



410-PLASMA SERIES
AIR PLASMA CUTTER

MANUAL


Please read this manual carefully before using

2. 10. 07. 624 V1. 0

Operator's Manual

The respectable user:

The detailed information provided herein below, which contains about the installation, trial run, operation and maintenance of "410-PLASMA series Air Plasma Cutter", is intended for your kind perusal to help you minimize the operational problems so that the product can work as smoothly as it is expected.

-  **WARNING!** * TO INSTALL, OPERATE, TEST AND MAINTAIN ONLY THE PROFESSIONAL PERSONAL IS ALLOWED.
 ➤ * ANY OPERATION AND MAINTAINENCE BEFORE READING THIS MANUAL IS NOT ALLOWED.

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1. Product Introduction

410-PLASMA series Air Plasma Cutter is regarded as metal cutter equipment with high efficiency. Its

working principle is to use the compressed air as the ionization medium, and then form the high density plasma arc heat source by the torch nozzle's compress effect, which melt the metal as a result. The melted metal will be blown off by the high speed gas flow at the same time to form into narrow cutting slot, thus the metal can be melted and cut very rapidly. This series cutting equipment possesses good features like easy operation, energy saving, high speed cutting, narrow and glabrous cutting slot, less deformation of work pieces, reliable and safe apply, low investment etc. It is suitable for almost all metal plate and pipe materials, including mild steel, stainless steel, aluminum, copper, titanium, nickel alloy, cast iron etc. It is widely used in every work of life such as ship building, motor manufacturing, metal structure, boiler, pressure vessel and pipe making, medical appliance and machinery making etc.

The feature of 410-PLASMA series Air Plasma Cutter:

- Reliable arc-piloting device results in the high arc-pilot successful ratio. Start arc easily even there are oil dirt and rust on the work piece surface..
- Could achieve thick cutting, 100A cutter could meet 32mm maximum thickness of steel plate cutting.
- Cutting current stepless adjust for different cutting thickness.
- 2-step and 4-step control.
- If end user needs cutting torch of high quality and high compression ratio, the nozzle and electrode lifetime will be well improved.
- High speed cutting, small and smooth kerf, little deformation. 4 times speed and 1/3 cost cut than gas cutting when cut 12mm thickness mild steel.

410-PLASMA Series including: 410-PLASMA 60, 410-PLASMA 100.

2. Safety Operation

2.1 Operator's Self Protection

- * Please always follow the rules that conform to safety and hygiene. Wear protective garments to avoid injuries to eyes and skins.
- * No touch to the working piece while operation in case of the electric leaking accident occurred
- * No touch to the two output polarity (The polarity of the torch and the polarity of the work piece.) at the same time without any insulation protection.
- * No permission to cut the vessel with inflammable and explosive materials or the sealed pressure vessel.
- * Avoid operation under water or high humidity places.
- * Shut off the power supply before changing the connect tip or electrode.
- * Prohibit aiming the torch at any part of the body.
- * Prohibit touching the contact part of the torch after the cutter is on.

2.2 Attention

- * 410-PLASMA series Air Plasma Cutter is electronic product with delicate work pieces, be careful while switching or modulating in case of any damage to the device.
- * Check the connection to see if the cutter input and output cables are well connected, **whether the earth connection is reliable, etc...**
- * Fumes and gases produced when cutting are hazardous to health. Make sure to work in places where there are exhaust or ventilation facilities to keep fumes or emissions away from the breathing zone.
- * Insulate the working area since spatter will be occurred.
- * The duty cycle of the cutter is 60%, over-load using is prohibited. The overheating protection device is equipped in the machine, with result of the over-load running, the inner temperature becomes too high, overheating protection device will turn off the power. It cannot work normally until the temperature decreases

down to the proper one. The machine will be damaged when serious over-loading.

- * No access to switching or modulating by others while the cutter is working
- * Cutters have strong electromagnetism and frequency interference, so keep away people with heart pace or the articles which can be interfered by electromagnetism and frequency.
- * No squeeze or punch to the cutting cable.
- * Never clean the slag in the torch head by violent knocking.
- * The puckering angle of the torch cable can not be too small, otherwise the inside cable of gas pipe will be damaged which can result into accident.
- * Never allow anybody else other than the operator himself to access the job site.
- * No touching on the output connection or any other electrification parts while welding.
- * The rated no-load voltage not less than 500V DC peak value satisfies the special procedure ..
- * Using it for pipe ice-out is prohibited.

2.3 Safety Measures to Be Taken To Assure the Correct Installation and Position

- * Precaution must be taken to keep the operator and the machine from the foreign materials falling from up above.
- * The dust, acid and erosible dirt in the air at the job site can no exceed the amount required by the norm (excluding the emission from the cutter).
- * The cutting machine must be installed in the place where it can no be exposed to sun and rain. Also it must be stored in less humid place with the temperature range at -10~40°C.
- * when tipsily placed, measures should be taken to assure it not damage.
- * There should be 50cm space left for the cutting machine to have good ventilation.
- * Make sure that there is no metal-like foreign body to enter the cutting machine.
- * No violent vibration in the cutter's surrounding area.
- * Make sure the machine is installed in where it won't interfere the surrounding electromagnetism equipment during the operation.
- * Take measures to prevent wind while operating in the strong wind since the cutter is gas shielded.

2.4 Safety Check

Each item listed below must be carefully checked before operation:

- * Make sure that the cutting machine has reliable earth connection.
- * Make sure that there is always sound output and input wire connection instead of exposing outside.

Regular check needs to be conducted by the qualified personnel after the cutter has been installed over a period of six months, which involves as follows:

- * Routine cleaning is required to make sure there is no abnormal condition happening in the tightened places such as the loose and slipped magnetic core, regulating screw, connecting wire happening in the welding machine.
- * The external parts installed on the cutter's panel must guarantee that the welder works properly.
- * Fresh the cable of the cutter if it is worn out..
- * Any damage to the input cable if occurred should be dealt safely.
- * Make sure whether there is enough power supply to make the cutting machine work properly, and the power supply connected into the cutter should be equipped with safety protection device.

Notice: Cut off the power supply before opening the case to check.

Please do not hesitate to contact us for technical assistance whenever you come across the problems you can not work out or you may deem difficult to fix.

3. Technical Specifications

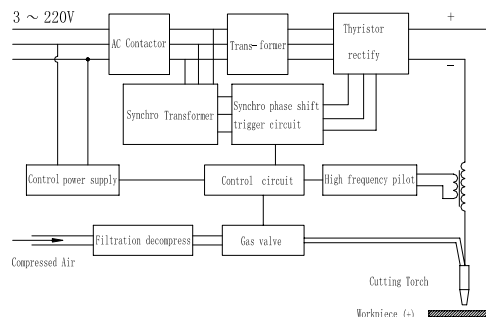
3.1 Environment for the Product

- * The surrounding temperature range: When cutting: $-10\sim+40^{\circ}\text{C}$
During transport or in storage: $-25\sim+55^{\circ}\text{C}$
- * Relative humidity: When at 40°C : $\leq 50\%$
When at 20°C : $\leq 90\%$
- * The dust, acid and erosible materials in the air can not exceed the amount required by the norm (apart from the emissions from the cutter). No violent vibration at the job site.
- * Altitude no more than 1,000m.
- * Water cooled cutting machine
The lowest environment temperature: $+5^{\circ}\text{C}$
Cooling water entering environment should not over: $+30^{\circ}\text{C}$
- * Keep from raining when it is used outdoor.

3.2 Requirement for Main Supply

- * The voltage oscillogram should display actual sine wave.
- * The oscillation of the supplied voltage should not exceed $\pm 10\%$ of the rated value.
- * The imbalance rate of three phases main supply should not less than 5%.
- * Frequency fluctuation should be less than 2%.

3.3 Theory of Cutting Machine (See chart as below)



Electric Theory Structure

410-PLASMA series Air Plasma Cutter is high speed cutting equipment with advanced technology which is using high density plasma arc as source of heat. The plasma arc would be acquired by the compressed air as ionization medium and the compression of the torch's nozzle.

The main electric theory of the Trident series Air Plasma Cutter: the 3 Phase industry frequency AC power is inducted through AC contact equipment, and then been transformed by the main transformer, and commutated by three phase, then output after filtering by the output filter capacitance while guaranteeing the pilot's stability; at the same time the output negative pole is connected is coupling transformer in series, at the beginning of the cutting, the high voltage high frequency pilot pulse created by the pilot machine is coupled by the coupling transformer to the output negative pole, and then been delivered to the torch head, which make pilot more convenient.

3.4 Cutter's Structure

410-PLASMA Series Air Plasma Cutter is box structure design: Front panel upper part with indicators of power supply, Lack phase, Lack air pressure and short circuit; Power switch, reset switch, current knob, 2-step/4-step switch. Lower half with workpiece interface, cutting torch interface. Back panel with power supply input

cable, gas interface, pressure reducing valve and cooling fan. Box bottom with four wheels; Box top with lifting bolts. Open the machine shell, there are contact device, control transformer and control PCB; under frame there are main transformer, reactor, thyristor controlled cooler, arc-pilot control board, coupling transformer.

3.5 Main Technical data:

Item		Model	410-PLASMA 60	410-PLASMA 100
		Unit		
Rated Input Voltage		V	220	220
Frequency		Hz	60	60
Phase		Phases	3	3
Rated Input Capacity		KVA	21	36
Rated Input Current		A	52	90
Output no load voltage		V	265	280
Rated work voltage		V	104	120
Output current		A	25~60	30~100
Air Flow		L/min	150	200
Air Pressure		MPa	0.3~0.5	0.3~0.5
Pre-flow time		s	0.2	0.2
After-flow time		s	5	5
Maximum cutting thickness	Carbon steel; Stainless steel	mm	22	32
	Aluminum	mm	16	22
	Brass, copper	mm	12	16
Rated duty cycle		%	60	60
Cooling Type			FAN cool	FAN cool
Arc-starting ways			Transferred arc	Transferred arc
Insulation grade		Grade	F	F
IP grade		IP	IP21S	IP21S
Weight		kg	149	176
Dimension (L*W*H)		mm	680*590*763	680*590*763

3.6 Applying Norm of Cutter

- * GB 15579. 1-2004 Specification for Arc Welding Protection, Chapter 1, Power Source
- * GB/T 8118-1995 Common Technique Condition of Arc Welder
- * GB 4208-93 Out Case Protection Grade (IP Coding)
- * JB/T 7438-94 Air Plasma Cutting Machine

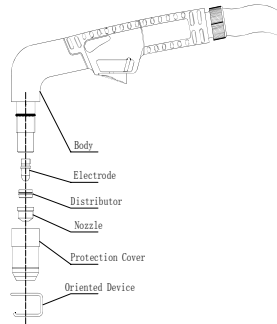
3.7 Installation & Maintenance of the Torch & Replacement of the Spare Parts

Please notice: Please make sure the power supply switch is off before loading / unloading the cutting torch and replacing the spare parts.

* Refer to the torch pictures below for torch assembly. Do not revise the divider, protection cover screw appropriately (over press will break up the cover). (Notice: Different brand cutting torch structure is different,

picture as below for reference only.)

- * While the nozzle's hub hole is burnt to a degree that it will affect the cutting slot, it should be replaced in time.
- * The electrode should be replaced in time when it worn down or be shortened to about 2mm, otherwise the torch will be broken.
- * If there are any spare parts of the torch are broken, they should be replaced in time.
- * If the torch's cable, working gas pipe, protection cover or the wire are broken, then they should be replaced in time.



Air Cooled Torch Assemble Sketch

3.8 Remark of Illustration

- round
- Plasma Cutting
- AC 3-phase Power Supply, rated frequency 60Hz .
- 3-phase Transformer——Rectifier.
- Direct Current

X: Duty Cycle

I_{1max} ...A: Rated Maximum Input Current

I_{1eff} ...A: Rated Virtual Input Current.

I_2 : Rated Welding Current

U_0 ...V: Rated No-load Voltage

U_1 ...V: Rated Input Voltage

U_2 : Conventional Load Voltage

~60Hz: AC, Frequency is 60Hz.

...V: Voltage Unit

...A: Current Unit

...%: Duty Cycle Unit

...A/...V~...A/...V: Output Range. Rated minimum and maximum welding current and related load voltage.

IP21S: Grade for the case protection. IP is the code of International Protection. 2 mean preventing user's finger from the dangerous parts; preventing the solid material with the diameter no less than 12.5mm

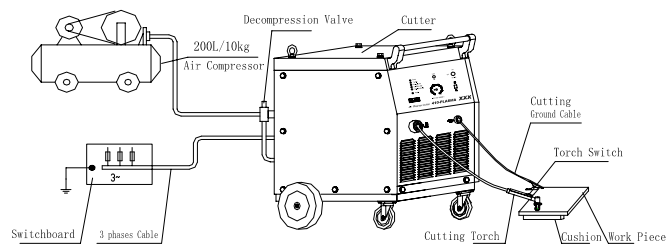
into the box. 1 means preventing water dropping vertically which is harmless. S means water proof test is conducting while the movable part is standstill.

F: F insulation grade

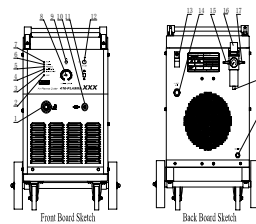
4. Installation (See following pictures)

4.1 Cutter's Placement

- * The dust, acid and erosible dirt in the air at the job site can not exceed the amount required by the norm.
- * The cutter must be installed in the place where not exposed to sun and rain. Also it must be stored in less humid place with the temperature range at -10~40°C.
- * There should be 50cm space about for the welding machine to have good ventilation.
- * Apparatus to exclude wind and smoke should be equipped if the inside aeration is not sound.



Cutter's Connection Sketch (Water cooled Torch)



- | | | | |
|----------------------------|-------------------------|----------------------------|----------------------------|
| 1. Cutting Torch interface | 2. Reset switch | 3. Short circuit indicator | 4. Pressure lack indicator |
| 5. Lack phase indicator | 6. Over heat indicator | 7. Power supply indicator | 8. Current Knob |
| 9. Power fuse | 10. Workpiece interface | 11. 2-step/4-step switch | 12. Power switch |
| 13. Cable hanger | 14. Power input cable | 15. Valve gas entry | 16. Gas valve |
| 17. Gas valve exit | 18. Valve water exit | 19. Cutter gas entry | |

4.2 Connection between Cutter and Power Supply

- * Connect cutter back panel power supply input cable (four-core wire) with 3 phases power supply net, which is equipped with a breaker;
- * Double color wire from power supply cable should be well **connected with Power supply net ground line.**

Notice: Power supply net ground line is not Power supply net Zero Line.

- * Power supply requirement

Items	410-PLASMA 60	410-PLASMA 100
Air Switch (A)	≥ 30	≥ 60
Power cord (mm ²)	≥ 4.0	≥ 6.0

4.3 Connection between Cutter and Compressed Air

- * Connect the compressed air with the gas pipe supplied with the machine and the air decompression valve (Gas Enter) (There is an 'IN' sign on the decompression valve or arrowhead indicating the direction of the gas flow), and then screw tightly with the hoop supplied with the machine.
- * Connect the gas pipe which is connected by the air decompression valve (Gas Exit) to the (Cutter's Gas Entry) on the back board of the cutter.

4.4 Connection between the cutter and torch

- * Connect the cutting torch with cutting torch interface at cutter front panel lower part, and screw up.

4.5 Connection between Cutter and Work Piece

- * Insert the adaptor of the earth clamp cable's end which is supplied with the machine into the adaptor of the (Work Piece Connection) on the next half of the cutter's front board, and the other end of the earth clamp is to connect work piece.

5. Operation (See Sketch of Cutter's Board)

5.1 Operation

- * Check the cutter which has finished connection according to the items of the 'Operation' to be sure that the connection is correct and reliable; Check according to the items of the 'Safety Operation' to be sure that it complies with the safety operation requirements;
- * When Power on the cutter, the fan should start, Power indicator is light; If not compressed air or lack air pressure, Lack air pressure indicator will light; If lack phase, Lack phase indicator will light.
- * Adjust gas valve till the air pressure is up to the cutting craft's requirement. (The lowest pressure should be no less than 0.25MPa), the (Pressure Lack Indication Light) won't sign at that condition;

If power indicator not light or lack indicator light, find the cause and clear the fault.

- * Adjust the current according to cutting thickness specification.

* Turn on the torch switch; Then starts cutting operation when the cutting plasma pilot is ready

When press cutting torch switch, the short circuit indicator lights, please check whether there is circuit short between contact tip and nozzle. Power off and Replace defective contact tip and nozzle. Then power on, if short circuit indicator still lights, press reset switch.

- * If cutting distance is long, could use 4-step control to reduce labour intensity.

2-step/4-step (Non self-lock/self lock switch) function as below:

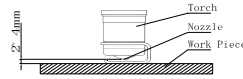
2-step: Torch switch on, gas start, electricity, arc pilot, cut; torch switch off., arc stop, gas stop.

4-step: Torch switch on, gas start, electricity, arc pilot, cut; release torch switch, keep state, press switch again,

arc stop, gas stop.

5.2 Manual Cutting

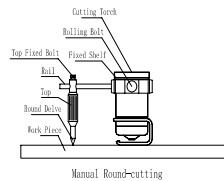
- * Adjust the space between the contact work pieces of torch's rolling wheel, nozzle and the work piece plane to 2~4mm. (See the following picture):



- * Turn on the torch switch to ignite the plasma pilot. After the work piece is cut thoroughly, then move the torch along the cutting direction uniformly. The cutting speed should be aimed to cutting thoroughly. If the speed is too quick, the work piece won't be cut very thoroughly, or if too slow, the cut quality would be affected even result into broken arc.
- * Turn off the torch after the cutting, then the plasma pilot will extinguish. At this time, the compressed air is continuing pouring out to cool the torch down. It will stop after about 5 seconds, and then withdraw the torch. The cutting process is over then.

Manual Round Cutting

- * Install the torch according to the following sketch and adjust the length of the rail as per the radius of work piece.



5.3 Notice while cutting

- * If unnecessary, please do not ignite the leading pilot in the air, or it will reduce life-span of the torch's electrode and puzzle.
- * It will be better to start cutting at the edge of the work piece, unless you must do perforation operation on the work piece.
- * Be sure that the splash is spilt from the bottom of the work piece. If it is spilt from the top of the work piece, then you must move the torch too quickly, or the thickness you chose could not cut through the work piece.
- * Keep certain space between the nozzle and the work space. If press the torch onto the work piece heavily, it will make the nozzle stick onto the work piece, thus it can not move smoothly to cut.
- * Templet or accessorial equipment is required to cut round work piece and edge inosculation work piece.
- * It is easier to "pull" than "push" during the cutting process.
- * Keep the torch's nozzle vertical against the work piece, and observe if the pilot is moving along the cutting line.
- * While cutting the thin work piece, the thin mode can get best cutting quality with low wastage and longer life span of electrode and nozzle.
- * Do not repeat to press the torch switch rapidly, otherwise the pilot system and relative work piece will be destroyed.
- * The cutter's working range is 0.25~0.60MPa.

Note: the inside pressure switch will be shut off when the compressed air pressure decreases from 3.5MPa to 0.15MPa, the inside air pressure switch can work when the pressure rises to 0.33MPa.

- * For every 4-8 hours (the gap time should be according to the dryness of the compressed air), the bolt for

giving out water of the air filter because too much seep in the cutter or torch will cause trouble.

Note: Cut off the power supply or withdraw the gas regulator while giving out water in case the circumfluence of seep to the cutter or torch.

5.4 Safety Requirement

- * Never allow the electrophorus torch to aim at any part of the body.
- * Make sure to wear protection glasses and protection glove while operating.
- * Make sure to work in places where there are exhaust or ventilation facilities to keep fumes or emissions away from the breathing zone.
- * No touching to the work piece while cutting in case of the creep age leading into accident.
- * Never allow to cut the vessel that is or was with flammable or explosive stuff
- * Torch cable is not allowed to work under water or in the moist environment
- * The puckering angle of the torch cable can not be too small, otherwise the inside cable of gas pipe will be damaged which can result into accident.
- * Never allow anybody else other than the operator himself to access the working area.
- * Make sure to turn off the power supply when dismantling or moving the machine
- * Make sure to turn off the power supply when dismantling or installing any spare parts (such as torch, electrode, nozzle, earth clamp or other spare parts) make sure to turn off the power supply when dismantling or moving the machine.
- * Never allow people with heart pace close to the working site without the permission of the doctor. The magnetic field produced by the cutters during operation will cause negative affect to the heart pace.
- * The cutting cable can not be pressed or shocked by any appliance.
- * Never clean the slag in the torch head by violent knocking

6. Trouble Shooting

6.1 Breakdown and Solutions

No.	Breakdown	Analysis	Solutions
1	Indication Light is off after turning on the power supply.	The light is broken	Replace
		Fuse is ruined.	Replace
		No 3 phase Input Voltage	Get through 3 phases Input cable
		Power supply switch is broken	Replace
		Controlling board or cutter is ruined	Examine and repair
2	Fan doesn't work after turning on the power supply	Fan is ruined	Replace
		Fan's down-lead is broken	Examine and repair
		Fan's leaf is blocked	Clean the block
		Transformer is ruined	Replace

3	Pressure lack Indication Light is on No gas check function	No input compressed air	Examine and repair
		Air pressure adjusted to too low or broken	Adjust or Replace
		Gas circuit is blocked	Clean the block
		Gas valve is ruined	Replace
		Gas valve is ruined	Replace
4	Can't cut or no high frequency output	Gas circuit is blocked	Clean the block
		Gas check switch is ruined	Replace
		Down-lead is broken	Examine and repair
		Discharge gap is too big	Adjust to suitable gap
5		High pressure mica capacitance ruined	Replace
		Pilot transformer is ruined	Replace
		Main controlling board is ruined	Examine and repair
6	Can't cut or no current output	Down-lead is broken	Examine and repair
		Torch is broken	Examine and repair
		Commutate module is broken	Replace
		AC contacting equipment is broken	Replace
		Cutting thickness mode switch is broken	Replace
		Main controlling board is ruined	Examine and repair
7	No response after turning on the torch switch	Down-lead is broken	Examine and repair
		Switch and down-lead are broken	Examine and repair or Replace
		Switch board is broken	Examine and repair or Replace
8	No response after turning on power supply	Main controlling board is ruined	Examine and repair or Replace
		Transformer is ruined	Replace
		Down-lead is broken	Examine and repair
		Lack of phase	Examine and repair
		Power supply switch is broken	Replace
9	Others	Fuse is ruined	Replace

6.2 Cutting procedure faults and clearing.

No.	Breakdown	Analysis	Solutions
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1	Work piece is not cut thoroughly	The cutting current is too low	Adjust 'Cutting thickness Mode Switch' to 'Thick Mode'
		The cutting speed is too rapid	Slow down the cutting speed
		Torch electrode or nozzle is burn out	Replace electrode or nozzle
		Cut thickness exceeds the limit of the cutter	Replace with high-power cutter
2	Slag drop out from the Cutting Mouth of Work Piece	Cutting Speed is too slow	Accelerate cutting speed
		Cutting Electrode or Nozzle is burnt	Replace electrode or nozzle
		Cutting current is too high	Adjust cutting thickness mode to 'thin' mode
3	Pilot is not stable during operation	Compressed gas is too low or too high	Adjust pressure
		Electrode of cutting torch or nozzle is burnt	Replace electrode or nozzle
		Connection between cutting cable and work piece is poor	Connect firmly
		Cutting speed is too slow	Adjust speed
4	Cutting thickness is not up to the rated standard	Input compressed air pressure is too low	Adjust air pressure
		Input compressed air flow is too low	Adjust air flow
		Cutting speed is too quick	Slow cutting speed
		Current not enough	Adjust current
		Nozzle or electrode is burnt	Replace nozzle or electrode
		Nozzle type is not right	Replace with a suitable nozzle
		Cutting mouth is not vertical	Adjust cutting mouth angle
Gas leak from the gas circuit, making the true cutting flow is not enough	Examine and repair the gas circuit		
5	Cut is a bit declining	Nozzle or electrode is burnt	Replace nozzle or electrode
		The installation position of nozzle and electrode is not at the same axes	Install again correctively
		Cutting speed is too high	Adjust cutting speed
		Nozzle axes is not plumb with the plane	Adjust the torch angle
6	Cut is too wide, processing quality is poor	Cutting speed is too slow	Accelerate cutting speed
		Torch's electrode or nozzle is burnt down	Replace electrode or nozzle
		Cutting current excessive	Reduce cutting current
		Type of nozzle is not right	Replace with a suitable nozzle
7	Over heat indicator light	Power source over load	Operate in Duty cycle

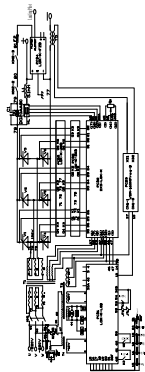
8	Short circuit indicator light	Torch's electrode or nozzle's circuit short	Replace electrode or nozzle
9	Others		Please contact with our company

7. List of Spare Parts

No.	Code	Name	Model & Spec.	Qty.	Circuitry Code	Remarks
1		Discharge tube				
2		Varistor				
3	FUSE	Screw fuse	RL1-15 15A	1	FUSE2	
4	FUSE	Fuse pipe	3A	1	FUSE1	
5	QF	Electromagnetic	Q22XD: AC220V	1	QF1	
6	DX	LED	5mm red	3	DX2	
7	DX	LED	5mm green	1	DX11	
8	DX	LED	5mm yellow	1	DX11	
9	JT	Temperature relay	85°C	1	JT2	
10	JT	Temperature relay	140°C	1	JT1	
11	S	Button switch		1	S0	
12	K	Air pressure switch		1	K4	
13	K	Button stay switch	5A/250V	1	K2	
14	FAN	Axial flow fan	300FZY2-D	1	FAN1	
15	KM	AC contactor		1	KM1	For different cutters
16	KM	AC contactor		1	KM2	For different cutters
17	PCB	Circuit board	LGK-K-ZRB	2		With components
18	PCB	Circuit board	LGK-K-FZB	1		With components
19	PCB	Circuit board	WSM-160HIFREQ-B	1		With components
20	PCB	Circuit board	ZX5-LGK-K	1		With components
21	PCB	Circuit board	LGK-K-LKB	1		With components
22		CBB capacitor				
23		Diode				
24		Thyristor module				
25	HL	Hall(Hoare)		1	HL	
26	L	Reactor		1	L1	
27	T	Coupling transformer		1	T5	
28	T	Control transformer		1	T4	

29	T	Control transformer		1	T3	
30	T	Synchro transformer		1	T2	
31	T	Main transformer		1	T1	

Notice: The spare parts listed above are only for reference.



8. Circuit Chart

The circuit chart of 410-PLASMA Air Plasma Cutter. (Only for reference, subject to change without notice.)

9. Complete Set Specification

9.1 Complete set spec.

* 410-PLASMA XXX Air Plasma Cutter	1
* Product Certificate	1
* Warranty	1
* Operation Manual	1
Standard Accessory--consumption	
* Air Pressure Regulator	1
* Fuse	2
* Gas hose	1
* Earth Cable (with earth clamp)	1

9.2 The torches and consumption is optionally purchased, the specification as follows:

	410-PLASMA 60	410-PLASMA 100
Air cooled torch	A81	A101



Notice: a) The accessories of the torch (such as electrode, nozzle) should match the torch. If not, it will affect the cutting feature or damage the torch

b) The torch connector should accord with the specification as follows;

9.3 Torch Connection Specification:

Model	410-PLASMA 60	410-PLASMA 100
Torch connector	FY0022	FY0022

Note: FY0022 and FA3046 connectors are for “trafimet”



Notice: a) No guarantee has been made yet to get the accessories repaired at any time because of its breakable attribute.

b) The accessories for manual or automatic round cutting should be equipped separately.

c) If there is any stipulation in the contract, then base on the contract.

10. Transport & Storage

- * This series is box structure, hold the handle or the bottom to move it. The machines should be firmly fixed during the transportation.
- * The machines should be free from rain and snow. Keep notice of Attention sign on the packing box. The storage ware should keep dry and air circulation & free from corrosive gas or dust. The tolerable temperature ranges from -25°C to +55°C, and the relative humidity can not be more than 90%.
- * After the package has been opened, it is suggested to repack the product as per requirement for future storage and transport. (Cleaning job is required before storage and enseat the plastic bag for storage in the box.)