

(GB)

# INSTRUCTION MANUAL



## WARNING: BEFORE USING THE MACHINE READ THE INSTRUCTION MANUAL CAREFULLY! SAFETY RULES



- Avoid direct contact with the welding circuit, the no-load voltage supplied by the generator can be dangerous.
- Unplug the mains before installing and before making any check or repair operation.
- Accomplish mains connection according to general safety rules.
- Disconnect the power supply before replacing torch consumables.
- The welding machine should be connected only and exclusively to a power source with the neutral lead connected to earth.
- Make sure that the supply plug is correctly connected to earth.
- Do not use the machine in damp or wet places and do not weld in the rain.
- Do not use cables with worn insulation or loose connections.



- Always protect your eyes with fitting glasses. Use proper protective clothing and gloves and avoid exposing skin to the ultraviolet rays produced by the arc.
- Do not use the machine to defrost the piping
- Place the machine on a level surface to prevent overturning.

### GENERAL

This model is a constant current rectifier for arc welding controlled by a transistor bridge (IGBT/MOS) with normal frequency of 65kHz.

The specific characteristics of this regulation system (INVERTER) i.e. high speed and precise regulation, ensure a high quality result with both stick electrode and TIG welding (D.C.).

The "Inverter" system, regulated at the input of the primary mains, also allows for a drastic reduction in the volumes of both the transformer and the reactance. This reduction in volume and weight enhances the mobility of the machine.

The unit is comprised of power modules which have been developed on a specially printed circuit designed to maximise reliability and reduce maintenance.



- Do not weld on containers or pipes which have held flammable materials or gaseous or liquid combustibles.
- Avoid operating on materials cleaned with chlorinated solvents or near such solvents.
- Do not weld on containers under pressure
- Remove from working area all flammable materials (e.g. wood, paper, ...).
- Provide adequate ventilation or facilities for removal of welding fumes.
- Fasten the gas bottle with the appropriate belt or chain supplied with the machine.
- Keep the bottle away from heat sources, including direct sunlight.

## MMA MACHINE MAIN TECHNICAL DATE SHEET

MODEL ITERM	MMA60	MMA80	MMA95	MMA105	MMA125	MMA140	MMA160	MMA180	MMA200
Rated Input Voltage (V)	230	230	230	230	230	230	230	230	230
Input Capacity (KVA)	1.15	1.38	1.38	2.3	2.76	3.68	4.6	5.5	6.44
Frequency (HZ)	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
No-load Volatge (V)	59	59	59	59	59	59	59	65	65
Current Range (A)	5-60	5-80	5-95	5-105	10-125	10-140	20-160	20-180	20-200
Output Voltage (V)	22.4	23.2	23.8	24.2	25	25.6	26.4	27.2	28
Rated duty cvcle (%)	25	25	25	35	35	35	60	60	60
Efficiency (%)	85	85	85	85	85	85	85	85	85
Power factor Cos	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Applied Welding rod (mm)	0.8-1.6	0.8-2.0	0.8-2.0	0.8-2.5	0.8-2.5	0.8-2.5	1.6-3.2	1.6-3.2	1.6-4.0
Class of Insulation	H	H	H	H	H	H	H	H	H
Case Protection Degree	IP21	IP21	IP21	IP21	IP21	IP21	IP21	IP21	IP21
Weight (kg)	2.5/5.5	2.5/5.5	2.5/5.5	3.5/10	4/10	4/10	8/12	8/12	8/12
Dimention (cm)	43*14.3 *39.8	43*14.3 *39.8	43*14.3 *39.8	46.5*16.2* 46	46.5*16.2* *46	46.5*16.2* *46	47*24*38	47*24*38	47*24*38



## Output Cable Connection

1. Every machine has been disposed a pair of fasten plugs , another end of pincer cable is connected to black fasten plug and another grounding cable pincer is connected to red fasten plug . Furthermore , they must be tightened by spanner. Make sure secondary cables (holder and grounding cable) are connected to fasten plugs firmly ,or mobile plug will be burned up .
2. After fasten plug is inserted in fasten socket, make sure they has been tightened reliably . Or plugs and sockets will be burned up if they are operated long time with high current .That is very important .
3. Pay attention to electrode of cable.As DC welding machine,it has two connection methods :positive and negative . Positive connection is that work piece is connected to positive electrode and holder is connected to negative electrode; negative connection is that work piece is connected to regular electrode and holder is connected to positive electrode . Choose connection method according to welding process of work piece . If choose wrong that will cause unstable arc and much spatter and sticking to electrode . If run upon the fault ,replace fasten plugs each other .User does not think welding machine is damaged.

## Power Cable Connection

1. Every welding machine has been disposed once power cable ,make sure voltage class is adequate to once cable according to input voltage of machine .If welding machine of 220v power source voltage is connected to AC 380v power source because of carelessness ,that will cause machine into over voltage protection situation .Please close power switch and connect it again .The machine may be operated again after 2-3 minutes .
2. Make sure once power is connected to coordinated contact of power or socket reliably and prevent it from oxidizing .
3. Measure voltage volume if it is in waved arrange by AVO meter .

## Check

1. If welding machine is grounded reliably according with demands .
- 2.All contacts is connected firmly , specially between grounding cable pincer and work piece .
3. Secondary output cable is shortly connected to grounding cable .
4. Make sure secondary output electrode is correct .
5. If circuit protect device runs, leakage current must be max 30A
6. Spatter of machine can cause fire , so make sure if there are combustibles in welding environment .



## OPERATION

### Operation Description

1. Open the power switch, screen will show set current volume and ventilator is beginning to revolve (MMA160 has no screen of meter).
2. Adjust knobs of welding current and arc-striking push, make welding function comply with demands (MMA160 has no knob of arc-striking drive, drive is increased in proportion.)
3. Generally, welding current is adequate to welding electrode according with as follows:  
 $\Phi$  2.5:70-100A;       $\Phi$  3.2: 110-160A;  
 $\Phi$  4.0:170-220A;       $\Phi$  5.0:230-280A.
4. Knob of arc-striking drive is used to adjust welding function, specially in low current arrange, that is cooperated with knob of welding current adjustment, they may adjust current of arc-striking and be out of control of knob of welding current adjustment. So machine can gain powerful energy and push current can achieve effect that may imitate DC welder revolving.
5. If welding machine has been coordinated remote control device:
  - 1) Make sure the switch position of remote control device before operation. If switch is on "OFF" position that is out of remote control. Switch is on "ON" position that 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 be used, make sure the switch is on "OFF" position, or welding current will not be adjusted on panel.
  - 4) When machine is being transported, if the switch of remote control is not on correct position, it will cause welding adjustment out of work. By bump Please pay attention to it.

### Allowable Duty Cycle

1. Operation complies with duty cycle strictly.
2. Inter-variable components is working if duty cycle is exceeded arrange. That will cause welding machine stop working suddenly. With this situation, make fan continue working in order to cool down temperature of inter-machine, after 2-3 minutes machine will be operated again (change with temperature of environment and ventilation).



## **NOTES**

### **Operation Environment**

1. The machine can perform in environment where conditions are particularly harsh and with outside temperature between -10 and +40 degrees centigrade , with a dampness level of max 80%.
2. Do not operate machine in sunshine or drippings .
3. Do not operate machine in environment polluted with much dust or gas with corrosive.

### **Safety**

1. Make sure the working area is adequately ventilated .  
Welding machine is light and its structure is compact .The electromagnetic fields generated by the high currents . So natural wind is not satisfy in cooling down components .there is axial-flow fan in inter-machine in order to force to cool down it .

NOTES : Two ends of machine and exhaust shutter must not be in block or covered ,it is 0.3 m from machine to environment objects .Make sure keep improving ventilated situation ,it is very important to machine .

### **2. No over-load !**

Limited to welding current strictly according to max allowable current of all kinds of duty cycles . Do not exceed load working in order to prevent from shorting use lifetime of welding machine even burning up machine .

### **3. No over-voltage !**

Power voltage of welding machine is according to main technical data sheet .With this situation ,automatic compensation circuit of voltage may ensure that welding current will not exceed to allowable volume .If power voltage is exceeded to allowable volume ,that may cause damage to components .Please be more careful .

# Maintenance and check trouble

## Maintenance

- 1.Remove dust by compressed air regularly,generally if machine is operated in environment where is polluted with much dust and smoke, welding machine must be removed dust twice every month.
- 2.Pressure is a dequate to welding machine in order to protect little components.
- 3.Check the electrify connectors and make sure the connectors are connected firmly(specially connectors and inserts).Tighten the relaxing connector, if components is oxidized ,these oxide must be get rid of and connect then again.
- 4.Avoid water and steam enter into inter-machine ,if machine has been affected with damp, please dry inter-machine and cheak insulation of machine.
- 5.If the machine will not be used for a long time, it must be put in its own packing box and stored in dry environment.
- 6.Do not throw and bump machine.

## Check Trouble

Trouble	Resolvable methods
1.Indicator of power switch is not light, fan is not working and there is no welding output.	1.Make sure power switch is close. 2.Make sure electrify wire net(which is connected to input cable )is in work.
2.Power indicator is light, fan does not work and there is no welding output.	1.Maybe be connected wrong to 380v power cause machine is in protection circuit,connect to 220v power and operate machine again. 2. 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. 3.Open and close power switch in short time cause protection circuit is working . Close machine and open it again after 2-3 minutes. 4.Cables are relaxed between power switch and power source board,tighten then again. 5.Main circuit 24v relay of power source board is not closed and has damaged. Check 24v power source and relay.If relay has damaged ,replace it.

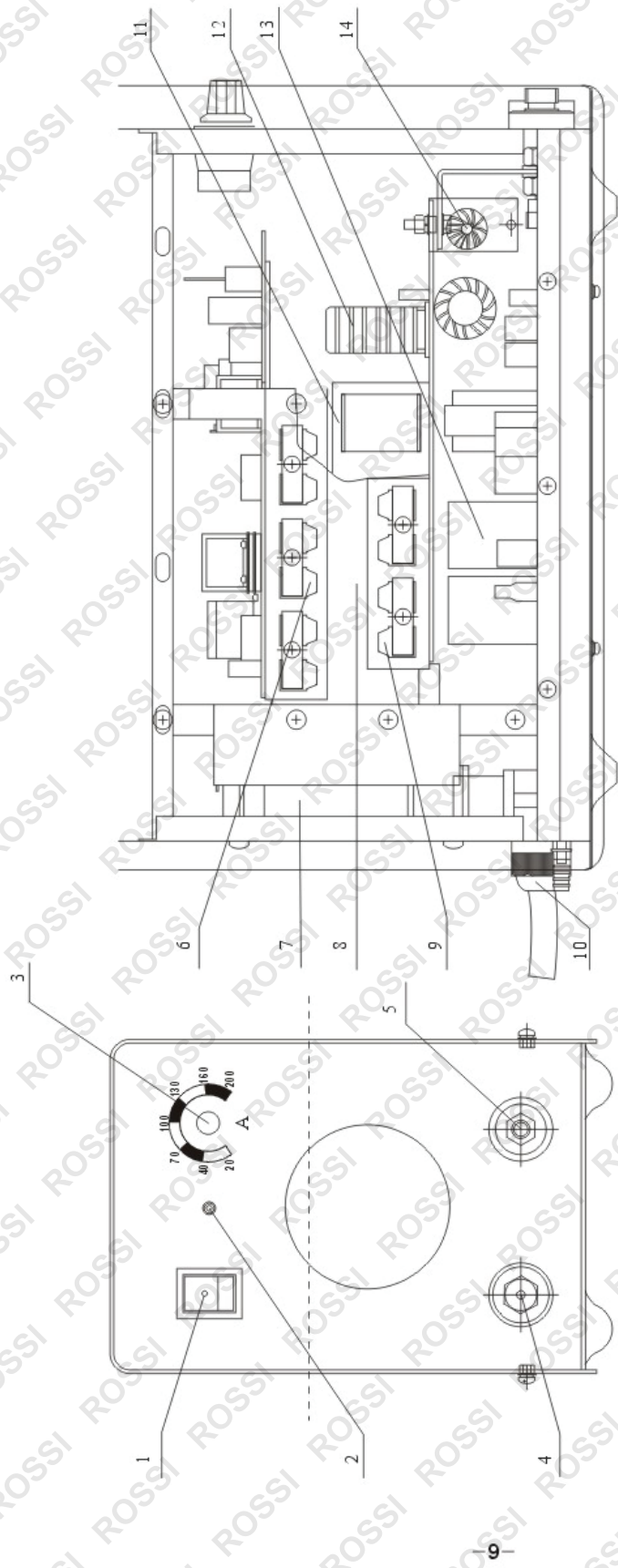


3.Fan is working, welding current is not stabilizing or out of potential control, current is sometimes low and sometimes high.	1.Quality of 1K poteneial goes wrong, replae it. 2.Terminal of output is broken circuit or poor connect.
4.Fan is working and abnormal indicator is not light,there is no welding output.	1.Check if components is poor connect. 2.Check if connector of output terminal is broken circuit and poor connect. 3.Check voltage between power source board and MOS board (VH-07) is about DC 308v. (1)Check if silicon bridge is broken circuit and cable of silicon bridge is poor connect. (2)Some of four electrolysis capacitors(about 470uf/450v) is leaking,replace it. 4.If green indicator is not lit in assistant powerof MOS board, please contact with seller and replaceit. If there is some question in control circuit,please contact with seller and replace it.
5.Fan is working and abnormal indicator is light, but there is no welding output.	1.Maybe over-current protection is working,please turn off machine and waiting . After abnormal indicator is not on , turn on machine. 2.Maybe overheated protection is working , wait for 2-3 minutes. 3.Maybe inverter circuit is in fault ,please pull up the power plug of main transformer(near VH-07fan)which is on MOS board then turn on the machine again. (1)If abnormal indicator is still light, some of MOS board is damaged , check and replace it. (2)If abnormal indicator is not light: a.Maybe transformer of middle board is damaged , measure primary inductance volume and Q volume of main transformer by indutance bridge, Primary volume is parallel circuit , $L=1.2-2.0Mh$ , $Q>40$ 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. 4.Maybe feedback circuit is in fault.

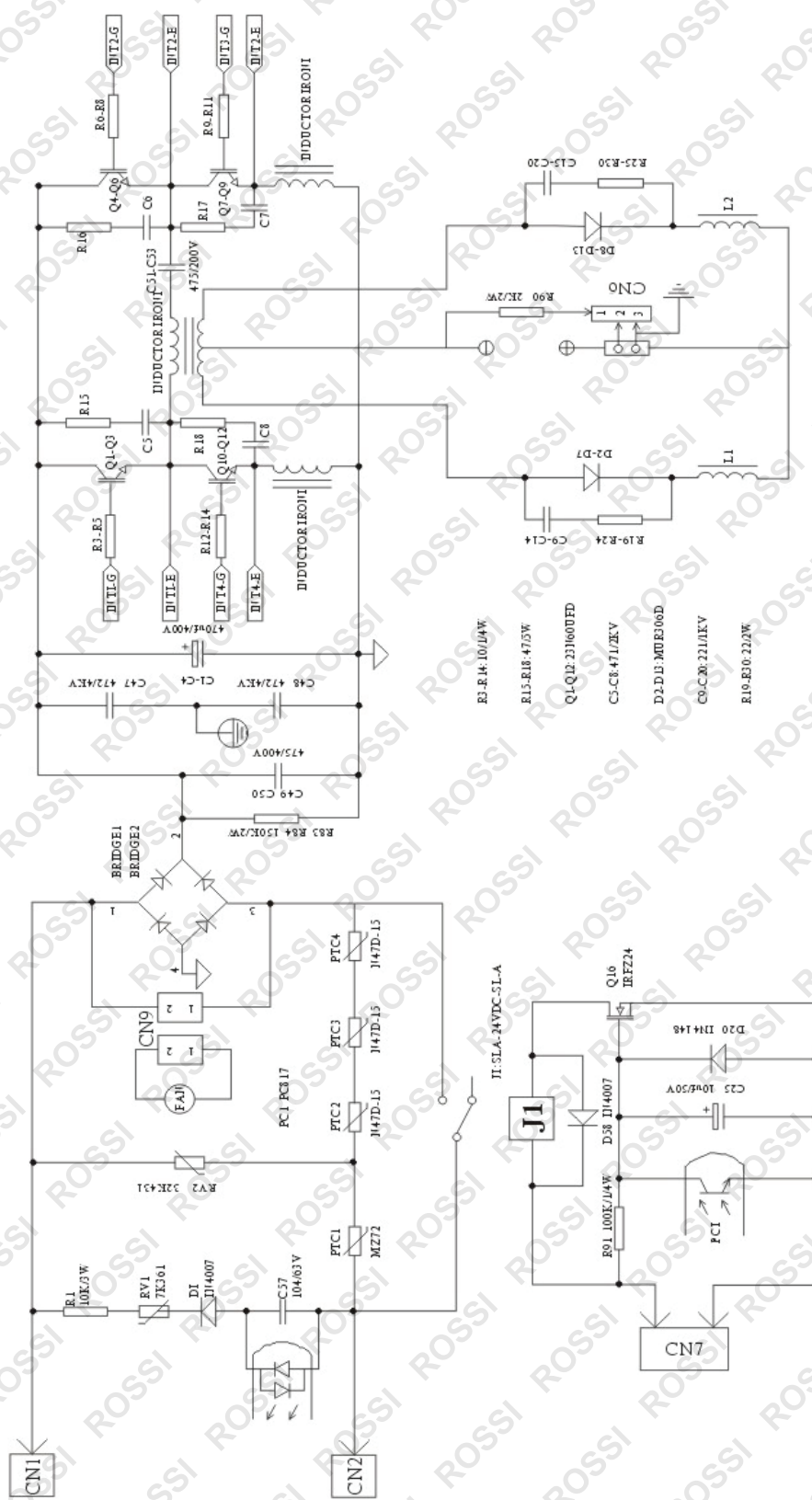
- 1.Maintenance for one year since the date of purchase.
- 2.During maintenance,if machine is not damaged artificially, it can be repaired free. Out of maintenance, users have to pay cost of components only
- 3.Users do not dismantl or refot or replace electric components by oneself. Or users have to accept the consequences.







1	switch	5	output" + "	9	quick resume diode	13	capacitor
2	pilot lamp	6	module mostfet	10	input power	14	anti-jamming loop
3	current adjustor	7	cooling vent	11	transformer		
4	output" - "	8	radiator	12	reactor		





## CERTIFICATE

Name: \_\_\_\_\_

Model: \_\_\_\_\_

Identification No.: \_\_\_\_\_

Date: \_\_\_\_\_

Tested the products with firms criteria for granting identification.

## WARRANTY CARD

User's name: \_\_\_\_\_

Purchase date: \_\_\_\_\_

Full address: \_\_\_\_\_

REPAIR DATE	FAILURE PHENOMENON	MAINTENANCE CONTENT	MAINTENANCE PERSON	FEES	REMARK
1					
2					
3					
4					

## PACKING LIST OF MANNUL ARC WELDING MACHINE SERIES

NAME	MODEL/SPECIFICATION	QUANTITY(PIECE)
MAINFRAME	MMA60	
	MMA80	
	MMA95	
	MMA105	
	MMA125	
	MMA140	
	MMA160	
	MMA180	
	MMA200	
ELECTRODE HOLDER	STANDARD	1
EARTH CLAMP	STANDARD	1
WELDING MASK	STANDARD	1
BRUSH	STANDARD	1
CABLE 1.8M+1.2M	STANDARD	1
USER MANUAL	STANDARD	1
USER'S MANUAL/ CERTIFICATE/ WARRANTY CARD		1

Note: 1. The company products mainframe warranty period is one year, invited users to keep warranty cards.

2. Please check the box after carefully checking whether the items included in the list of items to the name, specifications, and quantity consistent enquiries. Please contact the distributor if you have any doubts or direct enquiries to the company.



**Some experts believe the incorrect or prolonged use of almost any product could cause serious injury or death. For information that may reduce your risk of serious injury or death consult the points below and additionally, the information available at [www.datastreamserver.com/safety](http://www.datastreamserver.com/safety)**

- Consult all documentation, packaging and product labelling before use. Note that some products feature online documentation which should be printed and kept with the product.
- Check product for loose / broken / damaged / missing parts, wear or leaks (if applicable) before each use. Never use a product with loose / broken / damaged / missing parts, wear or leaks (if applicable).
- Products must be inspected and serviced (if applicable) by a qualified specialist every 6 months assuming average residential use by a person of average weight and strength, above average technical aptitude, on a property matching average metropolitan specification. Intended use outside these guidelines could indicate the product is not suitable for intended use or may require more regular inspection or servicing.
- Ensure all possible users of the product have completed an industry recognised training course before being given access to the product.

- The product has been supplied by a general merchandise retailer that may not be familiar with your specific application or your description of the application. Be sure to attain third party approval for your application from a qualified specialist before use regardless of prior assurances by the retailer or its representatives.
- This product is not intended for use where fail-safe operation is required. As with any product (take an automobile, aircraft, computer or ball point pen for example) there is always a small chance of a technical issue that needs to be repaired or may require replacement of the product or a part. If the possibility of such failure and the associated time it takes to rectify could in any situation inconvenience the user, business or employee or could financially affect the user, business or employee then the product is not suitable for your requirements. This product is not for use where incorrect operation or a failure of any kind, including but not limited to a condition requiring product return, replacement, service by a technician or replacement of parts could cause a financial loss, loss of employee time or an inconvenience requiring compensation.
- If this item has been purchased in error considering the points above simply contact the retailer directly for details of their returns policies if required.