Keep this equipment distant from the wall.
- 1.4 Ensure the working environment is well ventilated.

2. Safety Tips.

2.1 Ventilation

This equipment is small-sized, compact in structure, and of excellent performance in amperage output.

The fan is used to dissipate heat generated by this equipment during the welding operation.

Important: Maintain good ventilation of the louvers of this equipment.

The minimum distance between this equipment and any other objects in or near the working area should be 1ft.

Good ventilation is of critical importance for the normal performance and service life of this equipment.

2.2 Thermal Overload protection.

Should the machine be used to an excessive level, or in high temperature environment, poorly ventilated area or if the fan malfunctions the Thermal Overload Switch will be activated and the machine will cease to operate.

Under this circumstance, leave the machine switched on to keep the built-in fan working to bring down the temperature inside the equipment. The machine will be ready for use again when the internal temperature reaches safe level.

2.3 Over-Voltage Supply

Regarding the power supply voltage range of the machine, please refer to “Main parameter” table.

This equipment is of automatic voltage compensation, which enables the maintaining of the voltage range within the given range. In case that the voltage of input power supply amperage exceeds the stipulated value, it is possible to cause damage to the components of this equipment. Please ensure your primary power supply is correct.

2.4 Do not come into contact with the output terminals while the machine is in operation. An electric shock may possibly occur.

3. Maintenance

Exposure to extremely dusty, damp, or corrosive air is damaging to the welding machine. In order to prevent any possible failure or fault of this welding equipment, clean the dust at regular intervals with clean and dry compressed air of required pressure.

Please note that: lack of maintenance can result in the cancellation of the guarantee; the guarantee of this welding equipment will be void if the machine has been modified, attempt to take apart the machine or open the factory-made sealing of the machine without the consent of an authorized representative of the manufacturer.

4. Trouble shooting

Caution: Only qualified technicians are authorized to undertake the repair of this Plasma cutter equipment. For your safety and to avoid Electrical Shock, please observe all safety notes and precautions detailed in this manual.

Note:

- Our equipment as described in this manual conforms to all applicable rules and regulations of the ‘Low Voltage Directive’ (European Council Directive 73/23/EEC) as set out and amended by Council Directive 93/68/EEC) and to the National legislation for the enforcement of this Directive.
- Our equipment as described in this manual conforms to all applicable rules and regulations of the European Council Directive 89/336/EEC, (EMC Directive) and to the National legislation for the enforcement of this Directive.

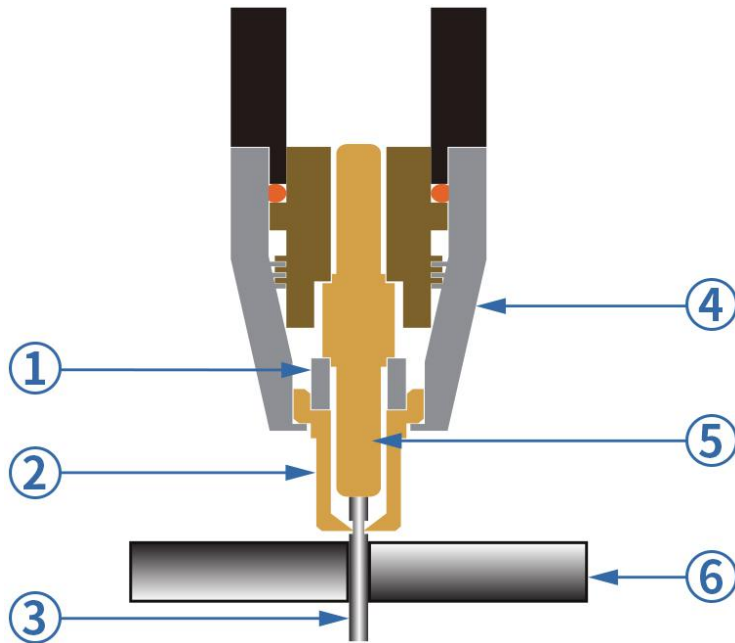
5. How a plasma cutter works

Basic plasma cutters use electricity to superheat air into plasma (the 4th state of matter), which is then blown through the metal to be cut. Plasma cutters require a compressed air supply and AC power to operate.

6. Operation

1. When the trigger is squeezed, DC current flows through the torch lead into the nozzle.
2. Next, compressed air flows through the torch head, through the air diffuser that spirals the air flow around the electrode and through the hole of the cutting nozzle.
3. A fixed gap is established between the electrode and the nozzle. (The power supply increases voltage in order to maintain a constant current through the joint.) Electrons arc across the gap, ionizing and super heating the air creating a plasma stream.

4. Finally, the regulated DC current is switched so that it no longer flows to the nozzle but instead flows from the electrode to the work piece. Current and airflow continue until cutting is stopped.



1. Ring 2. Nozzle 3. Plasma Stream 4. Shield Cup 5. Electrode 6. Steel

Notes:

The nozzle and electrode require periodic replacement. The electrode has an insert of tough high conductive material such as hafnium and cerium. This insert erodes with use, also the nozzle orifice will erode with use.

Quality of the air used is paramount to longer life of electrodes and nozzles, in short clean dry air gives longer parts life, the cleaner and dryer the better. We recommend use of a Plasma Air Filter.

7. What kinds of materials can the plasma cut?

Virtually any metal can be plasma cut including steel, stainless steel, aluminium, brass, copper, etc. Any thickness from 30 gauge through 9/16" can be cut, depending on the power of the plasma cutter used.

8. How Does Plasma Cutting Compare to Oxy-fuel (gas) cutting?

Plasma cutting can be performed on any type of conductive metal - mild steel, aluminium and stainless are some examples. With mild steel, operators will experience faster, thicker cuts than with alloys. Oxy-fuel cuts by burning, or oxidizing the metal it is severing. It is therefore limited to steel and other ferrous metals which support the oxidizing process. Metals like aluminium and stainless steel form an oxide that inhibits further oxidization, making conventional oxy-fuel cutting impossible. Plasma cutting however does not rely on oxidation to work and thus it can cut aluminium, stainless and any other conductive material. While different gasses can be used for plasma cutting, most people today use compressed air for the plasma gas. In most shops, compressed air is readily available, and thus plasma does not require fuel gas and compressed oxygen for operation. Plasma cutting is typically easier for the novice to master, and on thinner materials, plasma cutting is much faster than oxy-fuel cutting. However, for heavy sections of steel (1" and greater), oxy-fuel is still preferred since oxy-fuel is typically faster and, for heavier plate applications high powered plasma machines are required for plasma cutting applications.

9. What are the limitations to Plasma Cutting? Where is Oxyfuel preferred?

The plasma cutting machines are typically more expensive than oxy/acetylene. Also, oxy/acetylene does not require access to electrical power or compressed air which may make it a more convenient method for some users. Oxyfuel can generally cut thicker sections (>63/64 inch) of steel more quickly than plasma.

10. Plasma Introduction

The plasma Cutting process involves creating an electrical channel of super-heated, electrically ionized gas i.e. plasma from the plasma cutter itself, through the work piece to be cut, thus forming a completed electric circuit back to the plasma cutter via a grounding clamp. This is accomplished by a compressed gas (Oxygen, air, inert and others depending on material being cut) which is blown through a focused nozzle at high speed toward the work piece. An electrical arc is formed within the gas, between an electrode near or integrated into the gas nozzle and the work piece itself. The electrical arc ionizes some of the gas, thereby creating an electrically conductive channel of plasma. As electricity from the cutter torch travels down this plasma it delivers sufficient heat to melt through the work piece. At the same time, much of the high velocity plasma and compressed gas blow the hot molten metal away, thereby separating i.e. cutting through the work piece.

NOTE: This machine is designed to use only compressed air as gas.

Part 6: Machine operation guidance.

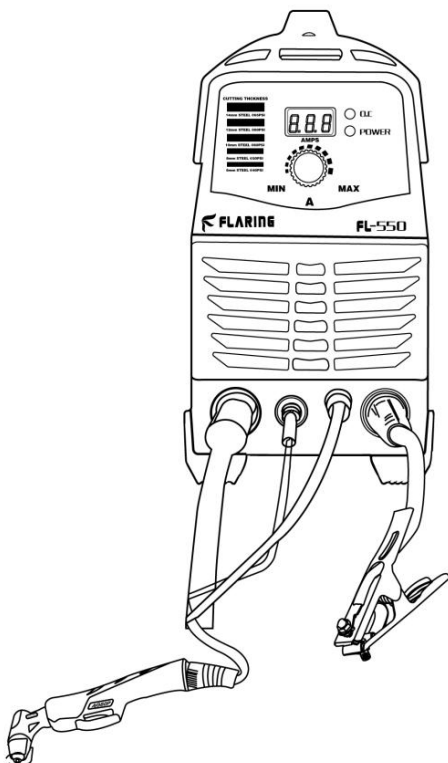
Tips:

1. Wear a welding helmet fitted with a proper shade of filter to protect your face and eyes when welding or watching;
2. Wear approved safety glasses. Side shields recommended;
3. Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc;
4. Wear protective clothing made from durable, flame-resistant material (wool and leather) and foot protection;
5. Use approved ear plugs or ear muffs if noise level is high;
6. Never wear contact lenses while welding.

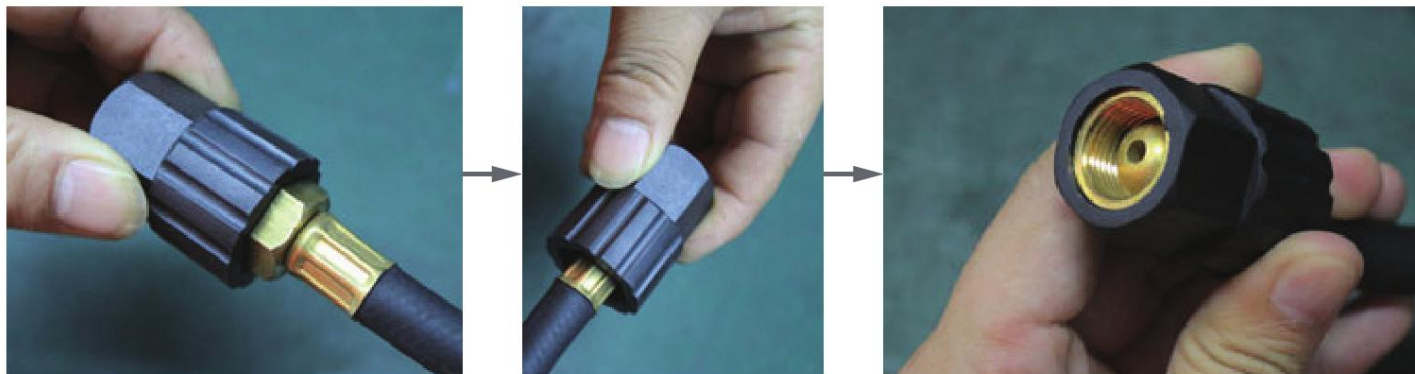
1 CUT mode

If you want to cut any metal objects, please use this plasma cutting machine.

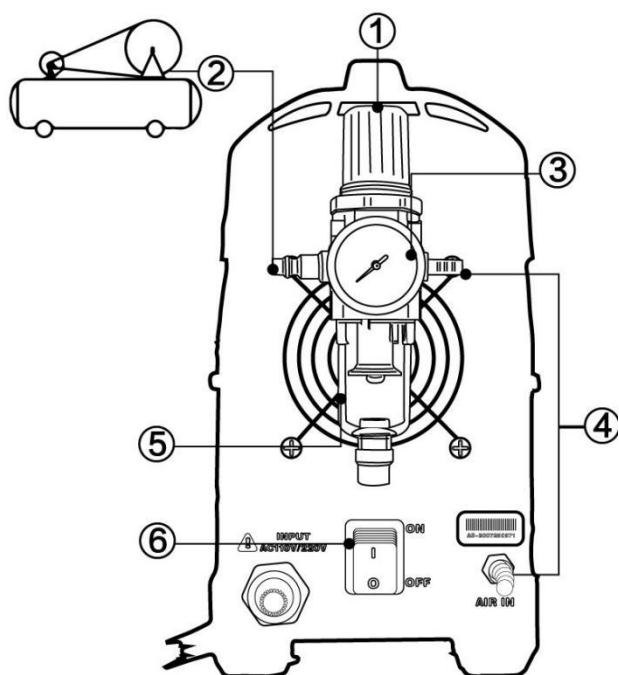
1.1 Connect welding holder and ground clamp.



1.2 Connector cover.

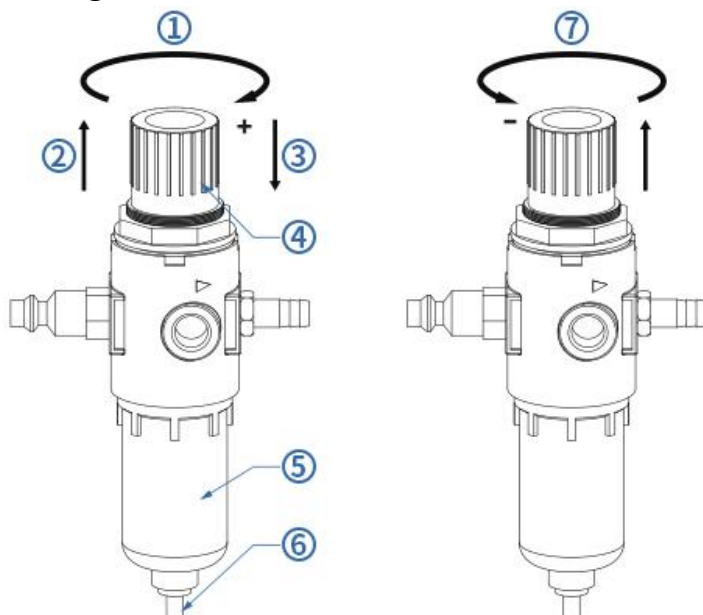


1.3 Connect compressed air.



- 1. Air Pressure Adjusting
- 2. Air Pressure
- 3. Hose Connection Part
- 4. Air Compressor
- 5. Updated Regulator
- 6. Waterproof Switch

1.4 How to use air regulator.



- 1. Clockwise increase air pressure
- 2. Pull up
- 3. Pull down
- 4. Air regulator
- 5. Air/Water filter
- 6. Water release
- 7. Anti-Clockwise Reduce air pressure

1.5 Adjust the current, only the current can be adjusted.



Possible problems:

- 1) There is no arc, check the ground wire to connect the workpiece to ensure that there is no rust, paint or other coatings on the workpiece.
- 2) There is no arc, check the direct distance between the welding rod and the welding object, the ideal distance is 1-2 mm; check whether the welding object has rust or oil stains, it is recommended to polish with sandpaper or a grinder.
- 3) When welding, the spatter is very big, and it feels very difficult to weld. Please try to change the polarity connection of the ground wire clamp and the welding clamp with the machine.
- 4) During the welding process, if the time exceeds 3 minutes, overcurrent protection may occur. You need to stop working for a few minutes, let the machine cool down for a period of time, and automatically recover. If the air cools for more than 10 minutes, the machine does not automatically recover, please shut down and restart.
- 5) If you have any problems that cannot be solved, please contact us .

2 Cutting operation.

2.1 Start Cutting.



Hold the torch vertical at the edge Of the work piece

Pull the trigger to start the arc ,The cutting arc will initiate when the torch tip is close enough to the work Piece. Start cutting on the edge until the Arc has cut completely through.

Then, Proceed with the cut.

2.2 Hand torch cutting technique.



When cutting make sure that sparks are exiting from the bottom of the work piece.

If sparks are spraying up from the work Piece, you are moving the torch too fast, or you don't have enough amps set.

Hold the torch vertical and watch the arc as it cuts along the line.

2.3 Piercing.



Hold the torch at an angle to the work piece, pull the trigger to start the arc and slowly rotate it to an upright position.

When sparks are exiting from the bottom of the work piece, the arc has pierced through the material.

When the pierce is complete, proceed with cutting.

2.4 Amperage

Standard rule of thumb is the thicker the material the more amperage required. On thick material, set the machine to full output and vary your travel speed. On thinner material, you need to turn down the amperage and change to a lower-amperage tip to maintain a narrow kerf. The kerf is the width of the cut material that is removed during cutting.

2.5 Speed

Amperage and speed are critical to producing a good quality cut. The faster you move (especially on aluminium),

the cleaner your cut will be. To determine if you're going too fast or too slow, visually follow the arc that is coming from the bottom of the cut. The arc should exit the material at a slight angle away from the direction of travel. If it's going straight down, that means you're going too slow, and you'll have an unnecessary buildup of dross or slag. If you go too fast, it will start spraying back onto the surface of the material without cutting all the way through. Because the arc trails at an angle, at the end of a cut, slow your cutting speed and angle the torch in to cut through the last bit of metal.

2.6 Direction

It is easier to pull the torch towards you than push it. The plasma stream swirls as it exits the tip, biting one side and finishing off on the other leaving a bevelled edge and a straight edge. The bevel cut effect is more noticeable on thicker

material and needs to be taken into consideration before starting your cut as you want the straight side of the cut to be on the finished piece you keep.

2.7 Torch tip height & position

The distance and position of the plasma torch cutting tip has an effect on the quality of the cut and the extent of the bevel of the cut. The easiest way to reduce bevel is by cutting at the proper speed and height for the material and amperage that is being cut.



Correct torch height and
Square to the material
Minimum bevel & equal bevel
Longest consumable life



Torch angled to the material
unequal bevel, one side may
be excessively beveled.



Torch height too high
excessive bevel, plasma
Stream may not cut all the
way through the material



Torch height too low
Reverse bevel. Tip may
contact the work piece and
short out or damage the tip.

2.8 Tip size and condition

The tip orifices focus the plasma stream to the work piece. It is important to use the correct size tip for the amperage being used, for example a tip with a 3/64" orifice is good for 0-40 amps whereas a 1/16" orifice is better for 40-80 amps.

The low-amp tip has a smaller orifice which maintains a narrow plasma stream at lower settings for use on thin-gauge material. Using a 25 amp tip at an 60 amp setting will blow out and distort the tip orifice and require replacement.

Conversely, using an 80-amp tip on the lower settings will not allow you to focus the plasma stream as well and creates a wide kerf. The condition of the tip orifice is critical to the quality of the cut result, a worn or damaged tip orifice will produce a distorted plasma stream resulting in a poor cut quality.

2.9 Electrode condition

A fixed gap is established between the electrode and the inside of the cutting tip. Electrons arc across the gap, ionizing and super heating the air creating the plasma stream. The electrode contains an insert in the end made of a highly conductive material called hafnium. This insert erodes with use and develops a pit in the end of the electrode, when the pit becomes too much poor quality cuts will result and necessitate replacement of the electrode.

2.10 Air pressure and volume

Air pressure, flow rate and air quality are critical to quality plasma cutting and consumable life span. The required air pressure and volume can vary from model to model and the manufacturer will provide the specs. The CUT35 air pressure is preset at 4.5 psi and requires a flow rate of 6.0 CF/M. The volume capacity of your compressor is important, if you have a small compressor with exactly the same l/min rating as the plasma, then the compressor will run continuously when

you are plasma cutting, a compressor with a l/min rating slightly higher than the plasma would be more adequate. If you are doing a lot of cutting, cutting thick plate (same air consumption but slower cut speeds = longer cut time) then choose a compressor at 1.5 to 2 times the plasma system requirement.

2.11 Air quality

Good air quality is essential to quality plasma cutting and consumable life span. Compressors take in air at atmospheric pressure and increase the pressure and store it in a tank. Humidity in the air is condensed in the tank and in the airlines producing water, more so in humid environments. Moisture that forms in air lines has a tendency to condense into larger drops when the air pressure decreases as it is entering the plasma torch. When these droplets enter into the high temperatures (as much as 19832°F) in the plenum of the torch, they immediately break down into oxygen and hydrogen, which alters the normal chemical content of air in the torch. These elements will then dramatically change the plasma arc which causes the torch consumable parts to wear very quickly, alters the shape of the nozzle orifice, dramatically affecting cut quality in terms of edge squareness, dross formation, and edge smoothness. Minimising the moisture in the air supply is absolutely critical to quality plasma cuts and longevity of consumable parts. As a minimum be sure to drain the receiver (tank) on the air compressor at least daily. Most air plasma systems from reputable manufacturers have an on board particulate filter and or a coalescing filter with an auto drain that will remove some

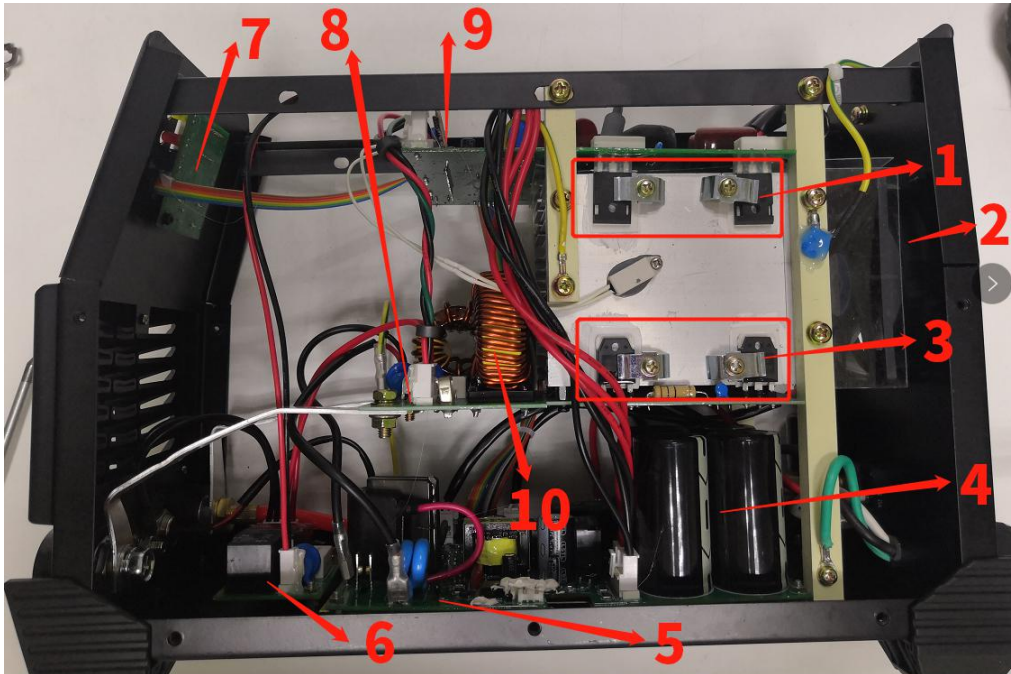
moisture from the air supply. For home workshop and light industrial users the on board air filter is adequate. Most situations however will require additional filtration to prevent moisture from affecting the quality of the plasma cutter and in most cases it is recommended to install a sub micronic particulate filter that is designed to trap water through absorption. This style of filter has a replaceable filter cartridge that absorbs water and must be changed after it is near saturation, it should be installed close as possible to the air intake of the plasma cutter.

2.12 Technique Tips

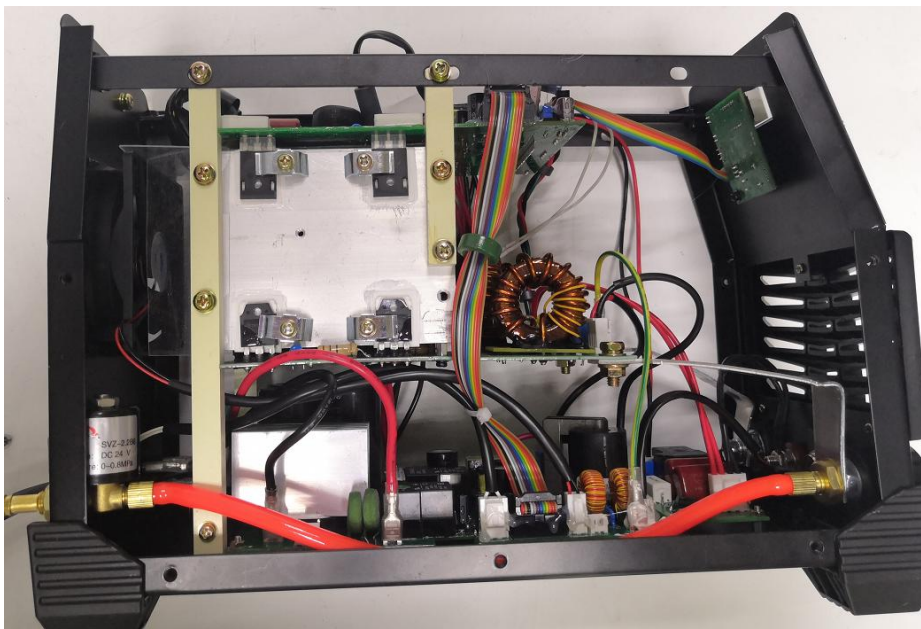
- It is easier to pull the torch through the cut than to push it.
- To cut thin material reduce the amperage until you get the best quality cut.

- Use the correct size tip orifice for the amperage being used.
- For Straight cuts use a straight edge or cutting buggy as a guide. For circles, use a template or circle cutting attachment.
- Check that the front end consumable parts of the plasma cutting torch are in good condition.

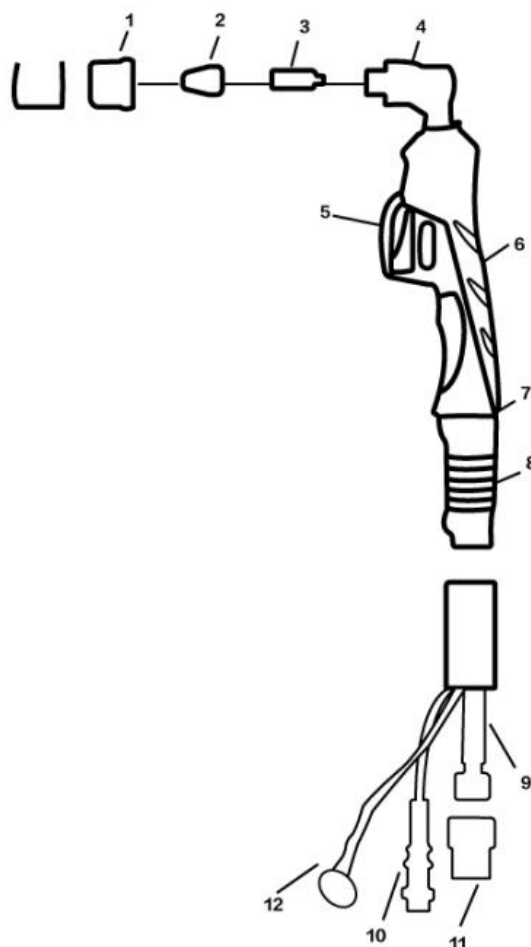
Part 7: Internal diagram of the machine



1. 4 IGBT, stable and powerful current output.
2. Cooling fans, greatly improving the machine load duration.
3. 4 Rectifier, stable and powerful current output.
4. 4 high-power large capacitors, the machine is more stable.
5. Bottom board PCB.
6. The pilot arc PCB.
7. Digital display control panel.
8. Middle board.
9. Upper control board.
10. In addition, an output reactance is added, the output welding current is more stable.



Part 8: SG60 Structure of cutting torch



Position	Code	Description
1	IVS0076-01	Outside nozzle AG-60
2	IVU0680-10	Extend Tip AG-60
3	IVB0086	Electrode AG-60
4	IVZ0034	Plasma torch head AG-60
5	IHJ0724	Trigger
6	IGV0786	Plasma handle
7	IHJ0860	Small joint
8	IHJ0868	Big spring support for TIG
9	00706055-00	IVN Cable assembly/5M
10	IHQ0757	Connكتور 2 holes
11	IHJ0029	Protection nut CH19
12		Pilot arc connection
Complete Torch		
1	IVT6630	Plasma torch/AG-60/4M/M16*1.5

Part 9: Troubleshooting

Problems	Analysis	Solution
1. Power indicate not lighting when power up, the fan not working, torch also not working while press torch trigger	<ol style="list-style-type: none"> 1. No power go into machine through power cable. 2. Power cable, switch or other wire loosen 3. Power cable inside of machine connect not well 4. Power board problem 	<ol style="list-style-type: none"> 1. Check the power input. 2. Check the power cable power switch, power plug and all wires inside of machine if any loosen, check if any wires loosen from power switch to main board. 3. Change the board.
2. power indicator not lighting up after switch on ,fan stop working only works some seconds, machine stop working once the torch touch the metal get arc starting	<ol style="list-style-type: none"> 1. The starting circuit problem, or relay problem. 2. Too many times switch on and off cause machine over heat can not get working. 	<ol style="list-style-type: none"> 1. Check the power components or change the main board. 2. Let the machine rest some time restart it again.
3. power indicator lighting after switch on machine, fan works, but machine not working while press torch trigger.	<ol style="list-style-type: none"> 1. Check the torch switch or if any torch wires loosen from torch connection. 2. The torch switch loosen or any wires loosen. 3. The switch wires loosen inside of machine for the torch. 	<ol style="list-style-type: none"> 1. Check if any torch wires loosen; 2. Check if any wires loosen on torch; 3. Check if any wires loosen inside of machine.
4. the power indicator lighting, the fan works, HF spark while press torch trigger but no air blow out of torch head (or the air keep blowing out) ,The electric valve not working.	<ol style="list-style-type: none"> 1. The electric valve problem (it is DC24V) 2. Maybe the air hose stuck. 3. The circuit for air valve control problem. 	<ol style="list-style-type: none"> 1. Check it or replace it; 2. Check or replace; 3. Check it; 4. Change the board.
5. Power indicator lighting up, O.C indicator not lighting, Fan works, The gas blow out of torch after pressure torch trigger (gas valve works)No HF, There is arc between metal and electrode.	<ol style="list-style-type: none"> 1. Arc striking coil loosen; 2. HF capacitor 102-10KV broken 	<ol style="list-style-type: none"> 1. Check if any wires loosen 2. Replace the HF capacitor.
6. Power indicator lighting up, Fan works, Gas blow out of torch while pressing trigger, O.C lighting while pressing torch trigger	<ol style="list-style-type: none"> 1. Diode problem; 2. IGBT problem; 	<ol style="list-style-type: none"> 1. Check every diode, replace it if any damaged 2. Check every IGBT to see if any one damaged , Resistor, Diode, Replace it if any one damaged.
7. Power indicator lighting, Fan works, Air can blow out of torch head after press torch trigger, O.C indicator not lighting, But it is lighting up while cutting.	<ol style="list-style-type: none"> 1. Circuit problem; Check IC3140 and other components 	<ol style="list-style-type: none"> 1. Check the coil 5:5, fix it if any wires loosen. 2. Replace the board.

Problems	Analysis	Solution
8. The cutting current can not be adjust	<ol style="list-style-type: none"> 1.The wires loosen or potentiometer damaged. 2.The setting circuit problem. 	<ol style="list-style-type: none"> 1.Check the potentiometer if middle pin to earth get 0~5V voltage,Replace it if any damaged 2.Check if any wires loosen from front board to main board 3.Boards problem
9.Machine auto shut down after switch it on.	<ol style="list-style-type: none"> 1.Maybe Power cable or circuit board short circuit 2.Silicon bridge problem 	<ol style="list-style-type: none"> 1.Fix or replace it. 2.Check and replace it. 3.Replace silicon bridge.
10.After pressure torch trigger, there is HF sound and spark, but can not get arc start.	<ol style="list-style-type: none"> 1.Welding torch broken or loosen or Earth clamp and cable connecting not good enough to the earth and metal piece; 2.The connector for positive or negative loosen. 	<ol style="list-style-type: none"> 1.Check them and fix;
11. HF works but arc starting not good enough.	<ol style="list-style-type: none"> 1.The Gap for tip to the metal not in good range, The tip and electrode damaged or oxidate. 2.HF weak because the board leakage. 3.GAS/AIR connector damaged, power leakage between connector and front panel 	<ol style="list-style-type: none"> 1.Adjust the tip to metal in right gap . 2.Check and fix 3.Check and fix
12. HF keep sparking after press torch switch	<ol style="list-style-type: none"> 1.HF signal going to torch switch board and disturb it. 	<ol style="list-style-type: none"> 1.Check the GAS/AIR torch connector, earth female socket and torch switch connector, if there any HF spark between them to front metal.

Part 10: Cutting Thickness Chart

Need to adjust the current and air pressure properly under metal thickness to get best cutting surface.

1	FL550D -220V	20Amps	35Amps	40Amps	45Amps	50Amps
	Thickness (mm)	13/64"	5/16"	13/32"	1/2"	3/5"
	Air Pressure (psi)	40-50psi	40-50psi	50-60psi	60-70psi	60-70psi
2	FL550D -110V	20Amps	30Amps	35Amps		
	Thickness	13/64"	1/4"	5/16"		
	Air Pressure (psi)	40-50psi	40-50psi	50-60psi		