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Solutions Provider For Industry & Trade

INVERTER WELDING MACHINE PM-MMA-220-DY

Read and follow all safety precautions in instruction manual.

3. If use extra-long cable, the output voltage will decrease, so please shorten the cable

B. Output current not to rated value

When power voltage departs from the rated value, it will make the output current not matched with rated value; when voltage is lower than rated value, the max output may lower than rated value.

C. Current is not stabilizing when machine is being operated

It has something with factors as following:

1. Electric wire net voltage has been changed.
2. There is harmful interference from electric wire net or other equipment

D. Too much spatter when use MMA welding

1. Maybe current is too big and stick's diameter is too small.
2. Output terminal polarity connection is wrong, it should apply the opposite polarity at the normal technics, which means that the stick should be connected with the negative polarity of power source, and work piece should be connected with the positive polarity. So please change the polarity.

MAINTENANCE

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 every month.
2. Pressure of compressed air must be within the reasonable range in order to prevent damaging to small components of inner-machine.
3. Check internal circuit of welding machine regularly and make sure the circuit connections are connected correctly and tightly (especially plug-in connector and components). If scale and rust are found, please clean it, and connect again tightly.
4. Prevent water and steam from entering into the machine. If that happens, please blow it dry and check insulation of machine.
5. If welding machine will not be used for long time, it must be put into the packing box and stored in dry and clean environment.

TROUBLESHOOTING AND FAULT FINDING

Notes: The following operations must be performed by qualified electricians with valid certifications. Before maintenance,please contact with us for professional suggestion.

ARC 400/350/300 faults symptom and solutions:

SAFETY WARNING

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 workshop.
- 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.

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

1	Power switch
2	Abnormal indicator
3	Welding current adjustment
4	Power indicator
5	Positive output terminal
6	Negative output terminal

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

NOTES OR PREVENTIVE MEASURES

1. Environment

1） The machine should be operated in dry environments with humidity levels of max 90%.
2） Ambient temperature should be between -10 to 40 degrees centigrade.
3） Avoid welding in sunshine or drippings. Do not let water infiter the machine.
4） Avoid welding in dust area or the environment with corrosive gas.

INSTALLATION INSTRUCTION

The machine is equipped with power voltage compensation equipment. When the power voltage fluctuation is between±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 cables of configured length are suggested.

1. Make sure the intake of the machine is not blocked or covered to avoid malfunction of cooling system.
2. Ground the cables with section area no less than $6mm^2$ to the housing, the way is connecting screw in the back of the power source to ground device .

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Faults symptom	Solutions
Power indicator of welding output.	A. Make sure power switch is close B. Make sure the electric wire net connecting to input cable is working alright.
Power indicator is lit, fan is not working, no welding output.	A. Input cable is possibly connected to 380V power, which causes over voltage protection circuit is starting. Connect input cable to 220V power, then restart the machine. B. Fan's 220V power supply (input cable is too thin and long) or input cable is connected to electricity network would start overload voltage protection circuit. Increase section of input cable or lighten input conduct. Turn off the power switch continuously would start overload voltage protection circuit. Turn off machine for 2-3 min and restart it. C. Turn on and off power switch continuously would start overload voltage protection circuit. Turn off machine for 2-3 min and restart it. D. Cables are loosed between power switch and power source board, tighten them again.
Erratic welding output	A. Ink electrodes is damaged, replace it.
Current or out of control of potentiometer	B. Terminal of output is broken circuit or poor connect.
Fan is working and abnormal indicator is on lit, no welding output	A. Check if connections are poor connects. B. Check if connection of output terminal is break circuit and poor connect. C. Check voltage between power source board and MOS board (VH-07) is about DC 300V. D. If green indicator is not lit is assistant power of MOS board, please connect company. E. If there is some question in control circuit, please connect with seller or our company.
Fan is working and abnormal indicator is off	A. Overload current protection may start, please turn of machine first, then restart it after abnormal indicator is off. B. Overload protection may start, it will become normal in 2-3min. C. Inverter circuit may go wrong. Please disconnect the power supply plug or the main transformer on MOS board (near fan VH-07), then restart the machine. D. If abnormal indicator is still lit, that means some switches on MOS board are damaged. Check and replace them.
	1）If abnormal indicator is off, fan is working and indicator value and Q value is low, replace it. a. Primary value is parallel circuit L=1.2-2.0mH, Q=40 if inductance value and Q value of main transformer by inductance bridge. b. If abnormal indicator is off, no welding output.	2）If abnormal indicator is off, fan is working and no welding output, measure primary inductance value and Q value of main transformer by inductance bridge. a. Maybe transformer or middle board is damaged, measure primary inductance value and Q value of main transformer by inductance bridge. b. Maybe some of secondary rectifier tube of transformer is broken. Check and replace rectifier tube.
	D. Maybe feedback circuit is in fault	

5. Avoid gas welding in the environment with strong arc.

2. Safety norms

The welding machine is installed with protection circuit of over voltage, over current and over heat. When voltage, output current and temperature of machine exceed the required standard, welding machine will stop working automatically. However, overuse (such as over voltage) will still result in damage to the welding machine. To avoid this, the user must pay attention to the following

1）**The working area is adequately ventilated！**

The welding machine is powerful machine, which is it being operated, it generated by high currents, and heat and will not satisfy machine cool demands. So there is a fan in inner-machine to cool down machine. Make sure the intake is not in block or covered, it is 0.3 meter from welding machine to objects of environment. User should make sure the working area is adequately ventilated. It is important for the performance and the longevity of the machine.

2）**Do not over load！**

The operator should remember to watch the max duty current (Response to the selected duty cycle). Keep welding current is not exceed max duty cycle current. Over-load current will damage and burn up machine.

3）**No over voltage！**

Power voltage can be found in diagram of main technical data. Automatic compensation circuit of allowable range finished, it will damage to components of inverter. The operator should understand this situation and take preventive measures.

4）There is a grounding screw behind welding machine, what a grounding marker on it. Before operation, welding circuit must be grounded reliable with cable which section is over 6 square millimeter, in order to prevent from static electricity, and accidents because of electricity leaking.

5）If welding time is exceeded duty cycle limited, welding machine will stop working for protection. Because machine is overheated, temperature control switch is on "ON" position and the indicator light is red. In this situation, you don't have to pull the plug, in order to let the cool the machine. When the indicator light is off, the temperature goes down to the standard range, it can weld again.

QUESTIONS TO BE RUN INTO DURING WELDING

Fitting, welding materials, environment factor, supply powers maybe have something to do with welding. User must try to improve welding environment.

A. Arc-striking is difficult and easy to pause

1. Make sure quality of tungsten electrode is high.
2. If the electrode is not dried, it will cause unstable arc, welding defect increases and the quality is down.

The welding machine is a rectifier adopting the most advanced inverter technology.

The development of inverter gas-shielded welding equipment benefits for the development of the inverter power supply theory and components. Inverter gas-shielded welding power source utilizes high-power component MOSFET to translate 50/60Hz frequency up to 100KHz, then raise the voltage and commutate, and output high-power voltage via PWM technology. Because of the great reduce of the main transformer's weight and volume, the efficiency increases by 30%. The appearance of inverter welding equipment is considered to be a revolution for welding industry.

The welding power source can offer stronger, more concentrated and more stable arc. When stick and work piece get short, its response will be quicker. It means that it is easier to design into welding machine with different dynamic characteristics, and it even can be adjusted for specially to make arc softer or harder.

MMA welding machine has the following characteristics: effective, power saving, compact, stable arc, good welding pool, high no-load voltage, and good capacity of force compensation and multi-use. It can weld stainless steel, alloy steel, carbon steel, copper and other color metal. It can apply to electrode of different specifications on materials, including acidity, alkalescence, and fiber. It can apply in high altitude, the open air and inside and outside decoration. Compared with the same products of home and abroad, it is compact in volume, light in weight, easy to install and operate.

Thanks for purchasing our product and hope for your precious advice. We will decicate to produce the best products and offer the best service.

WARNING!
The machine is mainly used in industry. It will produce radio wave, so the worker should make fully preparation for protection.

Current	70-100A	110-160A	170-220A	230-280A

4. Knob or arc-striking drive is use to adjust welding function, specially in low current arranging, that is cooperated with knob of welding current adjustment, they may adjust current or arc striking and do out of control of knob of welding current adjustment. So machine can gain powerful energy and push current can achieve ideal that may.

5. The welding machine has been combined 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. Switch is on "ON" position then is using remote control device.

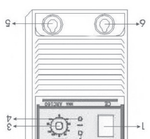
2）Insert plug of remote control in socket of remote control correctly and tighten firmly in order to prevent poor contact.

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.

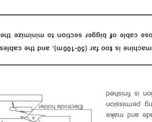
PANEL FUNCTION INSTRUCTION

ARC 400/350/300



FRONT PANEL:

If distance of work piece and machine is to 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.



6. According to input voltage grade, connect power cable with power supply box or relevant voltage grade. Make sure no mistake is made and make sure the voltage difference is among permission range After the above job, installation is finished and welding is available.

OPERATION INSTRUCTION

1. Turn on the power switch, the screen will show set current value and ventilator is beginning to run.
2. Adjust knobs of welding current and arc-striking function complete 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

1. Power supply (Single – 220V)
2. Earth clamp
3. Electrode holder
4. Pull-in balancing plug of the cable connecting socket of "+" terminal at the front panel, labelled a cockatoo, and the balancing machine has two connecting ways: positive connection and negative connection. Positive 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 installed earth clamp and qualification. If such problems occur, electrode is made, it will cause unstable arc, more spatters and qualification. If such problems occur, please change the polarity of the balancing plug.
5. Please pay attention to the connecting terminal. DC welding machine has two connecting ways: positive connection and negative connection. Positive connection, work piece with the"-" terminal, holder with the "+" terminal. Choose suitable way according to the working situation. If installed earth clamp and qualification. If such problems occur, please change the polarity of the balancing plug.

ARC160 INSTALLATION: