Riland Welder

REPAIR MANUAL

MIG SERIES

SHENZHEN RILAND ELECTRIC MFG. CO., LTD.

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FOREWORD

This manual is only fit for the repairer, who has only digital or pointer multi-meter but special instrument or equipment, to analyze the cause of malfunction, judge which parts of the machine are damaged, and find the right solution through malfunction phenomenon and measure data.

When malfunction occurs, uncover the case of machines and check if there is some part burned out or not.

Mainly check the following parts:

A. Top PCB: MOSFET, control module, drive module, auxiliary power supply

B. Center PCB: rectifying diode, transformer

C. Bottom PCB: electrolytic capacitor, thermal resistor, voltage-sensitive resistor If there is, replace the PCB directly.

How to use this manual?

This manual is provided to help you locate and repair possible machine malfunctions. Simply follow the three-step procedure listed below.

Step 1. Trouble (symptom)

Look under the column labeled "Trouble" (symptom). This column describes possible symptoms that the machine may exhibit. Find the listing that best describes the symptom that the machine is exhibiting.

Step 2. Analysis (possible cause)

The second column labeled "Analysis" (possible cause) lists the possibilities that may contribute to the machine symptom.

Step 3. Solution

This column provides a course of action for the possible cause.

If you do not understand or are unable to perform the recommended solution, contact your local dealer or supplier for further advice.

Note:

Please read and understand the instruction manual carefully before the operation of this equipment to ensure safety.

Please read and understand this repair manual carefully before the maintenance of this equipment to ensure safety.

Have a qualified electrician to do the maintenance and troubleshooting work.

Save this manual and keep it handy for quick reference.

The contents of this manual may be revised without prior notice.

This repair manual is issued on 1st August 2006.

SAFETY

Welding and cutting is dangerous to the operator, people in or near the working area, and the surrounding, if the equipment is not correctly operated. Therefore, the performance of welding/cutting must only be under the strict and comprehensive observance of all relevant safety regulations. Please read and understand the instruction manual carefully before the installation and operation.

- The switching of function modes is possibly damaging to the equipment, while the welding operation is performed.
- Do disconnect the electrode-holder cable with the equipment, before the performance of welding.

• A safety switch is necessary to prevent the equipment from electric leakage.

- · Welding tools should be of high quality.
- · Operators should be qualified.

Electric shock: It can kill.

- · Connect the earth cable according to standard regulation.
- Avoid all contact with live electrical parts of the welding circuit, electrodes and wires with bare hands. It is necessary for the operator to wear dry welding gloves while he/she performs the welding task.

· The operator should keep the work piece insulating from himself/herself.

Smoke and gas generated while welding or cutting: harmful to people's health.

• Avoid breathing the smoke and gas generated while welding or cutting.

· Keep the working area in good ventilation.

Arc rays: harmful to people's eyes and skin.

• Wear welding helmet, anti-radiation glasses and work clothes while the welding operation is performed.

• Measures also should be taken to protect people in or near the working area.

Fire hazard

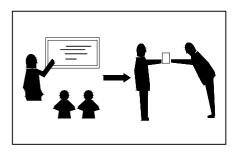
- The welding splash may cause fire, thus remove flammable material away from the working place.
- Have a fire extinguisher nearby, and have a trained person ready to use it.

Noise: possibly harmful to people's hearing.

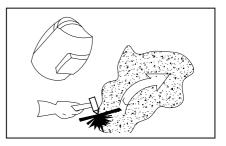
• Noise is generated while welding/cutting, wear approved ear protection if noise level is high.

Machine fault:

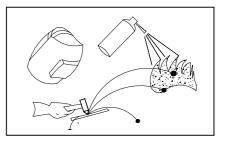
- \cdot Consult the instruction manual and this repair manual.
- \cdot Contact your local dealer or supplier for further advice.











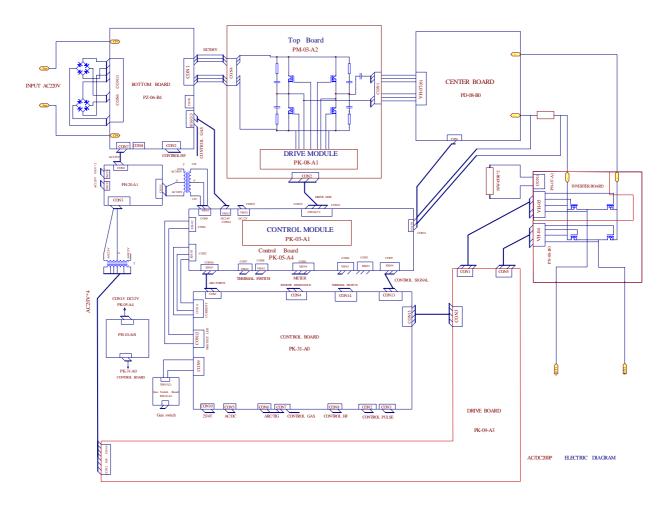


1. AC/DC200P

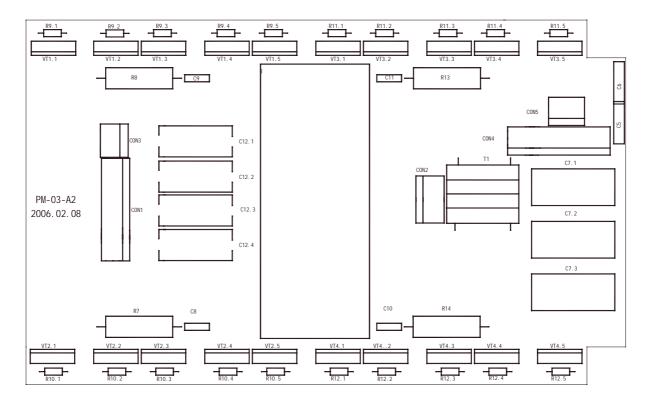
1.1 The structure drawing of AC/DC200P:

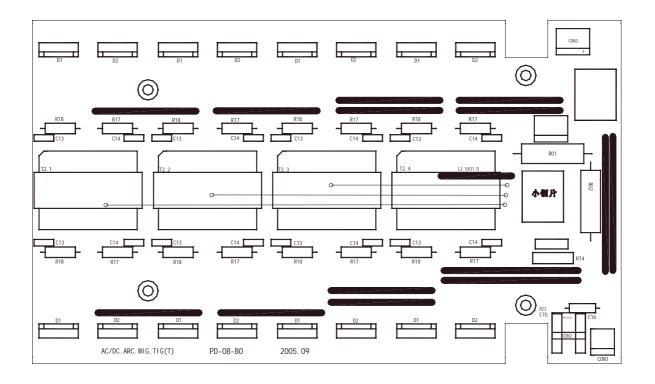
The structure of AC/DC200P is similar to that of AC/DC315P. (See the structure drawing of AC/DC315P on page 35.)

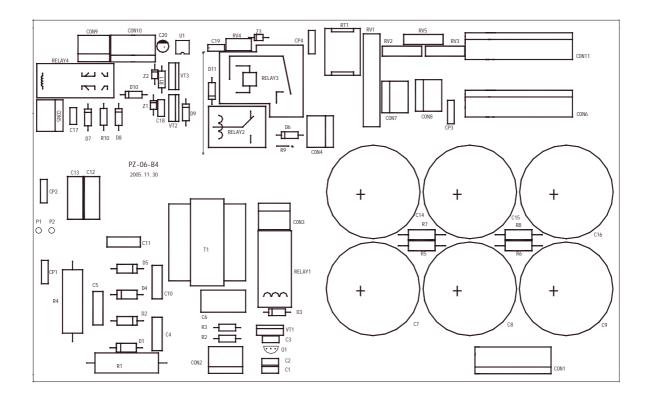
1.2 The general connection diagram of AC/DC200P:

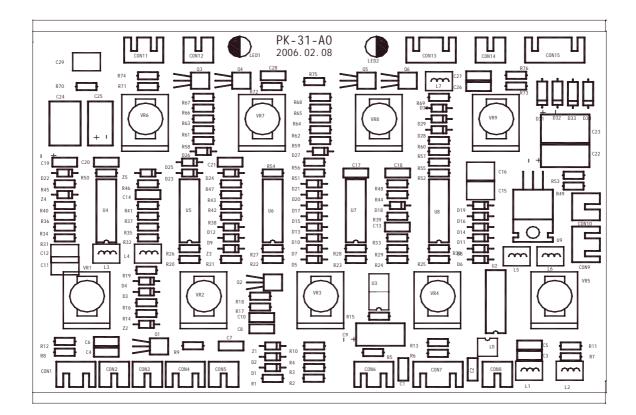


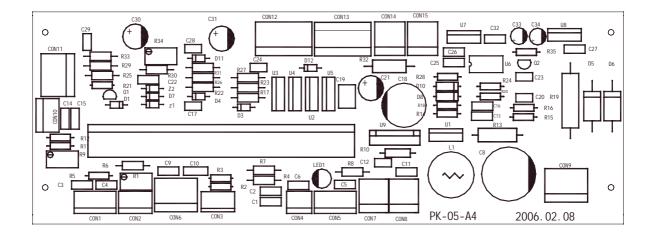
1.3 The diagram of AC/DC200P's top PCB PM-03-A2, center PCB PD-08-B0, bottom PCB PZ-06-B4, control panel PK-31-A0, low-voltage control PCB PK-05-A4, control module PK-03-A1, secondary drive PCB PK-09-A3, secondary inverter PCB PN-07-A1, PN-08-B0, power supply conversion PCB PH-20-A1, meter display preset PCB PH-10-A01:

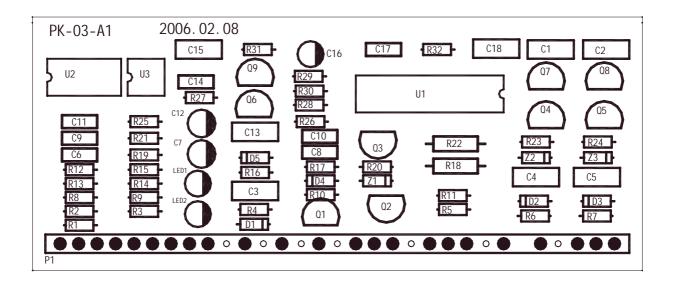


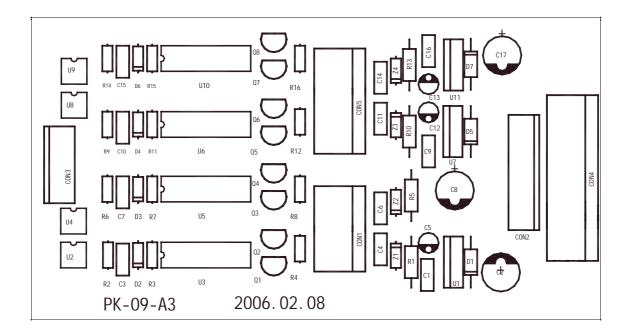


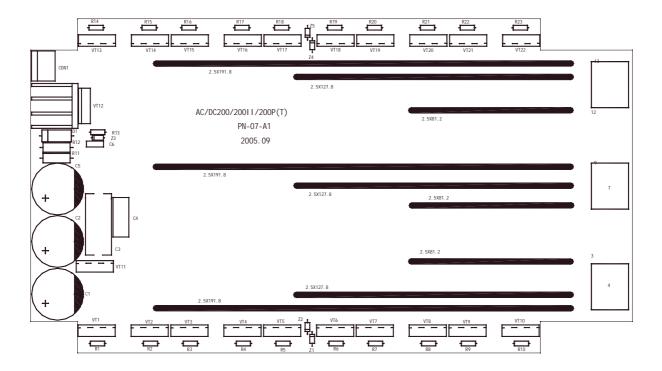


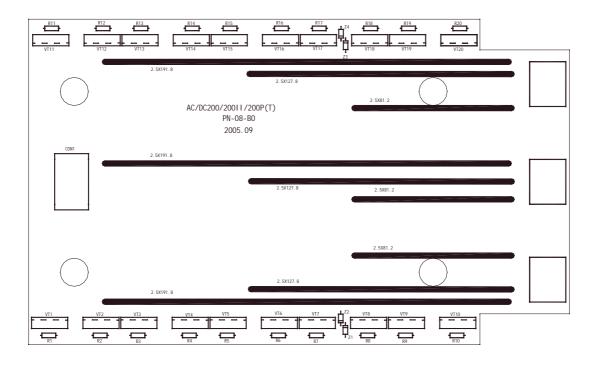


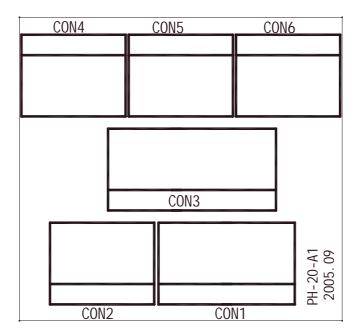


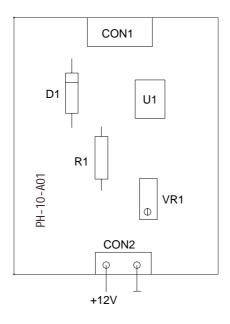












1.4 Troubleshooting of AC/DC200P:

Trouble	Analysis	Solution
1. Turn on the machine, no	a. The input voltage is abnormal.	a. Check if the input voltage is AC
display of the meter, the fan		220V.
doesn't work, no no-load	b. The power supply cable matching	b. Check.
voltage output in TIG/ARC	CP3/CP4 on bottom PCB PZ-06-B4 is	
mode.	disconnected, or the tie-in is damaged.	
	c. The power supply switch may be	c. Replace the power supply switch
	damaged.	if it's damaged.
	d. The connecting cable matching socket	d. Check.
	CON1 — CON6 on power supply	
	conversion PCB is in loose connection.	

2. Turn on the machine, the meter displays, press the welding torch switch in TIG	a.	The connecting cable matching socket CON1 on bottom PCB PZ-06-A3 is in loose connection.	a.	Check if the voltage of socket CON1 is DC308V.
mode, there is gas out and no HF, no no-load voltage output in ARC mode.	b.	The prime relay RELAY3 on bottom PCB PZ-06-A3 doesn't close well; the value of thermal resistor RT1 increases.	b.	Check and replace if necessary.
	C.	The connecting cable matching rectifying bridge with socket CON11/CON6 is in loose connection.	C.	Check.
	d.	Some part on control module PK-03-A1 is damaged.	d.	Check with a multi-meter if chip U1 is damaged. Check if the 16 th pin of U1 is 5V. If it's not, replace the chip because U1 is damaged. Check if resistor R32, diode D2/D3/D4, zener diode Z1/Z2/Z3, audion Q2/Q3/Q4/Q5/Q6/Q7/Q9, thyristor Q1 or capacitor C17 is damaged.
	e.	Some part on control PCB PK-05-A4 is damaged.	e.	Check if MOSFET U2/U3/U4/U5 or resistor R32 is damaged.
3. Turn on the machine, the meter displays, but the thermal resistor RT1/RT2/RT3/RT5 on bottom PCB PZ-06-B4 heats	a.	The connecting cable (+24V) matching socket CON10 on bottom PCB PZ-06-A4 with socket CON14 on control PCB PK-05-A4 is in loose connection.	a.	
and smokes after a while.	b.	The relay RELAY3 on bottom PCB PZ-06-A4 is damaged.	b.	Check.
	C.	The auxiliary power supply part on control PCB PK-05-A4 is damaged.	C.	Check with a multi-meter if chip U6, audion Q2, MOSFET U1, capacitor C23 or resistor R35 on control PCB PK-05-A4 is damaged.

4. Turn on the machine and it appears normal, there is	a.	The connecting cable matching socket CON3 on top PCB PM-03-A2 with socket	a.	Check.
no-load voltage output in ARC		CON3 on bottom PCB PZ-06-B4 is in		
mode, press the welding torch		loose connection.		
in TIG mode and there is gas	h	High voltage silicon granule	h	Check.
out, the malfunction LED is not	Б.	D1/D2/D4/D5 or high voltage output	0.	Check.
on, no HF.		capacitor C12/C13 on bottom PCB		
		PZ-06-B4 is damaged.		
	~	The connecting cable is in loose		Check.
	C.	connection with CP1/CP2 on bottom	C.	Check.
		PCB.		
	d.		4	Adjust or replace it if personant
	u.	The discharge nozzle P1/P2 on bottom PCB has conglutination, excessive	u.	Adjust or replace it if necessary.
		U		
	~	clearance or serious oxidation problem. The ARC/TIG conversion switch on the		Check and replace it if personany
	e.		e.	Check and replace it if necessary.
		panel or chip U7 on control panel		
	£	PK-31-A0 is damaged.	4	Charle Chart size it as skat COND
	f.	5	f.	Check. Short-circuit socket CON2
		CON8 on control PCB PK-31-A0 with		on bottom PCB PZ-06-B4, then
		socket CON2 on bottom PCB PZ-06-B4		turn on the machine and press the
		is in loose connection, or HF relay		manual switch. If there is no HF,
		RELAY1, audion Q1, MOSFET VT1 or		there is something wrong with the
		diode D3 on bottom PCB is damaged.		HF circuit on bottom PCB. If there
				is, the inductor L1/L2, chip U1/U3
				or resistor R6 on control PCB
				PK-31-A0 is damaged.

5. Turn on the machine and it	а.	Over-current protection occurs when	a.	Turn off the machine for 5mins
appears normal, press the		welding is carried out.		and restart.
welding torch switch and there	b.	Over-heating protection occurs when	b.	Stop the welding operation for
is gas out, the malfunction LED		welding is carried out.		5mins, or the secondary inverter
is on, turn to ARC mode, the				thermal switch is damaged.
malfunction LED turns on.	C.	Some parts on top PCB, center PCB, or	c.	Check. Turn off the machine, pull
		bottom PCB are damaged.		out the connecting cable matching
				the socket CON3 on top PCB
				PM-03-A2 with the socket CON3
				on bottom PCB PZ-06-B4, turn on
				the machine. If the malfunction
				LED is off, the transformer T1 is
				short-circuited or damaged. If it's
				on, turn off the machine, pull out
				the connecting cable matching
				socket CON1 on top PCB
				PM-03-A2, turn on the machine. If
				the malfunction LED is on,
				MOSFET VT1.1-/VT4.5 on top
				PCB or some parts on drive
				module PK-08-A1 are damaged; if
				it's off, transformer T2.1/T2.2/
				T2.3/T2.4 or rectifying diode
				D1/D2 on PCB PD-08-B0 is
				damaged.
6. Turn on the machine and it	a.	The magnet valve or the gas tube is	a.	Clear.
appears normal, it can start arc		blocked.		
in TIG mode, but the welding	b.	The magnet valve is damaged.	h	Replace.
point appears black.	с.	The connecting cable matching socket		
point appoard black.	0.	CON10 on bottom PCB PZ-06-A4 with	0.	Chook
		socket CON7 on control panel PK-31-A0		
	ہے ا	is in loose connection.	لم ا	Choold with a multi-mater if the
	d.	Some parts in magnet valve control	d.	Check with a multi-meter if the
		circuit on bottom PCB PZ-06-B4 or some		MOSFET VT1, resistor R3/R2,
		parts in magnet valve control circuit on		diode D3 or audion Q1 on bottom
		control panel PK-31-A0 are damaged.		PCB or audion Q1 on control PCB
				PK-31-A0 is damaged or if the
				magnet valve control cable
				matching the socket CON4 is
				disconnected.
	e.	The welding torch is damaged.	e.	Remove the welding torch and the
				gas-electricity tie-in, and press the
				welding torch switch. If there is
				gas out, the welding torch is
				damaged. Replace it.
	f.	The tungsten is of bad quality or the	f.	Check and replace it if necessary.
		argon is impure.		. ,
		v 1	I	

7. The cutting current is	2	The connecting cable matching socket	a.	Check and replace it if necessary.
unstable and out of control.	α.	CON2 on control PCB PK-05-A4 with	а.	
		socket CON11 on control panel		
		PK-31-A0 is in loose connection.		
	b.	The capacitor C14/C15/C16/C9/C7/C8	b.	Check and replace it if necessary.
		on bottom PCB PZ-06-B4 leaks or is		
		damaged.		
	c.	The input cable or output cable is too slim	c.	Enlarge the cross section area of
		and too long.		the cable.
	d.	Loose connection exists inside the	d.	Check.
		machine, e.g. the remote control		
		connecting cable matching socket CON4		
		on control panel.		
8. Turn on the machine but it	a.	The rectifying bridge matching the socket	a.	Replace.
strips.		CON6/CON11 on bottom PCB PZ-06-B4		
		is damaged.		
	b.	The power supply cable is disconnected	b.	Check.
		or short-circuited.		21
9. Adjust the decay	a.	The diode D1/D2 or chip U3 on control	a.	Check and replace it if necessary.
potentiometer to the max value		panel PK-10-A1 is damaged.		
and release the welding torch				
switch, the gas shuts off and				
then no current output. 10. Press the welding torch	0	The earth apple of welding torch is in	_	Chaok and rapiago it if pagagany
switch, there is HF discharge	a.	The earth cable of welding torch is in loose connection.	a.	Check and replace it if necessary.
buzz, but no welding voltage	b.	The output terminal of the earth cable is	b.	Check and replace it if necessary.
output.	0.	in loose connection with gas-electricity	0.	
		tie-in or with center PCB PD-01-A2.		
11. The arc starting is bad in	a.	The space between discharge nozzles	a.	Adjust the space between them,
TIG mode.		P1 and P2 on bottom PCB PZ-06-B4 is		or clear their surface.
		too big or small, or their surface is badly		
		oxidized.		
	b.	The high-voltage capacitor C12/C13 on	b.	Check and replace it if necessary.
		bottom PCB is damaged, or the		
		capacitance becomes smaller.		
	c.	The tungsten is of bad quality or the	c.	Check and replace it if necessary.
		argon is impure.		
	d.	The welding torch is in loose connection.	d.	Check.
	e.	Incorrect turn rate or turn-to-turn	e.	Check.
		electricity leakage problem exists in		
		arc-starting coil matching CP1/CP2 on		
		bottom PCB.		

12. Turn on the machine, and it appears normal, but the malfunction LED turns on once	a.	The connecting cable matching socket CON11 on control PCB PK-05-A4 with the output bypass is in losse connection	a.	Check.
welding is carried out.	b.	the output bypass is in loose connection. Loose contact exists in MOSFET VT1.1 — VT4.5 on top PCB PM-03-A2 or rectifying diode D1/D2 on center PCB PD-08-B1.	b.	Check with a multi-meter.
	C.	Some parts on control module PK-03-A1 are damaged.	C.	Check if the chip U2 or audion Q9 on PK-03-A1 is damaged.
13. Turn on the machine, and there is HF.	a.	Some parts in manual switch control circuit are damaged.	а.	Check with a multi-meter if chip U8 or diode D14/D18 on control panel PK-31-A0 is damaged. Disconnect the connecting cable matching socket CON9, and short-circuit both terminal of CON9, then check if the manual switch board PH-10-A1 is short-circuited.
	b.	The connecting cable matching socket CON8 on control panel PK-31-A0 with socket CON2 on bottom PCB PZ-06-B4 is in loose connection, or chip U1 on control panel PK-31-A0 is damaged.	b.	Check.
14. Incessant HF exists when welding is carried out.	a.	The relay RELY1, audion Q1, diode D3, MOSFET VT1 on bottom PCB PZ-06-B4 or chip U1 on control panel PK-31-A0 is damaged.	a.	Check and replace it if necessary.
	b.	The connecting cable matching socket CON13 on control panel PK-31-A0 with socket CON5 on control PCB PK-05-A4.	b.	Check.
15. There is deviation between the preset value and real value of the show value of the meter.	а.	The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.	а.	Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200.
16. No pulse in the pulse mode.	a. b.	The pulse conversion switch on the panel is damaged. The connecting cable matching socket CON2/CON3 on control panel PK-31-A0 with the pulse conversion switch is short-circuited, or chip U4, capacitor C4/C11, potentiometer VR2/VR3 or diode D24 is damaged.	a. b.	Check and replace it if necessary. Check.

17. When no-load in ARC	a.	Some of the MOSFET on the secondary	a.	Check. Method: Turn to ARC
mode, it appears normal in DC mode, but there is abnormal sound in AC mode.		inverter PCB PN-07-A1/PN-08-B0 is damaged.		mode, then AC mode, turn off the machine after 3mins of no-load, touch the MOSFET on the secondary inverter PCB with your hand one by one. The extra hot ones are damaged.
18. No 4T state or 4T is inaccurate.	a.	The 2T/4T conversion switch on the panel is damaged, or the connecting cable matching it with socket CON10 on control panel PK-31-A0 is in loose connection.	a.	Check.
	b.	Some part on control panel PK-31-A0 is damaged.	b.	Check if chip U8/U2, diode D6 or capacitor C2 on control panel is damaged.
19. No AC output in AC mode.	a. b. c.	The AC/DC conversion switch on the panel is damaged. Some part on the control panel PK-31-A0 is damaged. Some part on the secondary drive PCB PK-09-A3 is damaged.	a. b. c.	Check. Check if the diode D9/D2/D1, audion Q2, chip U6 or potentiometer VR4 on control panel is damaged. Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1—Q8 or zener diode Z1/Z2/Z3/Z4 on
20. No AC sound when welding in AC mode.	a. b.	The value of the resistor matching socket CON1 on inverter PCB PN-07-A1 varies. The MOSFET VT1, rectifying diode	a. b.	drive PCB is damaged. Check and replace it if necessary. Check and replace it if necessary.
		VT11, diode D1 or zener diode Z3 on inverter PCB PN-07-A1 is damaged.		
21. Press the welding torch switch, there is gas out, the show value of the meter is invariable, there is only small	a.	The connecting cable matching socket CON11 on control panel PK-31-A0 with socket CON2 on control PCB PK-05-A4 is in loose connection.	a.	Check.
current, and the pre-flow time is variable.	b.	Some part on control panel PK-31-A0 is damaged.	b.	Check if chip U5, audion Q3/Q4 or potentiometer VR7 on control panel PK-31-A0 is damaged.
22. When the pulse conversion switch is in no-pulse mode, in ARC or TIG mode, the welding current is invariable, and there is only maximum current.	a.	The diode D24 on control panel PK-31-A0 is damaged.	a.	Check.

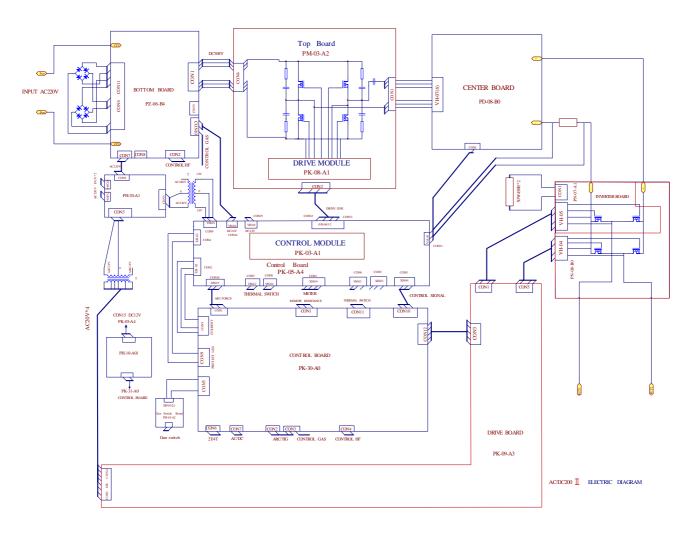
23. Turn on the machine, the	a.	The input voltage is too low or is	a.	Check.
indicator of protection status is		unstable.		
on because the voltage is too	b.	The thermal switch matching socket	b.	Check.
low.		CON14 on control panel PK-31-A0 is		
		damaged.		
	c.	The connecting cable matching socket	c.	Check.
		CON15 on control panel PK-31-A0 is in		
		loose connection.		
	d.	The resistor R51/R44 or chip U6 on	d.	Check. Method: properly reduce
		control panel PK-31-A0 is damaged.		the value of resistor R44.

2. AC/DC200

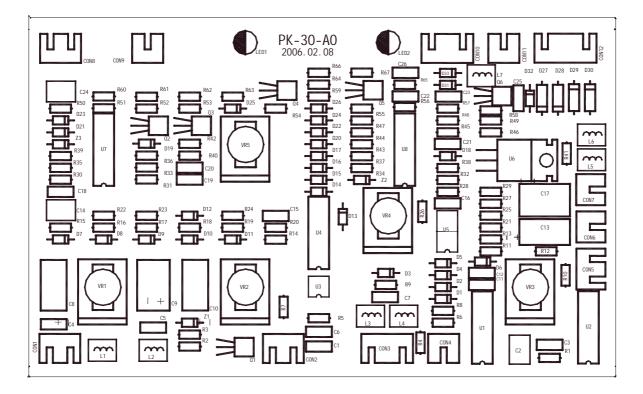
2.1 The structure drawing of AC/DC200 :

(Lack for the moment)

2.2 The general connection diagram of AC/DC200 :



2.3 The diagram of AC/DC200 's control panel PK-30-A0:



2.4 Troubleshooting of AC/DC200 :

Trouble	Analysis	Solution
1. Turn on the machine, there	a. The input voltage is abnormal.	a. Check if the input voltage is AC
is no display of the meter, the		220V.
fan doesn't work, no no-load	b. The power supply cable matching	b. Check.
voltage output in ARC/TIG	CP3/CP4 on bottom PCB PZ-06-B4 is	
mode.	disconnected, or the tie-in is damaged.	
	c. The power supply switch may be	c. Check.
	damaged, or it's not closed.	
	d. The connecting cable matching socket	d. Check.
	CON1-CON6 on power supply	
	conversion PCB PH-20-A1 is in loose	
	connection.	

	r		-	
2. Turn on the machine, the meter displays, press the welding torch switch in TIG	a.	The connecting cable matching socket CON1 on bottom PCB PZ-06-B4 is in loose connection.	a.	Check. Make sure the voltage of socket CON1 is DC308V.
mode, there is gas out and no HF, no no-load voltage output in ARC mode.	b.	The prime relay RELY3 on bottom PCB PZ-06-B4 doesn't close well; the value of thermal resistor RT1 increases.	b.	Check and replace if necessary.
	C.	The connecting cable matching socket CON11/CON6 on bottom PCB PZ-06-B4 with the rectifying bridge is in loose connection.	c.	Check.
	d.	Some part on control module PK-03-A1 is damaged.	d.	Check with a multi-meter if chip U1 on PK-03-A1 is damaged. Method: Check if the output voltage of the 16 th pin of U1 is 5V. If it's not, U1 is damaged. Check if audion Q2/Q3/Q4/Q5/Q6/Q7/Q9, thyristor Q1, diode D2/D3/D4, zener diode Z1/Z2/Z3, capacitor C17 or resistor R32 is damaged.
	e.	Some part on control PCB PK-05-A4 is damaged.	e.	Check if MOSFET U2/U3/U4/U5 or resistor R32 is damaged.
3. Turn on the machine, the meter displays, but the thermal resistor RT1/RV2/RV3/RV5 on bottom PCB PZ-06-B4 heats	a.	The connecting cable (+24V) matching socket CON10 on bottom PCB PZ-06-A4 with socket CON14 on control PCB PK-05-A4 is in loose connection.	a.	Check.
and smokes after a while.	b.	The relay RELAY3 on bottom PCB PZ-06-A4 is damaged.	b.	Check.
	C.	The auxiliary power supply part on control PCB PK-05-A4 is damaged.	C.	Check with a multi-meter if chip U6, audion Q2, MOSFET U1, capacitor C23 or resistor R35 on control PCB PK-05-A4 is damaged.

4. Turn on the machine and it appears normal, there is no-load voltage output in ARC	a.	The connecting cable matching socket CON3 on top PCB PM-03-A2 with socket CON3 on bottom PCB PZ-06-B4 is in	a.	Check.
mode, press the welding torch		loose connection.		
in TIG mode and there is gas	b.	High voltage silicon granule	b.	Check.
out, the malfunction LED is not		D1/D2/D5/D4 or high voltage output		
on, no HF.		capacitor C12/C13 on bottom PCB		
		PZ-06-B4 is damaged.		
	c.	CP1/CP2 is disconnected with the bottom	c.	Check.
		PCB.		
	d.	The discharge nozzles P1/P2 on bottom	d.	Adjust or replace it if necessary.
		PCB have conglutination, excessive		
		clearance or serious oxidation problem.		
	e.	The ARC/TIG conversion switch on the	e.	Check and replace it if necessary.
		panel or the chip U4 on control panel		
		PK-30-A0 is damaged.		
	f.	The connecting cable matching socket	f.	Check. Method: short-circuit the
		CON4 on control PCB PK-30-A0 with		socket CON2 on bottom PCB
		socket CON2 on bottom PCB PZ-06-B4		PZ-06-B4, turn on the machine,
		is in loose connection, or HF relay		and press the manual switch. If
		RELAY1, audion Q1, MOSFET VT1 or		there isn't HF, the HF circuit on
		diode D3 on bottom PCB is damaged.		bottom PCB goes wrong. If there
				is, the inductor L3/L4, chip U5/U3
				or resistor R9 on control PCB
				PK-30-A0 is damaged.

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5. Turn on the machine and it	a.	Over-current protection occurs when	a.	Turn off the machine for 5mins
appears normal, press the		welding is carried out.		and restart.
welding torch switch and there	b.	Over-heating protection occurs when	b.	Stop the welding operation for
is gas out, the malfunction LED		welding is carried out.		5mins, or the secondary inverter
is on, the malfunction LED				thermal switch is damaged.
turns on when turning to ARC	c.	Some parts on top PCB, center PCB, or	C.	Check. Method: turn to TIG mode,
mode.		bottom PCB are damaged.		turn off the machine, and pull out
				the connecting cable matching the
				socket CON3 on top PCB
				PM-03-A2 with the socket CON3
				on bottom PCB PZ-06-B4, then
				turn on the machine. If the
				malfunction LED is off, the
				transformer T1 is short-circuited or
				damaged. If it's on, turn off the
				machine, pull out the connecting
				cable matching socket CON1 on
				top PCB PM-03-A2, turn on the
				machine. If malfunction LED is on,
				MOSFET VT1.1—/VT4.5 on top
				PCB or some part on drive module
				PK-08-A1 is damaged; if off,
				transformer T2.1/T2.2/T2.3/T2.4
				or rectifying diode D1/D2 on PCB
				PD-08-B0 is damaged.
6. Turn on the machine and it	a.	The magnet valve or the gas tube is	a.	PD-08-B0 is damaged. Clear.
appears normal, it can start arc	a.	blocked.	a.	Clear.
appears normal, it can start arc in TIG mode, but the welding	a. b.	blocked. The magnet valve is damaged.	b.	Clear. Replace.
appears normal, it can start arc		blocked. The magnet valve is damaged. The connecting cable matching socket	b.	Clear. Replace.
appears normal, it can start arc in TIG mode, but the welding	b.	blocked. The magnet valve is damaged.	b.	Clear. Replace.
appears normal, it can start arc in TIG mode, but the welding	b.	blocked. The magnet valve is damaged. The connecting cable matching socket	b.	Clear. Replace.
appears normal, it can start arc in TIG mode, but the welding	b.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with	b.	Clear. Replace.
appears normal, it can start arc in TIG mode, but the welding	b. c.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection.	b.	Clear. Replace.
appears normal, it can start arc in TIG mode, but the welding	b. c.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection.	b. c.	Clear. Replace. Check.
appears normal, it can start arc in TIG mode, but the welding	b. c.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection. Some part in magnet valve control circuit	b. c.	Clear. Replace. Check. Check with a multi-meter if the
appears normal, it can start arc in TIG mode, but the welding	b. c.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection. Some part in magnet valve control circuit on bottom PCB PZ-06-B4 or some part in	b. c.	Clear. Replace. Check. Check with a multi-meter if the MOSFET VT1, resistor R3/R2,
appears normal, it can start arc in TIG mode, but the welding	b. c.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection. Some part in magnet valve control circuit on bottom PCB PZ-06-B4 or some part in magnet valve control valve circuit on	b. c.	Clear. Replace. Check. Check with a multi-meter if the MOSFET VT1, resistor R3/R2, diode D3 or audion Q1 on bottom
appears normal, it can start arc in TIG mode, but the welding	b. c.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection. Some part in magnet valve control circuit on bottom PCB PZ-06-B4 or some part in magnet valve control valve circuit on	b. c.	Clear. Replace. Check. Check with a multi-meter if the MOSFET VT1, resistor R3/R2, diode D3 or audion Q1 on bottom PCB or audion Q1 on control PCB
appears normal, it can start arc in TIG mode, but the welding	b. c.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection. Some part in magnet valve control circuit on bottom PCB PZ-06-B4 or some part in magnet valve control valve circuit on	b. c.	Clear. Replace. Check. Check. Check with a multi-meter if the MOSFET VT1, resistor R3/R2, diode D3 or audion Q1 on bottom PCB or audion Q1 on control PCB PK-30-A0 is damaged or if the
appears normal, it can start arc in TIG mode, but the welding	b. c.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection. Some part in magnet valve control circuit on bottom PCB PZ-06-B4 or some part in magnet valve control valve circuit on	b. c.	Clear. Replace. Check. Check. Check with a multi-meter if the MOSFET VT1, resistor R3/R2, diode D3 or audion Q1 on bottom PCB or audion Q1 on control PCB PK-30-A0 is damaged or if the magnet valve control cable
appears normal, it can start arc in TIG mode, but the welding	b. c.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection. Some part in magnet valve control circuit on bottom PCB PZ-06-B4 or some part in magnet valve control valve circuit on control panel PK-30-A0 is damaged.	b. c.	Clear. Replace. Check. Check. Check with a multi-meter if the MOSFET VT1, resistor R3/R2, diode D3 or audion Q1 on bottom PCB or audion Q1 on control PCB PK-30-A0 is damaged or if the magnet valve control cable matching the socket CON4 is disconnected.
appears normal, it can start arc in TIG mode, but the welding	b. c. d.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection. Some part in magnet valve control circuit on bottom PCB PZ-06-B4 or some part in magnet valve control valve circuit on	b. c. d.	Clear. Replace. Check. Check. Check with a multi-meter if the MOSFET VT1, resistor R3/R2, diode D3 or audion Q1 on bottom PCB or audion Q1 on control PCB PK-30-A0 is damaged or if the magnet valve control cable matching the socket CON4 is disconnected. Remove the welding torch and the
appears normal, it can start arc in TIG mode, but the welding	b. c. d.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection. Some part in magnet valve control circuit on bottom PCB PZ-06-B4 or some part in magnet valve control valve circuit on control panel PK-30-A0 is damaged.	b. c. d.	Clear. Replace. Check. Check. Check. Check with a multi-meter if the MOSFET VT1, resistor R3/R2, diode D3 or audion Q1 on bottom PCB or audion Q1 on control PCB PK-30-A0 is damaged or if the magnet valve control cable matching the socket CON4 is disconnected. Remove the welding torch and the gas-electricity tie-in, and press the
appears normal, it can start arc in TIG mode, but the welding	b. c. d.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection. Some part in magnet valve control circuit on bottom PCB PZ-06-B4 or some part in magnet valve control valve circuit on control panel PK-30-A0 is damaged.	b. c. d.	Clear. Replace. Check. Check. Check. Check with a multi-meter if the MOSFET VT1, resistor R3/R2, diode D3 or audion Q1 on bottom PCB or audion Q1 on control PCB PK-30-A0 is damaged or if the magnet valve control cable matching the socket CON4 is disconnected. Remove the welding torch and the gas-electricity tie-in, and press the welding torch switch. If there is
appears normal, it can start arc in TIG mode, but the welding	b. c. d.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection. Some part in magnet valve control circuit on bottom PCB PZ-06-B4 or some part in magnet valve control valve circuit on control panel PK-30-A0 is damaged.	b. c. d.	Clear. Replace. Check. Check. Check. Check with a multi-meter if the MOSFET VT1, resistor R3/R2, diode D3 or audion Q1 on bottom PCB or audion Q1 on control PCB PK-30-A0 is damaged or if the magnet valve control cable matching the socket CON4 is disconnected. Remove the welding torch and the gas-electricity tie-in, and press the welding torch switch. If there is gas out, the welding torch is
appears normal, it can start arc in TIG mode, but the welding	b. c. d. e.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection. Some part in magnet valve control circuit on bottom PCB PZ-06-B4 or some part in magnet valve control valve circuit on control panel PK-30-A0 is damaged. The welding torch is damaged.	b. c. d. e.	Clear. Replace. Check. Check. Check. Check with a multi-meter if the MOSFET VT1, resistor R3/R2, diode D3 or audion Q1 on bottom PCB or audion Q1 on control PCB PK-30-A0 is damaged or if the magnet valve control cable matching the socket CON4 is disconnected. Remove the welding torch and the gas-electricity tie-in, and press the welding torch switch. If there is gas out, the welding torch is damaged. Replace it.
appears normal, it can start arc in TIG mode, but the welding	b. c. d.	blocked. The magnet valve is damaged. The connecting cable matching socket CON10 on bottom PCB PZ-06-B4 with socket CON3 on control panel PK-30-A0 is in loose connection. Some part in magnet valve control circuit on bottom PCB PZ-06-B4 or some part in magnet valve control valve circuit on control panel PK-30-A0 is damaged.	b. c. d.	Clear. Replace. Check. Check. Check. Check with a multi-meter if the MOSFET VT1, resistor R3/R2, diode D3 or audion Q1 on bottom PCB or audion Q1 on control PCB PK-30-A0 is damaged or if the magnet valve control cable matching the socket CON4 is disconnected. Remove the welding torch and the gas-electricity tie-in, and press the welding torch switch. If there is gas out, the welding torch is

7. The welding current is unstable and out of control.	a. b.	The connecting cable matching the socket CON2 on the control PCB PK-05-A4 with socket CON8 on control panel PK-30-A0 is in loose connection. The capacitor C14/C15/C16/C9/C7/C8 on bottom PCB PZ-06-B4 leaks or is damaged.	a. b.	
	c. d.	The input cable or output cable is too slim and too long. Loose connection exists inside the machine, e.g. the connecting cable matching socket CON1 with the remote	c. d.	the cable.
		control.		
8. Turn on the machine but it strips.	a.	The rectifying bridge matching the socket CON6/CON11 on bottom PCB PZ-06-B4 is damaged.	a.	Replace.
	b.	The power supply cable is disconnected or short-circuited.	b.	Check.
9. In TIG mode, adjust the decay potentiometer to the max value and release the welding torch switch, the gas shuts off and then no current output.	a.	The audion Q4, resistor R54/R59/R63 or chip U8 on control PCB PK-30-A0 is damaged.	a.	Check and replace it if necessary.
10. Press the welding torch switch, there is HF discharge	a.	The earth cable of welding torch is in loose connection.	a.	Check and replace it if necessary.
buzz, but no welding voltage output.	b.	The output terminal of the earth cable is in loose connection with gas-electricity tie-in.	b.	Check and replace it if necessary.
11. The arc starting is bad in TIG mode.	a.	The space between discharge nozzles P1 and P2 on bottom PCB PZ-06-B4 is too big or small, or their surface is badly oxidized.	a.	Adjust the space between them, or clear their surface.
	b.	The high-voltage capacitor C12/C13 on bottom PCB is damaged, or the capacitance becomes smaller.	b.	Check and replace it if necessary.
	C.	The tungsten is of bad quality or the argon is impure.	C.	Check and replace it if necessary.
	d.	The welding torch is in loose connection.	d.	Check.
	e.	Incorrect turn rate or turn-to-turn electricity leakage problem exists in arc-starting coil matching CP1/CP2 on bottom PCB.	e.	Check.

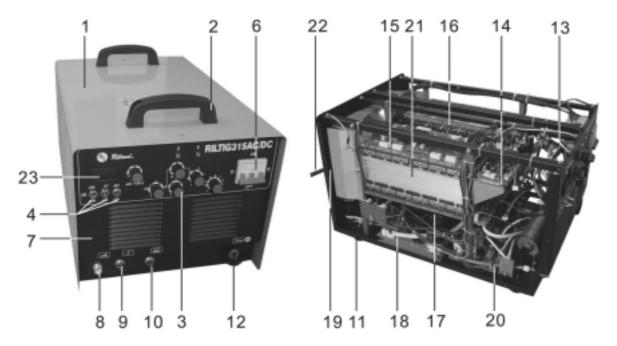
12. Turn on the machine, and it agreers normal, but the control PCB PK-05-A4 with the output bypass is in loose connection. a. Check. Welding is carried out. b. Loose contact exists in MOSFET b. Check with a multi-meter. V11.1/17.14 5 on top PCB PM-03A2 or rectrying diode D1/D2 on center PCB PD-09-B0. c. Check if the chip U2 or audion O3 on PPC-03-A1 is damaged. 13. Turn on the machine, and there is HF. a. Some parts in manual switch control and there is HF. c. Check if the chip U2 or audion O3 on PPC-03-A1 is damaged. 14. Increasent HF exists when welding is carried out. b. The connecting cable matching socket CONS on control PCB PZ-06-B4 is short-circuited or in loose connection, or chip U3 on control panel PK-30-A0 is damaged. c. Check and replace it if necessary. 14. Increasent HF exists when welding is carried out. a. The relay RELAY1, audion Q1, diode D3, damaged. a. Check and replace it if necessary. 15. There is deviation between the preset value and real value of the variable resistor RP on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes. b. Check. 16. No welding voltage output is in loose connecting cable matching socket CONS on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes. a. Adjust. Methods: 1. Turn to ARC mode, adjust the value of the meter is 200. 2. Turn to TIG mode. 16. No welding voltage output is in RCC PCIG PK-05 A4 or VR1 on preset PCB PH-10-A01 changes. b. Check. CONXIO on control PCB PK-05-A4 or VR1 on preset PCB to make the show value of the meter is 200. 2.		1		1	
welding is carried out. b. Loose contact exists in MOSFET VT.1.4714.5 on top PCB PM-03-A2 or rectifying idode D1/D2 on center PCB PD-08-B0. b. Check with a multi-meter. 13. Turn on the machine, and there is HF. a. Some parts in manual switch control circuit on bottom PCB are damaged. a. Check with a multi-meter if chip U1 or diode D1/D2 on control panel PK-03-A0 is damaged. 14. Incessant HF exists when welding is carried out. b. The connecting cable matching socket CON4 on control panel PK-30-A0 is damaged. b. Check with a multi-meter if necessary. 14. Incessant HF exists when welding is carried out. a. The relay RELATI, audion 01, diode D3 damaged. a. Check and replace it if necessary. 15. There is deviation between the preset value and real value of the show value of the meter. a. The relay RELATI, audion 01, diode D3 damaged. a. Adjust. Methods: 1. Turn to ARC mode, adjust the value of rabable resistor R40 is control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes. a. Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor VR1 on preset the annual svitch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200. a. Check. Check. 15. No welding voltage output in ARC mode, but it's normal in TIG mode. a. The ARC/TIG conversion switch on the panel is damaged. a. Check. Check. <t< td=""><td>12. Turn on the machine, and it appears normal, but the</td><td>a.</td><td></td><td>a.</td><td>Check.</td></t<>	12. Turn on the machine, and it appears normal, but the	a.		a.	Check.
welding is carried out. b. Losse contact exists in MOSFET VT.1.4/T4.5 on top PCB PM-03.42 or rectifying idode D1/D2 on center PCB PD-06-B0. b. Check with a multi-meter. 13. Turn on the machine, and there is HF. a. Some parts in manual switch control circuit on bottom PCB are damaged. a. Check with a multi-meter if chip U1 or diode D1/D2 on control panel PK-03-A0 is damaged. 14. Incessant HF exists when welding is carried out. b. The connecting cable matching socket CON4 on control panel PK-30-A0 is damaged. b. Check and replace it if necessary. 14. Incessant HF exists when welding is carried out. a. The relay RELAY1, audion 01, diode D3, damaged. Check and replace it if necessary. 15. There is deviation between the preset value of the meter. a. The relay RELAY1, audion 01, diode D3, damaged. Check. b. 15. There is deviation between the preset value of the meter. a. The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes. a. A. djust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor VR1 on preset the annual sultich, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200. a. Check. 15. No welding voltage output in ARC mode, but it's normal in TG mode. a. The ARC/TIG conversion switch on the panel is damaged. a. Check. and replace it if necessary. <td>malfunction LED turns on once</td> <td></td> <td>the output bypass is in loose connection.</td> <td></td> <td></td>	malfunction LED turns on once		the output bypass is in loose connection.		
VT1.1-VT4.5 on top PCB PM-03-A2 or rectifying diode D1/D2 on center PCB PD-08-0. c. Some part on control module PK-03-A1 is damaged. 13. Turn on the machine, and there is HF. a. Some parts in manual switch control circuit on bottom PCB are damaged. a. Check if the chip U2 or audion Q9 on PK-03-A1 is damaged. 13. Turn on the machine, and there is HF. a. Some parts in manual switch control circuit on bottom PCB are damaged. a. Check with a multi-meter if chip U1 or diode D1/D2 on control panel PK-30-A0 is damaged. b. The connecting cable matching socket CON4 on control panel PK-30-A0 is damaged. b. Check CON5 on control panel PK-30-A0 is damaged. 14. Incessant HF exists when welding is carried out. a. The reiny RELAY1, audion Q1, diode D3, welding is carried out. a. Check and replace it if necessary. 15. There is deviation between the preset value and real value of the show value of the meter. a. The value of the variable resistor R9 on control PCB PK-05-A4 is in loose connection. a. 16. No welding voltage output in IGG mode, but it's normalin TIG mode. a. The ARC/TIG conversion switch on the panele is damaged. a. Adjust. Methods: 1. Turn to ARC mode, adjust the value of value of value preset PCB PK-05-A4 or VR1 on preset PCB PK-05-A4 or VR1 on preset PCB PK-05-A4 to make the show value of the meter is 200. b. Check. 15. There is deviation between the show value of t	welding is carried out.	b.		b.	Check with a multi-meter.
rectifying diode D1/D2 on center PCB PD-08-80. c. Check if the chip U2 or audion Q3 on PK-03-A1 is damaged. 13. Turn on the machine, and there is HF. a. Some parts in manual switch control circuit on bottom PCB are damaged. c. Check with a multi-meter if chip or diode D1/D2 on control panel PK-30-A0 is damaged. b. The connecting cable matching socket CON4 on control panel PK-30-A0 is damaged. c. Check with a multi-meter if chip or diode D1/D2 on control panel PK-30-A0 is damaged. 14. Incessant HF exists when welding is carried out. a. The relay RELAY1, audion Q1, diode D3, damaged. b. Check and replace it if necessary. 15. There is deviation between the preset value and real value of the show value of the meter. a. The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes. a. Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R0 on control PCB PK-05-A4 to make the show value of the show value of the meter. a. Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor VR1 on preset PCB PK-05-A4 to make the show value of the meter is 200. a. Adjust. Methods: 1. Turn to ARC mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200. b. Check. 16. No welding voltage output in ARC mode, but it's normal in IG mode. a. The ARC/TIG conversion switch					
PD-08-B0. c.C.Check if the chip U2 or audion Q8 on PK-03-A1 is damaged.13. Turn on the machine, and there is HF.a.Some parts in manual switch control circuit on botom PCB are damaged.a.Check with a multi-meter if chip U1 or didde D1/D2 on control panel PK-30-A0 is damaged.b.The connecting cable matching socket CON4 on control panel PK-30-A0 with socket CON2 on bottom PCB PZ-06-B4 is short-circuited or in lose connection, or chip U3 on control panel PK-30-A0 is damaged.a.Check and replace it if necessary.14.Incessant HF exists when welding is carried out.a.The replace RLAV1, audion Q1, diode D3, MOSFET VT1 on bottom PCB PZ-06-B4 is short-circuited or in lose connection.a.Check and replace it if necessary. mode, adjust the value of the variable resistor R0 and damaged.b.Check and replace it if necessary. mode, adjust the value of value of the variable resistor R0 and or chip U3 on control panel PK-30-A0 is damaged.a.Check and replace it if necessary. mode, adjust the value of value of value of the variable resistor R0 and of the U3 on control PCB PK-05-A4 or VR1 on presst pCB PH-10-A01 changes.b.Check.15.There is deviation between the preset value and real value of the show value of the meter.a.The value of the variable resistor R0 and control PCB PK-05-A4 or VR1 on presst pCB PH-10-A01 changes.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R8 on control PCB pK-05-A4 or VR1 on preset PCB to made, do not press the manual switch, adjust the value of the meter is 200.a.Active the variable resistor R8 on preset PCB to mode, do n			•		
c. Some part on control module PK-03-A1 is damaged. c. Check if the chip U2 or audion Q9 on PK-03-A1 is damaged. 13. Turn on the machine, and there is HF. a. Some parts in manual switch control circuit on bottom PCB are damaged. a. Check with a duiti-meter if chip U2 or control panel PK-30-A0 is damaged. b. The connecting cable matching socket CON4 on control panel PK-30-A0 is damaged. b. The connecting cable matching socket CON5 short-circuited or in loose connection, or chip U3 on control panel PK-30-A0 is damaged. b. Check. 14. Incessant HF exists when welding is carried out. a. The relay RELAY1, audion Q1, diode D3, damaged. a. Check and replace it if necessary. 15. There is deviation between the preservalue and real value of the mater. a. The value of the variable resistor R9 on control PCB PK-05-A4 is in loose connection. a. Adjust. Methods: 1. Turn to ARC mode, but it's normal in TIG mode. 16. No welding voltage output in ARC mode, but it's normal in TRC mode. a. The ARC/TIG conversion switch on the is 200. 2: Tun to TIG mode, do not preset the manual switch, adjust the value of the meter is 200. 16. No welding voltage output in ARC mode, but it's normal in TIG mode. a. The ARC/TIG conversion switch on the in loose connection, or chip U4, resistor R7 a. Check.					
Image: 10 mode, but it's normal is not in manual switch control the machine, and there is HF.a. Some parts in manual switch control or dide Dt/D2 on control panel PK-30-A0 is damaged.b. The connecting cable matching socket CONS and check if the manual switch board PH-10-A1 is short-circuited.b. The connecting cable matching socket is short-circuited or in loose connection, or or chip U3 on control panel PK-30-A0 is damaged.b. The connecting cable matching socket is short-circuited or in loose connection, or or chip U3 on control panel PK-30-A0 is damaged.c. Check.14. Incessant HF exists when welding is carried out.a. The relay RELAY1, audion Q1, diode D3, damaged.a. Check and replace it if necessary. MOSFET VT1 on bottom PCB PZ-06-B4 or chip U3 on control panel PK-30-A0 is damaged.b. The connecting cable matching socket CONS on control panel PK-30-A0 is damaged.b. The connecting cable matching socket control panel PK-30-A0 is damaged.c. Check.15. There is deviation between the preset value and real value of the variable resistor R9 on control PCB PK-06-A4 is in loose connection.b. The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB pK-05-A4 or VR1 on p					Check if the ship US or outline OD
13. Turn on the machine, and there is HF. a. Some parts in manual switch control circuit on bottom PCB are damaged. a. Check with a multi-meter if chip U1 or diode D1/D2 on control panel PK-30-A0 is damaged. b. The connecting cable matching socket b. The connecting cable matching socket cON5 and check if the manual switch board PH-10-A1 is short-circuited. 14. Incessant HF exists when welding is carried out. a. The relay RELAY1, audion Q1, diode D3, damaged. a. Check and replace it if necessary. 15. There is deviation between the preset value and real value of the meter. b. The connecting cable matching socket cON10 on control panel PK-30-A0 is damaged. b. The connecting cable matching socket cON2 on bottom PCB PZ-06-B4 or chip U3 on control panel PK-30-A0 is damaged. b. The connecting cable matching socket cON10 on control panel PK-30-A0 with socket CON5 on control PAB PZ-06-B4 or chip U3 on control panel PK-30-A0 with socket CON5 on control PAB PK-05-A4 is is in loose connection. a. Adjust. Methods: 1. Turn to ARC mode, adjust the value of the meter. 15. There is deviation between the preset value and real value of the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. a. Adjust the value of variable resistor R9 on make the show value of the meter is 200. 16. No welding voltage output in ARC mode, but it's normal in TIG mode. a. The ARC/TIG conversion switch on the is 200.		C.	•	C.	
there is HF.circuit on bottom PCB are damaged.U1 or diode D1/D2 on control panel PK-30-A0 is damaged. Disconnect the connecting cable matching socket CONS and check if the manual switch board PH-10-A1 is short-circuited or in loose connection, or chip U3 on control panel PK-30-A0 with socket CON2 on bottom PCB PZ-06-B4 is short-circuited or in loose connection, or chip U3 on control panel PK-30-A0 isU1 or diode D1/D2 on control panel PK-30-A0 with socket CONS and check if the manual switch board PH-10-A1 is short-circuited or chip U3 on control panel PK-30-A0 is14. Incessant HF exists when welding is carried out.a.The relay RELAY1, audion Q1, diode D3, damaged.a.Check and replace it if necessary. MOSFET VT1 on bottom PCB PZ-06-B4 is short-circuited or in loose connection, or chip U3 on control panel PK-30-A0 with socket CON5 on control PAR-07-A0 is damaged.a.Check and replace it if necessary.15. There is deviation between the preset value and real value of the show value of the meter.a.The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a.The ARC/TIG conversion switch on the panel is damaged.a.Check and replace it if necessary.17. In welding voltage output in ARC mode, but it's normal in loose connecting cable ma			•		-
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Image: series deviation between the preset value and real value of the show value of the meter.a.The connecting cable matching socket CON4 on control panel PK-30-A0 with socket CON2 on bottom PCB PZ-06-B4 is short-circuited or in loose connection, or chip U3 on control panel PK-30-A0 is damaged.a.Check.14. Incessant HF exists when welding is carried out.a.The relay RELAY1, audion Q1, diode D3, damaged.a.Check and replace it if necessary.15. There is deviation between the preset value and real value of the show value of the meter.a.The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of of the meter is 200.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a.The ARC/TIG conversion switch on the panel is damaged.a.Check.17. Tig mode.b.The connecting cable matching socket CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7a.Check.					socket CON5 and check if the
b.The connecting cable matching socket CON4 on control panel PK-30-A0 with socket CON2 on bottom PCB PZ-06-B4 is short-circuited or in loose connection, or chip U3 on control panel PK-30-A0 is damaged.b.Check.14.Incessant HF exists when welding is carried out.a.The relay RELAY1, audion Q1, diode D3, damaged.a.Check and replace it if necessary. MOSFET VT1 on bottom PCB PZ-06-B4 or chip U3 on control panel PK-30-A0 is damaged.a.Check and replace it if necessary.15.The relay RELAY1, audion Q1, diode D3, damaged.b.The connecting cable matching socket CON10 on control panel PK-30-A0 with socket CON5 on control PCB PK-05-A4 is in loose connection.b.Check.15.There is deviation between the preset value and real value of the show value of the meter.a.The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200.a.Check and replace it if necessary.16.No welding voltage output in ARC mode, but it's normal in TIG mode.a.The ARC/TIG conversion switch on the panel is damaged.a.Check and replace it if necessary.16.No welding voltage output in ARC TTIG conversion switch is in loose connection, or chip U4, resistor R7a.Check and replace it if necessary.16.No welding voltage out					
CON4 on control panel PK-30-A0 with socket CON2 on bottom PCB PZ-06-B4 is short-circuited or in loose connection, or chip U3 on control panel PK-30-A0 is damaged.a.Check and replace it if necessary.14. Incessant HF exists when welding is carried out.a.The relay RELAY1, audion Q1, diode D3, MOSFET VT1 on bottom PCB PZ-06-B4 or chip U3 on control panel PK-30-A0 is damaged.a.Check and replace it if necessary.15. There is deviation between the preset value and real value of the show value of the meter.a.The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the show value of the meter.a.The ARC/TIG conversion switch on the panel is damaged.a.Check.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a.The ARC/TIG conversion switch on the panel is damaged.a.Check.16. No welding voltage coutput in ARC mode, but it's normal in TIG mode.a.The ARC/TIG conversion switch on the panel is damaged.a.Check and replace it if necessary.16. No welding voltage coutput in ARC mode, but it's normal in to the connection, or chip U4, resistor R7b.Check.					
Image: source construction is short-circuited or in loose connection, or chip U3 on control panel PK-30-A0 is damaged.Image: construction chip U3 on control panel PK-30-A0 is damaged.14. Incessant HF exists when welding is carried out.a. The relay RELAY1, audion Q1, diode D3, MOSFET VT1 on bottom PCB P2-06-B4 or chip U3 on control panel PK-30-A0 is damaged.a. Check and replace it if necessary.15. There is deviation between the preset value and real value of the show value of the meter.b. The connection control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a. Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a. The ARC/TIG conversion switch on the cON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection.a. Check and replace it if necessary.16. No welding voltage output in ARC mode, but it's normal in loose connection, or chip U4, resistor R7a. The ARC/TIG conversion switch on the panel is damaged.a. Check and replace it if necessary.16. No welding voltage output in ARC mode, but it's normal in loose connection, or chip U4, resistor R7b. Check.Check and replace it if necessary.		b.	The connecting cable matching socket	b.	Check.
is short-circuited or in loose connection, or chip U3 on control panel PK-30-A0 is damaged14. Incessant HF exists when welding is carried out.a.The relay RELAY1, audion Q1, diode D3, MOSFET VT1 on bottom PCB PZ-06-B4 or chip U3 on control panel PK-30-A0 is damaged.a.Check and replace it if necessary.15. There is deviation between the preset value and real value of the show value of the meter.a.The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the show value of the meter.a.The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a.The ARC/TIG conversion switch on the panel is damaged.a.Check and replace it if necessary.11. TIG mode.b.The connecting cable matching socket CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7b.Check.			CON4 on control panel PK-30-A0 with		
Indext of the show value of the meter.or chip U3 on control panel PK-30-A0 is damaged.a. The relay RELAY1, audion Q1, diode D3, MOSFET VT1 on bottom PCB PZ-06-B4 or chip U3 on control panel PK-30-A0 is damaged.a. Check and replace it if necessary.15. There is deviation between the preset value and real value of the show value of the meter.a. The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a. Adjust. Methods: 1. Turn to ARC mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset value and real value and real value16. No welding voltage output in ARC mode, but it's normal in TIG mode.a. The ARC/TIG conversion switch on the panel is damaged.a. The ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7a. Check and replace it if necessary.			socket CON2 on bottom PCB PZ-06-B4		
14. Incessant HF exists when welding is carried out.a.The relay RELAY1, audion Q1, diode D3, MOSFET VT1 on bottom PCB PZ-06-B4 or chip U3 on control panel PK-30-A0 is damaged.a.Check and replace it if necessary.b.The connecting cable matching socket CON10 on control panel PK-30-A0 with socket CON5 on control PCB PK-05-A4 is in loose connection.b.Check.15. There is deviation between the preset value and real value of the show value of the meter.a.The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the show value of the meter.a.The ARC/TIG conversion switch on the panel is damaged.a.Check and replace it if necessary.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a.The ARC/TIG conversion switch on the panel is damaged.a.Check and replace it if necessary.16. No welding voltage output in ARC mode, but it's normal in in ARC mode, but it's normal in in ARC mode, but it's normal in the ARC/TIG conversion switch on the in ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7a.Check.			is short-circuited or in loose connection,		
14. Incessant HF exists when welding is carried out. a. The relay RELAY1, audion Q1, diode D3, MOSFET VT1 on bottom PCB P2-06-B4 or chip U3 on control panel PK-30-A0 is damaged. a. Check and replace it if necessary. b. The connecting cable matching socket CON10 on control panel PK-30-A0 with socket CON5 on control PCB PK-05-A4 is in loose connection. b. Check. 15. There is deviation between the preset value and real value of the show value of the meter. a. The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes. a. Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200. 16. No welding voltage output in ARC mode, but it's normal in TIG mode. a. The ARC/TIG conversion switch on the panel is damaged. b. The connecting cable matching socket CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7 a. Check.			or chip U3 on control panel PK-30-A0 is		
welding is carried out.MOSFET VT1 on bottom PCB PZ-06-B4 or chip U3 on control panel PK-30-A0 is damaged.Nosfet V10 on control panel PK-30-A0 is damaged.Nosfet V10 on control panel PK-30-A0 with socket CON5 on control PCB PK-05-A4 is in loose connection.Description15. There is deviation between the preset value and real value of the show value of the meter.a.The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200.a.Check and replace it if necessary.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a.The ARC/TIG conversion switch on the panel is damaged.a.Check and replace it if necessary.b.< The connecting cable matching socket CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7a.Check.			damaged.		
 or chip U3 on control panel PK-30-A0 is damaged. b. The connecting cable matching socket CON10 on control panel PK-30-A0 with socket CON5 on control PCB PK-05-A4 is in loose connection. 15. There is deviation between the preset value and real value of the show value of the meter. a. The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes. a. The value of the meter. b. PCB PH-10-A01 changes. control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes. a. Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode. a. The ARC/TIG conversion switch on the panel is damaged. b. The connecting cable matching socket CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7 	14. Incessant HF exists when	a.	The relay RELAY1, audion Q1, diode D3,	a.	Check and replace it if necessary.
damaged. b.the connecting cable matching socket CON10 on control panel PK-30-A0 with socket CON5 on control PCB PK-05-A4 is in loose connection.b.Check.15. There is deviation between the preset value and real value of the show value of the meter.a.The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a.The ARC/TIG conversion switch on the panel is damaged.a.Check and replace it if necessary. b.b.The connecting cable matching socket CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7a.Check.	welding is carried out.		MOSFET VT1 on bottom PCB PZ-06-B4		
b.The connecting cable matching socket CON10 on control panel PK-30-A0 with socket CON5 on control PCB PK-05-A4 is in loose connection.b.Check.15.There is deviation between the preset value and real value of the show value of the meter.a.The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200.16.No welding voltage output in ARC mode, but it's normal in TIG mode.a.The ARC/TIG conversion switch on the panel is damaged.a.Check and replace it if necessary.b.The connecting cable matching socket CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7b.Check.			or chip U3 on control panel PK-30-A0 is		
CON10 on control panel PK-30-A0 with socket CON5 on control PCB PK-05-A4 is in loose connection.a.Control PCB PK-05-A4 is in loose connection.15. There is deviation between the preset value and real value of the show value of the meter.a.The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a.The ARC/TIG conversion switch on the panel is damaged.a.Check and replace it if necessary. b.b.The connecting cable matching socket cON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7b.Check.			damaged.		
Socket CON5 on control PCB PK-05-A4 is in loose connection.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a.Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode, do not prese the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a.The ARC/TIG conversion switch on the panel is damaged.a.Check and replace it if necessary. b.b.The connecting cable matching socket cON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7b.Check.		b.	The connecting cable matching socket	b.	Check.
is in loose connection.a. The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.a. Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a. The ARC/TIG conversion switch on the panel is damaged.a. The ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7a. Check and replace it if necessary.			CON10 on control panel PK-30-A0 with		
 15. There is deviation between the preset value and real value of the value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes. a. Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200. 16. No welding voltage output in ARC mode, but it's normal in TIG mode. a. The ARC/TIG conversion switch on the panel is damaged. b. The connecting cable matching socket CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7 			socket CON5 on control PCB PK-05-A4		
the preset value and real value of the show value of the meter.control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a. The ARC/TIG conversion switch on the panel is damaged.a. Check and replace it if necessary.b. The connecting cable matching socket CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7b. Check.			is in loose connection.		
of the show value of the meter.PCB PH-10-A01 changes.resistor R9 on control PCB PK-05-A4 to make the show value of the meter is 200. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a. The ARC/TIG conversion switch on the panel is damaged.a. Check and replace it if necessary.b. The connecting cable matching socket CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7b. Check.	15. There is deviation between	a.	The value of the variable resistor R9 on	a.	Adjust. Methods: 1. Turn to ARC
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Mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB to make the show value of the meter is 200.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a. The ARC/TIG conversion switch on the panel is damaged.a. Check and replace it if necessary.b. The connecting cable matching socket CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7b. Check.					PK-05-A4 to make the show value
Image: section of the section of th					of the meter is 200. 2. Turn to TIG
Image: section of the section of th					mode, do not press the manual
Image: constraint of the second sec					
Image: constraint of the systemmake the show value of the meter is 200.16. No welding voltage output in ARC mode, but it's normal in TIG mode.a. The ARC/TIG conversion switch on the panel is damaged.a. Check and replace it if necessary.b. The connecting cable matching socket CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7b. Check.					•
Image: constraint of the second sec					•
16. No welding voltage output in ARC mode, but it's normal in TIG mode.a.The ARC/TIG conversion switch on the panel is damaged.a.Check and replace it if necessary.b.The connecting cable matching socket CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7b.Check.					
TIG mode. b. The connecting cable matching socket CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7 b. Check.	16. No welding voltage output	a.	The ARC/TIG conversion switch on the	a.	
CON2/CON3 on control panel PK-30-A0 with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7	in ARC mode, but it's normal in		panel is damaged.		
with ARC/TIG conversion switch is in loose connection, or chip U4, resistor R7	TIG mode.	b.	The connecting cable matching socket	b.	Check.
loose connection, or chip U4, resistor R7			CON2/CON3 on control panel PK-30-A0		
			with ARC/TIG conversion switch is in		
or diode D3 is damaged.			loose connection, or chip U4, resistor R7		
			or diode D3 is damaged.		

17. When no-load in ARC mode, it appears normal in DC mode, but there is abnormal sound in AC mode.	a.	Some of the MOSFET on the secondary inverter PCB PN-07-A1/PN-08-B0 is damaged.	a.	Check. Method: Turn to ARC mode, then AC mode, turn off the machine after 3mins of no-load, touch the MOSFET on the secondary inverter PCB with your hand one by one. The extra hot ones are damaged.
18. No 4T state or 4T is inaccurate.	a.	The 2T/4T conversion switch on the panel is damaged, or the connecting cable matching it with socket CON6 on control panel PK-30-A0 is in loose connection.	a.	Check.
	b.	Some part on control panel PK-30-A0 is damaged.	b.	Check if chip U1/U2, diode D4 or capacitor C2 on control panel is damaged.
	C.	Interfered by the manual switch PCB.	C.	The porcelain capacitor 102/2KV on the manual switch PCB is damaged.
19. No AC output in AC mode.	a.	The AC/DC conversion switch on the panel is damaged.	a.	Check.
	b.	Some part on the control panel PK-30-A0 is damaged.	b.	Check if the diode D18/D11/D10, audion Q6, chip U8 or potentiometer VR2 on control panel PK-30-A0 is damaged.
	c.	Some part on the secondary drive PCB PK-09-A3 is damaged.	C.	Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged.
20. No AC sound when welding	a.	The value of the resistor matching socket	a.	Check and replace it if necessary.
in AC mode.		CON1 on inverter PCB PN-07-A1 varies.		
	b.	The MOSFET VT1, rectifying diode VT11, diode D1 or zener diode Z3 on inverter PCB PN-07-A1 is damaged.	b.	Check and replace it if necessary.
21. Press the welding torch switch, there is gas out, the show value of the meter is invariable, there is only small	a.	The connecting cable matching socket CON8 on control panel PK-30-A0 with socket CON2 on control PCB PK-05-A4 is in loose connection.	a.	Check.
current, and the pre-flow time is variable.	b.	Some part on control panel PK-30-A0 is damaged.	b.	Check if chip U7, audion Q3/Q2 or potentiometer VR5 on control panel PK-30-A0 is damaged.

22. Turn on the machine, the	a.	The input voltage is too low or is	a.	Check.
indicator of protection status is		unstable.		
on because the voltage is too	b.	The thermal switch matching socket	b.	Check.
low.		CON11 on control panel PK-30-A0 is		
		damaged.		
	c.	The connecting cable matching socket	c.	Check.
		CON12 on control panel PK-30-A0 is in		
		loose connection.		
	d.	The resistor R47/R44 or chip U8 on	d.	Check. Method: properly reduce
		control panel PK-30-A0 is damaged.		the value of resistor R47.

3. WSE200

3.1 The structure drawing of WSE200:

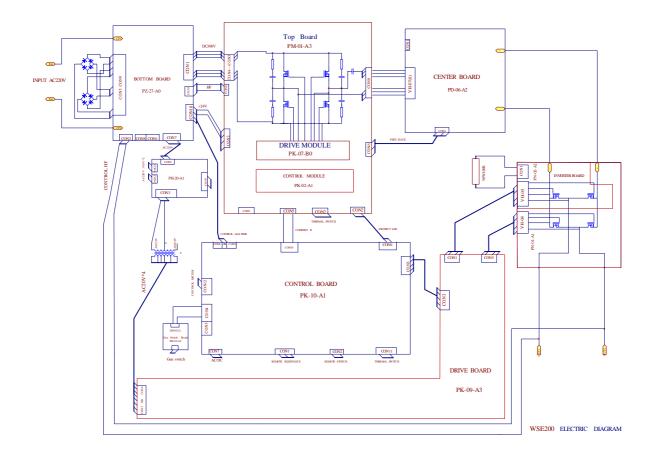


The structure of WSE200 is similar to that of RILTIG315AC/DC. (See the above structure drawing.)

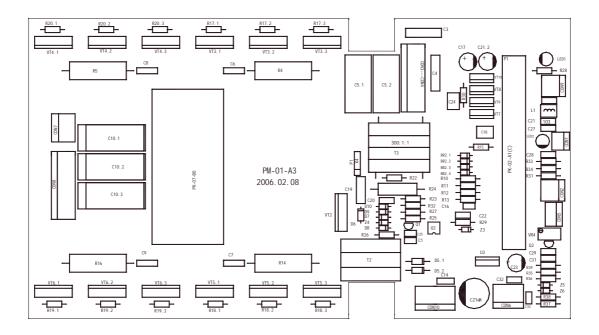
No.	Description	No.	Description	No.	Description
1	Cover	9	Pilot-socket (2 pins)	17	Center PCB
2	Handle	10	Pilot-socket (3 pins)	18	Inverter PCB 2
3	Button	11	Rubber foot	19	Fan
4	Function switch	12	Coupling socket	20	HF PCB
5	Function switch	13	Panel PCB	21	Heat sink
6	Main switch	14	Control PCB	22	Input cable
7	Front panel	15	Top PCB (left)	23	Digital meter
8	Fast-socket	16	Inverter PCB 1		

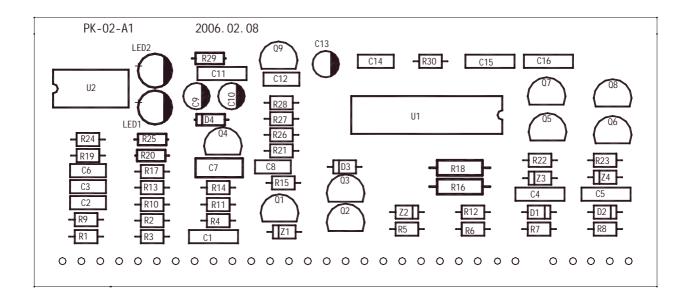
Note: WSE200 is without No.20 HF PCB.

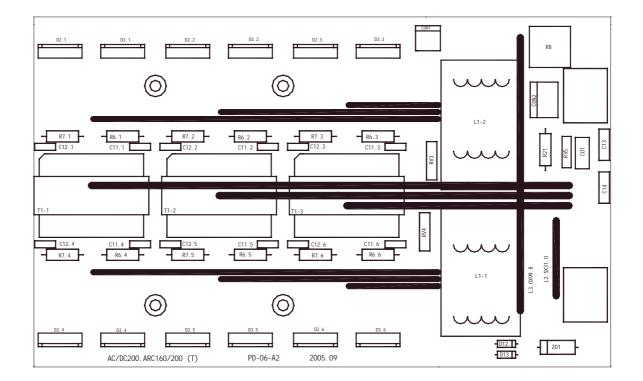
3.2 The general connection diagram of WSE200:

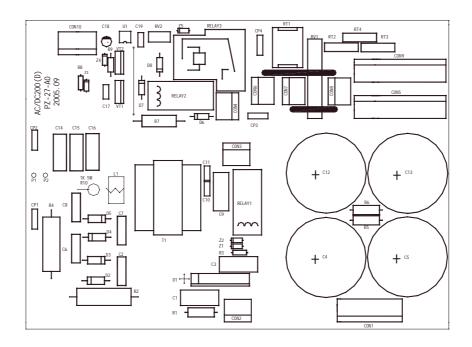


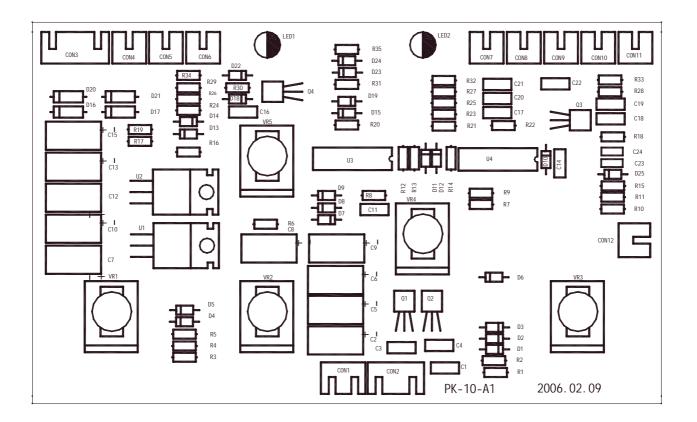
3.3 The diagram of WSE200's top PCB PM-01-A3, control module PK-02-A1, center PCB PD-06-A2, bottom PCB PZ-27-A0 and secondary inverter PCB PN-01-A1 and PN-02-A2:

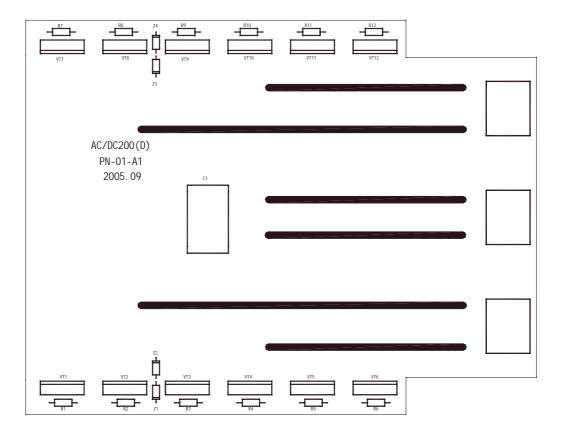


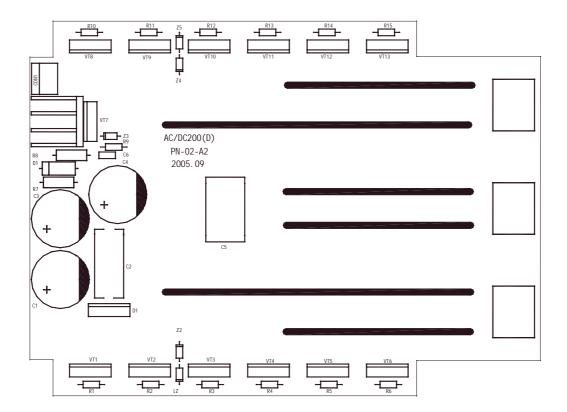












3.4 Troubleshooting of WSE200:

Trouble		Analysis		Solution
1. Turn on the machine, the	a.	The input voltage is abnormal.	a.	Check if the input voltage is AC
power indicator is not on, the				220V.
fan doesn't work, no no-load	b.	The power supply cable is not in good	b.	Check.
voltage output.		connection with CP3/CP4 on bottom PCB		
		PZ-27-A0, or the tie-in is damaged.		
	C.	The power supply switch may be	C.	Check and replace it if necessary.
		damaged or unclosed.		
	d.	The connecting cable matching socket	d.	Check.
		CON1-CON6 on power supply		
		conversion PCB PH-20-A1 is in loose connection.		
2. Turn on the machine, the	a.	The connecting cable matching socket	а.	Check and make sure the voltage
power indicator is on, press the	и.	CON1 on bottom PCB PZ-27-A0 is in	u.	of socket CON1 is DC308V.
welding torch switch in TIG		loose connection.		
mode, there is gas out, no HF,	b.	The prime relay RELAY3 on bottom PCB	b.	Check and replace if necessary.
and no no-load voltage output.		PZ-27-A0 doesn't close well; the value of		
		resistor RT1-RT4 increases.		
	c.	The connecting cable matching socket	c.	Check.
		CON5/CON9 on bottom PCB PZ-27-A0		
		with rectifying bridge is in loose		
		connection.		
	d.	Some part on control module PK-02-A1 is	d.	Check with a multi-meter if chip
		damaged.		U1 on PK-02-A1 is damaged.
				Check if the 16 th pin of U1 is 5V. If
				it's not, replace the chip because
				U1 is damaged. Check if diode D1/D2/D3, audion Q1/Q2/Q3/Q4/
				Q5/Q6/Q7/Q8/Q9 or zener diode
				Z1/Z2/Z3/Z4 is damaged.
	е	Some part on top PCB PM-01-A3 is	e.	Check if MOSFET VT7-VT10,
	0.	damaged.	0.	resistor R15 or manostat U3 is
				damaged.
3. Turn on the machine, the	a.	The connecting cable (+24V) matching	a.	Check.
power indicator turns on, but		socket CON10 on bottom PCB PZ-27-A0		
the thermal resistor RT1-RT4		with socket CON10 on top PCB		
on bottom PCB PZ-27-A0		PM-01-A3 is in loose connection.		
heats and smokes after a	b.	The relay RELAY3 on bottom PCB	b.	Check.
while.		PZ-27-A0 is damaged.		
	c.	The auxiliary power supply part on top	C.	Check with a multi-meter if
		PCB PM-01-A3 is damaged.		resistor R22/R24, MOSFET VT2,
				diode D6/D8/D7/D9/D10, zener
				diode Z3/Z4, OC U2 or audion Q1
				on top PCB PM-01-A3 is
				damaged.

4. Turn on the machine and it appears normal, press the welding torch and there is gas	a.	The connecting cable matching socket CON7 on top PCB PM-01-A3 with socket CON3 on bottom PCB PZ-27-A0 is in	a.	Check.
out, the malfunction LED is not on, no HF, and there is no-load voltage output.	b.	loose connection. High voltage silicon granule D3/D2/D5/D4 or high voltage output capacitor C14/C15/C16 on bottom PCB PZ-27-A0 is damaged.	b.	Check.
	c.	CP1/CP2 is disconnected with the bottom PCB.	c.	Check.
	d.	The discharge nozzles P1/P2 on bottom PCB have conglutination, excessive clearance or serious oxidation problem.	d.	Adjust or replace it if necessary.
	e.	The connecting cable matching socket CON2 on bottom PCB PZ-27-A0 with both output terminal is in loose connection, or HF relay RELAY1, zener diode Z1/Z2, bridge D1 or resistor R1/R3 on bottom PCB is damaged.	e.	Check.
5. Turn on the machine, and it	a.	Over-current protection occurs when	a.	Turn off the machine for 5mins
appears normal, press the		welding is carried out.		and restart.
welding torch switch and there is gas out, the malfunction LED is on.	b.	Over-heating protection occurs when welding is carried out.	b.	Stop the welding operation for 5mins, or the secondary inverter thermal switch is damaged.
	C.	Some parts on top PCB, center PCB, or bottom PCB are damaged.	C.	Check. Turn off the machine, pull out the connecting cable matching the socket CON7 on top PCB PM-01-A3 with the socket CON3 on bottom PCB PZ-27-A0, turn on the machine. If the malfunction LED is off, the transformer T1 is short-circuited or damaged. If it's on, turn off the machine, pull out the connecting cable matching socket CON8 on top PCB PM-01-A3, turn on the machine. If the malfunction LED is on, MOSFET VT3.123/VT4./VT5./ VT6. on top PCB or some part on drive module PK-07-B0 is damaged; if it's off, transformer T1-1/T1-2/T1-3 or rectifying diode D2.1/D3.5/D3.6 on center PCB PD-05-A2 is damaged.

6. Turn on the machine and it	a.	The magnet valve or the gas tube is	a.	Clear.
appears normal, it can start		blocked.		
arc, but the welding point	b.	The magnet valve is damaged.	b.	Replace.
appears black.	c.	The connecting cable matching socket CON4 on bottom PCB PZ-27-A0 with socket CON8/CON9 on control panel PK-10-A1 is in loose connection.	c.	Check.
	d.	Some part in the magnet valve control circuit on bottom PCB PZ-27-A0 or on control panel PK-10-A1 is damaged.	d.	Check with a multi-meter if the relay RELAY4, MOSFET VT1, resistor R8, diode D7 or zener diode Z3 on bottom PCB or audion Q3 on control PCB PK-10-A1 is damaged or if the magnet valve control cable matching the socket CON4 is disconnected.
	e.	The welding torch is damaged.	e.	Remove the welding torch and the gas-electricity tie-in, and press the welding torch switch. If there is gas out, the welding torch is damaged. Replace it.
	f.	The tungsten is of bad quality or the argon is impure.	f.	Replace them if necessary.
7. The welding current is unstable and out of control.	a.	The connecting cable matching socket CON10 on control panel PK-10-A1 with socket CON5 on top PCB PM-01-A3 is in loose connection.	a.	Check and replace it if necessary.
	b.	The capacitor C4/C5/C12/C13 on bottom PCB PZ-27-A0 leaks or is damaged.	b.	Check and replace it if necessary.
	c.	The input cable or output cable is too slim and too long.	c.	Enlarge the cross section area of the cable.
	d.	Loose connection exists inside the machine.	d.	Check.
8. Turn on the machine but it strips.	a.	The rectifying bridge matching the socket CON5/CON9 on bottom PCB PZ-27-A0 is damaged.	a.	·
	b.	The power supply cable is disconnected or short-circuited.	b.	Check.
9. Adjust the value of the decay potentiometer to the maximum and release the welding torch switch, the gas valve shuts off, and no current output.	a.	The diode D1/D2 or chip U3 on control panel PK-10-A1 is damaged.	a.	Check and replace it if necessary.
10. Press the welding torch switch, there is HF discharge	a.	The earth cable of welding torch is in loose connection.	a.	
buzz, but no welding voltage output.	b.	The output terminal of the earth cable is in loose connection with gas-electricity tie-in.	b.	Check and replace it if necessary.

11. The arc starting is bad.	2	The space between discharge nozzles	2	Adjust the space between them,
The arc starting is bad.	a.	P1 and P2 on bottom PCB PZ-27-A0 is too big or small, or their surface is badly oxidized.	a.	or clear their surface.
	b.	The high-voltage capacitor C14/C15/C16 on bottom PCB is damaged, or the capacitance becomes smaller.	b.	Check and replace it if necessary.
	C.	The tungsten is of bad quality or argon is impure.	C.	Check and replace it if necessary.
	d.	The welding torch is loose or broken.	d.	Check.
	e.	Incorrect turn rate or turn-to-turn electricity leakage problem exists in arc-starting coil matching CP1/CP2 on bottom PCB.	e.	Check.
12. Turn on the machine, and it appears normal, but the malfunction LED turns on once welding is carried out.	a.	The connecting cable matching socket CON6 on top PCB PM-01-A3 with socket CON2 on center PCB PD-06-A2 is in loose connection.	a.	Check.
	b.	Loose contact exists in MOSFET VT1.1-VT4.5 on top PCB PM-01-A3 or rectifying diode D1/D2 on center PCB PD-06-A2.	b.	Check with a multi-meter.
	C.	Some part on control module PK-02-A1 is damaged.	C.	Check if the chip U2 or audion Q9 on PK-02-A1 is damaged.
13. Turn on the machine, and there is HF.	a.	Some parts in manual switch control circuit on bottom PCB are damaged.	a.	Check with a multi-meter if chip U3, diode D18/D22 or audion Q4 on control panel PK-10-A1 is damaged. Disconnect the connecting cable matching socket CON5/4, and check if the manual switch board PH-10-A1 is short-circuited.
	b.	The connecting cable matching socket CON3 on control panel PK-10-A0 with socket CON3 on AC drive PCB PK-09-A3 is in loose connection, or chip U3/U4 or diode D11/D12/D14/D15 on control panel PK-10-A1 is damaged.	b.	Check.
	C.	Some MOSFET on inverter PCB PN-01-A1/PN-02-A2 is damaged.	c.	Check with a multi-meter one by one.
14. Incessant HF exists when welding is carried out.	a.	The relay RELAY1or zener diode Z1/Z2 on bottom PCB PZ-27-A0 is damaged.	a.	Check and replace it if necessary.
	b.	Some part on inverter PCB PN-02-A2 is damaged.	b.	Check if rectifying diode D1, MOSFET VT7, zener diode Z3 or resistor matching socket CON1 on PN-02-A2 is damaged.

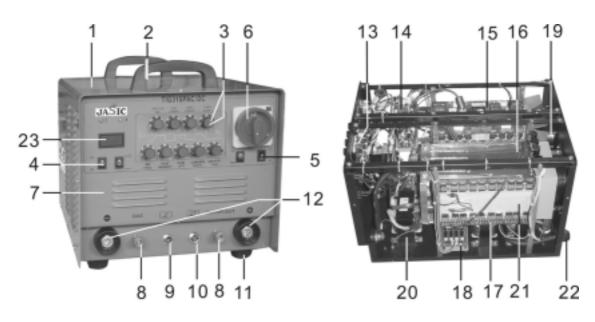
17. No AC sound when welding a in AC mode. b 18. Press the welding torch switch, there is gas out, there is only small current, and the pre-flow time is variable. b c. c.	 panel is damaged. Some part on the control panel PK-10-A1 is damaged. Some part on the secondary drive PCB PK-09-A3 is damaged. The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. 	a. b. c. b.	U4 or potentiometer VR2 on control panel PK-10-A1 is damaged. Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
normal in DC mode, but there is abnormal sound in AC mode. 16. No AC output in AC mode. b 17. No AC sound when welding in AC mode. 18. Press the welding torch switch, there is gas out, there is only small current, and the pre-flow time is variable. b	 The AC/DC conversion switch on the panel is damaged. Some part on the control panel PK-10-A1 is damaged. Some part on the secondary drive PCB PK-09-A3 is damaged. The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	b. c. a. b.	the machine after 3mins of no-load, touch the MOSFET on the secondary inverter PCB with your hand one by one. The extra hot ones are damaged. Check. Check if the diode D23/D24, chip U4 or potentiometer VR2 on control panel PK-10-A1 is damaged. Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
is abnormal sound in AC mode. 16. No AC output in AC mode. a b c. 17. No AC sound when welding in AC mode. 18. Press the welding torch switch, there is gas out, there is only small current, and the pre-flow time is variable. b	 The AC/DC conversion switch on the panel is damaged. Some part on the control panel PK-10-A1 is damaged. Some part on the secondary drive PCB PK-09-A3 is damaged. The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	b. c. a. b.	the secondary inverter PCB with your hand one by one. The extra hot ones are damaged. Check. Check if the diode D23/D24, chip U4 or potentiometer VR2 on control panel PK-10-A1 is damaged. Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
b 17. No AC sound when welding in AC mode. b 18. Press the welding torch switch, there is gas out, there is only small current, and the pre-flow time is variable. b c. c.	 panel is damaged. Some part on the control panel PK-10-A1 is damaged. Some part on the secondary drive PCB PK-09-A3 is damaged. The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	b. c. a. b.	the secondary inverter PCB with your hand one by one. The extra hot ones are damaged. Check. Check if the diode D23/D24, chip U4 or potentiometer VR2 on control panel PK-10-A1 is damaged. Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
b 17. No AC sound when welding in AC mode. b 18. Press the welding torch switch, there is gas out, there is only small current, and the pre-flow time is variable. b c. c.	 panel is damaged. Some part on the control panel PK-10-A1 is damaged. Some part on the secondary drive PCB PK-09-A3 is damaged. The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	b. c. a. b.	your hand one by one. The extra hot ones are damaged. Check. Check if the diode D23/D24, chip U4 or potentiometer VR2 on control panel PK-10-A1 is damaged. Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
b 17. No AC sound when welding in AC mode. b 18. Press the welding torch switch, there is gas out, there is only small current, and the pre-flow time is variable. b c. c.	 panel is damaged. Some part on the control panel PK-10-A1 is damaged. Some part on the secondary drive PCB PK-09-A3 is damaged. The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	b. c. a. b.	hot ones are damaged. Check. Check if the diode D23/D24, chip U4 or potentiometer VR2 on control panel PK-10-A1 is damaged. Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
b 17. No AC sound when welding in AC mode. b 18. Press the welding torch switch, there is gas out, there is only small current, and the pre-flow time is variable. b c. c.	 panel is damaged. Some part on the control panel PK-10-A1 is damaged. Some part on the secondary drive PCB PK-09-A3 is damaged. The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	b. c. a. b.	Check. Check if the diode D23/D24, chip U4 or potentiometer VR2 on control panel PK-10-A1 is damaged. Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
b 17. No AC sound when welding in AC mode. b 18. Press the welding torch switch, there is gas out, there is only small current, and the pre-flow time is variable. b c. c.	 panel is damaged. Some part on the control panel PK-10-A1 is damaged. Some part on the secondary drive PCB PK-09-A3 is damaged. The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	b. c. a. b.	Check if the diode D23/D24, chip U4 or potentiometer VR2 on control panel PK-10-A1 is damaged. Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
17. No AC sound when welding a in AC mode. b 18. Press the welding torch switch, there is gas out, there is only small current, and the pre-flow time is variable. b c. c.	 Some part on the control panel PK-10-A1 is damaged. Some part on the secondary drive PCB PK-09-A3 is damaged. The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	c. a. b.	U4 or potentiometer VR2 on control panel PK-10-A1 is damaged. Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
17. No AC sound when welding a in AC mode. b 18. Press the welding torch switch, there is gas out, there is only small current, and the pre-flow time is variable. b c. c.	 is damaged. Some part on the secondary drive PCB PK-09-A3 is damaged. The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	c. a. b.	U4 or potentiometer VR2 on control panel PK-10-A1 is damaged. Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
17. No AC sound when welding in AC mode.a18. Press the welding torch switch, there is gas out, there is only small current, and the pre-flow time is variable.bc.	 Some part on the secondary drive PCB PK-09-A3 is damaged. The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	a. b.	control panel PK-10-A1 is damaged. Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
17. No AC sound when welding in AC mode.a18. Press the welding torch switch, there is gas out, there is only small current, and the pre-flow time is variable.bc.	 PK-09-A3 is damaged. The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	a. b.	damaged. Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
17. No AC sound when welding in AC mode.a18. Press the welding torch switch, there is gas out, there is only small current, and the pre-flow time is variable.bc.	 PK-09-A3 is damaged. The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	a. b.	Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
17. No AC sound when welding in AC mode.a18. Press the welding torch switch, there is gas out, there is only small current, and the pre-flow time is variable.bc.	 PK-09-A3 is damaged. The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	a. b.	U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
in AC mode. 18. Press the welding torch a switch, there is gas out, there is only small current, and the pre-flow time is variable. b C.	 The value of the resistor matching socket CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	b.	or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged. Check and replace it if necessary.
in AC mode. 18. Press the welding torch a switch, there is gas out, there is only small current, and the pre-flow time is variable. b C.	 CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	b.	drive PCB is damaged. Check and replace it if necessary.
in AC mode. 18. Press the welding torch a switch, there is gas out, there is only small current, and the pre-flow time is variable. b C.	 CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	b.	Check and replace it if necessary.
in AC mode. 18. Press the welding torch a switch, there is gas out, there is only small current, and the pre-flow time is variable. b C.	 CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 	b.	
18. Press the welding torch a switch, there is gas out, there is only small current, and the pre-flow time is variable. b c. c.	 The MOSFET VT7, rectifying diode D1 or zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket 		Check and replace it if necessary.
18. Press the welding torch a switch, there is gas out, there is only small current, and the pre-flow time is variable.	zener diode Z3 on inverter PCB PN-02-A2 is damaged. The connecting cable matching socket		Check and replace it if necessary.
switch, there is gas out, there is only small current, and the pre-flow time is variable. b	PN-02-A2 is damaged. The connecting cable matching socket	0	
switch, there is gas out, there is only small current, and the pre-flow time is variable. b	The connecting cable matching socket	2	
switch, there is gas out, there is only small current, and the pre-flow time is variable. b	• •		Check.
only small current, and the pre-flow time is variable. b		u.	
pre-flow time is variable. b	socket CON5 on top PCB PM-01-A3 is in		
с.	loose connection.		
с.		b.	Check if audion Q1/Q2 or
	damaged.	-	potentiometer VR5 on control
	5		, panel PK-10-A1 is damaged.
	The remote control conversion switch on	c.	
	the panel is damaged.		
19. Turn on the machine, the a		a.	Check.
indicator of protection status is	unstable.		
on because the voltage is too b	. The thermal switch matching socket	b.	Check.
low.	CON11 on control panel PK-10-A1 is		
	damaged.		
C.		c.	Check.
	CON3 on control panel PK-10-A1 is in		
	loose connection.		
d	The resistor R17/R19 or chip U4 on	d.	Check. Method: properly reduce
	control panel PK-10-A1 is damaged.		the value of resistor R17.
20. The tungsten is badly a	The value of clean width potentiometer	a.	Adjust the clean width smaller, or
burned out in ARC mode.	VR2 on control panel PK-10-A1 is		parallel connect a resistor of 200K
	adjusted too big.		or so with resistor R3 on control
		1	
• •	VR2 on control panel PK-10-A1 is	a.	parallel connect a resistor of 200K

21. The manual control is	a.	The panel conversion switch is damaged.	a.	Check and replace it if necessary.
normal, but the pedal control	b.	The inching switch inside the pedal	b.	Check and replace it if necessary.
goes wrong.		control is damaged.		
	c.	The potentiometer inside the pedal	c.	Check and replace it if necessary.
		control is damaged.		
	d.	The connecting cable matching socket	d.	Check.
		CON1/CON2 on control panel PK-10-A1		
		is in loose connection.		
22. The welding current is	a.	The audion Q1/12 on control panel	a.	Check and replace it if necessary.
variable, but the maximum		PK-10-A1 is damaged.		
current is too big.				

4. AC/DC315P/250P

4.1 The structure drawing of AC/DC315P/250P

4.1.1 The structure drawing of AC/DC315P:

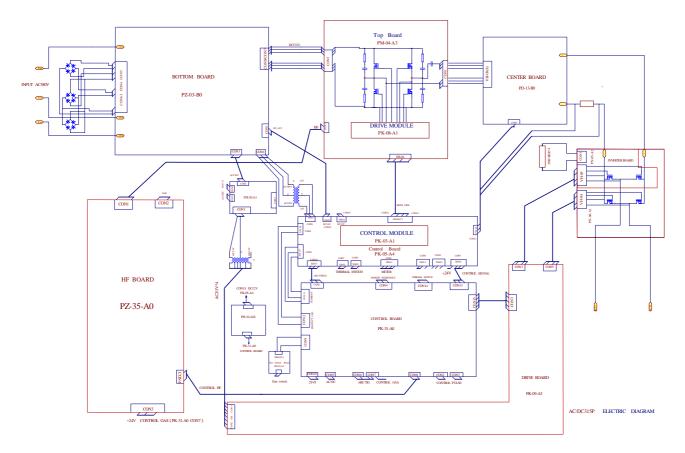


No.	Description	No.	Description	No.	Description
1	Cover	9	Pilot-socket (2 pins)	17	Inverter PCB 2
2	Handle	10	Pilot-socket (3 pins)	18	AC Driver PCB
3	Button	11	Rubber foot	19	Fan
4	Function switch	12	Coupling socket	20	Inductance
5	Function switch	13	Panel PCB	21	Heat sink
6	Main switch	14	Control PCB	22	Input cable
7	Front panel	15	Top PCB (left)	23	Digital meter
8	Fast-socket	16	Inverter PCB 1		

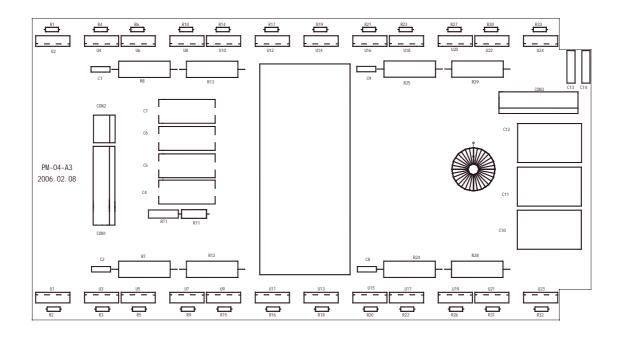
4.1.2 The structure drawing of AC/DC250P:

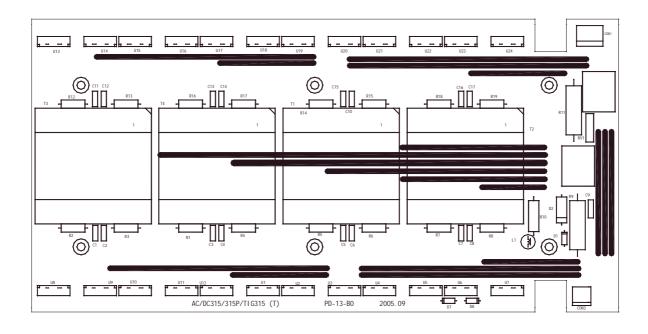
The structure of AC/DC250P is similar to that of AC/DC315P. (See the structure drawing of AC/DC315P on page)

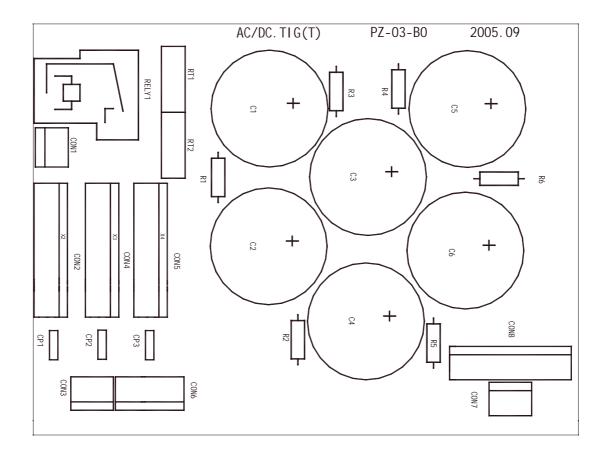
4.2 The general connection diagram of AC/DC315P/250P:

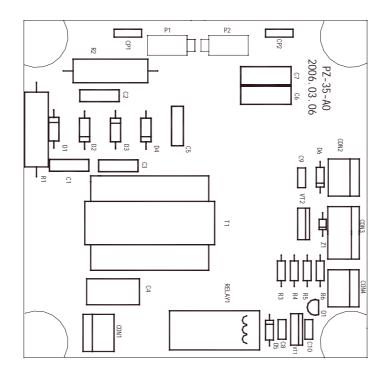


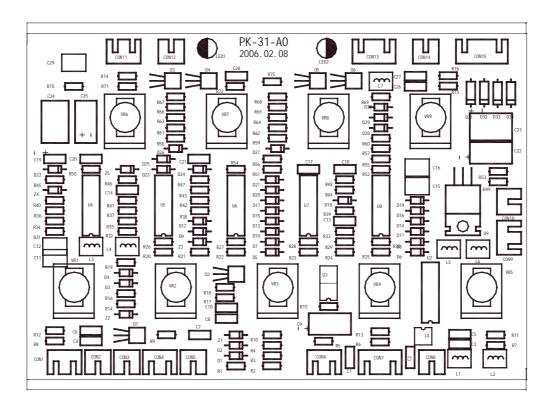
4.3 The diagram of AC/DC315P/250P's top PCB PM-04-A3, center PCB PD-13-B0, bottom PCB PZ-03-B0, HF PCB PZ-35-A0, control panel PK-31-A0, control PCB PK-05-A4, control module PK-03-A1, AC drive PCB PK-09-A3 and inverter PCB PN-05-A2 and PN-06-A1:

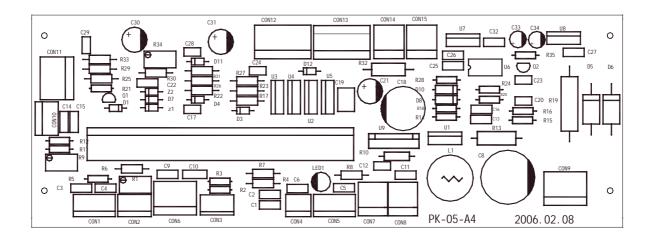


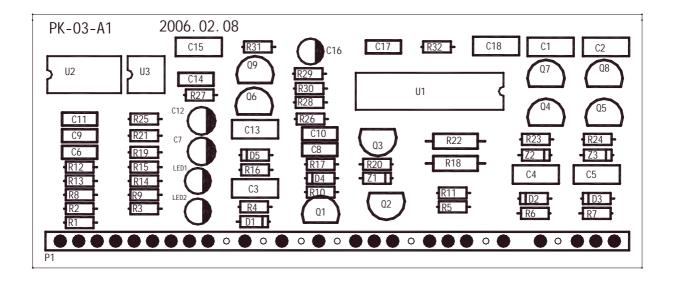


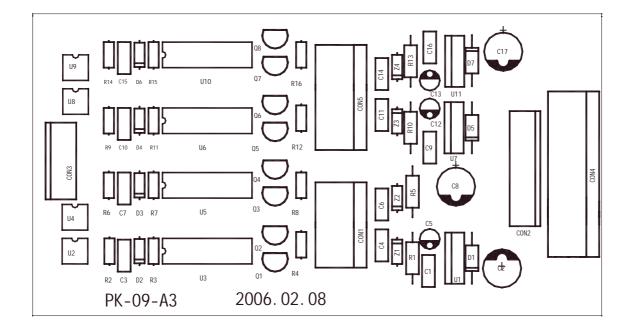


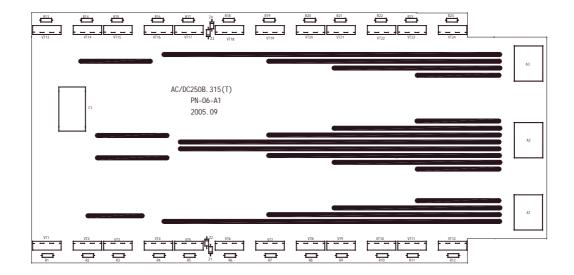


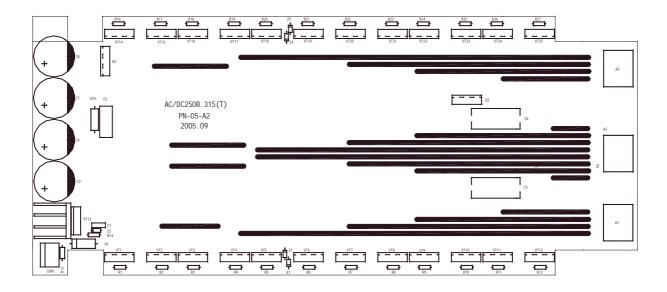












4.4 Troubleshooting of AC/DC315P/250P:

Trouble	Analysis	Solution
1. Turn on the machine, no	a. The input voltage is abnormal.	a. Check if the input voltage is AC
display of the meter, the fan		380V.
doesn't work, no no-load	b. The power supply cable is not in good	b. Check.
voltage output in TIG/ARC	connection with CP1/CP3 on bottom PCB	
mode.	PZ-03-B0, or the tie-in is damaged.	
	c. The power supply switch may be	c. Check and replace it if necessary.
	damaged or unclosed.	
	d. The connecting cable matching socket	d. Check.
	CON1-CON6 on power supply	
	conversion PCB PH-20-A1 is in loose	
	connection.	

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2. Turn on the machine, the meter displays, press the welding torch switch in TIG	a.	The connecting cable matching socket CON7/CON8 on bottom PCB PZ-03-B0 is in loose connection.	a.	Check and make sure the voltage of socket CON1 is DC532V.
mode, there is gas out, no HF, turn to ARC mode, no no-load voltage output.	b.	The prime relay RELAY1 on bottom PCB PZ-03-B0 doesn't close well; the value of resistor RT1/RT2 increases.	b.	Check and replace if necessary.
	c.	The connecting cable matching socket CON2/CON4/CON5 on bottom PCB PZ-03-B0 with rectifying bridge is in loose connection.	c.	Check.
	d.	Some part on control module PK-03-A1 is damaged.	d.	Check with a multi-meter if chip U1 on PK-03-A1 is damaged. Check if the 16 th pin of U1 is 5V. If it's not, replace the chip because U1 is damaged. Check if diode D2/D3/D4, audion Q2/Q3/Q4/Q5/ Q6/Q7/Q9, thyristor Q1, zener diode Z1/Z2/Z3, capacitor C17 or resistor R32 is damaged.
	e.	Some part on control PCB PK-05-A4 is damaged.	e.	Check if MOSFET U2/U3/U4/U5 or resistor R32 is damaged.
3. Turn on the machine, the meter displays, but the thermal resistor RT1/RT2 on bottom PCB PZ-03-B0 heats and	a.	The connecting cable (+24V) matching socket CON1 on bottom PCB PZ-03-B0 with socket CON14 on control PCB PK-05-A4 is in loose connection.	a.	Check.
smokes after a while.	b.	The relay RELAY1 on bottom PCB PZ-03-B0 is damaged.	b.	Check.
	C.	The auxiliary power supply part on control PCB PK-05-A4 is damaged.	C.	Check with a multi-meter if resistor R35, MOSFET U1, audion Q2, chip U6 or capacitor C32 on control PCB PK-05-A4 is damaged.

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4. Turn on the machine and it appears normal, there is no-load voltage output in ARC mode, press the welding torch	a.	The connecting cable matching socket CON2 on top PCB PM-04-A3 with socket CON1 on HF PCB PZ-35-A0 is in loose connection.	a.	Check.
in TIG mode and there is gas out, the malfunction LED is not on, no HF.	b.	High voltage silicon granule D1/D2/D3/D4 or high voltage output capacitor C6/C7 on bottom PCB PZ-27-A0 is damaged.	b.	Check.
	c.	CP1/CP2 is disconnected with the HF PCB.	C.	Check.
	d.	The discharge nozzles P1/P2 on HF PCB have conglutination, excessive clearance or serious oxidation problem.	d.	Adjust or replace it if necessary.
	e.	The ARC/TIG conversion switch on the panel or chip U7 on control panel PK-31-A0 is damaged.	e.	Check and replace it if necessary.
	f.	The connecting cable matching socket CON8 on control PCB PK-31-A0 with socket CON4 on HF PCB PZ-35-A0 is in loose connection, or HF relay RELAY1, audion Q1, MOSFET VT1 or diode D5 on HF PCB is damaged.	f.	Check. Method: short-circuit the socket CON4 on HF PCB PZ-35-A0, and turn on the machine, if no HF, the HF circuit on HF PCB goes wrong; if there is, the inductor L1/L2, chip U1/U3 or resistor R6 on control PCB PK-31-A0 is damaged.
5. Turn on the machine, and it	a.	Over-current protection occurs when	a.	Turn off the machine for 5mins
appears normal, press the		welding is carried out.		and restart.
welding torch switch and there is gas out, the malfunction LED is on. Turn to ARC mode, the	b.	Over-heating protection occurs when welding is carried out.	b.	Stop the welding operation for 5mins, or the secondary inverter thermal switch is damaged.
malfunction LED turns on.	C.	Some parts on top PCB, center PCB, or bottom PCB are damaged.	C.	Check. Turn off the machine, pull out the connecting cable matching the socket CON2 on top PCB PM-04-A3 with the socket CON1 on HF PCB PZ-35-B0, turn on the machine. If the malfunction LED is off, the transformer T1 on HF PCB is short-circuited or damaged. If it's on, turn off the machine, pull out the connecting cable matching socket CON1 on top PCB PM-04-A3, turn on the machine. If the malfunction LED is on, MOSFET U1-U24 on top PCB or some part on drive module PK-08-A1 is damaged; if it's off, transformer T1/T2/T3/T4 or rectifying diode U1/U24 on center PCB PD-13-B0 is damaged.

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6. Turn on the machine and it appears normal, it can start arc	a.	The magnet valve or the gas tube is blocked.	a.	Clear.
in TIG mode, but the welding	b.	The magnet valve is damaged.	b.	Replace.
point appears black.	с.	The connecting cable matching socket CON3 on HF PCB PZ-35-A0 with socket CON7 on control panel PK-31-A0 is in loose connection.	с.	Check.
	d.	Some part in the magnet valve control circuit on HF PCB PZ-35-A0 or on control panel PK-31-A0 is damaged.	d.	Check with a multi-meter if MOSFET VT2, diode D6, zener diode Z1 on HF PCB or audion Q1 on control PCB PK-31-A0 is damaged or if the magnet valve control cable matching the socket CON2 is disconnected.
	e.	The welding torch is damaged.	e.	Remove the welding torch and the gas-electricity tie-in, and press the welding torch switch. If there is gas out, the welding torch is damaged. Replace it.
	f.	The tungsten is of bad quality or the argon is impure.	f.	Replace them if necessary.
7. The welding current is	a.	The connecting cable matching socket	a.	Check and replace it if necessary.
unstable and out of control.		CON2 on control PCB PK-05-A4 with socket CON11 on control panel PK-31-A0 is in loose connection.		
	b.	The capacitor C1/C2/C3/C4/C5/C6 on bottom PCB PZ-03-B0 leaks or is damaged.	b.	Check and replace it if necessary.
	c.	The input cable or output cable is too slim and too long.	c.	Enlarge the cross section area of the cable.
	d.	Loose connection exists inside the machine, e.g. the connecting cable matching socket CON4 on control panel with the remote control.	d.	Check.
8. Turn on the machine but it strips.	a.	The rectifying bridge matching the socket CON2/CON4/CON5 on bottom PCB PZ-03-B0 is damaged.	a.	Replace.
	b.	The power supply cable is disconnected or short-circuited.	b.	Check.
9. When in TIG mode, adjust	a.	The diode D1/D2 or chip U3 on control	a.	Check and replace it if necessary.
the value of the decay		panel PK-10-A1 is damaged.		. , , , , , , , , , , , , , , , , , , ,
potentiometer to the maximum				
and release the welding torch				
switch, the gas valve shuts off,				
and no current output.				

10. Press the welding torch switch, there is HF discharge	a.	The earth cable of welding torch is in loose connection.	a.	Check and replace it if necessary.
buzz, but no welding voltage output.	b.	The output terminal of the earth cable is in loose connection with gas-electricity tie-in.	b.	Check and replace it if necessary.
11. The arc starting is bad in TIG mode.	a.	The space between discharge nozzles P1 and P2 on HF PCB PZ-34-A0 is too big or small, or their surface is badly oxidized.	a.	Adjust the space between them, or clear their surface.
	b.	The high-voltage capacitor C3/C4 on HF PCB is damaged, or the capacitance becomes smaller.	b.	Check and replace it if necessary.
	C.	The tungsten is of bad quality or argon is impure.	c.	Check and replace it if necessary.
	d.	The welding torch is loose or broken.	d.	Check.
	e.	Incorrect turn rate or turn-to-turn	e.	Check.
		electricity leakage problem exists in arc-starting coil matching CP1/CP2 on HF PCB.		
12. Turn on the machine, and it appears normal, but the malfunction LED turns on once	a.	The connecting cable matching socket CON11 on control PCB PK-05-A4 with the output bypass is in loose connection.	a.	Check.
welding is carried out.	b.	Loose contact exists in MOSFET VT1-VT24 on top PCB PM-04-A3 or rectifying diode U1/U24 on center PCB PD-13-B0.	b.	Check with a multi-meter.
	C.	Some part on control module PK-03-A1 is damaged.	C.	Check if the chip U2 or audion Q9 on PK-03-A1 is damaged.
13. Turn on the machine, and there is HF.	a.	Some parts in manual switch control circuit are damaged.	а.	Check with a multi-meter if chip U8 or diode D14/D18 on control panel PK-31-A0 is damaged. Disconnect the connecting cable matching the socket CON9, short-circuit both terminal of socket CON9 and check if the manual switch board PH-10-A1 is short-circuited.
	b.	The connecting cable matching socket CON8 on control panel PK-31-A0 with socket CON4 on bottom PCB PZ-35-A0 is in loose connection, or chip U1 on control panel PK-31-A0 is damaged.	b.	Check.

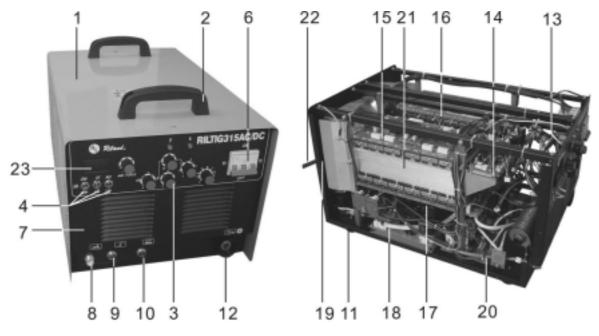
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14. Incessant HF exists when welding is carried out.	a. b.	The relay RELAY1, audion Q1, diode D5, MOSFET VT1 on HF PCB PZ-35-A0 or chip U1 on control panel PK-31-A0 is damaged. The connecting cable matching socket CON13 on control panel PK-31-A0 with socket CON5 on control PCB PK-05-A4 is in loose connection.	a. b.	Check and replace it if necessary.
15. There is deviation between the preset value and real value of the show value of the meter.	a.	The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.	a.	mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter be the value of the corresponding machine type. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB PH-10-A0 to make the show value of the meter be the value of the corresponding machine type.
16. No pulse when in pulse mode.	a. b.	The panel pulse conversion switch is damaged. The connecting cable matching socket CON2/CON3 on control panel PK-31-A0 with the pulse conversion switch is short-circuited, or chip U4, capacitor C4/C11, potentiometer VR2/VR3 or diode D24 is damaged.	a. b.	Check and replace it if necessary. Check.
17. When no-load in ARC mode, it appears normal in DC mode, but there is abnormal sound in AC mode.	а.	Some MOSFET on the secondary inverter PCB PN-05-A2/PN-06-A1 is damaged.	a.	Check. Method: Turn to ARC mode, then AC mode, turn off the machine after 3mins of no-load, touch the MOSFET on the secondary inverter PCB with your hand one by one. The extra hot ones are damaged.
18. No 4T state or 4T is inaccurate.	a. b.	The 2T/4T conversion switch on the panel is damaged, or the connecting cable matching it with socket CON10 on control panel PK-31-A0 is in loose connection. Some part on control panel PK-31-A0 is damaged.	a. b.	Check. Check if chip U8/U2, diode D6 or capacitor C2 on control panel is damaged.

19. No AC output in AC mode.	a.	The AC/DC conversion switch on the panel is damaged.	a.	Check.
	b.	Some part on the control panel PK-31-A0 is damaged.	b.	Check if the diode D9/D2/D1, chip U6, audion Q2 or potentiometer VR4 on control panel PK-31-A0 is damaged.
	c.	Some part on the secondary drive PCB PK-09-A3 is damaged.	c.	Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged.
20. No AC sound when welding	a.	The value of the resistor matching socket	a.	Check and replace it if necessary.
in AC mode.	b.	CON1 on inverter PCB PN-05-A2 varies. The MOSFET VT13, rectifying diode D1/D3, resistor R14/R13 or zener diode Z3 on inverter PCB PN-05-A2 is	b.	Check and replace it if necessary.
		damaged.		
21. Press the welding torch switch, there is gas out, the show value of the meter is invariable, there is only small	a.	The connecting cable matching socket CON11 on control panel PK-31-A0 with socket CON2 on control PCB PK-05-A4 is in loose connection.	a.	Check.
current, and the pre-flow time is variable.	b.	Some part on control panel PK-31-A0 is damaged.	b.	Check if chip U5, audion Q3/Q4 or potentiometer VR7 on control panel PK-31-A0 is damaged.
22. When the pulse conversion switch is at no-pulse state, in ARC/TIG mode, the welding current is invariable, and there is only maximum current.	a.	The diode D24 on control panel PK-31-A0 is damaged.	a.	Check and replace it if necessary.
23. Turn on the machine, the	a.	The input voltage is too low or is	a.	Check.
indicator of protection status is on because the voltage is too low.	b.	unstable. The thermal switch matching socket CON14 on control panel PK-31-A0 is	b.	Check.
	c.	damaged. The connecting cable matching socket CON15 on control panel PK-31-A0 is in loose connection.	C.	Check.
	d.	The resistor R51/R44 or chip U6 on control panel PK-31-A0 is damaged.	d.	Check. Method: properly reduce the value of resistor R44.
24. The tungsten is badly burned out in AC mode.	a.	The value of AC clean width on the panel is adjusted too big.	a.	Adjust the clean width smaller.
25. The manual control is	a.	The connecting cable matching socket	a.	Check.
normal, but the pedal control goes wrong.		CON4 on control panel PK-31-A0 is in loose connection.		
	b.	Some part on control panel PK-31-A0 is damaged.	b.	Check if diode D23, zener diode Z5, resistor R32/R35/R46 or inductor L3/L4 on control panel PK-31-A0 is damaged.

5. WSE250/315

5.1 The structure drawing of WSE250/315

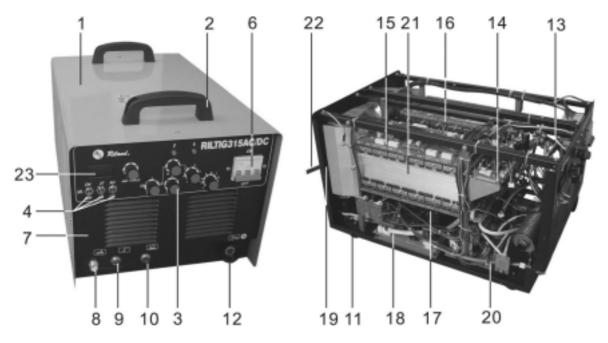
5.1.1 The structure drawing of WSE250



The structure of WSE250 is similar to that of RILTIG315AC/DC. (See the above structure drawing.)

No.	Description	No.	Description	No.	Description
1	Cover	9	Pilot-socket (2 pins)	17	Center PCB
2	Handle	10	Pilot-socket (3 pins)	18	Inverter PCB 2
3	Button	11	Rubber foot	19	Fan
4	Function switch	12	Coupling socket	20	HF PCB
5	Function switch	13	Panel PCB	21	Heat sink
6	Main switch	14	Control PCB	22	Input cable
7	Front panel	15	Top PCB (left)	23	Digital meter
8	Fast-socket	16	Inverter PCB 1		

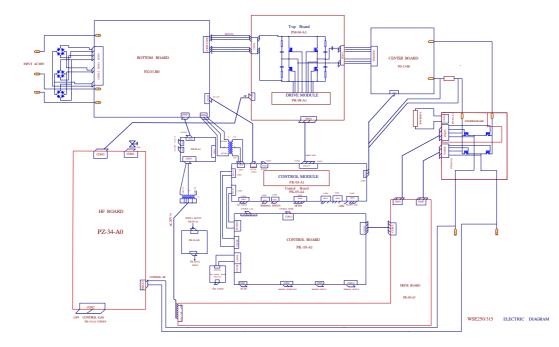
5.1.2 The structure drawing of WSE315



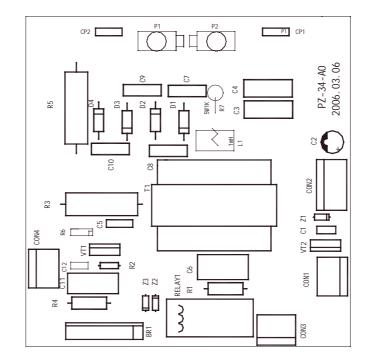
The structure of WSE315 is similar to that of RILTIG315AC/DC. (See the above structure drawing.)

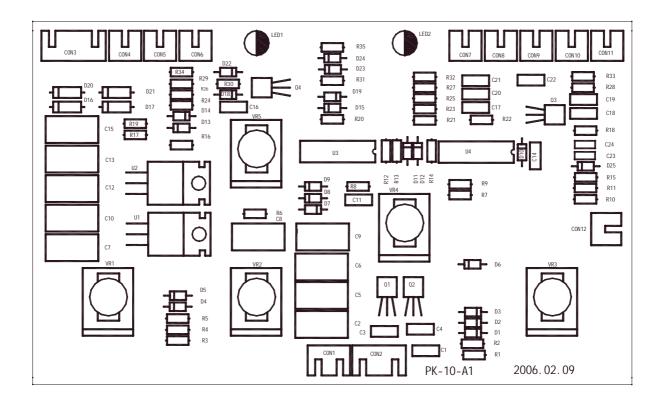
No.	Description	No.	Description	No.	Description
1	Cover	9	Pilot-socket (2 pins)	17	Center PCB
2	Handle	10	Pilot-socket (3 pins)	18	Inverter PCB 2
3	Button	11	Rubber foot	19	Fan
4	Function switch	12	Coupling socket	20	HF PCB
5	Function switch	13	Panel PCB	21	Heat sink
6	Main switch	14	Control PCB	22	Input cable
7	Front panel	15	Top PCB (left)	23	Digital meter
8	Fast-socket	16	Inverter PCB 1		

5.2 The general connection diagram of WSE250/315:



5.3 The diagram of WSE250/315's HF PCB PZ-34-A0 and control panel PK-10-A1:





5.4 Troubleshooting of WSE250/315:

Trouble		Analysis		Solution
1. Turn on the machine, no	a.	The input voltage is abnormal.	a.	Check if the input voltage is AC
display of the meter, the fan				380V.
doesn't work, no no-load	b.	The input cable is not in good connection	b.	Check.
voltage output in ARC/TIG		with CP3/CP2/CP1 on bottom PCB		
mode.		PZ-03-B0, or the tie-in is damaged.		
	c.	The power supply switch may be	C.	Check and replace the power
		damaged or not closed.		supply switch if it's damaged.
	d.	The connecting cable matching socket	d.	Check.
		CON1-CON6 on power supply		
		conversion PCB PH-20-A1 is in loose		
		connection.		
2. Turn on the machine, the	a.	The connecting cable matching socket	a.	Check and make sure the voltage
meter displays, press the		CON7/CON8 on bottom PCB PZ-03-B0		of socket CON1 is DC532V.
welding torch switch in TIG		is in loose connection.		
mode, there is gas out, no HF,	b.	The prime relay RELAY1 on bottom PCB	b.	Check and replace if necessary.
turn to ARC mode, no no-load		PZ-03-B0 doesn't close well; the value of		
voltage output.		resistor RT1/RT2 increases.		
	C.	The connecting cable matching socket	C.	Check.
		CON2/CON4/CON5 on bottom PCB		
		PZ-03-B0 with rectifying bridge is in loose		
		connection.		
	d.	Some part on control module PK-03-A1 is	d.	Check with a multi-meter if chip
		damaged.		U1 on PK-03-A1 is damaged.
				Check if the 16 th pin of U1 is 5V. If
				it's not, replace the chip because
				U1 is damaged. Check if diode
				D2/D3/D4, audion Q2/Q3/Q4/Q5/
				Q6/Q7/Q9, thyristor Q1, zener
				diode Z1/Z2/Z3, capacitor C17 or
				resistor R32 is damaged.
	e.	Some part on control PCB PK-05-A4 is	e.	Check if MOSFET U2/U3/U4/U5
	<u> </u>	damaged.		or resistor R32 is damaged.
3. Turn on the machine, the	a.	The connecting cable (+24V) matching	a.	Check.
meter displays, but the thermal		socket CON1 on bottom PCB PZ-03-B0		
resistor RT1/RT2 on bottom		with socket CON14 on control PCB		
PCB PZ-03-B0 heats and		PK-05-A4 is in loose connection.	۱.	
smokes after a while.	b.	The relay RELAY1 on bottom PCB	b.	Check.
		PZ-03-B0 is damaged.		
	C.	The auxiliary power supply part on	C.	Check with a multi-meter if
		control PCB PK-05-A4 is damaged.		resistor R35, MOSFET U1, audion
				Q2, chip U6 or capacitor C32 on
				control PCB PK-05-A4 is
				damaged.

			1	
4. Turn on the machine and it appears normal, there is no-load voltage output in ARC mode, press the welding torch	a.	The connecting cable matching socket CON2 on top PCB PM-04-A3 with socket CON3 on HF PCB PZ-34-A0 is in loose connection.	a.	Check.
in TIG mode and there is gas out, the malfunction LED is not on, no HF.	b.	High voltage silicon granule D1/D2/D3/D4 or high voltage output capacitor C6/C7 on HF PCB PZ-34-A0 is damaged.	b.	Check.
	C.	CP1/CP2 is disconnected with the HF PCB.	c.	Check.
	d.	The discharge nozzles P1/P2 on HF PCB have conglutination, excessive clearance or serious oxidation problem.	d.	Adjust or replace it if necessary.
	e.	The ARC/TIG conversion switch on the panel is damaged.	e.	Check and replace it if necessary.
	f.	The connecting cable matching both output terminal with socket CON4 on HF PCB PZ-34-A0 is in loose connection, or HF relay RELAY1, zener diode Z2/Z3, MOSFET VT1 or resistor R4/R6 on HF PCB is damaged.	f.	Check.
5. Turn on the machine, and it	a.	I	a.	Turn off the machine for 5mins
appears normal, press the		welding is carried out.		and restart.
welding torch switch and there	b.	5 1	b.	1 5 1
is gas out, the malfunction LED		welding is carried out.		5mins, or the secondary inverter
is on. Turn to ARC mode, the	-	Come parte en ten DCD, contar DCD, cr		thermal switch is damaged.
malfunction LED turns on.	С.	Some parts on top PCB, center PCB, or bottom PCB are damaged.	с.	Check. Turn to TIG mode, turn off the machine, pull out the connecting cable matching the socket CON2 on top PCB PM-04-A3 with the socket CON3 on HF PCB PZ-34-A0, turn on the machine. If the malfunction LED is off, the transformer T1 on HF PCB is short-circuited or damaged. If it's on, turn off the machine, pull out the connecting cable matching socket CON1 on top PCB PM-04-A3, turn on the machine. If the malfunction LED is on, MOSFET U1-U24 on top PCB or some part on drive module PK-08-A1 is damaged; if it's off, transformer T1/T2/T3/T4 or rectifying diode U1/U24 on center PCB PD-13-B0 is damaged.

6. Turn on the machine and it appears normal, it can start arc	a.	The magnet valve or the gas tube is blocked.	a.	Clear.
in TIG mode, but the welding	b.	The magnet valve is damaged.	h	Replace.
-		•		
point appears black.	C.	The connecting cable matching socket	C.	Check.
		CON2 on HF PCB PZ-34-A0 with socket		
		CON8/CON9 on control panel PK-10-A1		
		is in loose connection.		
	d.	Some part in the magnet valve control	d.	Check with a multi-meter if
		circuit on HF PCB PZ-34-A0 or on control		MOSFET VT2, zener diode Z1 on
		panel PK-10-A1 is damaged.		HF PCB, audion Q3 or resistor
				R31/R33 on control PCB
				PK-10-A1 is damaged or if the
				magnet valve control cable
				matching the socket CON1 is
		<u> </u>		disconnected.
	e.	The welding torch is damaged.	e.	0
				gas-electricity tie-in, and press the
				welding torch switch. If there is
				gas out, the welding torch is
	4	The turnester is of hed suchting on the	ſ	damaged. Replace it.
	f.	The tungsten is of bad quality or the	t.	Replace them if necessary.
7 The welding correct is	-	argon is impure.	_	Charles and replace it if personally
7. The welding current is unstable and out of control.	a.	The connecting cable matching socket CON2 on control PCB PK-05-A4 with	a.	Check and replace it if necessary.
		socket CON10 on control panel PK-10-A1 is in loose connection.		
	b.	The capacitor $C1/C2/C3/C4/C5/C6$ on	h	Check and replace it if necessary.
	υ.	bottom PCB PZ-03-B0 leaks or is	0.	Check and replace it in necessary.
		damaged.		
	с.	The input cable or output cable is too slim	c.	Enlarge the cross section area of
	с.	and too long.	0.	the cable.
	d.	Loose connection exists inside the	d.	
	ч.	machine.	u.	Check.
	e.	The panel remote control conversion	e.	Check.
	0.	switch is damaged.	•	
8. Turn on the machine but it	a.	The rectifying bridge matching the socket	a.	Replace.
strips.	_	CON2/CON4/CON5 on bottom PCB		
		PZ-03-B0 is damaged.		
	b.	The power supply cable is disconnected	b.	Check.
		or short-circuited.		
9. When in TIG mode, adjust	a.	The audion Q5, resistor R64/R65/R68 or	a.	Check and replace it if necessary.
the value of the decay		chip U6 on control panel PK-31-A0 is		
potentiometer to the maximum		damaged.		
and release the welding torch				
switch, the gas valve shuts off,				
and no current output.				
and no current output.	<u> </u>		<u> </u>	

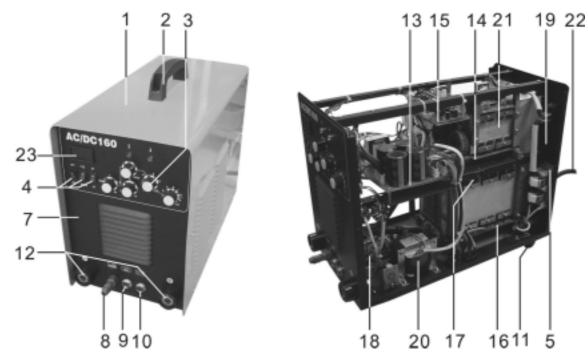
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10. Press the welding torch switch, there is HF discharge	a.	The earth cable of welding torch is in loose connection.	a.	Check and replace it if necessary.
buzz, but no welding voltage output.	b.	The output terminal of the earth cable is in loose connection with gas-electricity tie-in.	b.	Check and replace it if necessary.
11. The arc starting is bad in TIG mode.	a.	The space between discharge nozzles P1 and P2 on HF PCB PZ-35-A0 is too big or small, or their surface is badly oxidized.	a.	Adjust the space between them, or clear their surface.
	b.	The high-voltage capacitor C6/C7 on HF PCB is damaged, or the capacitance becomes smaller.	b.	Check and replace it if necessary.
	C.	The tungsten is of bad quality or argon is impure.	c.	Check and replace it if necessary.
	d.	The welding torch is loose or broken.	d.	Check.
	e.	Incorrect turn rate or turn-to-turn electricity leakage problem exists in arc-starting coil matching CP1/CP2 on HF PCB.	e.	Check.
12. Turn on the machine, and it appears normal, but the malfunction LED turns on once	a.	The connecting cable matching socket CON11 on control PCB PK-05-A4 with the output bypass is in loose connection.	a.	Check.
welding is carried out.	b.	Loose contact exists in MOSFET VT1-VT24 on top PCB PM-04-A3 or rectifying diode U1/U24 on center PCB PD-13-B0.	b.	Check with a multi-meter.
	C.	Some part on control module PK-03-A1 is damaged.	C.	Check if the chip U2 or audion Q9 on PK-03-A1 is damaged.
13. Turn on the machine, and there is HF.	a.	Some parts in manual switch control circuit are damaged.	a.	Check with a multi-meter if chip U3, diode D18/D22 or audion Q4 on control panel PK-10-A1 is damaged. Disconnect the connecting cable matching the socket CON5/4, and check if the manual switch board PH-10-A1 is short-circuited.
	b.	The connecting cable matching socket CON3 on control panel PK-10-A1 with socket CON3 on AC drive PCB PK-09-A3 is in loose connection, or chip U1/U4 or diode D11/D12/D14/D15 on control panel PK-10-A1 is damaged.	b.	Check.
	C.	Some MOSFET on inverter PCB PN-06-A0/PN-05-A2 is damaged.	C.	Check.

14. Incessant HF exists when welding is carried out.	a.	The relay RELAY1 or MOSFET VT1 on HF PCB PZ-34-A0 is damaged, or the value of variable resistor R6 varies.	a.	Check and replace it if necessary; adjust the value of resistor R6 smaller to make sure that there is no HF when welding.
	b.	Some part on inverter PCB PN-05-A2 is damaged.	b.	Check if rectifying diode D1/D3, zener diode Z3, MOSFET VT13 or resistor R14 is damaged.
15. There is deviation between the preset value and real value of the show value of the meter.	a.	The value of the variable resistor R9 on control PCB PK-05-A4 or VR1 on preset PCB PH-10-A01 changes.	a.	Adjust. Methods: 1. Turn to ARC mode, adjust the value of variable resistor R9 on control PCB PK-05-A4 to make the show value of the meter be the value of the corresponding machine type. 2. Turn to TIG mode, do not press the manual switch, adjust the value of variable resistor VR1 on preset PCB PH-10-A01 to make the show value of the meter be the value of the corresponding machine type.
16. When no-load in ARC mode, it appears normal in DC mode, but there is abnormal sound in AC mode.	а.	Some MOSFET on the secondary inverter PCB PN-05-A2/PN-06-A1 is damaged.	а.	Check. Method: Turn to ARC mode, then AC mode, turn off the machine after 3mins of no-load, touch the MOSFET on the secondary inverter PCB with your hand one by one. The extra hot ones are damaged.
17. No AC output in AC mode.	a. b. c.	The AC/DC conversion switch on the panel is damaged. Some part on the control panel PK-10-A1 is damaged. Some part on the secondary drive PCB PK-09-A3 is damaged.	a. b. c.	Check.
18. No AC sound when welding in AC mode.	a. b.	The value of the resistor matching socket CON1 on inverter PCB PN-05-A2 varies. The MOSFET VT13, rectifying diode D1/D3, resistor R14/R13 or zener diode Z3 on inverter PCB PN-05-A2 is damaged.	a. b.	Check and replace it if necessary.

	-			
19. Press the welding torch switch, there is gas out, the show value of the meter is invariable, there is only small	а.	The connecting cable matching socket CON10 on control panel PK-10-A1 with socket CON2 on control PCB PK-05-A4 is in loose connection.	a.	Check.
current, and the pre-flow time is variable.	b.	Some part on control panel PK-10-A1 is damaged.	b.	Check if chip U4, audion Q1/Q2 or potentiometer VR5 on control panel PK-10-A1 is damaged.
20. The welding current is variable, and the maximum current is too big.	a.	The audion Q1/Q2 on control panel PK-10-A1 is damaged.	a.	Check and replace it if necessary.
21. Turn on the machine, the indicator of protection status is	a.	The input voltage is too low or is unstable.	a.	Check.
on because the voltage is too low.	b.	The thermal switch matching socket CON11 on control panel PK-10-A1 is damaged.	b.	Check.
	C.	The connecting cable matching socket CON3 on control panel PK-10-A1 is in loose connection.	c.	Check.
	d.	The resistor R17/R19 or chip U4 on control panel PK-10-A1 is damaged.	d.	Check. Method: properly reduce the value of resistor R17.
22. The tungsten is badly	a.	The value of AC clean width on the panel	a.	Adjust the clean width smaller.
burned out in AC mode.		is adjusted too big.		
23. The manual control is	a.	The connecting cable matching socket	a.	Check.
normal, but the pedal control		CON1 on control panel PK-10-A1 is in		
goes wrong.		loose connection, or the panel remote control matching socket CON2 is damaged.		
	b.	The potentiometer inside the pedal control or the toggle switch is damaged.	b.	Check.

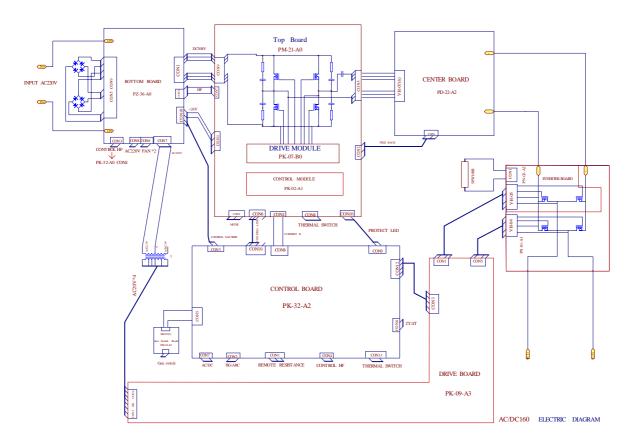
6. AC/DC160

6.1 The structure drawing of AC/DC160:

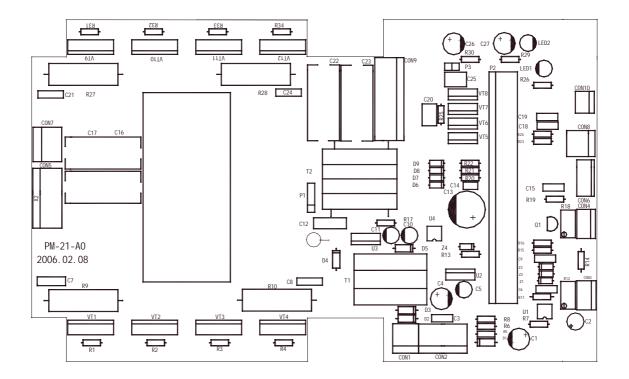


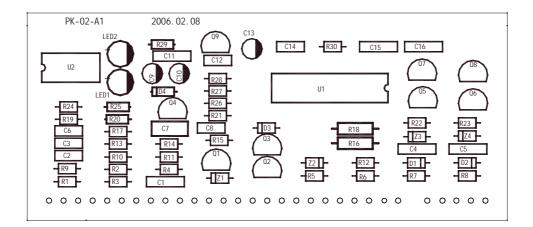
No.	Description	No.	Description	No.	Description
1	Cover	9	Pilot-socket (2 pins)	17	Inverter PCB 2
2	Handle	10	Pilot-socket (3 pins)	18	AC Driver PCB
3	Button	11	Rubber foot	19	Fan
4	Function switch	12	Coupling socket	20	Inductance
5	EMC PCB	13	Bottom PCB	21	Heat sink
6	Main switch	14	Center PCB	22	Input cable
7	Front panel	15	Top PCB	23	Digital meter
8	Fast-socket	16	Inverter PCB 1		

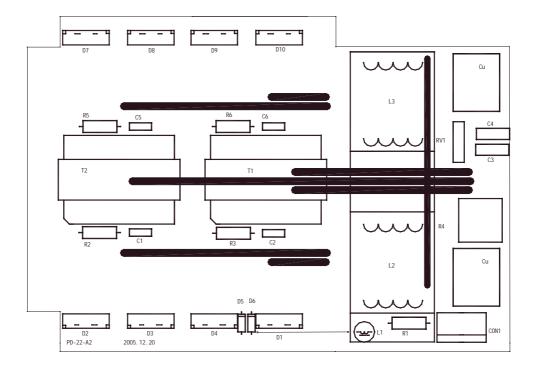
6.2 The general connection diagram of AC/DC160:

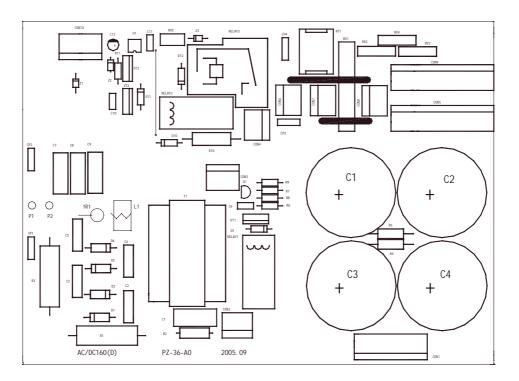


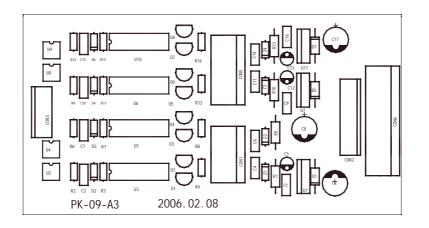
6.3 The diagram of AC/DC160's top PCB PM-21-A0, control module PK-02-A1, center PCB PD-22-A1, bottom PCB PZ-36-A0, AC drive PCB PK-09-A3, inverter PCB PN-01-A1/PN-02-A2 and control panel PK-32-A0:

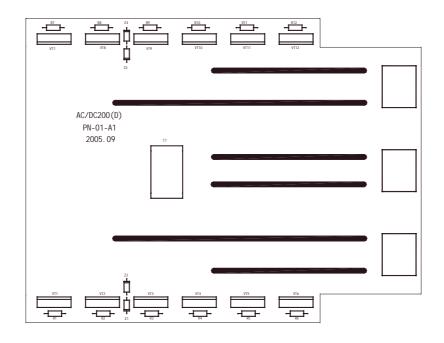


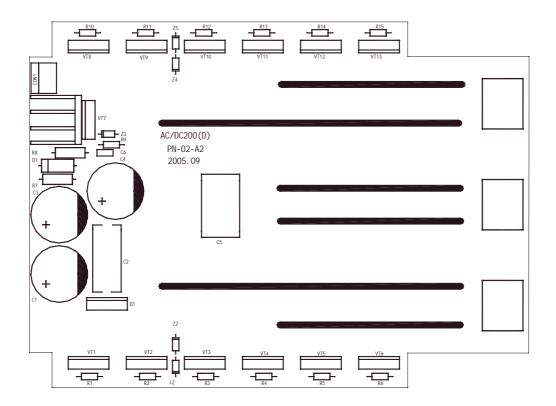


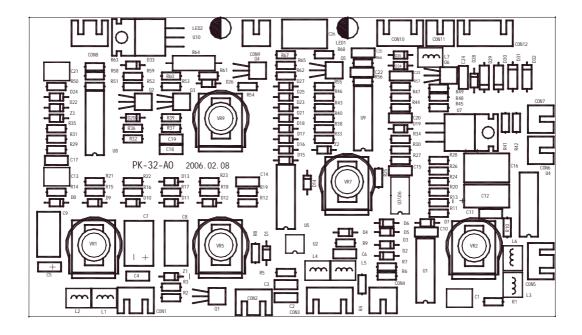












6.4 Troubleshooting of AC/DC160:

Trouble		Analysis		Solution
1. Turn on the machine, no	a.	The input voltage is abnormal.	a.	Check if the input voltage is AC
display of the meter, the fan				220V.
doesn't work, no no-load	b.	The input cable is not in good connection	b.	Check.
voltage output.		with CP3/CP4 on bottom PCB PZ-36-A0,		
		or the tie-in is damaged.		
	c.	The power supply switch may be	c.	Check and replace the power
		damaged or not closed.		supply switch if it's damaged.
	d.	The connecting cable matching socket	d.	Check.
		CON6/CON7/CON8 on bottom PCB		
		PZ-36-A0 is in loose connection.		

2. Turn on the machine, the	a.	The connecting cable matching socket CON1 on bottom PCB PZ-36-A0 is in	a.	Check and make sure the voltage of socket CON1 is DC308V.
meter displays, press the welding torch switch in TIG		loose connection.		of socket CONT is DC306V.
mode, there is gas out, no HF,	b.	The prime relay RELAY3 on bottom PCB	b.	Check and replace if necessary.
turn to ARC mode, no no-load	0.	PZ-36-A0 doesn't close well; the value of		
voltage output.		resistor RT1/RT2/RT3/RT4 increases.		
	c.	The connecting cable matching socket	c.	Check.
		CON5/CON9 on bottom PCB PZ-36-A0		
		with rectifying bridge is in loose		
		connection.		
	d.	Some part on control module PK-02-A1 is	d.	Check with a multi-meter if chip
		damaged.		U1 on PK-02-A1 is damaged.
				Check if the 16 th pin of U1 is 5V. If it's not, replace the chip because
				U1 is damaged. Check if diode
				D1/D2/D3, audion Q1/Q2/Q3/Q5/
				Q6/Q7/Q8/Q9 or zener diode
				Z1/Z2/Z3/Z4 is damaged.
	e.	Some part on top PCB PM-21-A0 is	e.	Check if MOSFET VT5-VT8, pin
		damaged.		P3 or manostat U2 is damaged.
3. Turn on the machine, the	a.	The connecting cable (+24V) matching	a.	Check.
meter displays, but the thermal		socket CON10 on bottom PCB PZ-36-A0		
resistor RT1/RT2/VT3/VT4 on		with socket CON1 on top PCB PM-21-A0		
bottom PCB PZ-36-A0 heats		is in loose connection.	Ι.	
and smokes after a while.	b.	The relay RELAY3 on bottom PCB	b.	Check.
	c.	PZ-36-A0 is damaged. The auxiliary power supply part on top	c.	Check with a multi-meter if
	0.	PCB PM-21-A0 is damaged.	0.	resistor R17, diode D4/D5, chip
				U3 or OC U4 on top PCB
				PM-21-A0 is damaged.
				PM-21-A0 is damaged.

	1		1	
4. Turn on the machine and it appears normal, press the	a.	The connecting cable matching socket CON7 on top PCB PM-21-A0 with socket	a.	Check.
welding torch and there is gas		CON2 on bottom PCB PZ-36-A0 is in		
out, the malfunction LED is not		loose connection.		
on, no HF, but there is no-load	b	High voltage silicon granule	b	Check.
voltage output.	2.	D1/D2/D5/D6 or high voltage output		
		capacitor C7/C8/C9 on bottom PCB		
		PZ-36-A0 is damaged.		
	c.	CP1/CP2 is disconnected with the bottom	c.	Check.
		PCB.		
	d.	The discharge nozzles P1/P2 on bottom	d.	Adjust or replace it if necessary.
		PCB have conglutination, excessive		
		clearance or serious oxidation problem.		
	e.	The connecting cable matching socket	e.	Check.
		CON 4 on control panel PK-32-A0 with		
		socket CON3 on bottom PCB PZ-36-A0		
		is in loose connection, or HF relay		
		RELAY1, MOSFET VT1, audion Q1,		
		diode D7, resistor R6-R9, rectifying		
		bridge D1 or resistor R1/R3 on bottom		
		PCB is damaged.		
5. Turn on the machine, and it	a.	Over-current protection occurs when	a.	Turn off the machine for 5mins
appears normal, press the		welding is carried out.	1	and restart.
welding torch switch and there	b.	5 1	b.	Stop the welding operation for
is gas out, the malfunction LED		welding is carried out.		5mins, or the secondary inverter
is on.	~	Some parts on top PCB, center PCB, or	_	thermal switch is damaged. Check. Turn off the machine, pull
	C.	bottom PCB are damaged.	C.	out the connecting cable matching
		bollonn ob are damaged.		the socket CON7 on top PCB
				PM-21-A0 with the socket CON2
				on bottom PCB PZ-36-A0, turn on
				the machine. If the malfunction
				LED is off, the transformer T1 on
				bottom PCB is short-circuited or
				damaged. If it's on, turn off the
				machine, pull out the connecting
				cable matching socket CON5 on
				top PCB PM-21-A0, turn on the
				machine. If the malfunction LED is
				on, MOSFET VT1-4/VT9-12 on
				top PCB or some part on drive
				module PK-07-B0 is damaged; if
				it's off, transformer T1/T2 or
				rectifying diode D1-4/D7-10 on
				center PCB PD-22-A1 is
	1			damaged.

6. Turn on the machine and it	a.	The magnet valve or the gas tube is	a.	Clear.
appears normal, it can start		blocked.		
arc, but the welding point	b.	The magnet valve is damaged.	b.	Replace.
appears black.	C.	The connecting cable matching socket	C.	Check.
		CON10 on bottom PCB PZ-36-A0 with		
		socket CON3 on control panel PK-32-A0		
	4	is in loose connection.	4	Check with a multi-meter if
	d.	Some part in the magnet valve control circuit on bottom PCB PZ-36-A0 or on	d.	Check with a multi-meter if MOSFET VT2, diode D10/D11,
		control panel PK-32-A1 is damaged.		zener diode Z1, relay RELAY2 on
				bottom PCB or audion Q1 on
				control PCB PK-32-A0 is
				damaged or if the magnet valve
				control cable matching the socket
				CON4 is disconnected.
	e.	The welding torch is damaged.	e.	Remove the welding torch and the
				gas-electricity tie-in, and press the welding torch switch. If there is
				gas out, the welding torch is
				damaged. Replace it.
	f.	The tungsten is of bad quality or the	f.	Replace them if necessary.
		argon is impure.		
7. The welding current is	a.	The connecting cable matching socket	a.	Check and replace it if necessary.
unstable and out of control.		CON8 on control panel PK-32-A0 with		
		socket CON4 on top PCB PM-21-A0 is in		
	b.	loose connection. The capacitor C1/C2/C3/C4/ on bottom	b.	Check and replace it if necessary.
	υ.	PCB PZ-36-A0 leaks or is damaged.	υ.	Check and replace it in necessary.
	c.	The input cable or output cable is too slim	c.	Enlarge the cross section area of
		and too long.		the cable.
	d.	Loose connection exists inside the	d.	Check.
		machine.		
8. Turn on the machine but it	a.	The rectifying bridge matching the socket	a.	Replace.
strips.		CON5/CON9 on bottom PCB PZ-36-A0 is damaged.		
	b.	The power supply cable is disconnected	b.	Check.
	0.	or short-circuited.	0.	Check.
9. Adjust the value of the decay	a.	The audion Q4, resistor R54/R59 or	a.	Check and replace it if necessary.
potentiometer to the maximum		diode D27 on control panel PK-32-A0 is		
and release the welding torch		damaged.		
switch, the gas valve shuts off,				
and no current output.				Observations 1917
10. Press the welding torch	a.	The earth cable of welding torch is in loose connection.	C.	Check and replace it if necessary.
switch, there is HF discharge buzz, but no welding voltage	b.	The output terminal of the earth cable is	d.	Check and replace it if necessary.
output.	0.	in loose connection with gas-electricity	u.	Chook and replace it if fielessally.
		tie-in.		
	I		I	

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11. The arc starting is bad.	a.	The space between discharge nozzles P1 and P2 on bottom PCB PZ-36-A0 is too big or small, or their surface is badly oxidized.	a.	Adjust the space between them, or clear their surface.
	b.	The high-voltage capacitor C7/C8/C9 on bottom PCB is damaged, or the capacitance becomes smaller.	b.	Check and replace it if necessary.
	C.	The tungsten is of bad quality or argon is impure.	C.	Check and replace it if necessary.
	d.	The welding torch is loose or broken.	d.	Check.
	e.	Incorrect turn rate or turn-to-turn	e.	Check.
		electricity leakage problem exists in arc-starting coil matching CP1/CP2 on bottom PCB.		
12. Turn on the machine, and it appears normal, but the malfunction LED turns on once welding is carried out.	a.	The connecting cable matching socket CON2 on top PCB PM-21-A0 with socket CON1 on center PCB PD-22-A2 is in loose connection.	a.	Check.
	b.	Loose contact exists in MOSFET VT1-4/VT9-12 on top PCB PM-21-A0 or rectifying diode U1-4/U7-10 on center PCB PD-22-A2.	b.	Check with a multi-meter.
	C.	Some part on control module PK-02-A1 is damaged.	C.	Check if the chip U2 or audion Q9 on PK-02-A1 is damaged.
13. Turn on the machine, and there is HF.	а.	Some parts in manual switch control circuit are damaged.	a.	Check with a multi-meter if chip U1, diode D1/D2 on control panel PK-10-A1 is damaged. Disconnect the connecting cable matching the socket CON5, short-circuit CON5, and check if the manual switch board PH-10-A1 is short-circuited.
	b.	The connecting cable matching socket CON12 on control panel PK-32-A0 with socket CON3 on AC drive PCB PK-09-A3 is in loose connection, or chip U5 or diode D16/D17/D20/D24/D26 on control panel PK-32-A0 is damaged.	b.	Check.
	C.	Some MOSFET on inverter PCB PN-01-A1/PN-02-A2 is damaged.	C.	Check with a multi-meter one by one.
14. Incessant HF exists when welding is carried out.	a.	The relay RELAY1, audion Q1 or MOSFET VT1 on bottom PCB PZ-36-A0 is damaged.	a.	Check and replace it if necessary.
	b.	Some part on inverter PCB PN-02-A2 is damaged.	b.	Check if rectifying diode D1, zener diode Z3, MOSFET VT7 or resistor matching socket CON1 is damaged.

15. Press the manual switch,	2	Some MOSFET on the secondary	2	Check. Method: Turn to ARC
when no load, it appears normal in DC mode, but there is abnormal sound in AC mode.	а.	Some MOSFET on the secondary inverter PCB PN-02-A2/PN-01-A1 is damaged.	а.	mode, then AC mode, turn off the machine after 3mins of no-load, touch the MOSFET on the secondary inverter PCB with your hand one by one. The extra hot ones are damaged.
16. No AC output in AC mode.	a.	The AC/DC conversion switch on the	a.	Check.
		panel is damaged.		
	b.	Some part on the control panel PK-32-A0 is damaged.	b.	Check if the diode D19, chip U9, potentiometer VR5 or audion Q6 on control panel PK-32-A0 is damaged.
	C.	Some part on the secondary drive PCB PK-09-A3 is damaged.	C.	Check with a multi-meter if chip U2/U4/U8/U9/U3, audion Q1-Q8 or zener diode Z1/Z2/Z3/Z4 on drive PCB is damaged.
17. No AC sound when welding	a.	The value of the resistor matching socket	a.	Check and replace it if necessary.
in AC mode.	b.	CON1 on inverter PCB PN-02-A2 varies. The MOSFET VT7, rectifying diode D1, or zener diode Z3 on inverter PCB PN-02-A2 is damaged.	b.	Check and replace it if necessary.
18. Press the welding torch	a.	The connecting cable matching socket	a.	Check.
switch, there is gas out, there is only small current, and the pre-flow time is variable.		CON8 on control panel PK-32-A0 with socket CON4 on top PCB PM-21-A0 is in loose connection.		
	b.	Some part on control panel PK-32-A0 is damaged.	b.	Check if chip U8, audion Q3/Q2 or potentiometer VR9 on control panel PK-32-A0 is damaged.
19. Turn on the machine, the indicator of protection status is	a.	The input voltage is too low or is unstable.	a.	Check.
on because the voltage is too low.	b.	The thermal switch matching socket CON11 on control panel PK-32-A0 is damaged.	b.	Check.
	c.	The connecting cable matching socket CON12 on control panel PK-32-A0 is in loose connection.	c.	Check.
	d.	The resistor R46/R43 or chip U9 on control panel PK-32-A0 is damaged.	d.	Check. Method: properly reduce the value of resistor R46.
20. The tungsten is badly burned out in AC mode.	a.	The value of clean width potentiometer VR5 on control panel PK-32-A0 is adjusted too big.	a.	Adjust the clean width smaller, or parallel connect a resistor of 200K with resistor R18 on control panel PK-32-A1.

21. The manual control is	a.	The conversion switch on the panel is	a.	Check.
normal, but the pedal control		damaged.		
goes wrong.	b.	The toggle switch inside the pedal control	b.	Check.
		is damaged.		
	c.	The potentiometer inside the pedal	c.	Check.
		control is damaged.		
	d.	The connecting cable matching socket	d.	Check.
		CON1 on control panel PK-32-A0 is in		
		loose connection.		