NB-250/315LB

MIG/MAG/CO_2 WELDING MACHINE

MANUAL INSTRUCTION

(PLEASE READ CAREFULLY BEFORE OPERATION)

Safety Depends on You

Huayuan arc welding and cutting equipments are designed and built with safety in mind. However, your overall safety can be increased by proper installation.

DO NOT INSTALL, OPERATE OR REPAIR THIS EQUIPMENT WITHOUT READING THIS MANUAL AND THE SAFETY PRECAUTIONS CONTAINED THROUGHOUT. And, most importantly, think before you act and be careful.

Special Attention (Very Important):

- AVOID FALLING DOWN WHEN THE WELDING MACHINE IS PLACED ON THE INCLINED PLANE.
- IT'S CAN NOT BE USED FOR UNFREEZING PIPELINES.
- THE SHIELD RANK OF THIS SERIES OF WELDING MACHINE IS IP21S, AND IT IS NOT SUTABLE FOR WORKING IN THE RAIN.
- THE EMC CLASSIFICATION OF THIS WELDING MACHINE IS A.

Purchase Date：_____

Serial Number：_____

Machine Type：_____

Purchase Place：_____

Cautions	Arc and arc rays may harm health.

Arc welding can be hazardous. All performing welding workers ought to have health qualification that provided by authority organization. Protect yourself and others from possible serious injury or death. Keep children away. Pacemaker wearers should consult with their doctor before operating. Be sure that all installation, operation, maintenance and repair procedures are performed only by qualified individuals.

1 Electric shock can kill: The electrode and work (or ground) circuits are electrically “hot” when the welder is on. Do not touch these “hot” parts with your bare skin or wet clothing, Wear dry, hole-free gloves to insulate hands.

Users need to follow the below items to avoid electric shocks:

- Insulate yourself from work and ground using dry insulation. Make certain the insulation is large enough to cover your full area of physical contact with work and ground. Otherwise, use automatic or semiautomatic welding machines, DC welding machines as possible as you can.
- In semiautomatic or automatic wire welding, the electrode,electrode reel, welding head, nozzle or semiautomatic welding gun are also electrically“hot”.
- Always be sure the work cable makes a good electricalconnection with the metal being welded. The connection should be as close as possible to the area being welded.
- Ground the work or metal to be welded to a good electrical(earth) ground.
- Maintain the electrode holder, work clamp, welding cable and welding machine in good, safe operating condition. Replace damaged insulation.
- Never dip the electrode in water for cooling.
- Never simultaneously touch electrically“hot”parts of electrode holders connected to two welders, because voltage between the two can be the total of the open circuit voltage of both welders.
- When working above floor level, please do wear safety belt to avoid falling or losing balance on electric shock.

2 Arc rays can burn: Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing open arc welding. Headshield and filter lens should conform to nation standards.

- Use suitable clothing made from durable flame-resistant material to protect your skin and that of your helpers from the arc rays.
- Protect other nearby personnel with suitable, non-flammable screening and/or warn them not to watch the arc nor expose themselves to the arc rays or to hot spatter or metal.

3 Fumes and Gases can be dangerous: Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. While working in limited room, use enough ventilation and/or exhaust to keep fumes and gases away from the breathing zone, or use the respirator.

- Shielding gases used for arc welding can displace air and cause injury or death. Always use enough ventilation,especially in confined areas, to insure breathing air is safe.
- Do not weld in locations near chlorinated hydrocarbon vapors coming from degreasing, cleaning or spraying operations.The heat and rays of the arc can react with solvent vapors to form phosgene, a highly toxic gas, and other irritating products.
- Read and understand the manufacturer’s instructions for this equipment and the consumables to be used, including the material safety data sheet (MSDS) and follow your employer’s safety practices. Make sure they are asepsis and innocuity.

4 Spatter: Welding or cutting spatter can cause fire or explosion.

- Remove fire hazards from the welding area. If this is not possible, cover them to prevent the welding sparks from starting a fire. Remember that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas. Avoid welding near hydraulic lines. Have a fire extinguisher readily available.
- Where compressed gases are to be used in the field, special precautions should be used to prevent explosion.
- When not welding, make certain that no electriferous part is touching the work piece or the work stage. Accidental contact can

create a fire hazard.

- Do not weld containers or lines, which are not proved to be innocuity.

■ Do not heat, cut or weld tanks, drums or containers until the proper steps have been taken to insure that such procedures will not cause flammable or toxic vapors from substances inside. They can cause an explosion even though they have been“cleaned”.

- Spatter might cause burn. Wear leather gloves, heavy shirt, cuffless trousers, high shoes and a cap over your hair to prevent from burning by spatter. Wear the ear shield when performing sideways or face up welding. Always wear safety glasses with side shields when being in a welding area.
- The welding cables should be as close to the welding area as possible, and the short, the better. Avoid welding cables going through the building framework, lifting chains, AC or DC cables of other welding machines and appliances. The welding current is strong enough to damage them while having short circuit with them.

5 Cylinder may explode if damaged.

- Make sure that the gas in the storage cylinder is qualified for welding, and the decompression flowmeter, the adapter and the pipe are all in good condition.
- Always keep cylinders in an upright position securely chained to an undercarriage or fixed support.
- Be sure to put the cylinder in the working space with no crash or shake, and far from welding area.
- Never allow the electrode, electrode holder or any other electrically“hot”parts to touch a cylinder.
- Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.
- Valve protection caps should always be in place and hand tight except when the cylinder is in use or connected for use.

6 Power: (For electrically powered welding and cutting equipment) Turn off input power before installation, maintenance and repair to avoid accidents.

- Huanyuan welding equipment is I class safeguard equipment; please install the equipment in accordance with the manufacturer’s recommendations by specific persons.
- Ground the equipment perfectly in accordance with the manufacturer’s recommendations.

7 Power:(For engine driven welding and cutting equipment)

- Work in ventilated place or outdoors.
- Do not add fuel near to fire or during engine starting or welding. When not working, add fuel after engine is cooling down; otherwise, the evaporation of hot fuel would result in dangers. Do not splash fuel out of the fuel tank, and do not start the engine until complete evaporation of the outside fuel.
- Make sure that all the safeguard equipments, machine cover and devices are all in a good condition. Be sure that arms, clothes and all the tools do not touch all the moving and rotating components including V belt, gear and fan etc.
- Sometimes some parts of the equipment have to be dismantled during maintenance, but you still have to keep the strongest safety awareness .
- Do not put your hand close to fans and do not move the brake handle while operating.
- Please remove the connection between the engine and the welding equipment to avoid sudden starting during maintenances.
- When engine is hot, it is forbidden to open the airtight cover of the radiator water tank to avoid hurt by the hot vapor.

8 Electromagnetic: Welding current going though any area can generate electromagnetic, as well as the welding equipment itself.

- Electromagnetic would affect cardiac pacemaker, the cardiac pacemaker users should consult one’s doctor first.
- The effect of electromagnetic to one’s health is not confirmed, and it might have some negative effect to one’s health.
- Welders may use following method to reduce the hazardous of electromagnetic:

a. Bundle the cable connected to the work piece and the welding cable together.

b. Do not enwind partially or entirely your body with the cable.

c. Do not place yourself between the welding cable and the ground (work piece) cable, if the welding cable is by your left side, then the ground cable should be by your left side too.

d. The Welding cable and the ground cable are as short as possible.

e. Do not work near to the welding power source.

9	Lifting equipment: carton or wooden boxes package the welding machines supplied by Huayuan. There is no lifting equipment in its wrapper. Users can move it to the prospective area by a fork-lift truck, then open the box. ■ If there are rings, the machine can be transited by rings. While Huayuan Welding Machine Manufacture reminds users, there is potential risk to damage the welding machine. So it is better to push the welding machine by its rollers unless special situations. ■ Be sure that the appurtenances are all removed off when lifting. ■ When lifting, make sure that there is no person below the welding machine, and remind people passing by at any moment. Do not move the hoist too fast.
10	Noise: Huayuan Welding Machine Manufacture reminds users: Noise beyond the limit (over 80 db) can cause injury to vision, heart and audition depending on oneself. Please consult local medical institution. Use the equipment after doctor's permission would help to keep healthy.

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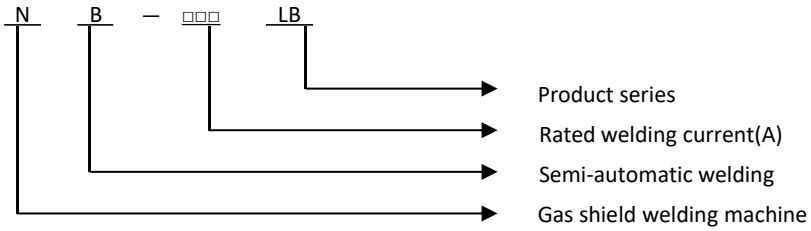
1 Summary

1.1 Model introduction



1.2 Features

- Striking arc under high voltage and slow wire feed. Smooth and stable arc striking with high success rate;
- Adopting unique feedback control circuit of arc voltage and current, stable welding process, little spatter, strong adaptability of wire extension change, wide adjusting range for matching current and voltage, well-shape weld appearance;
- Adopting high performance ball-eliminating circuit, the diameter of ball on wire end almost the same as wire diameter, high success rate at arc striking;
- Adopting PWM inverter technology, frequency up to 20KHZ, with fast dynamic response rate.

1.3 Usage

Widely applied in the fields of automobile, steel furniture, filing cabinet, security door, guard railing, and building decoration, suitable for all position welding on the mild carbon steel in thickness 0.8～6mm. This machine is suitable for Φ0.8, Φ1.0 solid wire.

4. Symbol Instruction

	Please read manual		Connect earth cable
	Positive		negative
	Up/down	A	current
	Input voltage	V	voltage
	MIG/MAG		Over heat
	Connection with workpiece		Dangerous voltage
	Remote control		Clear air （check-air）
	Self-lock		non self-lock

2 Working condition and environment

2.1 Safety issues

To you and others safety, please do abide by the below items：

The welding machine should be grounded reliably:

To prevent electric shock, please do ground the green-yellow wire well;

- Wear protective equipments

To prevent the hurt of welding gas, dust, arc, spatter and noise, please do wear some protective equipments and install necessary ventilation devices. Keep kids away from the dangerous area;

- The cylinder of shielding gas should be fixed well to ensure there is no shock;
- Welding machines and procedure should be away from combustible and explosive material, do not weld closed container. It is dangerous to weld the hand-hole of container, please make sure there is no combustible and toxic gas on the weld before operation;
- Keep sharp objects and other wastes away from the inner machine;
- If dropping or cracking, the welding machine can not be used again without checking by qualified individuals

2.2 Operation place

- The machine should be placed in where there is no sunshine shooting, rain, dust, etchant gas and combustibles, the environment temperature is to be in the range of -10℃～40℃.
- The machine should be placed in where there is no metal waste;
- Keep the welding power source away from wall or other closed objects at least 30cm, the distance between two welding machine is also said to more than 30cm;
- Operate this machine in where there is no wind.
- Operate this machine in where the altitude is lower than 1000m

2.3 Power supply

- Power：3～50Hz380VAC
- Fluctuation range of distribution voltage：＜±15%

1.1 Fluctuation range of frequency：＜±1%

- Unbalance ratio of three phase voltage：＜±5%
- When engine generator is used: make sure the output power of the generator is 2 times larger than the rated input power of welding power source, compensating coil is also needed.

2.4 Main Technical Parameters

Item	Unit	Model	
		NB-250LB	NB-315LB
Input power	V / Hz	3～380/415V 50/60Hz	
Rated input capacity	kVA	10.5	13.2
Rated input current	A	16	20
Rated output current	A	250	315
Rated output voltage	V	26.5	29.8
Rated open circuit voltage	V	68	
Rated duty cycle	-	35%（40℃）	
Efficiency	-	85%	86%
Power factor	-	0.74	0.85
Output voltage range	V	15～32	
Wire feeding speed range	m/min	1.5～28	
Suitable wire diameter	mm	Φ0.8、Φ1.0	

Cooling mode	-	Air Cooling	
Protection class	-	F	
Insulation class	-	IP21S	
Dimension (L*W*H)	mm	520×260×495	
Net weight	kg	20	21

The static external characteristic of this machine is flat characteristic, it`s rated duty cycle is 35%, which means in a 10 minutes work cycle, the welding machine can work 3.5 minutes(stop 6.5 minutes) under the rated current. If it is forced to use over the rated duty cycle, the inner temperature will exceed the set temperature. To avoid poor working or burning, a overheating protection function is set: when overheating, the indicator light lights and there is no outputing from the welding machine, it can work again after the temperature dropping.

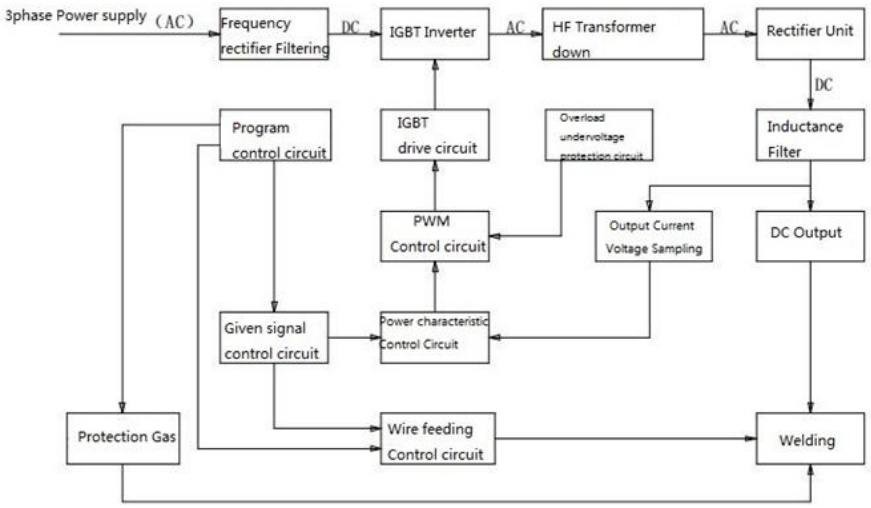
When welding current is lower than 200A, the gas flow is 8-15L/min, when the welding current is larger than 200A, the gas flow is 15-25L/min.

3 Products system introduction

3.1 Summarize of working principle

This series of CO_2/MIG/MAG inverter gas shield welding machine adopts the latest electron device----IGBT is the key inverter device. The three phase AC power is transformer into 20KHz high frequency voltage after bridge rectified. The high frequency voltage output welding voltage after transforming, rectifying and filtering.

3.2 Block schematic diagram



4 Panel function instruction

4.1 Front panel function

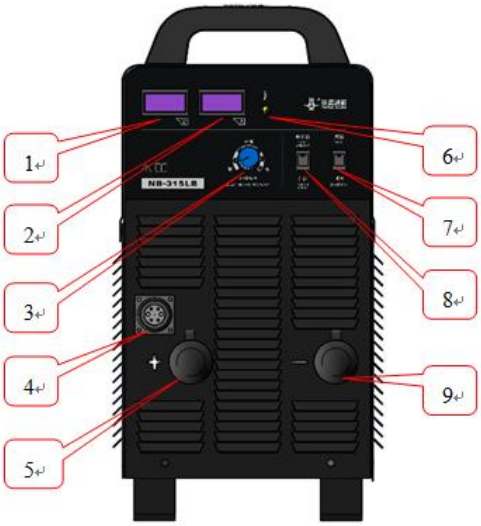
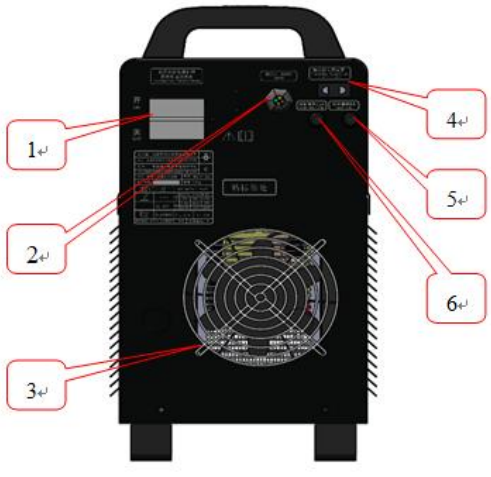


Figure 2 function instruction as below:

1) V(Digital display meter of voltage): when machine is not working, it display preset voltage, when machine is working, it display the actual welding voltage;
2) A (Digital display meter of current)： to display the actual welding current;
3) Arc characteristic adjust knob: when welding, use to adjust and control the different period current rate of melting drop process, adjust the knob directly affect the arc soft/hard, spatter, welding shape and arc stability. Recommend use standard characteristic. Note: large spatter if arc hard, otherwise small;
4) 6 pins control socket: Connector of welding power source and wire feeding control signal;
5) + Positive pole of output power: to connect welding cable of wire feeder;
6) Over heating indicator light: when the welding machine is working in high temperature environment and working overload, the temperature of radiator is higher than 75℃±5℃, the protection circuit begin to work, and then output current will be cut. At the same time, the cooling fan go on working, after the temperature get down, the welding machine will work normal again. The indicator light will also light when the air flue jammed or cooling fan damaged.
7) Change-over switch of welding & gas checking: before welding, to adjust the shield gas flow, turn it on "gas checking". Turn it on "welding" position when welding;
8) Change-over switch of self-lock & non-lock: when it is put on"self-lock", press the torch button and then the arc can be stroke, loosen the button, welding will keep on normally, press the button again, welding finishes. When it is put on "non-lock", press the button, welding begins, loosen the button, welding finishes;
9) –Negative pole of output power: to connect the ground wire of work-piece;

4.2 Rear function panel

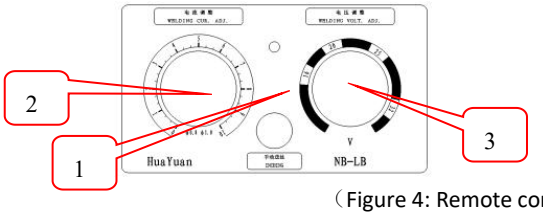


(Figure 3: Rear panel view)

Figure 3 function instruction as below

1) Over current protection switch (Air breaker): welding machine have abnormal, disconnect the power source then protect. The switch only for protection, another power switch shall be configured during installation welding machine.
2) Input cable of three phase power: connect to distribution box, connect the green-yellow wire to ground wire reliably;
3) Cooling fan: To cool power source;
4) Heater power source interface: Heater connector, output voltage 36VAC;
5) Wire feeding fuse holder: Used for short connect and over current protection of Wire feeder power supply circuit, inside Fuse 8A;
6) Control fuse holder: used for short connect protection of welding machine control circuit, inside fuse 1.5A;

4.3 Panle function instruction of wire feeder remote control box



（Figure 4: Remote control box panel view）

1） Manual wire feeding button: press it and the wire feeder work. Wire feeding speed can be adjusted by welding current. When wire diameter is small, the wire feeding speed should be slow to prevent bending the wire.

2）Adjusting knob of welding current: to adjust the welding current; The given relative value of wire feeding speed can be preset, the max. preset value is 100;

3）Adjusting knob of welding voltage: to adjust the welding voltage.

5 Installation

5.1 Carrying and lifting

1) When move the welding machine, please do cut down the power and dismantle the power cables;
2) When carry the welding machine, please keep the machine bottom down, no lying down or upside down;
3) When lifting, make sure its vertical;
4) When carrying with long distance, put some shock absorbing foam to make sure the machine fixing. Stay away from the water.

5.2 Open-case inspection

Check the product completeness according to the operation manual and packing list, check if any damages.

5.3 The connecting of the three phase input cable

1) The installation should only be done by authorized staff;
2) Do cut down the power before installation;
3) The input power of this product is 3~380V, AC 50HZ, please choose the power distribution box, air breaker and input cables accordingly.

   The power input condition please refer the below sheet:

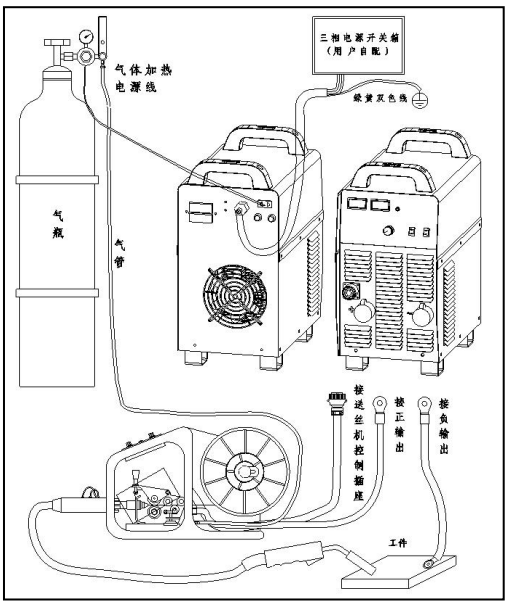
Specification	NB-250/270LB	NB-315LB
Power supply switch capacity (A)	25	32
Power fuse capacity (A)	23	30
Sectional area of power supply line (mm^2)	≥2.5	≥2.5
Sectional area of ground wire(mm^2)	≥4	≥4

4) The connection of the power lead

   Please choose power lead and sockets which comply with local and national electrical standards, and operate by authorized electricians.
5) The connection of the ground cable

   Connect the green/yellow lead of the power cable to the ground well.

5.4 Installation



(Figure 5： The connection of welding equipments and other equipments)

★ Make sure the distribution switch is cut down, and then connect the welding machine. Do not operate with wet hands. Do not put anything on the power cable. Connect all the parts well. Install according to the below orders:

- Connect the three phase power cable to the power switch of distribution box well, the green-yellow line of welding machine should be reliably connected with ground wire in the distribution box;
- Connect the quick coupling of ground wire with the "-"socket that on front panel, tighten it by clockwise, connect the other end of ground wire with workpiece reliably;
- Connect the quick coupling of wire feeder cable to "＋"that on front panel reliably;
- Connect the aviation plug (six cores) of wire feeder control cable to "control" plug seat (six cores), and fasten the rig nut.

5.5 Connection of gas cylinder and gas conditioner

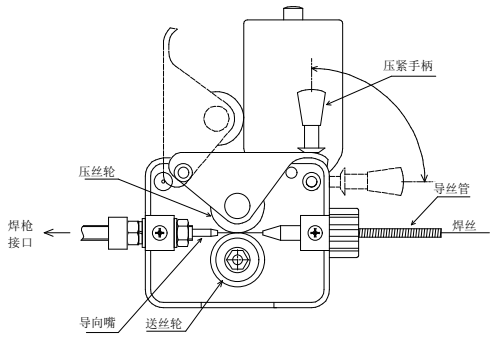
- Install the gas conditioner to gas cylinder;
- Connect the plug of gas heater to power plug seat that on the back panel;

- Connect the "gas input" on the back of welding machine to the "gas output" on gas heater, fasten with hoop;
- Connect the gas pipe that on wire feeder to the "gas output" copper tube that on welding machine, fasten with hoop;
- When CO_2 welding, please use standard CO_2 gas, or there will be welding defeat;
- When MAG welding, please use standard mixture gas. If use two bottles gas, to avoid mixture asymmetry, gas ratio commingler is advised to use.

6 Operation

6.1 Operation instruction

1) Installation of electrode wire(refer to figure 6)
   - Ø Make sure the wire wheel slot diameter is the same as electrode wire;
   - Ø Put down the handle of wire feeder, and put up the pressing arm;



(Figure 6: Installation diagram of electrode wire)

   - Put wire reel on the shaft, make the catch of wire reel stretch out, fasten the nuts.
   - The wire will be inserted into guide tube through wire pipe and wire reel;
   - Put down the pressing arm to hold the wire, and then put up the handle to hold the pressing arm, fasten the handle with suitable strength;
2) Aim the connect plug of welding torch at plug seat, insert it tightly, rotate it in clockwise, and then fasten the ring nuts and welding torch.
3) Make sure the diameter of contact tip is same as electrode wire.
   Put three phase switch on, press the button of "Manual wire feed", adjust welding current to get suitable wire feeding speed, loosen the button till 15---20mm electrode wire is sticked out;
4) Put the switch of "welding/gas checking" on "gas checking" position, unscrew the switch of gas cylinder with a suitable speed till get the wanted gas flow value, and then put the switch on "welding" position;
5) Adjust the button of "welding current" by actual needed current;
6) If welding current is confirmed, the welding voltage can be figured out by the formula of U（welding voltage）=14＋0.05×I(welding current), adjust the button of "welding voltage" and make it displayed on digital meter;
7) Change-over switch of self-lock & non-lock: when it is put on"self-lock", press the torch button and then the arc can be stroke, loosen the button, welding will keep on normally, press the button again, welding finishes. When it is put on "non-lock", press the button, welding begins, loosen the button, welding finishes;
8) After finishing the above adjustment, wear required safety equipments, then normal welding process can be operated;
9) To get excellent welding performance, the "welding current" and "welding voltage" should be adjusted when welding.

6.2 Matters need attention

For this series of welding machine, the connecting cable between power source and wire feeder can be appropriately lengthened, but the below rules must be abided by

The lengthening cable must be qualified, and the sectional area of it must be large than that on the machine;

The shorter the lengthening cable is, the better;

The lengthening cable must be straightened;

1) When welding, the cable of welding torch cannot be bended too much, or it will affect normal wire feeding；
2) Lubricating grease or engine oil cannot be used on wire feeding roll and wheel;
3) The contact tip of welding torch is consumable, after long time use, the welding current may unstable, please replace it in time；

4) The nozzle of welding torch is consumable, please replace it in time. When clear the spatter on nozzle, please take it down and clear lightly. A spatter prevent grease is recommended to use, which can clear spatter easily and lengthen the service life of nozzle;
5) After long time use, dust get into the wire feeding pipe of welding torch, which may affect normal welding, so please take the pipe out at fixed period and wash with kerosene or dry compressed air, shake the pipe before cleaning；
6) When welding, please control the wire length between nozzle and workpiece. Generally, the length should be 10 times as wire diameter; If too long, there will be unstable welding current, more spatter and air hole; if too short, the nozzle will be easily blocked by spatter.

7 Maintenance and repairing

7.1 Matters need attention

When maintain or repair, the power must be cut off.

Since this machine is filtered by large capacity and high voltage electrolytic capacitor, it can not be opened and repaired in 5 minutes after cutting off power

7.2 Maintenance

- Check connectors at fixed period to see if they become flexible or if there is poor contact;
- Keep machine clean: the service life will be shorten because of dirty in the machine, so please open and clean the machine at least half a year.

7.3 Trouble shooting

1) If any problems, please check it with AVO meter first time:

The three phase voltage should be 380±15%, check and make sure the voltage is in this range

Make sure the power switch is not damaged, and the fuse and power cable are installed reliably, or there may be open phase or poor contact; Make sure the connection of welding cable is good; Check if welding switch or cable is damaged, and if nozzle, contact tip, tip table and shunt are burned or damaged;

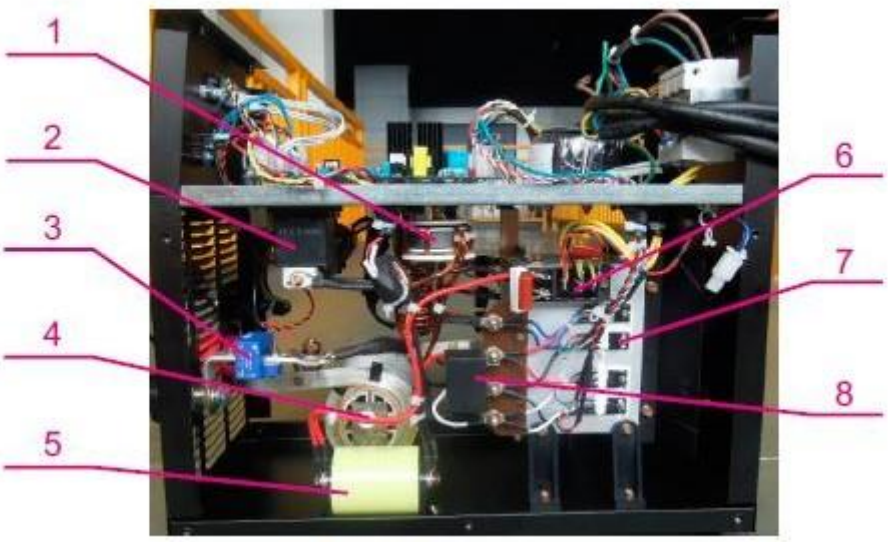
Common faults and eliminating methods:(see below sheet)

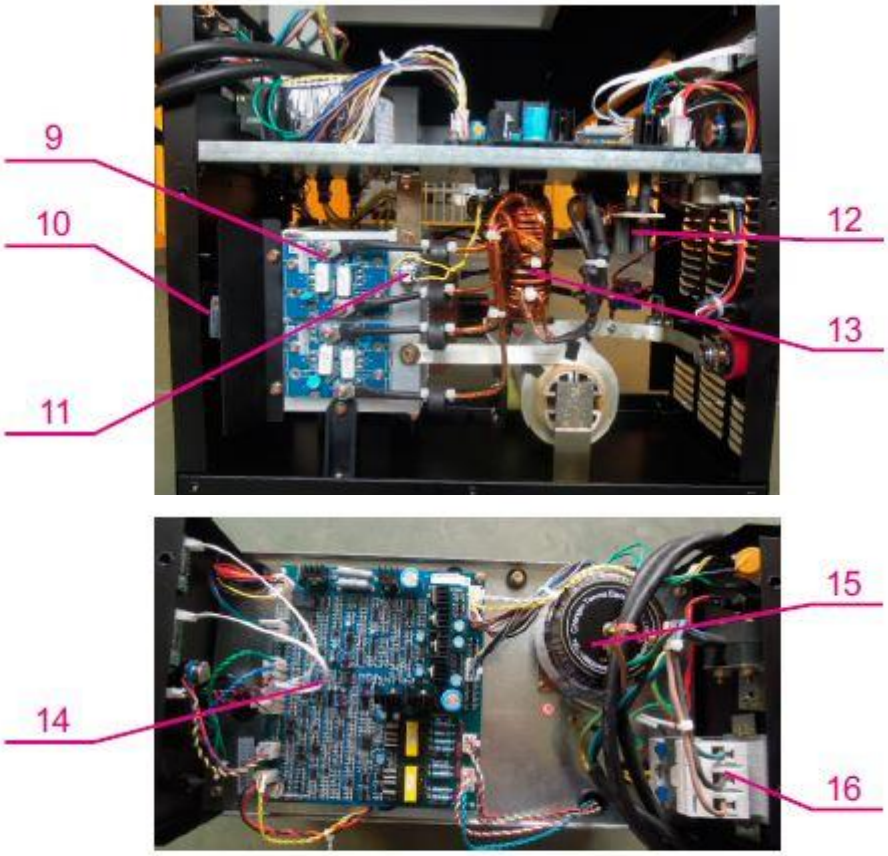
Faults	Reasons	Eliminating methods
1．Put power on, the power indicator do not light, digital display meter don't work	1.Open phase of three phase power; 2.The power switch is old and damaged; 3.The 1.5A fuse of power control is melt;	1.Check the three phase power switch; 2.Replace power switch; 3.Replace the fuse;
2．Welding machine do not work, under	1．Open phase on three phase power; 2．Under voltage on three phase power;	Check three phase supply power, make sure supply voltage fit the required voltage;
3．Welding machine do not work, the over heating indicator lights	1.The environment temperature is too high; 2.There is something wrong with the cooling fan; 3.The temperature relay is damaged;	1.Make welding machine rest for a moment; 2.Check the power of cooling fan or replace cooling fan; 3.Replace the temperature relay;
Faults	Reasons	Eliminating methods
4. There is wire feeding, but no current spark, or there is noise in machine	1.The fast recovery diode is damaged; 2.IGBT is damaged; 3.Circuit or other components are damaged;	1.Check and replace the damaged fast recovery diode; 2.Replace IGBT or PCB; 3.Check and replace the damaged parts;
5．Press torch switch, wire wheel moves, but there is no wire sending out from torch, or the wire feeding is unstable	1.The wire wheel is not tighten; 2.The diameter of wire slot is not same as electrode wire; 3.The contact tip is blocked by spatter; 4.The wire reel slog is abraded; 5.The wire feeding pipe of torch is blocked; 6.The torch cable is excessive bended;	1.Fasten the wire wheel; 2.Replace wire slot; 3.Eliminate the spatter on contact tip; 4.Replace wire feeding wheel; 5.Clean the dirty or dust in wire feeding pipe by dry compressed air or replace it with a new one; 6.Make the bending diameter of torch cable larger than 300mm;

6． Press torch switch, the wire feeding wheel do not move or there is no no-load voltage	1． Control cable of wire feeder is damaged; 2． Open circuit on control cable of welding torch switch; 3． The PCB is damaged; 4. The wire feeding motor is damaged;	1． Check the control cable; 2． Repair the wire feeding motor or replace it with a new one; 3． 4. Repair or replace motor; 5. Repair or replace PCB;
7． There are too many air holes on welding seam;	1.CO_2 gas is not pure; 2.The gas flow is not enough; 3.There is grease dirt or rust on welding seam; 4.The wind in the welding place is too heavy; 5.CO_2 gas circuit is blocked or blab; 6.Gas valve doen`t actuate; 7.Deformation on nozzle;	1.Use high purity CO_2 gas; 2.Adjust the gas flow; 3.Eliminate the grease dirt or rust on welding seam; 4.Do something to reduce the wind in welding place; 5.Check the gas circuit, dredge it or block it; 6.Replace the nozzle of welding torch;
8. Current and voltage can not be adjusted	1.The potentiometer of current and voltage is damaged; 2.The PCB is damaged.	1.Replace potentiometer; 2.Repair or replace the PCB;
9． Wire is feed without pressing torch	1.Short circuit on switch; 2.Manual wire feeding button is damaged;	1.Repair or replace welding torch; 2.Replace manual wire feeding button;
Faults	Reasons	Eliminating methods
10． The gas heater frosts	1.Poor contact on heater plug seat; 2.Open circuit on heater resistance wire;	1.Check the plug and socket of heater; 2.Repair or replace heater;
11． There is too much spatter or the welding current is not stable	1.Open circuit on three phase power; 2.Wrong welding standard; 3.Bad electrode wire quality; 4.There is grease dirt or rust on work piece or electrode wire; 5.The distribution voltage fluctuates heavily; 6.The electrode wire sticks out too long; 7.The diameter of wire slot is not same as electrode wire; 8.Something wrong with the shield gas; 9.Wrong model of contact tip or the tip hole is damaged; 10.Too much dirt in wire feed pipe; 11.Ground wire gets flexible;	1.Check three phase supply power, make sure supply voltage fit the required voltage; 2.Adjust the welding standard; 3.Replace electrode wire; 4.Clean the grease dirt or rust; 5.Make sure the fluctuation range of distribution voltage is in 380 VAC±15%; 6.The stick out length should be 10 times more than wire diameter; 7.Replace the wire slot; 8.Use high purity gas; 9.Replace contact tip; 10.Clean the wire feeding pipe; 11.Fasten the ground wire;

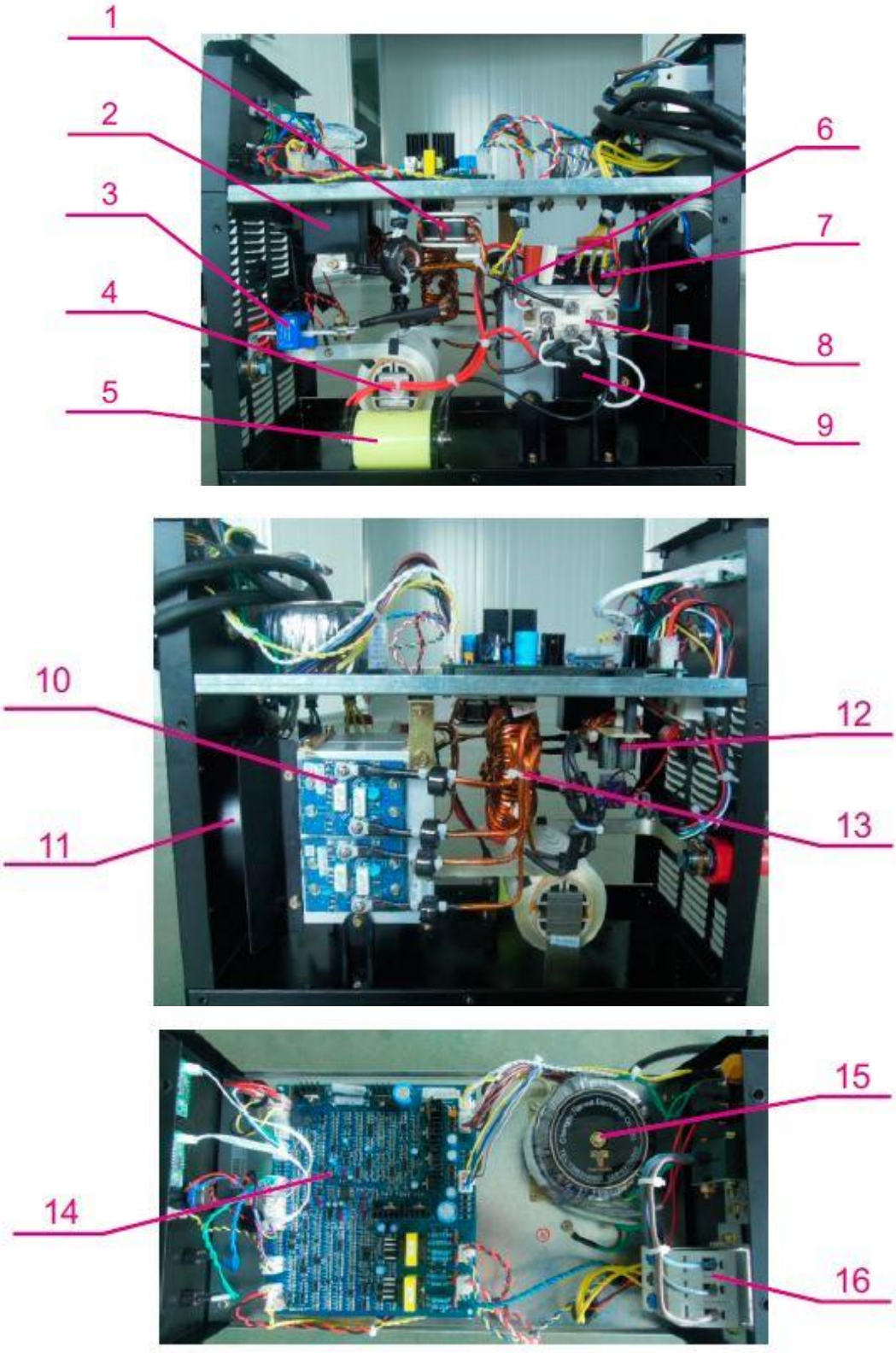
7.4 Main parts list

NB-250LB





No.	Item	Model	Note
1	Saturation inductance		
2	Capacitor	HYC4010	
3	Hall sensor	TKC500BR	
4	Filter reactor		
5	Capacitor	100μF/500VAC	
6	Bridge rectifier	MDS35-12	
7	IGBT tube	IKW40N120H3	
8	Capacitor	HYC2005	
9	PCB	PT07	
10	Fan	12038HA2BL	
11	Temperature relay	KSD305A-75℃	
12	Linear inductance		
13	Main transformer		
14	PCB	PN10	
15	Control transformer	TN03	
16	Air breaker	ZD47s-C25	



No.	Item	Model	Note
1	Saturation inductance		
2	Capacitor	HYC3004	
3	Hall sensor	TKC500BR	
4	Filter reactor		
5	Capacitor	100μF/500VAC	

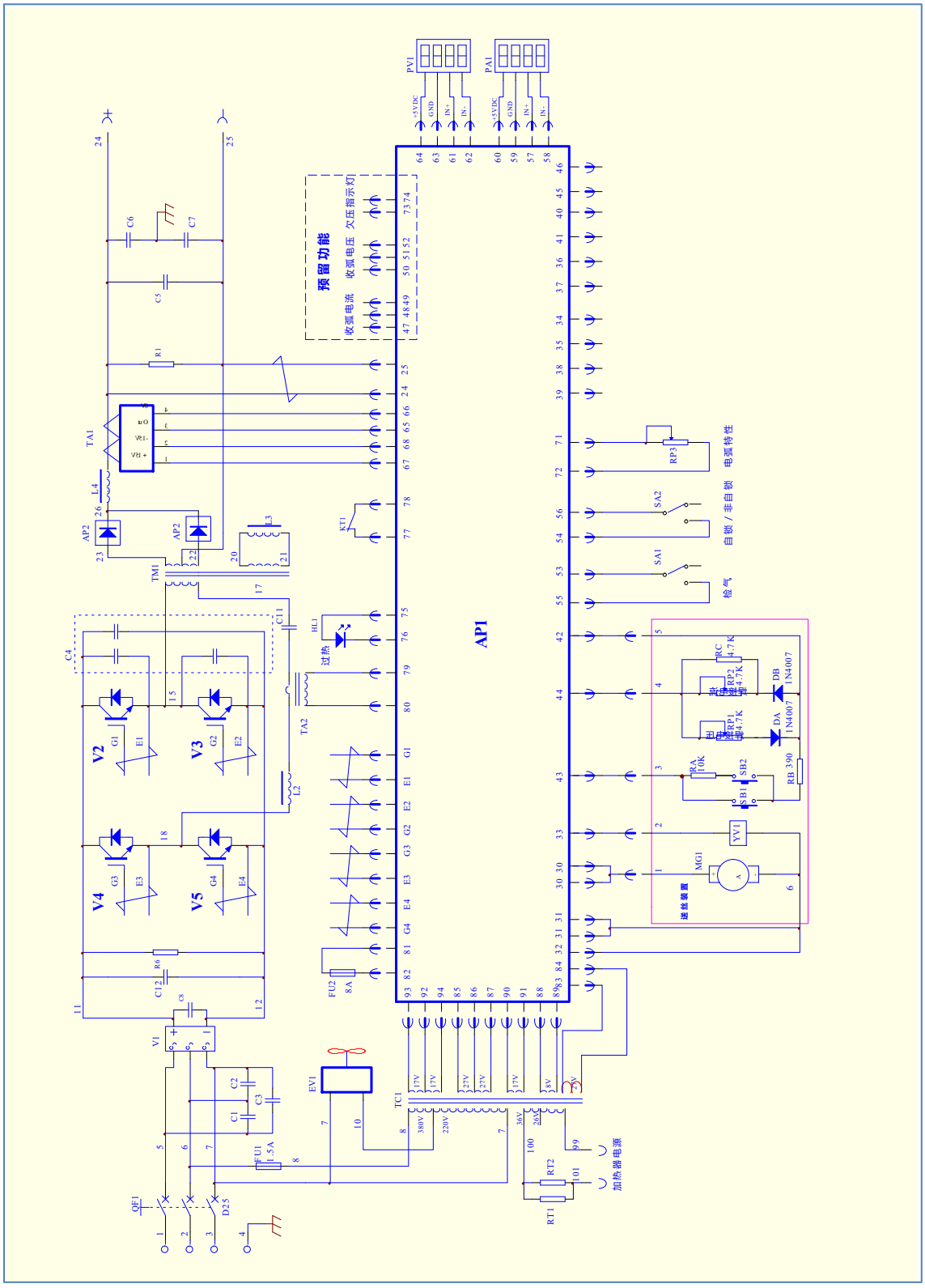
6	Temperature relay	KSD305A-75℃	
7	Bridge rectifier	MDS50-12	
8	IGBT	GD50HCU120C8S	
9	Capacitor	HYC3010	
10	PCB	PT07	
11	Fan	150FZY2-D/AC220	
12	Linear inductance		
13	Main transformer		
14	PCB	PN10	
15	Control transformer	TN03	
16	Air breaker	ZD47s-C25	

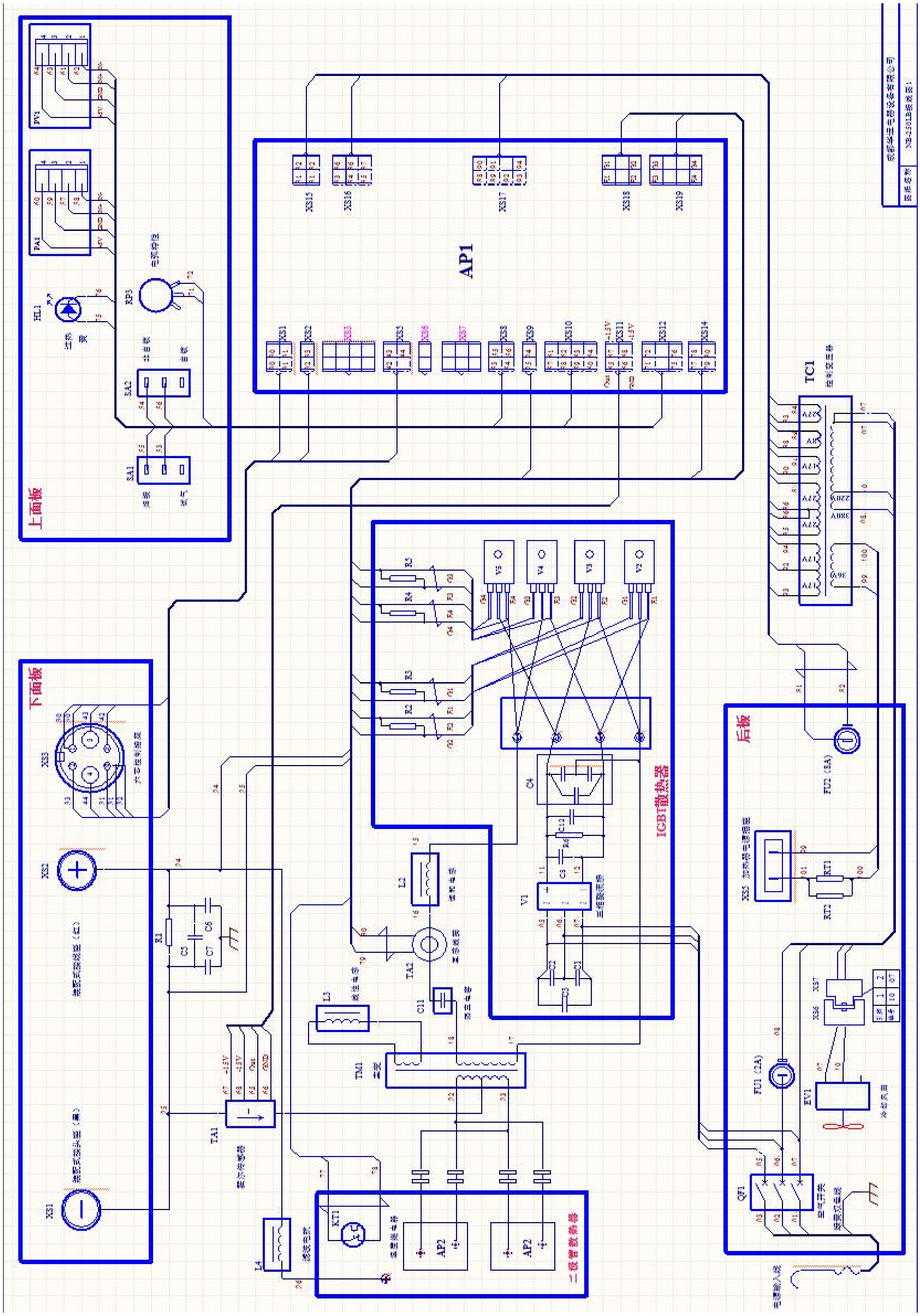
8 Packing List

1. NB-LB Welding Power source 1
2. Wire feeder 1
3. CO2 gas flow-meter 1
4. Comprehensive cable(gas pipe control cable and welding cable are included) 1
5. Ground cable 1
6. Welding torch 1

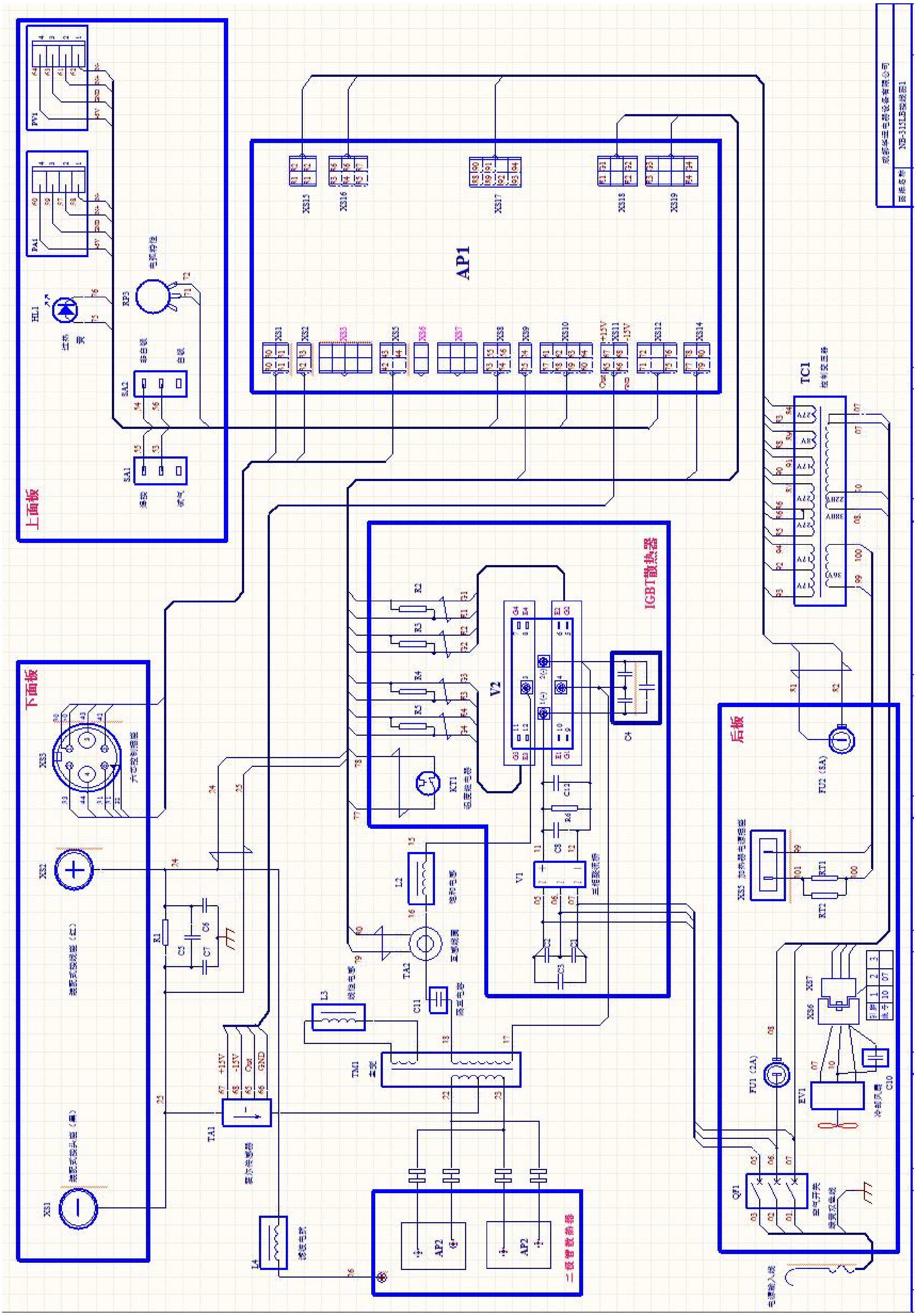
Attached documents：Operation manual、Certificate、Warranty 1

9 Attachment: electrical schematic diagram





AP1
上面板
下面板
后板
IGBT散热器
二极管散热器
TC1


上面板
AP1
IGBT散热器
下面板
后板
TC1
V2
二极管散热器

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If there is any changes in the user's manual, forgive not to inform separately!

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