WELDING AND CUTTING TOTAL SOLUTION

OWNER'S MANUAL

POWER CUT 60/70HF$_{III}$

⚠WARNING:

Read carefully and understand all **ASSEMBLY AND OPERATION INSTRUCTIONS** before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

CATALOGUE

GENERAL SAFETY RULES

 **WARNING:Read and understand all instructions.** Failure to follow all instructions listed below may result in serious injury.

 **CAUTION:Do not allow persons to operate or assemble this POWER CUT 60/70HF$_{III}$**

until they have read this manual and have developed a thorough understanding of how the POWER CUT 60/70HF$_{III}$ works.

 **WARNING: The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions or situations that could occur.** It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

SAVE THESE INSTRUCTIONS

IMPORTANT SAFETY CONSIDERATIONS

1.1 Your Welding Environment

-Keep the environment you will be welding in free from flammable materials.
-Always keep a fire extinguisher accessible to your welding environment.
-Always have a qualified person install and operate this equipment.
-Make sure the area is clean, dry and ventilated. Do not operate the welder in humid, wet or poorly ventilated areas.
-Always have your welder maintained by a qualified technician in accordance with local, state and national codes.
-Always be aware of your work environment. Be sure to keep other people, especially children, away from you while welding.
-Keep harmful arc rays shielded from the view of others.
-Mount the welder on a secure bench
or cart that will keep the welder secure and prevent it from tipping over or falling.

1.2 Your Welder's Condition

-Check ground cable, power cord and welding cable to be sure the insulation is not damaged. Always replace or repair damaged components before using the welder.
-Check all components to ensure they are clean and in good operating condition before use.

1.3 Use of Your Welder

⚠ CAUTION

Do not operate the welder if the output cable, electrode, torch, wire or wire feed system is wet. Do not immerse them in water. These components and the welder must be completely dry before attempting to use them.

-Follow the instructions in this manual.

-Keep welder in the off position when not in use.

-Connect ground lead as close to the area being welded as possible to ensure a good ground.

-Do not allow any body part to come in contact with the welding wire if you are in contact with the material being welded, ground or electrode from another welder.

-Do not weld if you are in an awkward position. Always have a secure stance while welding to prevent accidents. Wear a safety harness if working above ground.

-Do not drape cables over or around your body.

-Wear a full coverage helmet with appropriate shade (see ANSI Z87.1 safety standard) and safety glasses while welding.

-Wear proper gloves and protective clothing to prevent your skin from being exposed to hot metals, UV and IR rays.

-Do not overuse or overheat your welder. Allow proper cooling time between duty cycles.

-Keep hands and fingers away from moving parts and stay away from the drive rolls.

-Do not point torch at any body part of yourself or anyone else.

-Always use this welder in the rated duty cycle to prevent excessive heat and failure.

1.4 Specific Areas of Danger, Caution or Warning

Electrical Shock

⚠WARNING

Electric arc welders can produce a shock that can cause injury or death. Touching electrically live parts can cause fatal shocks and severe burns. While welding, all metal components connected to the wire are electrically hot. Poor ground connections are a hazard, so secure the ground lead before welding.

-Wear dry protective apparel: coat, shirt, gloves and insulated footwear.

-Insulate yourself from the work piece. Avoid contacting the work piece or ground.

- Do not attempt to repair or maintain the welder while the power is on.

-Inspect all cables and cords for any exposed wire and replace immediately if found.

-Use only recommended replacement cables and cords.

-Always attach ground clamp to the work piece or work table as close to the weld area as possible.

-Do not touch the welding wire and the ground or grounded work piece at the same time.

-Do not use a welder to thaw frozen pipes.

Fumes and Gases

⚠WARNING

-Fumes emitted from the welding process displace clean air and can result in injury or death.

-Do not breathe in fumes emitted by the welding process. Make sure your breathing air is clean and safe.

-Work only in a well-ventilated area or use a ventilation device to remove welding fumes from the environment where you will be working.

-Do not weld on coated materials (galvanized, cadmium plated or containing zinc, mercury or barium). They will emit harmful fumes that are dangerous to breathe. If necessary use a ventilator, respirator with

air supply or remove the coating from the material in the weld area.
-The fumes emitted from some metals when heated are extremely toxic. Refer to the material safety data sheet for the manufacturer's instructions.
-Do not weld near materials that will emit toxic fumes when heated. Vapors from cleaners, sprays and degreasers can be highly toxic when heated.

UV and IR Arc Rays

⚠ DANGER

The welding arc produces ultraviolet (UV) and infrared (IR) rays that can cause injury to your eyes and skin. Do not look at the welding arc without proper eye protection.
-Always use a helmet that covers your full face from the neck to top of head and to the back of each ear.
-Use a lens that meets ANSI standards and safety glasses. For welders under 160 Amps output, use a shade 10 lens; for above 160 Amps, use a shade 12. Refer to the ANSI standard Z87.1 for more information.
-Cover all bare skin areas exposed to the arc with protective clothing and shoes. Flame-retardant cloth or leather shirts, coats, pants or coveralls are available for protection.
-Use screens or other barriers to protect other people from the arc rays emitted from your welding.
-Warn people in your welding area when you are going to strike an arc so they can protect themselves.

Fire Hazards

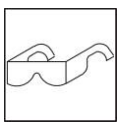
⚠WARNING

Do not weld on containers or pipes that contain or have had flammable, gaseous or liquid combustibles in them. Welding creates sparks and heat that can ignite flammable and explosive materials.
-Do not operate any electric arc welder in areas where flammable or explosive materials are present.
-Remove all flammable materials within 35 feet of the welding arc. If removal is not possible, tightly cover them with fireproof covers.
-Take precautions to ensure that flying sparks do not cause fires or explosions in hidden areas, cracks or areas you cannot see.
-Keep a fire extinguisher close in the case of fire.
-Wear garments that are oil-free with no pockets or cuffs that will collect sparks.
-Do not have on your person any items that are combustible, such as lighters or matches.
-Keep work lead connected as close to the weld area as possible to prevent any unknown, unintended paths of electrical current from causing electrical shock and fire hazards.
-To prevent any unintended arcs, cut wire back to ¼" stick out after welding.

Hot Materials

⚠ CAUTION

Welded materials are hot and can cause severe burns if handled improperly.
-Do not touch welded materials with bare hands.
-Do not touch MIG gun nozzle after welding until it has had time to cool down.



Sparks/Flying Debris

⚠ CAUTION

Welding creates hot sparks that can cause injury. Chipping slag off welds creates flying debris.
-Wear protective apparel at all times: ANSI-approved safety glasses or shield, welder's hat and ear plugs to keep sparks out of ears and hair.

Electromagnetic Field

⚠ CAUTION

-Electromagnetic fields can interfere with various electrical and electronic devices such as pacemakers.

-Consult your doctor before using any electric arc welder or cutting device

-Keep people with pacemakers away from your welding area when welding.

-Do not wrap cable around your body while welding.

-Wrap MIG gun and ground cable together whenever possible.

-Keep MIG gun and ground cables on the same side of your body.

Shielding Gas Cylinders Can Explode

⚠WARNING

High pressure cylinders can explode if damaged, so treat them carefully.

-Never expose cylinders to high heat, sparks, open flames, mechanical shocks or arcs.

-Do not touch cylinder with MIG gun.

-Do not weld on the cylinder

-Always secure cylinder upright to a cart or stationary object.

-Keep cylinders away from welding or electrical circuits.

-Use the proper regulators, gas hose and fittings for the specific application.

-Do not look into the valve when opening it.

-Use protective cylinder cap whenever possible

1.5 Proper Care, Maintenance and Repair

⚠ DANGER

-Always have power disconnected when working on internal components.

- Do not touch or handle PC board without being properly grounded with a wrist strap. Put PC board in static proof bag to move or ship.

-Do not put hands or fingers near moving parts such as drive rolls of fan

POWER CUT 60/70HF$_{III}$ USE AND CARE

- Do not modify the POWER CUT 60/70HF$_{III}$ in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment. There are specific applications for which the POWER CUT 60/70HF$_{III}$ was designed.
- Always check of damaged or worn out parts before using the POWER CUT 60/70HF$_{III}$.Broken parts will affect the POWER CUT 60/70HF$_{III}$ operation. Replace or repair damaged or worn parts immediately.
- Store idle POWER CUT 60/70HF$_{III}$. When POWER CUT 60/70HF$_{III}$ is notin use, store it in a secure place out of the reach of children. Inspect it for good working condition prior to storage and before re-use.

Product Introduction

POWER CUT series isregarded 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 POWER CUTseries:

◇ Small and light ,the weight of **POWER CUT 60/70HF**Ⅲ is only 18Kg.

◇ advanced IGBT inverter technology attributes to stable capability ,high efficiency and energy saving

◇ work can be reliable at ±15% of fluctuation for input voltage.

◇visible gas adjustment and easy operation, specially suitable for decoration。

◇ Thecutting thickness capacity of machine typewill reach 22mm.

◇ cutting slot both narrow and glabrous;no damage to the work pieces. Commendatory thickness attributes to high quality.

◇ Complete protective function. include the protections of overheat.

Safety Operation

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 insulationprotection.

＊ 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.

Attention

＊**POWER CUT 60/70HF**Ⅲ series cutter is electronic products whose spare parts are very tender, do not change oradjust with a rush otherwise the switch will be damaged.

＊ Check the connection to see if it is well connected, whether the earth (ground) 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.

＊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.

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℃.

＊ 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.

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 cutting 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.

Technical Specifications

Environment for the Product

＊ The surrounding temperature range:

When cutting: -10～+40℃

During transport or in storage: -25～+55℃

＊ Relative humidity:

When at 40°C：≤50%

When at 20°C: ≤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.

＊ Keep from raining when it is used outdoor.

Requirement for Main Supply

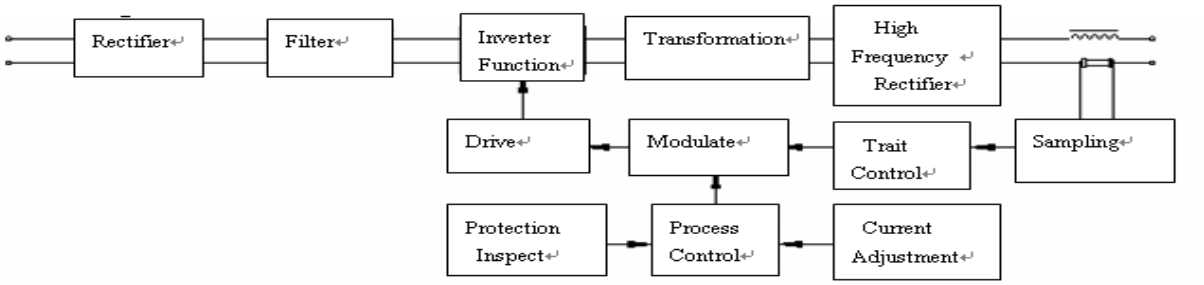
＊ The voltage oscillogram should display actual sine wave.

＊ The oscillation of the supplied voltage should not exceed ±20% of the rated value.

＊ The imbalance rate of three phases main supply should not less than 0.5%.

＊ Frequency fluctuation should be less than ± 2%..

Theory of Cutting Machine（see the principle chart）



The principle chart

POWER CUT Series Air POWER CUT 60/70HF$_{III}$ is high speed cutting equipment with advanced technology which is using high density plasma arc as source of the 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 POWER CUT 60/70HF$_{III}$:400V 3-phase industrial AC power is required, and transfer to DC after rectified by Single phase rectification bridge and transformed by the middle frequency transformer, and then rectified to the DC by the fast recovery diode, While starting cutting, the nozzle and electrode are separated quickly by the air pressure, the voltage between them make the air are ionization and arc which is moved between work piece and electrode pilots .

Cutter's Structure

POWER CUT 60/70HF$_{III}$ applies portable box structure: digital display, protect indictor light, the cutting current adjust knob,are installed on the first half of the front board; and the current output '+' electrode quick connector, '-' electrode quick connector, cuttingtorch control(two pins socket), switch socket are installed on the next half; the power inlet,Impressed gas input connector and power switch, are installed on the back board; the control transformer,control press circuitry board can be seen on the first installation board after shelling the out case;the rectification bridge etc. are installed on the bottom, the medium frequency transformer, fast recovery rectifiers, heat sink etc. are installed in the centre of the box.

Cutter Type Coding

＊ Combination of the English letter and the Arabic numerals.

＊Implication of Coding:

Main Technical Data

Items	Type / Unit	POWER CUT 60HF$_{III}$	POWER CUT 70HF$_{III}$
Rated input voltage	V	400	400
Power supply frequency	Hz	50/60	50/60
Phase	PH.	3	3
Rated input capacitance	KVA	8.6	9.4
Rated input current	A	12.5	13.5
Output non-load voltage	V	330	330
Rated operation voltage	V	104	108
Output Current	A	25-60	25-70
Gas flow	L/min	300	300
Air pressure	MPa	0.3～0.6	0.3～0.6
Lag gas time	S	5~15	5~15
Max cutting thickness	mm	22	25
Rated duty cycle	%	60	60
Cooling type		Fan-cooled	Fan-cooled
Arc start type		High-frequency transfer arc	High-frequency transfer arc
Insulation grade	grade	F	F
case Protection Class	IP	IP21S	IP21S
Weight	kg	22.7	22.7
Dimension (L*W*H)	mm	**550*245*405**	**550*245*405**

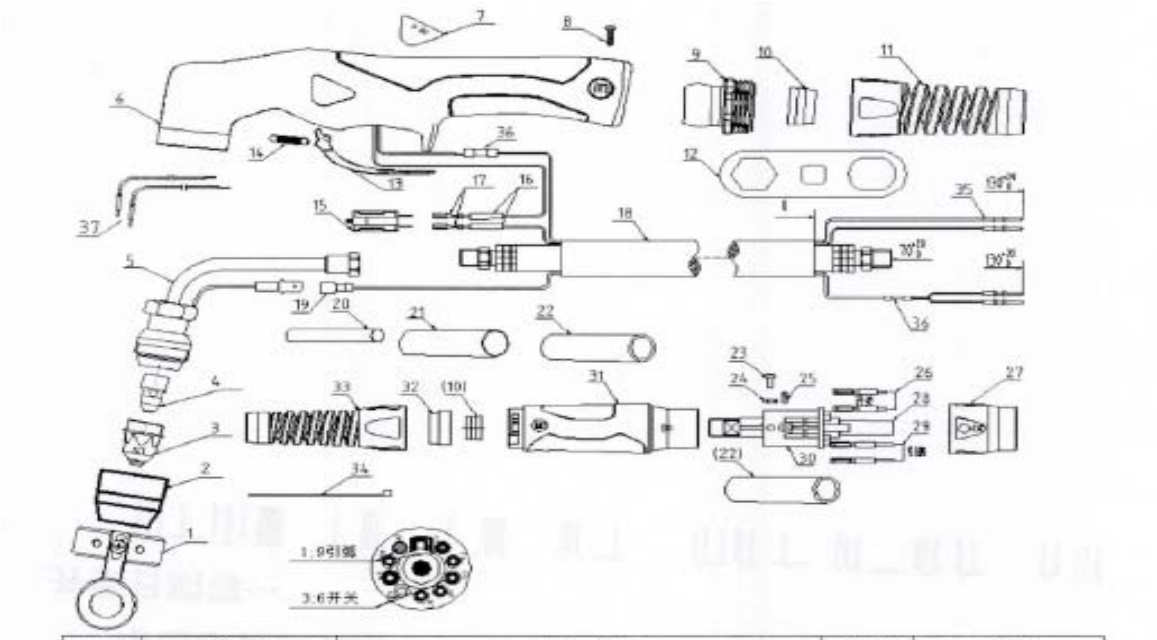
Applying Norm of Cutter

POWER CUT 60/70HF$_{III}$ conforms with the following standard to perform EN 60974-1.

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.

* The installation of the torch's spare parts should follow the order according to the pictures listed blow. Please notice during the installation: the distributor should not be installed in reverse, and the protection cover should be screwed tightly, but please be alert that over pressure would smash the distributor.
* 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. (See the following pictures.)



序号	编 号	名 称	数量	备注
1	ISM0709	隔离滚轮/ P80	1	
2	IVS0013-03	外喷嘴 /松下 P80/镀银	1	
3	IVU5039-11	喷嘴 D.1.1/松下 P80/米诺	1	
4	IVB5020	电极/松下 P80/米诺	1	
5	IVZ5093	等离子枪头 P80 /轻型/米诺	1	
6	IGV0796-03	等离子手柄/PT-LT/大手柄 /米诺/黑色/烈诺	1	
7	IFT0200-300	标签/松下 P80/米诺	1	
8	IFT0873	螺丝 D.2,5x10	8	
9	IHJ0937	等离子，松下 180 小球节（球头）/黑色/米诺	1	
10	IHJ0853	锁紧内环/小	2	

Cutting Torch Assemble Sketch

＊ If there are any spare part s or the distributor are broken, they should be replaced in time.

＊ The torch's cable, working gas pipe, protection cover or the wire are broken, then they should be replace in time

Remark of Illustration

Ground

Descending

Plasma Cutting

Power Source & AC 1 Phases

3Phases Arc Welding transformer -- Rectifier

DC

X：Duty Cycle

I_1：Rated Input Current

I_2：Rated Cutting Current

P_1：Rated Input Power

U_0：Rated Open Circuit Voltage

U_1：Rated Input Voltage

U_2：Rated Load Voltage

~50Hz：AC, Rated Frequency 50Hz

...V：Unit of Voltage

...A：Unit of Current

...KVA：Unit of Power

...%：Unit of Duty Cycle

...A/...V：Cutting Current and Relevent Load Voltage

...MPa：Unit of Pressure

….bar：Unit of Pressure

EN60974-1：Safety standardfortheweldingequipment

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.

H：H insulation grade

Installation (See following pictures)

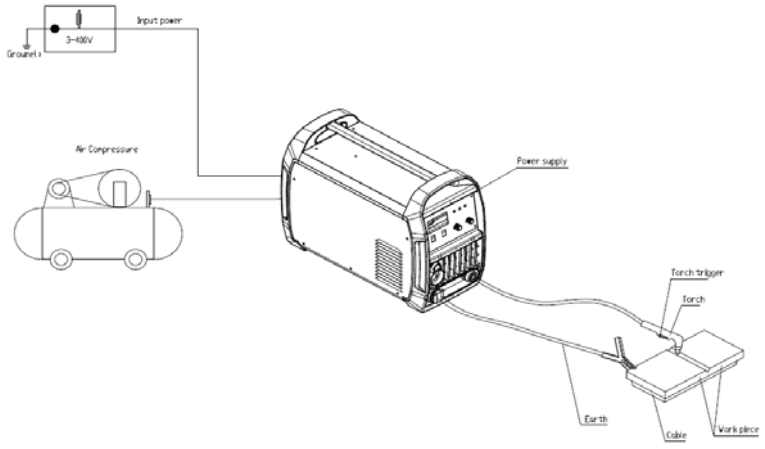
Cutter's Placement

* The dust, acid and erosible dirt in the air at the job site can not exceed the amount required by the norm.
* The welder must be installed in the place where it can not be exposed to sun and rain. Also it must be stored in less humid place with the temperature range at -10~+40°C.

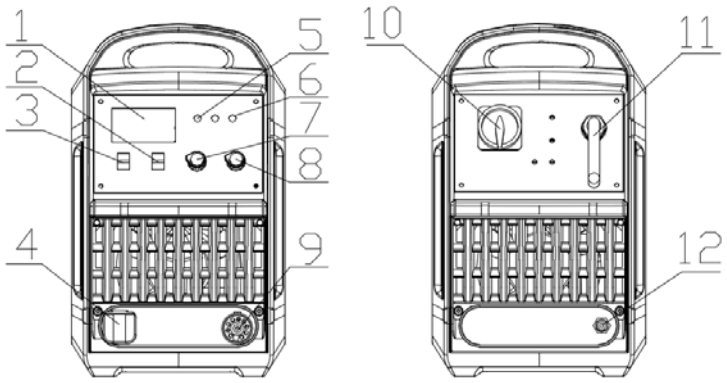
There should be 50cm space about for the welding machine to have good ventilation.

* Apparatus to exclude wind and smoke should be equipped if the inside aeration is not sound.

Appearance and Connection



Connection Sketch



1. Digital ammeter	2. 2T/4T select	3. Gas check Switch	4. Connector forWork piece “+”
5. Thermal Indicator Light	6.Pressure indicator light	7. Cuting Current knob	8. Post Gas knob
9. Cutting gun interface	10. Power On/Off Switch	11. Power Input Cable	12. Air input interface

Connection between Cutter and Power Supply

* Connect the ‘Power Supply Input Cable’ on the back board of the cutter to the single- phase power supply;
* Connect the ‘Safe Earth Connection Bolt’ with the power supply earth cable reliably with the lead whose section area is not less than the cutter’s input lead’s
* Power Supply Configure of one Cutter：

ITEMS	**POWERCUT 60/70K PLUS ii**
Air switch （A）	≥30
Fuse （A）	35
knife switch （A）	≥30
Supply cable（mm^2）	≥4

Notice: The melting current of the fuse is two times of its rated current

Connection between Cutter and Compressed Air

*Connect the output of the decompressed air to the “gas input ” on the back panel by gas pipe with thread.

Operation(See Sketch of Cutter’s Board)

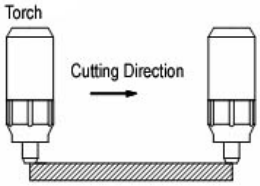
Operation

* 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 the supply power is on, (Voltage Displayer) shows the input power supply voltage; Switch on the power supply switch of the cutter to observe if the operation state is normal. If it is normal, the fan should start up; the (Power Supply Indication Light) should be on. If there is no compressed air or the air pressure is not enough, the (Pressure Lack Indication Light) will sign;
* Switch the Torch cooling switch to the ‘Gas Cooling’, adjust air decompression valve till the air pressure is up to the cutting craft’s requirement. (The lowest pressure should be no less than 0.33MPa), the (Pressure Lack Indication Light) won’t sign at that condition;
* Adjust the (Gas Check) to the gas check position to observe if the compressed air is smooth.
* Turn on the torch switch; the cutting operation then begins after the cutting plasma pilot is made.

Manual cutting

Manual Contact Cutting

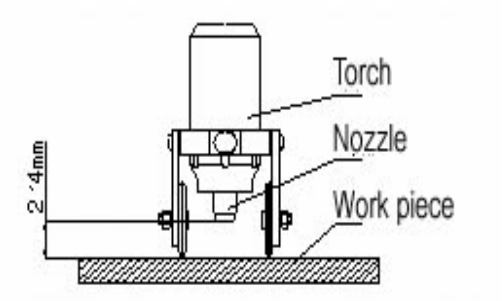
＊ Put the torch's nozzle at the start of the work piece (with slight touch or lift). Turn on the torch switch to ignite the plasma pilot. After the work piece is cut thoroughly, then move the torch along the cutting direction uniformly. The cutting speed should be aimed to cutting thoroughly. If the 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. (See the following picture)



＊ Turn off the torch after the cutting, then the plasma pilot will extinguishand then withdraw the torch. The cutting process is over then.

2. Manual Non-contact Cutting（Only Used In HF Arc-pilot Series）

＊ 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.

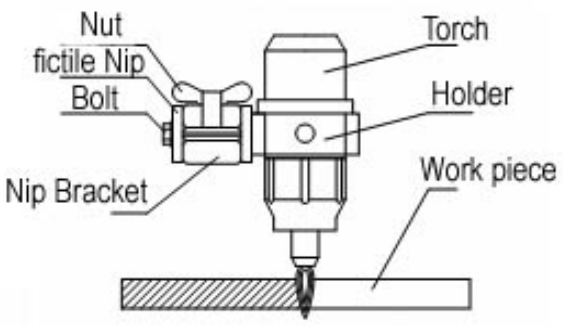
＊ Turn off the torch after the cutting, then the plasma pilot will extinguish， and then withdraw the torch. The cutting process is over then.

Automatic cutting（Only Used In Non-HF Arc-pilot Series）

＊ Automatic cutter device if needed should be purchased by customer.

＊ non-contact cutting is applied in automatic cutting.

＊ Remove the torch wheel and then install according to the following picture: K



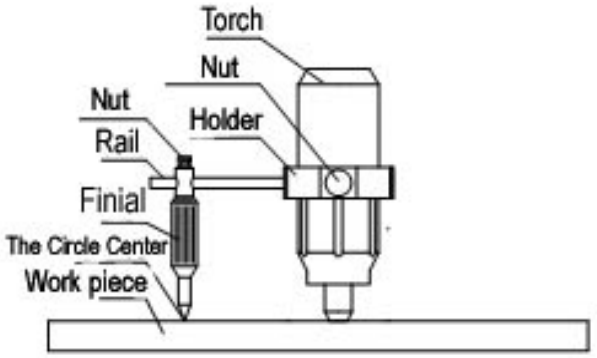
＊Keep the cable of semiautomatic cutter well connected, connect the leading trail or radial pole according to the

shape of the cutting work piece. (apply the leading trail if it is for beeline cutting: apply the radial pole if it is for round cutting or round pilot)

* Pull out the connector of the torch and change with the remote control plug (optional)
* Adjust suitable speed according to the thickness of the work piece, and adjust the inverse ordinal switch to the cutting direction
* Turn on the remote control to establish the plasma pilot, after cutting through the working piece, turn on the power supply of semi-automatic cutter to start cutting, keep an eye on the cutting slot to adjust a suitable cutting speed during the cutting phase.
* Turn off the remote control switch when cutting ends, and then withdraw the torch and the cutting ends.

Manual Round Cutting

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



* Manual round cutting or round pilot cutting according to different cutting type.

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 **Non-HF Arc-pilot Series** cutter's working range is 0.4~0.45MPa.**HF Arc-pilot Series** cutter's working range is0.4～0.55MPa.

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.

Trouble Shooting

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
		No400V Input Voltage	Get through 400V 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 input compressed air	Examine and repair
		Air pressure valve is adjusted to 0 or broken	Adjust or Replace
		Gas circuit is blocked	Clean the block
		Gas valve is ruined	Replace
4	No gas check function	Gas valve is ruined	Replace
		Gas circuit is blocked	Clean the block
		Gas check switch is ruined	Replace
		Down-lead is broken	Examine and repair
5	Can't cut or	Discharge gap is too big	Adjust to suitable gap

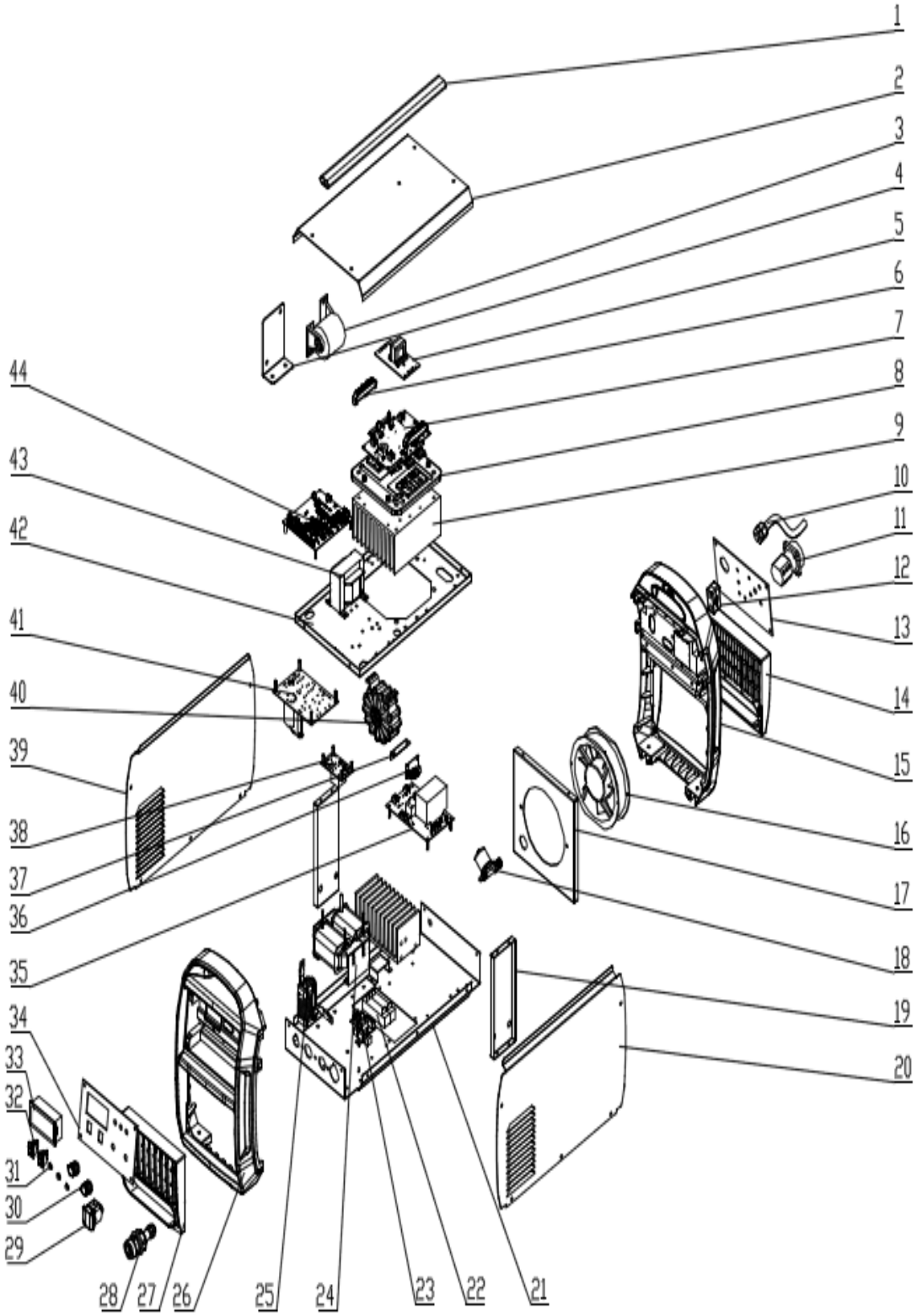
	no high frequency output	High pressure mica capacitance ruined	Replace
		Pilot transformer is ruined	Replace
		Main controlling board is ruined	Examine and repair
		Down-lead is broken	Examine and repair
6	Can't cut or no current output	Torch is broken	Examine and repair
		Commutate module is broken	Replace
		AC contacting equipment is broken	Replace
		Cutting thickness mode switch is broken	Replace
		Main controlling board is ruined	Examine and repair
		Down-lead is broken	Examine and repair
7	No response after turning on the torch switch	Switch and down-lead are broken	Examine and repair or Replace
		Switch board is broken	Examine and repair or Replace
		Main controlling board is ruined	Examine and repair or Replace
		Transformer is ruined	Replace
		Down-lead is broken	Examine and repair
8	No response after turning on power supply	Lack of phase	Examine and repair
		Power supply switch is broken	Replace
		Fuse is ruined	Replace
		Transformer is broken	Replace
		Main controlling board is ruined	Examine and repair or replace
9	Else		Please contact with our company

The technics breakdown and analysis

No.	Breakdown	Analysis	Solutions
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	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

	Work Piece		
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
		Input AC voltage is too low	Adjust power supply or voltage
4	Cutting thickness is not up to the rated standard	Input compressed air pressure is too low or too high	Adjust air pressure
		Input compressed air flow is too low	Adjust air flow
		Cutting speed is too quick	Slow cutting speed
		Material of work piece is not symmetry with the thickness standard	Adjust
		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
		Input power supply is a bit low	Adjust the power supply
		Input or output lead is too thin or pressure is too big	Widen down-lead
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 speed is too high	Adjust cutting thickness mode to “thin” mode
		Type of nozzle is not right	Replace with a suitable nozzle
7	Else		Please contact with our company

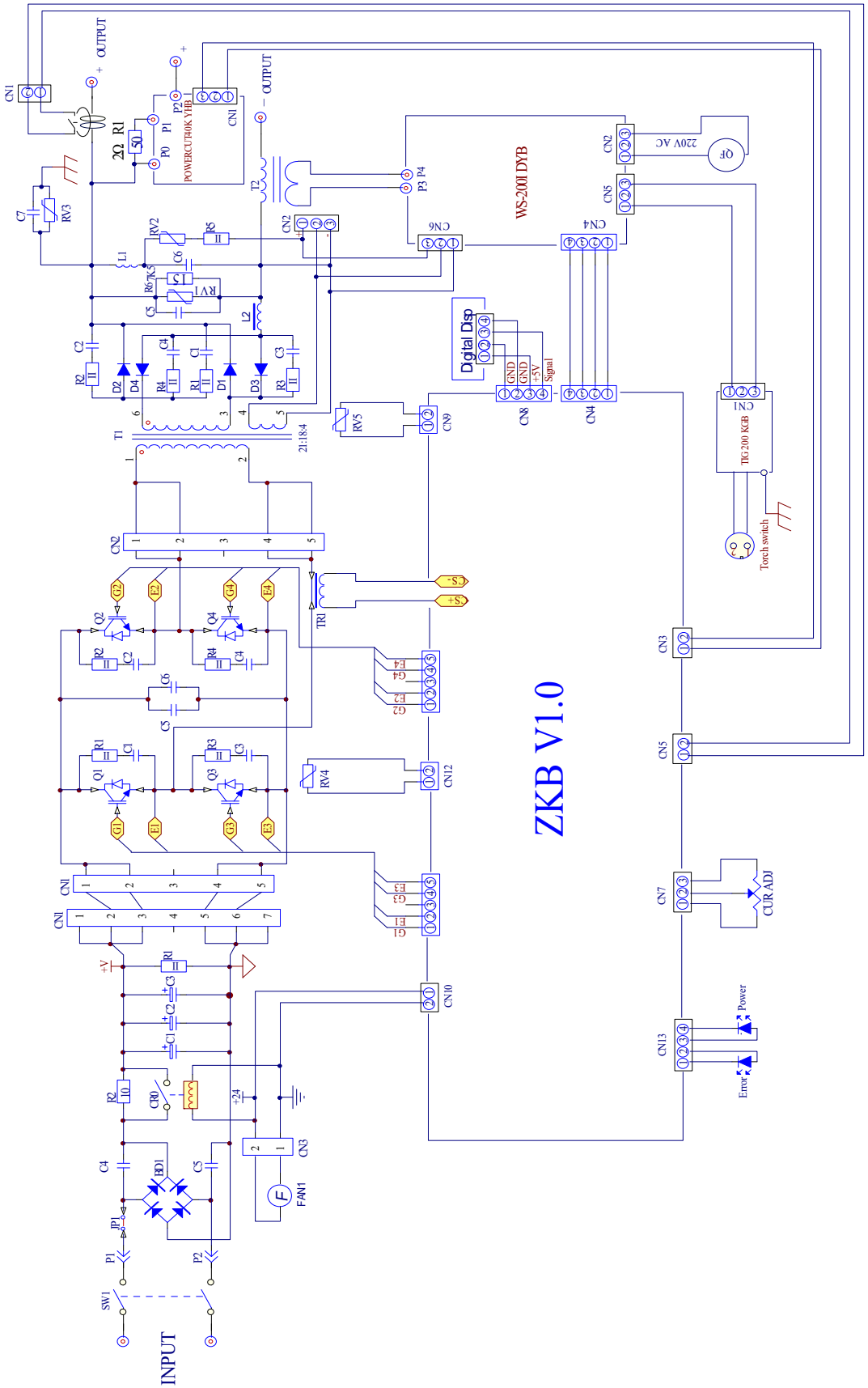
List of Spare Parts



No	Code	Description	specifications	pcs
1	2.02.17.017	handle	CARIMIG 160W/32*14*2/length414/V1.0	1
2	1.1.01.01.1729	cover	INVERDELTA 300W ii	1
3	2.07.19.609	HF filter capacitor	MKP-LS 40uF±5%/800V.DC/60A	1

4	1.1.02.01.2104	capacitor fixed plate	D8136/POWER CUT 70K PLUS	1
5	1.1.05.03.0178	drive board	POWER CUT 70K PLUS/D8136	1
6	2.07.99.989	drive board fixed holder	HG2ZX7400K.2.3-2/black/ABS/antiflaming/V0	2
7	1.1.05.11.0297	power amplifier board	POWER CUT 70K PLUS/D8136	1
8	2.07.99.988	IGBT protection plate	HG2ZX7400K.2.3-3/black/ABS/antiflaming/V0/V2.0	1
9	2.07.43.929	heat sink	HG2ZX7400K.2.3-1/160*150*70/IGBT/V3.0	1
10	2.03.06.721	YZ power cable	4*2.5mm2 H07RN-F	3
11	2.07.80.987	universal change switch	LW39-16B-9GA-06/3BK	1
12	2.05.17.020	cable press plate	CUT40IIPH.3-8/38*16*8	2
13	1.2.02.01.1582	back panel up support plate	INVERDELTA 400W ii	1
14	2.05.05.556	fan window	201.4*155.4*31.7/black/ABS/antiflaming/V0/V1.0	1
15	1.1.01.03.2492	back panel	INVERDELTA 400W ii	1
16	2.07.89.006	fan	145FZY2-S 30W/AC220V/50HZ	1
17	1.1.02.01.2306	fan fixed plate	POWER CUT 70K PLUS ii/PPC70.10.14A33.5.1	1
18	1.1.11.51.0080	gas valve	PPC60.20.14A33.2.4	1
19	1.1.01.05.2943	rectifier board heat sink fixed plate	HG2ZX7400K.7-2	2
20	1.2.02.01.1548	right panel	TekMaster MIG 200/CC6/PMU200.23.12PE12.7-1	1
21	1.2.02.01.1556	bottom panel	POWER CUT 70K PLUS ii/PPC70.10.14A33.5.1.1	1
22	2.07.07.024	resistance	SQP 5W/0.3Ω±5%	2
23	1.1.05.11.0165	load small plate	PPC60.20.14A33.4.6	1
24	1.1.04.03.1364	filter reactor	PPC60.20.14A33.4.8	1
25	1.1.04.05.0077	coupling transformer	POWER CUT 70K PLUS/D8136	1
26	2.05.05.559	plastic front panel frame	PMU200.23.12PE12.2.1-1/CC6/405.4*245*107.2/antiflamingABS/V0/V1.0	2
27	2.05.05.556	fan window	PMU200.23.12PE12-4/CC6/201.4*155.4*31.7/black/ABS/antiflaming/V0/V1.0	1
28	2.07.57.050	central socket	A101/141/FY0022-A/Ø8	1
29	2.07.57.933	Euro quick connector	DKJ10-25	1
30	2.07.11.044	potentiometer knob	KN-21B-6/black/Yellow indicating edge/Pantong 130C	2
31	2.03.30.2380	indicator	POWERCUT 70K PLUS/V1.0	1
32	2.07.80.371	rocker switch	MR2-120-C5-BB-5NW 6A/250V/black	2
33	2.07.46.748	digital meter	LX5135V-2/1999	1
34	1.1.02.01.2305	printing support plate	POWER CUT 70K PLUS ii/PPC70.10.14A33.2-1	1
35	1.1.05.01.0595	power board	POWER CUT 70K PLUS/D8136	1
36	1.1.05.11.0295	auxiliary plate	POWER CUT 70K PLUS/D8136	1
37	1.1.02.04.0170	current transformer holder	NB500.3-2	1
38	1.1.05.11.0299	torch switch insulating plate	POWER CUT 70K PLUS/D8136	1
39	1.2.02.01.1548	left panel	TekMaster MIG 200/CC6/PMU200.23.12PE12.7-1	1
40	2.07.25.172	main transformer	PPC60.20.14A33.1.4/T80*50*25/34:19/8.5KVA	1
41	1.1.05.10.0054	arcing board	POWER CUT 70K PLUS/D8136	1
42	1.1.01.05.3176	mounting plate	PPC60.20.14A33.1.14	1
43	2.07.25.170	control transformer	9380V/220V/27/36/15/15V/0.5KVA/V2.0	1
44	1.1.05.02.0941	main control board	POWER CUT 70K PLUS/D8136	1

Circuit Chart



Complete Set Specification

Complete Set Supply

* POWER CUT 60/70HF$_{III}$	1
* Cutting Torch	1
* Nozzle (one in the torch)	3
* Electrode (one in the torch)）	3
* Earth Cablewith clamp	1
* Product Certificate	1
* Operator's Manual	1

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.

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℃to +55℃, 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 enseal the plastic bag for storage in the box.)
* Users should keep the packing materials with the machines to keep well storage during the long transportation. If the machines need transfer during the transportation, then wooden box is required. Sign such as 'Lift' and 'Free of rain' should be labeled on the box.