

# ***USER'S MANUAL***

**WMMA 160T/200T/200TT/MINI 160**

**WMMA 140/160/200/250/300/315/400**

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## SAFETY WARNING

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**On the process of welding or cutting, there will be possibility of injury, so please take protection into consideration during operation. For more details please review the Operator Safety Guide, which complies with the preventive requirements of the manufacturer.**

### **Electric shock—May lead to death !!**

- Set the earth fitting according to applying standard.
- Forbidden to touch the bare electric parts and electrode with uncovered skin, wet gloves or clothes.
- Make sure you are insulated from the ground and the work piece.
- Make sure you are in safe position.

### **Gases and fumes—May be harmful to health!**

- Keep your head out of the gases and fumes.
- When arc welding, ventilators or air extractors should be used to avoid breathing gases.

### **Arc rays—Harmful to your eyes, burn your skin.**

- Wear suitable protective mask, light filter and protective garment to protect eyes and body.
- Prepare suitable protective mask or curtain to protect looker-on.

### **Fire**

- Welding spark may cause fire, make sure there is no tinder stuff around the welding area.

### **Noise—Excessive noises will be harmful to hearing.**

- Use ear protector or others means to protect ear.
- Warn looker-on that noise is harmful to hearing.

### **Malfunction—When trouble happens, contact with authorized professionals**

- If trouble happens during installation and operation, please follow this manual instruction to check up.
- If you fail to fully understand the manual, or fail to solve the problem with the instruction, you should contact the suppliers or the service center for professional help.



### **CAUTION!**

**Creepage-protecting switch should be added when using the machine!!!**

## TECHNICAL PARAMETERS TABLE

Model Parameters	WMMA 140	WMMA 160	WMINI 160	WMMA 200
Power voltage (V)	1phase AC220V ±15%	1phase AC220V ±15%	1phase AC220V ±15%	1phase AC220V ±15%
Frequency (HZ)	50/60	50/60	50/60	50/60
Rated input current (A)	28	32.7	32.8	43.6
No-load voltage (V)	56	65	62	58
Output current (A)	20-140	30-160	30-160	30-200
Rated output voltage (V)	25.6	26.4	26.4	28
Force range (A)	----	----	----	----
Duty cycle (%)	60	60	40	60
No-load loss (W)	40	40	40	40
Efficiency (%)	80	80	80	80
Power factor	0.93	0.93	0.93	0.93
Insulation grade	F	F	F	F
Housing protection grade	IP21	IP21	IP21	IP21
Weight (kg)	5.5	8	5.5	8
Dimensions (mm)	290×132×203	375×155×232	290×132×203	375×155×232

## TECHNICAL PARAMETERS TABLE

Model Parameters	WMMA 160T	WMMA 200T	WMMA 200TT
Power voltage (V)	1 Phase AC220V ±15%	1 Phase AC220V ±15%	1 Phase AC220V ±15%
Frequency (HZ)	50/60	50/60	50/60
Rated input current (A)	32.7	43.6	43.6
No-load voltage (V)	56	58	58
Output current (A)	30-160	30-200	30-200
Rated output voltage (V)	26.4	28	28
Force range (A)	----	----	----
Duty cycle (%)	60	60	60
No-load loss (W)	40	40	40
Efficiency (%)	80	80	80
Power factor	0.93	0.93	0.93
Insulation grade	F	F	F
Housing protection grade	IP21	IP21	IP21
Weight (kg)	8	8	8
Dimensions (mm)	290×132×203	375×155×232	375×155×232

## TECHNICAL PARAMETERS TABLE

Model Parameters	WMMA 250	WMMA 300	WMMA 315	WMMA 400
Power voltage (V)	3 Phase AC380V ±15%	3 Phase AC380V ±15%	3 Phase AC380V ±15%	3 Phase AC380V ±15%
Frequency (HZ)	50/60	50/60	50/60	50/60
Rated input current (A)	14.4	21	19.7	27.6
No-load voltage (V)	66	77	69	68
Output current (A)	20-250	20-300	20-315	40-400
Rated output voltage (V)	30	32	32.6	36
Force range (A)	0-100	0-100	0-100	0-100
Duty cycle (%)	60	60	60	60
No-load loss (W)	60	80	80	80
Efficiency (%)	85	85	85	85
Power factor	0.93	0.93	0.93	0.93
Insulation grade	F	F	F	F
Housing protection grade	IP21	IP21	IP21	IP21
Weight (kg)	17.5	17.5	19.5	26.5
Dimensions (mm)	480×204×303	480×204×303	450×299×232	565×306×432

## INSTALLATION INSTRUCTION

The machine is equipped with power voltage compensation equipment. When the power voltage fluctuation between  $\pm 15\%$  of rated voltage, it still can work normally.

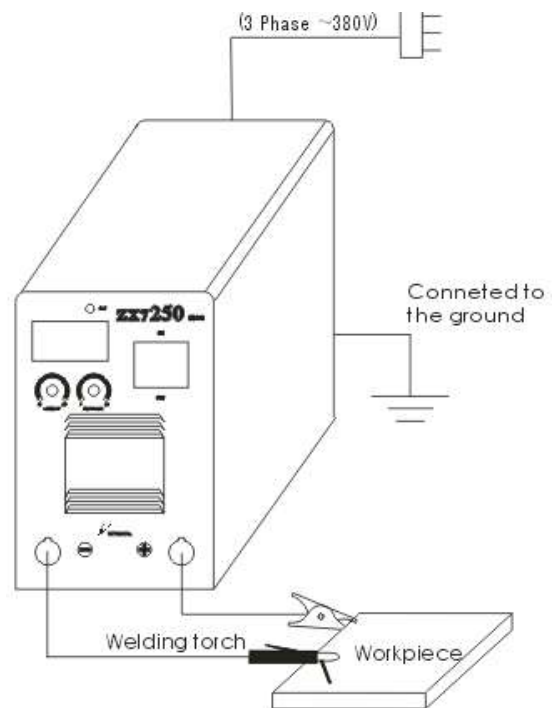
When the machine is used with long cables, in order to prevent voltage from going down, bigger section cable is suggested. If the cable is too long, it may affect the performance of the power system. So we suggest you use cables of configured length.

1. Make sure the intake of the machine is not blocked or covered; otherwise the cooling system could not work.
2. Use inducting cable whose section is not less than  $6 \text{ mm}^2$  to connect the machine to the ground. The way is from the ground-connecting screw at the back to the earth device.
3. Correctly connect the arc torch or holder according to the sketch. Make sure the cable, holder and fastening plug have been connected with the ground. Put the fastening plug into the fastening socket at the “-” polarity and fasten it clockwise.
4. Put the fastening plug of the cable to fastening socket of “+” terminal at the front panel, fasten it clockwise, and the earth clamp at the other terminal clamps the work piece.

5. Please pay attention to the connecting terminal, DC welding machine has two connecting ways: positive connection and negative connection. Positive connection: holder connects with “-” terminal, while work piece with the “+” terminal. Negative connection: work piece with the “-” terminal, holder with the “+” terminal. Choose suitable way according to the working situation. If unsuitable choice, it will cause unstable arc, more spatters and conglutination. If such problems occur, please change the polarity of the fastening plug.

6. According to input voltage grade, connect power cable with power supply box of relevant voltage grade. Make sure no mistake is made and make sure the voltage difference is among permission range.

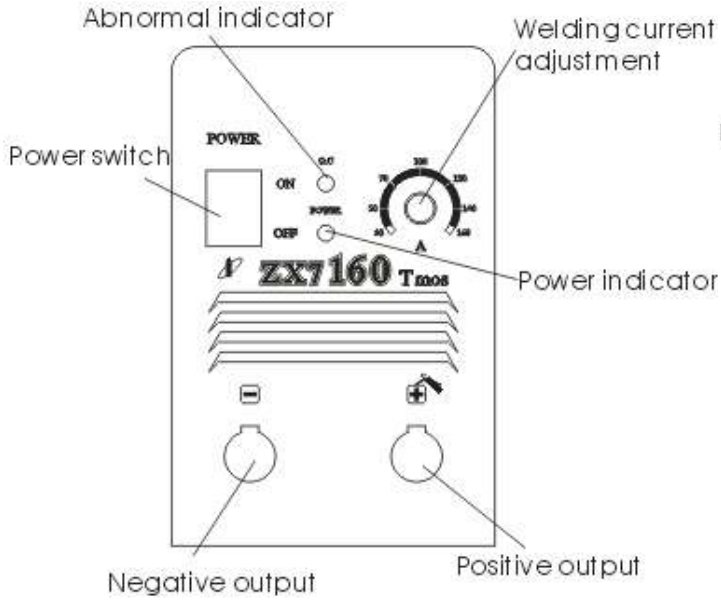
After the above job, installment is finished and welding is available.



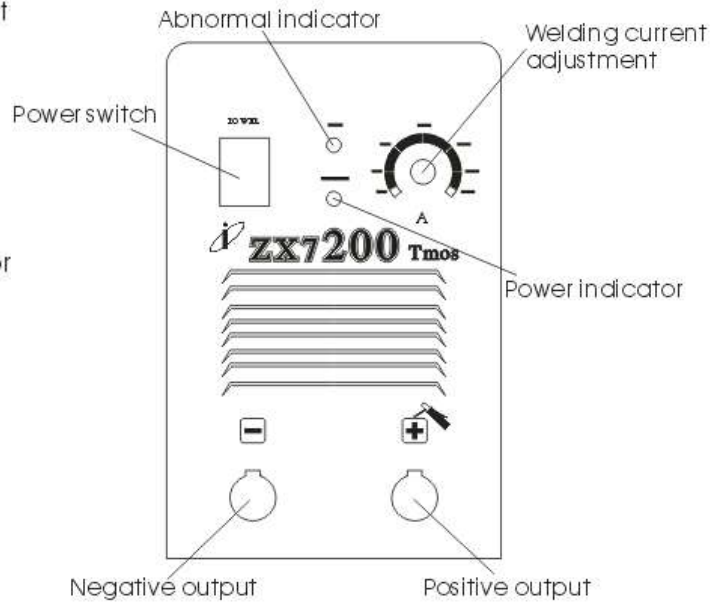
**If distance of work piece and machine is too far (50-100m), and the cables (torch cable and earth cable) are too long, please choose cable of bigger section to minimize the reduction of the voltage.**

# PANEL FUNCTION INSTRUCTION

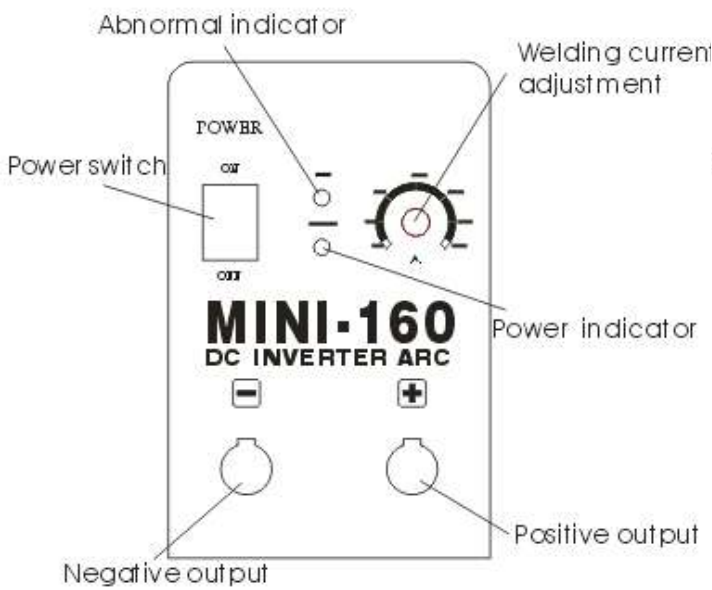
## WMMA 160T:



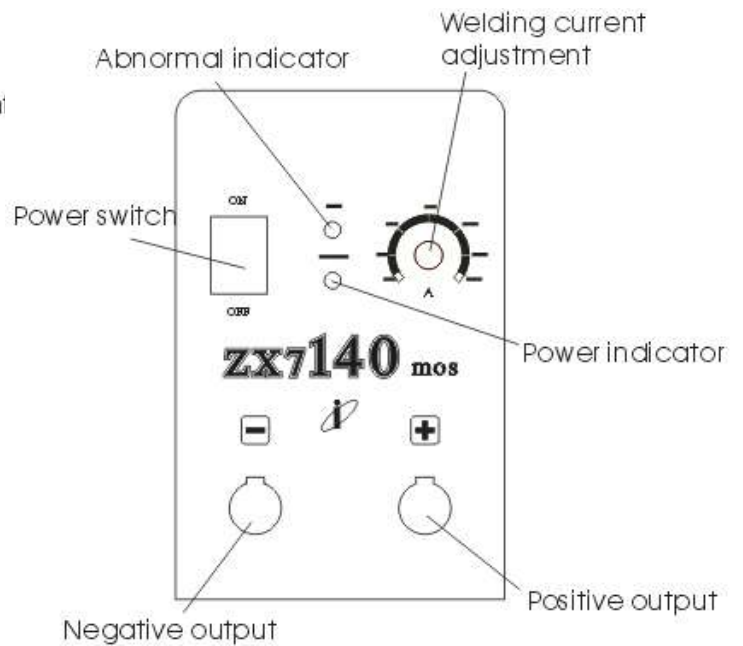
## WMMA 200T:



## WMINI 160:

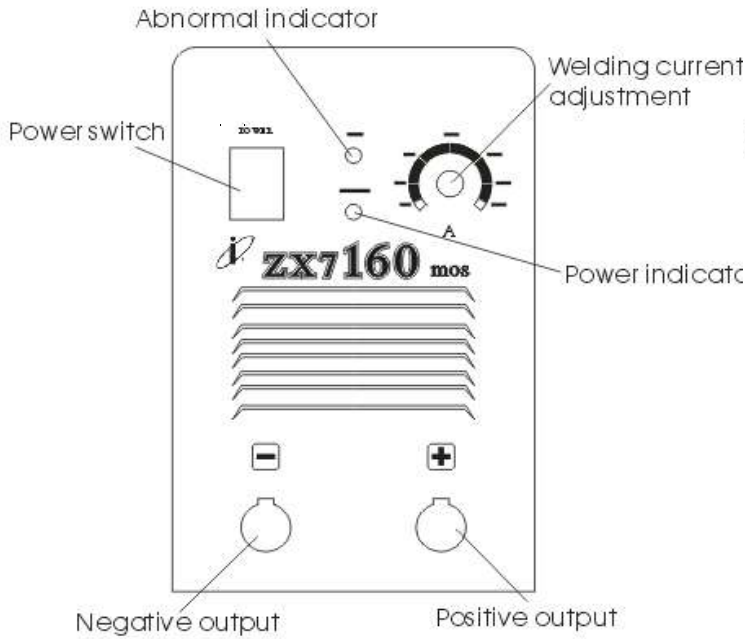


## WMMA 140:

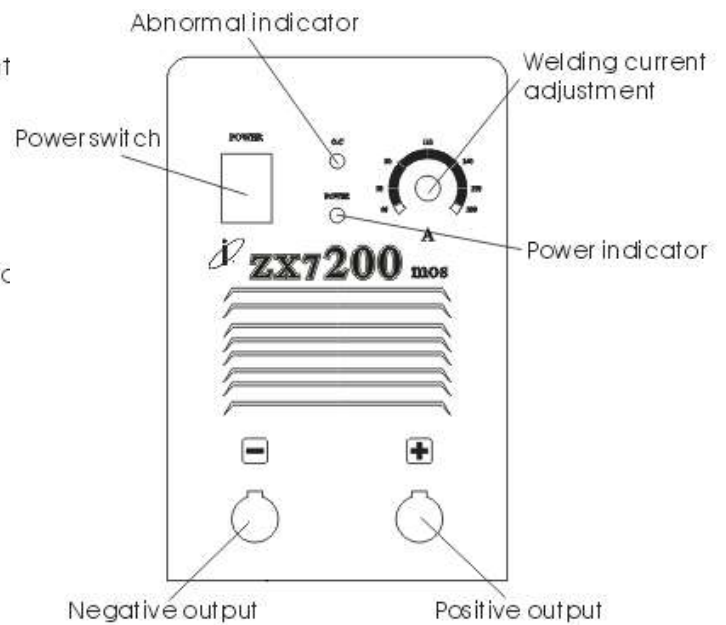


# PANEL FUNCTION INSTRUCTION

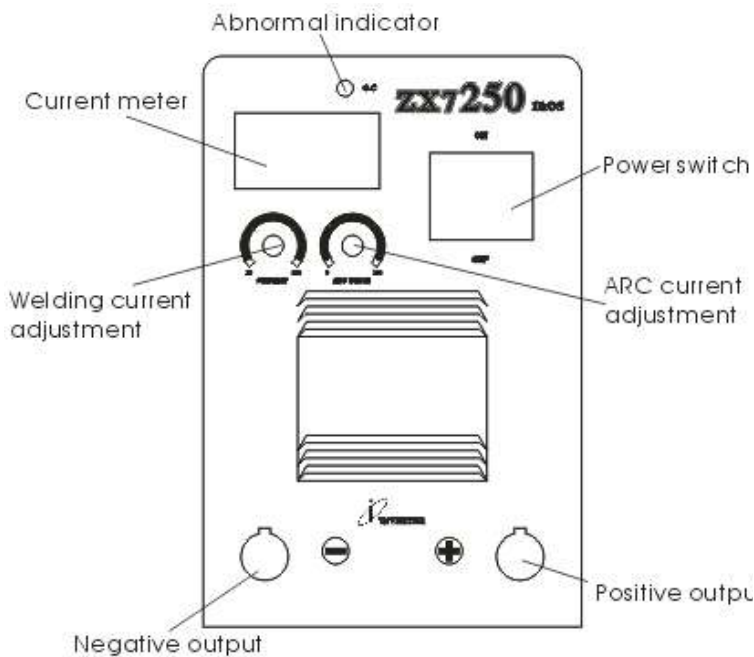
## WMMA 160:



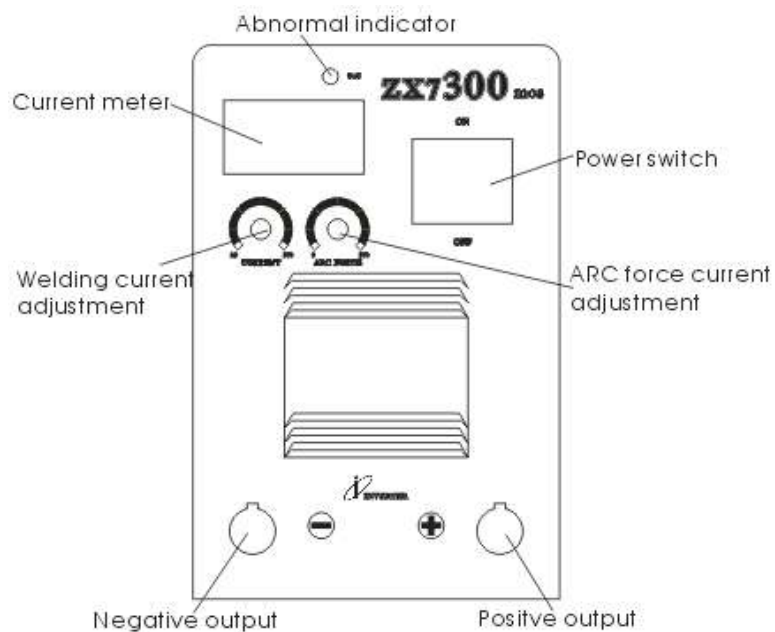
## WMMA 200:



## WMMA 250:



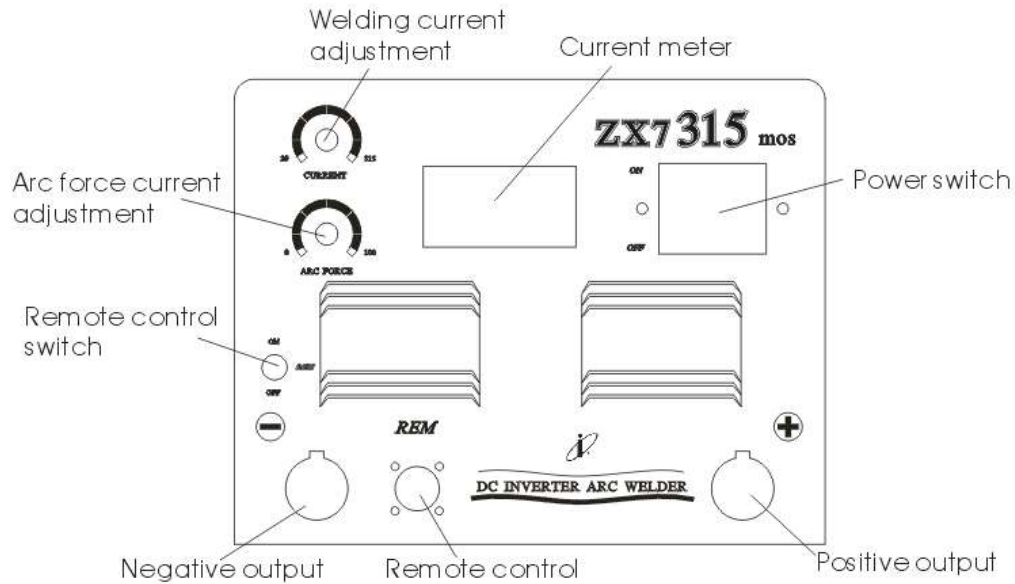
## WMMA 300:



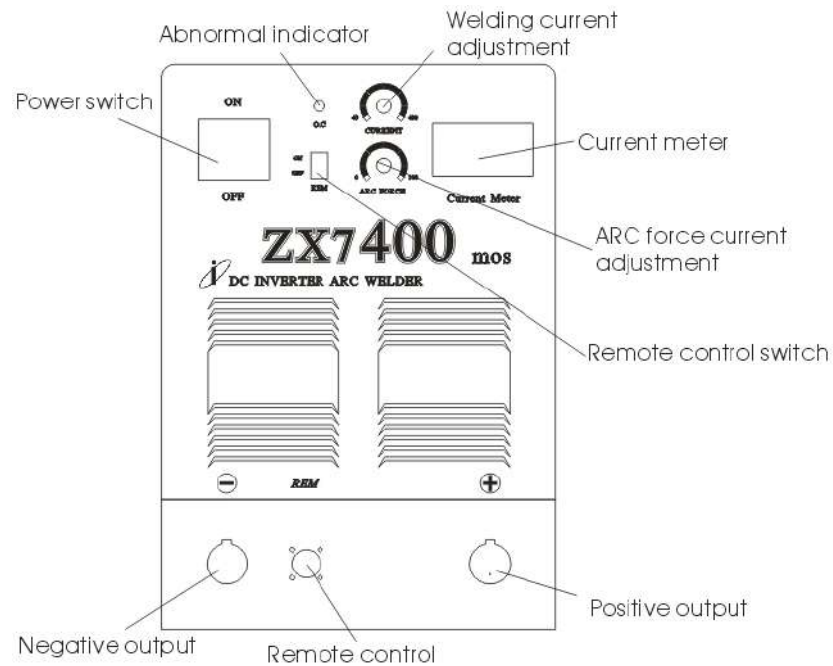


# PANEL FUNCTION INSTRUCTION

## WMMA 315:



## WMMA 400:



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

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## OPERATION INSTRUCTION

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1. Open the power switch, the screen will show set current volume and ventilator is beginning to revolve.
2. Adjust knobs of welding current and arc-striking push, make welding function complies with demands.
3. Generally, welding current is adequate to welding electrode according with as following:

Specification	φ 2.5	φ 3.2	φ 4.0	φ 5.0
Current	70-100A	110-140A	170-220A	230-280A

4. The knob of arc-striking drive is used to adjust current of arc striking and the current of welding, especially in low current arrange. So machine can gain powerful energy and push current.
5. VRD equipment is installed in the machine. When the switch of back panel is put "ON" position, the VRD indicator is lit, and when the switch is put "OFF" position, the VRD indicator is off, and then the no-load voltage is 67V. Switch of VRD is put inside the machine, with the "on" condition. the no-load voltage changes to be less than 15V, which is safe for people.
6. The welding machine has been coordinated with remote control device:
  - 1) Check the switch position of remote control device before operation .If the switch is on "OFF" Position then is out of remote control function. Switch is on "ON" position then function can be on using remote control device.
  - 2) Insert plug of remote control in socket of remote control correctly and tighten firmly in order to prevent poor contact.
  - 3) If remote control device is not used, make sure the switch is on "OFF" position, or welding current will not be able to be adjusted on panel.



### **WARNING!**

**Before connecting operation please make sure all the power is turned off. The right order is to connect the welding cable and ground cable to the machine first, and make sure they are firmly connected and then put the power plug to the power source.**

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## MAINTENANCE

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### CAUTION:

**Before Maintenance and checking, power must be turned off, and before opening the housing, make sure the power plug is pulled off.**

1. Remove dust by dry and clean compressed air regularly, if welding machine is operating in environment where is polluted with smokes and pollution air, the machine need remove dust each month.
2. Pressure of compressed air must be inside the reasonable arrangement in order to prevent damaging to small components of inner-machine.
3. Check inner circuit of welding machine regularly and make sure the cable circuit is connected correctly and connectors are connected tightly (especially insert connector and components). **If any connection failure is found, please give a good polish to them, then connect them again tightly.**
4. Avoid water and steam enters into inner-machine, if **they** enter into machine, please dry inner-machine then check insulation of machine.
5. If welding machine will not be operated **for** long time, it must be put into packing box and store in dry environment.

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## NOTES BEFORE CHECKING

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## WARNING

**Blind experiment and careless repair may lead to more problem of the machine that will make formal check and repair more difficult. When the machine is electrified, the naked parts contain life-threatening voltage. Any direct and indirect touch will cause electric shock, and severe electric shock will lead to death.**

## TROUBLE SHOOTING



**Notes:** If user wants to operate machine as following, the operator must be a personnel in a specific field of electricity and safety and hold the relevant certificate that proves **their** ability and knowledge. Before maintenance, contact with our company for authorization is suggested.

### 1. WMMA 250/MMA 300/MMA 315/MMA 400 fault symptoms and recommended course of action.

Problems (Symptoms)	Possible Cause And Recommended Course of Action
<p>Indicator of power switch is not lit; fan is not working and there is no welding output.</p>	<p>A. Make sure power switch is close.            B. Make sure electrify wire net (which is connected to input cable) is in work.            C. Heat-sense resistance(4 pieces) is broken.(24V relay has problem)            D. Power source board (Bottom board has problem, no DC537V output voltage):                a) Silicon bridge circuit is broken, cable is loosen.                b) Part of board is burnt.                c) Check cable between air switch and the power source board, power board between MOS board.            E. Subsidiary power source on the control board has problem. (Contact distributor or manufacturer.</p>
<p>Fan is working and abnormal indicator is lit, but there is no welding output.</p>	<p>A. Check if components have poor connections.            B. Check if connector of output terminal has break circuit or poorly connected.            C. Maybe inverter circuit is in fault;            Please pull up the power plug of main transformer (near VH-07 fan), which is on MOS board, then open the machine again.            (1) If abnormal indicator is still lit, some of MOS board is damaged, check and replace it.            (2) If abnormal indicator is not lit:                a. Maybe transformer of middle board is damaged, measure primary inductance volume and Q volume of main transformer by inductance bridge.                Primary volume is parallel circuit, <math>L=1.2-2.0Mh</math>, <math>Q&gt;40</math>                If inductance volume and Q volume is low, replace it.                b. Maybe some of secondary rectifier tube of transformer is broken, check and replace rectifier tube.            D. Maybe feedback circuit is in fault.</p>

2. **WMINI 160/MMA 160T/MMA 200T/MMA 140/MMA 160/MMA 200** fault symptoms and recommended course of action.

<b>Problems (Symptoms)</b>	<b>Possible Cause And Recommended Course of Action</b>
Indicator of power switch is not lit; fan is not working and there is no welding output.	<ul style="list-style-type: none"> <li>A. Make sure power switch is <b>closed</b>.</li> <li>B. Make sure electrify wire net (which is connected to input cable) is in work.</li> </ul>
Power indicator is lit, fan does not work and there is no welding output.	<ul style="list-style-type: none"> <li>A. Maybe be connected <b>wrongly</b> to 380V power because machine is in protection circuit, connect to 220V power and operate machine again.</li> <li>B. 220v power is not stabilizing (input cable is too slender) or input cable is connected to electrify wire net cause machine is in protection circuit. Increase the section of input cable and tighten input connector firmly. Close machine 2-3 minutes then open it again.</li> <li>C. <b>Do not on and off power in very short time . Close machine and open it again after 2-3 minutes.</b></li> <li>D. Cables are <b>loose</b> between power switch and power source board, tighten them again.</li> </ul>
Fan is working, welding current is not stabilizing or out of potential control, current is sometimes low and sometimes high.	<ul style="list-style-type: none"> <li>A. Quality of 1K potential is bad, replace it.</li> <li>B. Terminal of output is broken circuit or poor <b>connection</b>.</li> </ul>
Fan is working and abnormal indicator is not lit, there is no welding output.	<ul style="list-style-type: none"> <li>A. Check if components are <b>poorly connected</b>.</li> <li>B. Check if connector of output terminal is break circuit or <b>poorly connected</b>.</li> <li>C. Check voltage between power source board and MOS board (VH-07) is about DC 308V.</li> <li>D. If green indicator is not lit in assistant power of MOS board, please connect with seller or our company and replace it.</li> <li>E. If there is some question in control circuit, please connect with seller or our company and replace it.</li> </ul>
Fan is working and abnormal indicator is lit, but there is no welding output.	<ul style="list-style-type: none"> <li>A. Maybe over-current protection is working, please close machine and <b>wait</b>. After abnormal indicator is not on, open machine.</li> <li>B. Maybe overheated protection is working, wait for 2-3 minutes.</li> <li>C. Maybe inverter circuit is in fault; please <b>pull out</b> the power plug of main transformer (near VH-07 fan), which is on MOS board, then open the machine again. <ul style="list-style-type: none"> <li>(1) If abnormal indicator is still lit, some of MOS board is damaged, check and replace it.</li> <li>(2) If abnormal indicator is not lit: <ul style="list-style-type: none"> <li>i. Maybe transformer of middle board is damaged, measure primary inductance volume and Q volume of main transformer by inductance bridge.</li> <li>ii. Primary volume is parallel circuit, <math>L=1.2-2.0Mh</math>, <math>Q&gt;40</math> If inductance volume and Q volume is low, replace it.</li> <li>iii. Maybe some of secondary rectifier tube of transformer is broken, check and replace rectifier tube.</li> </ul> </li> </ul> </li> <li>D. Maybe feedback circuit is in fault.</li> </ul>

