

**PLASMA CUTTER**

# **OWNER'S MANUAL**

**MODEL : CUT 40**

(POWER v-MOS CONTROLIED, PLASMA CUTTING POWER SUPPLY)

## PRODUCTS INTRODUCTION

### **Congratulations for your purchase.**

CUT 40 are made by international most advantaged invert technology .50Hz/60Hz frequency is inverted to high frequency (frequency is over 100KHz) by V-MOSFET, then reduce voltage and commute current, inverter power supply generates powerful DC welding current through PWM technology. Because inverter technology of switch power is used, volume and weight of main transformer has reduced substantially and efficiency has been increased by 30%. Piloting arc system can strike arc easily with principle of high frequency oscillation .It has functions that it can supply gas ahead and turn off gas delayed, cutting machine has characteristics as following:

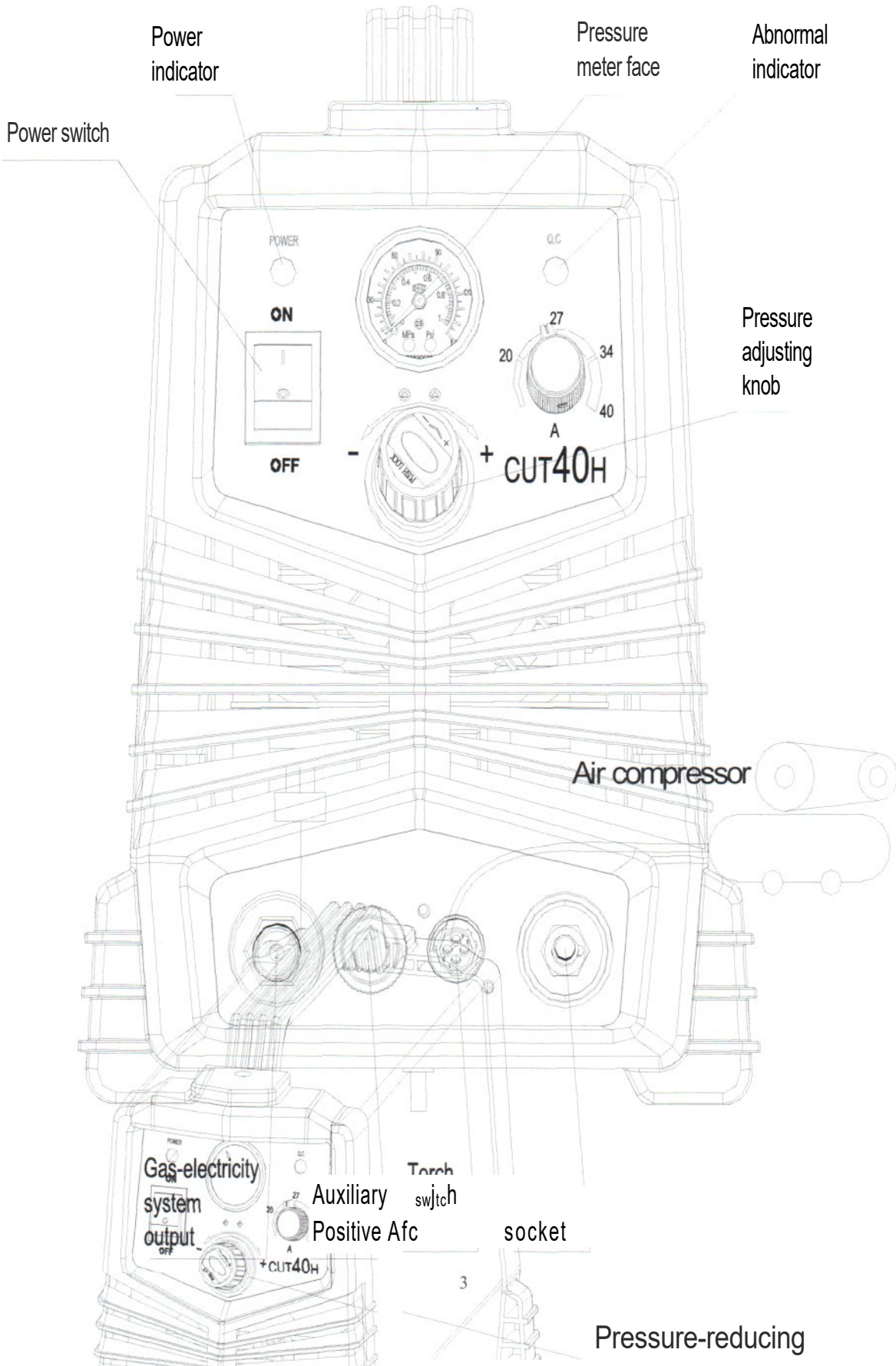
1. Stabilizing.
2. Reliability.
3. Lightness.
4. Energy-saving and no noise.
5. High cutting speed.
6. Cutting smoothly and no polish demands.

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

## MAIN TECHNICAL DATA

Item	Data	
	CUT 40	
Power voltage (v)	1 phase 110V±15% phase	1 220V±15%
Frequency (Hz)	50/60	
No-load voltage (v)	370-405	
Rated input current (A)	47.9	29.9
Rated output voltage (v)	93.2	96
Frequency (Hz)	50/60	50/60
Output current regulation (A)	14-33	14-40
Duty cycle	60%	
Pilot arc model	HF oscillating	
Burner inter diameter (mm)	1.0	
Pressure of air compressor (kg)	4-5	
Thickness (mm)	1-12	
Weight (kg)	9	
Dimensions (mm)	371x153x232	

# PANEL EXPLANATION



The panel picture above is for reference only. If any difference with the real machine, please follow with the real machine.

## **INSTALLATION**

### **Input cable connection (enclose installing diagram)**

1. Every machine has been disposed a power cable which must be connected to coordinated voltage class in compliance according to input voltage of cutting machine .If cutting machine whose power voltage is 220V is connected wrong to AC 380V, that will cause components of inter-machine are burned up.
2. Make sure power cable is connected to power switch reliably and prevent from oxidizing.

Make sure power voltage is inside the waved range.

### **Output cable connection**

1. Make sure tube of pressed air is connected to copper connector by high-pressure rubber tube firmly.
2. Make sure copper screw of another end of torch is connected to gas-electrify integration terminal then tighten them clockwise relation (prevent from leaking gas). Mobile plug of another end of earth cable is connected to positive terminal of front panel then tighten it.
3. Make sure air plug of torch is connected to switch connector of panel (If it is pilote-arc cutter, pilote-arc cable of torch is connected to terminal of pilote-arc wiring column.)

## **CHECK**

1. Check if cutting machine is grounded reliably according to standard.
2. Check if all connectors are connected firmly.
3. Check if power voltage is correct.

## **OPERATION**

1. Open the power switch of front panel; make the power switch is in "on" position .At this time indicator of power switch is on. Screen will show the current volume.
2. Adjust the gas pressure and make it is adequate to machine, open the valve of pressed air.
3. Press the control knob of torch, electromagnetic valve is starting, sound of HF arc-striking can be heard and burner of torch should flow out gas (Burner of pilote-arc cutter should spurt fire)
4. Make sure cutting current is adequate to machine according to thickness of cutting piece.

5. It is 1mm from copper tip to work piece (it is further if it is arc-supporting cutter.), press knob of torch and burn and strike arc, sparks of HF arc striking will diminished immediately. User can begin to cut.

## **INSTRUCTION NOTES**

### **Operation environment**

1. The cutting machine can perform in environment where conditions are particularly harsh and with outside temperature between -10 and +40 degrees centigrade with a dampness level of max 80%.
2. Avoid using in sunshine and dropping environment.
3. Keep machine dry and avoid water into machine.
4. Do not use the cutting machine in environment where condition is polluted with high concentration of dust or corrosive gas in the air.

## **SAFETY**

1. Make sure the working area is adequately ventilated.  
Cutting machine is light and its structure is compact and the electromagnetic fields generated the high current. So natural wind is not satisfy to cool down components, there are two axial-flow fan in inter-machine in order to force to cool down it.  
NOTES: Exhaust shutter must not in block or covered, it is 0.3 m from machine to environment objects. Make sure keep improving ventilated situation, it is very important to machine.
2. No over-load!  
Limited to cutting current strictly according to max allowable current with all kinds of duty cycles.  
Do not exceed load working in order to prevent from shorting use lifetime of cutting machine even burning up machine.
3. No over-voltage!  
Power voltage range of cutting machine is according to main technical data sheet. Voltage automatic compensation circuit will prevent from exceeding allowable arrange. If power voltage is too high, that will damaged to components. User must

be carefully.

4. There is a grounding screw, which is marked grounding behind cutting machine. Make sure the mantle is grounded reliably by cable whose section is 6 square millimeter in order to prevent from leaking electrify and bringing electrostatic.
5. Inter heat-variable component is starting if machine is exceeded in duty cycles. That will cause-cutting machine will stop working suddenly and inter red diode is lit. User need not break the circuit and the fan may continue working in order to cool down the machine. Once temperature is reduced to allowable arrange, machine can be operated again.

### **CUTTING NOTES**

1. Make sure copper tip must not connect to work piece directly when user is cutting. Torch should be inclined and it is 1 mm from inter-hole of copper tip to work piece in order to protect copper tip.
2. As arc-supporting cutting machine, if arc-supporting frequency is down or there is no arc supporting, user may be get rid of oxidized film of inter electrode by abrasive paper. Then machine will be operated normally.

### **MAINTENANCE AND CHECK TROUBLE**

#### **Maintenance**

1. Remove dust by compressed air regularly .If cutting machine is placed in environment where condition is polluted with smoke and dust, cutting machine must be removed dust every day.
2. Pressure is adequate to cutting in order to protect little components.
3. Check the electrify connectors and make sure the connectors are connected firmly (specially connect and insert components), tighten the connectors
4. Avoid water into machine and machine become damp, or the machine must be dried in time and measured insulation by meter. After there is no problem, the machine can be operated.
5. If the machine will not be used long time, it should be put in its own packing box

and store in dry environment.

## Check Fault

Faults	Resolvable Methods
Switch indicator is on, fan is not working and control knob is out of work.	1 . Over voltage protection is working. Close machine then Open it again after several minutes.
Switch indicator is lit and fan is working. However, press control knob of torch, there is no HF arc-striking sound and electromagnetic valve is not working.	1. Check if torch is open circuit. 2. Check if control knob of torch is damaged. 3. Part of assistant power of top board is damaged and there is no DC 24V output.
Switch indicator is lit and fan is working. However, press control knob of torch, there is no HF arc striking sound and inter red diode is lit.	1 . Check if MOS 20N60 of top board is damaged (driver mould is damaged). 2. Rising transformer of bottom board is damaged. 3. Control mould is damaged.
Switch indicator is lit and fan and electromagnetic valve are working. However, there is no sound of HF arc-striking and inter red diode is not lit.	There is some trouble in part of arc-striking, such as: 1. It is too far between discharge tip or there is adhesion in discharge tip. 2. Primary coil of arc-striking transformer is damaged poor contact. 3 . Check if four or times voltage rectifier diode is stricken. 4. Check if HF electric capacity 102/10KV is leaking. Relay is damaged.
Other of machine is normal, but arc is not be stricken when it is be operating.	1 . Input voltage is too low. 2. Pressure of air compressor is too high or too low .