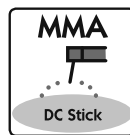
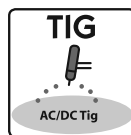


UNI-MIG
WELDING



AC/DC TIG/MMA200

Manual





2 YEARS Warranty*

Machine Model

Description

AC/DC TIG/MMA 200

Part Number

KUMJR200AC/DC

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Machine Model

This welding equipment for industrial and professional use conforms to IEC 60974 International Safety Standard.

We hereby state that we provide two years of guarantee for this welding equipment from the date of purchase.

Please read and understand this instruction manual carefully before the installation and operation of this equipment.

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

This instruction manual is issued on 1st Mar 2007.

SAFETY

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

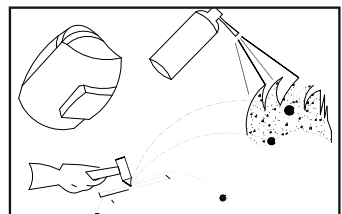
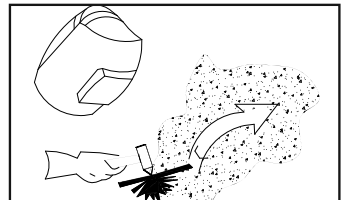
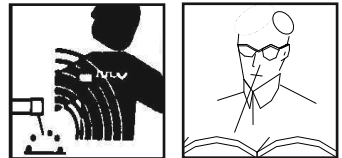
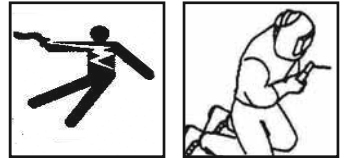
- Do not switch the function modes while the machine is operating.
Switching of the function modes during welding can damage the machine.
Damage caused in this manner will not be covered under warranty.
- Disconnect the electrode-holder cable from the machine before switching on the machine, to avoid arcing should the electrode be in contact with the work piece.
- A safety switch is necessary to prevent the equipment from electric leakage.
- Welding tools and accessories should be of high quality and in good working order.
- Operators should be trained and or qualified. Electric shock: It can kill.
- Connect the primary input cable according to Australian standard regulation.
- Avoid all contact with live electrical parts of the welding circuit, electrodes and wires with bare hands. The operator must wear dry welding gloves while he/she performs the welding task.
- The operator should keep the work piece insulated from himself/herself. Smoke and gas generated whilst welding or cutting can be harmful to people's health.
- Avoid breathing the smoke and gas generated whilst welding or cutting. Keep the working area well ventilated.
- Arc rays are harmful to people's eyes and skin. Always wear a welding helmet and suitable protective clothing including welding gloves whilst the welding operation is performed.
- Measures should be taken to protect people in or near the surrounding working area, from all hazards associated with welding.

Fire hazard

- The welding sparks may cause fire, therefore remove flammable material away from the working area.
 - 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 hearing protection when noise levels are high.

Machine fault:

- Consult this instruction manual.
- Contact your local dealer or supplier for further advice.



*** CAUTION ***

Do not heat, cut or weld tanks, drums or containers until the proper steps have been taken to insure that such procedures will not cause flammable or toxic vapours from substance inside. These can cause an explosion even though the vessel has been "cleaned". Vent hollow castings or containers before heating, cutting or welding. They may explode.



GENERAL DESCRIPTION & SAFEGUARDS

These are a newly developed TIG AC/DC P range of AC/DC and Pulse Welding Machines. DC function allows the welding of stainless steel, alloy steel and carbon steel and other nonferrous metals. AC function allows the welding aluminum and aluminum alloys.

The machine is equipped with Pulse function, selection of the pulse function provides adjustable pulsation of the welding current. Therefore providing better control of the welding and control of the heat input to the work piece during some applications.

The power exchange rates of this welding equipment are over 85, and it is energy-saving.

The model type available is TIG 200P AC/DC.

The development of Inverter technology of welding machines has many benefits. The invention of high power switching components enables these TIG welding machines to function with HF of 100KHz, thus reducing the volume and weight of the main components (transformers and electric reactor). The application of PWM (Pulse Width Modulation) technology enables the concentration and stability of the welding current and much more precision of the current adjustment. The unique structuring design enables ease in the disassembly and maintenance of this welding equipment and maximizes the EMI.

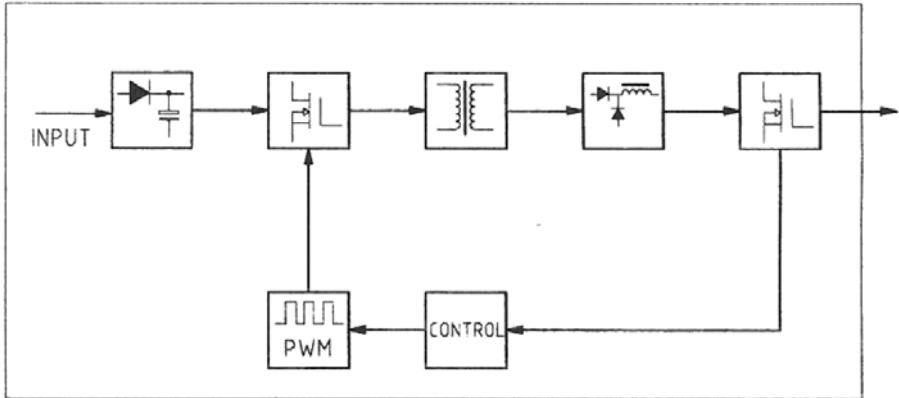
Exclusive HF Inverter technology, TIG ACDC P series provides many advantages in comparison to the traditional welding equipment. Smaller in size, lighter in weight, higher power efficiency rate and more energy saving. The most outstanding feature is the application of Twin Square Wave Inverter Technology.

This provides pure AC square wave output, which increases the arc stability and provides stronger arc energy, better reverse cleaning capability, wider cleaning width, and superior arc sustainability. The excellent welding characteristics of this welding equipment provide a new dimension to welding of aluminum and aluminum alloys.

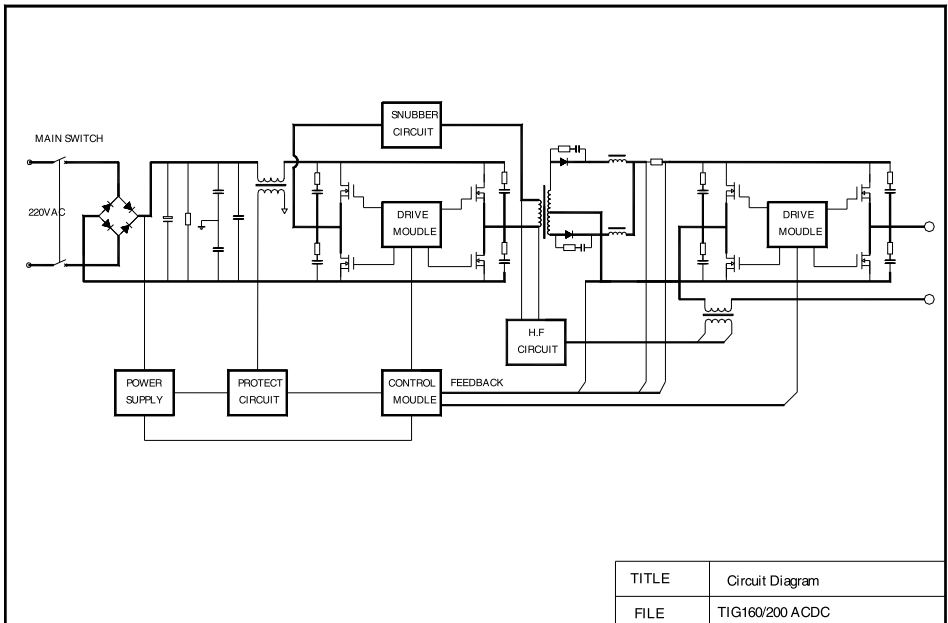
A remote foot control pedal is available to provide easy adjustment of the output current range. Use of the foot control pedal allows the operator variable control over the output current range during welding. Using the remote foot control can improve welding efficiency and welding performance.

A range of necessary welding accessories such as welding torch, earth lead, arc lead, gas lead, gas regulator, and other accessory items are available for this Inverter TIG AC/DC welding equipment. Please contact your supplier / agent for advice and recommendation of accessory items.

CIRCUIT DIAGRAM



Three Phase Input



TITLE	Circuit Diagram
FILE	TIG160/200 ACDC



MAIN PARAMETER

Machine Model

Description

Part Number

TIG200P AC/DC

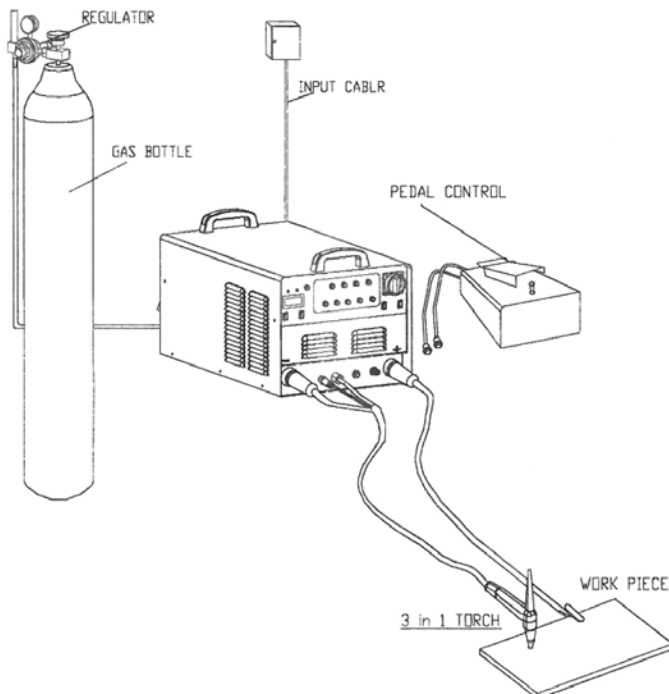
KUMJR200AC/DC

Technical Specification

Power voltage	AC240V±15%
Input Frequency (Hz)	50/60
Rated Maximum Supply current MMAI1max	24A
Maximum Effective Supply current MMAI1eff	17A
Rated Maximum Supply current TIGI1max	20.7A
Maximum Effective Supply current TIGI1eff	14.6A
Power rating	5.8 KVA
Rated output current	185A
Range of output current	10-185A
Arc force %	0-100
No-load voltage	56V
Working voltage TIG	10.4 - 17.4V
Pre-flow %	0-2
AC Balance/Clean width %	20-80
Slope-down time	0-10
Post-flow time	0-10
Base current %	10-90
Pulse frequency Hz	0.5-300
Pulse duty cycle %	10-90
Remote control	Yes
Arc Ignition	HF ignition
Efficiency %	85
Load duty cycle TIG %	185A-20% (40oC)
Power factor	0.93
Insulation class	F
Protection class	IP21S
Weight (Kgs)	26.5
Size (mm)	500 Lx320 Wx365 D

Pre-Operative Check List

- 1) The welding machine has automatic compensation for primary input voltage fluctuation. The welding machine will still operate within +/- 15% of the required primary voltage input. Please check the primary input voltage supply before connecting the machine. Connection to incorrect primary voltage supply may damage the machine. Warning ! : Connection to incorrect primary voltage supply will void warranty.
- 2) The cross sectional area of the primary lead is important. It is necessary to provide the correct cross sectional area of cable when using long extension leads. To avoid any machine operational faults when using long extension leads please ensure the recommended length and across sectional area of cable are optimal.
- 3) Check that you have adequate Argon gas supply. Connect the machine to the gas supply and check for leaks.
- 4) Connect input and output cable as following drawing.
- 5) The welding operation is obtainable only if the above procedures are completed.






INSTALLATION & OPERATION

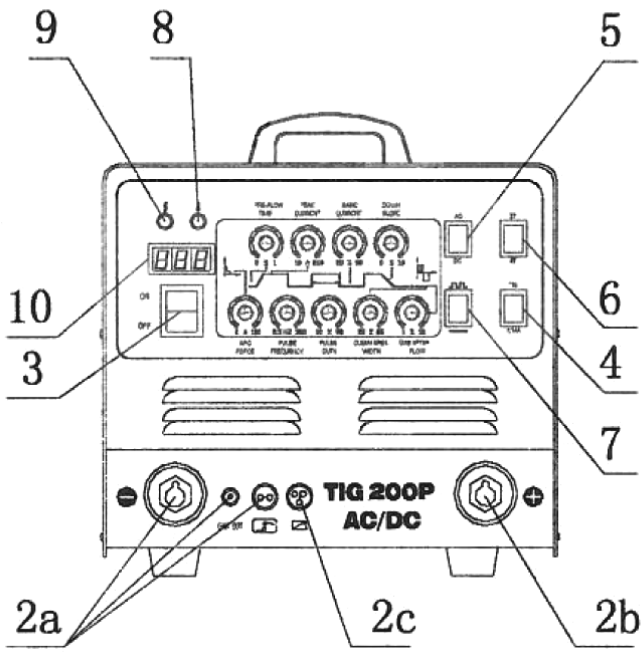
1.Connection of Input Cables

Primary input cable is supplied with this welding equipment. Connect the primary input cable with power supply of required input voltage. Refer to data plate on machine for Input voltage, IMAX and IIEFF.

2.Connection of Output Cables

- 2a.** Connect the three connectors of the Tig Torch cable assembly as follows: 2 Pin Plug of trigger switch cable into the receptacle.  Connect the gas lead fitting to the "GAS" connection, then connect the power cable twist lock connector to **negative "-" terminal** socket on the front panel of the machine and fasten it tightly in a clockwise direction. Ensure all connectors are tight and fastened correctly according to the drawing.
- 2b.** Connect the twist lock connector of the earth cable to **positive "+" terminal** socket on the front panel of the machine and fasten it tightly in a clockwise direction. Connect the earth clamp to the work piece.
- 2c. Remote Foot Control Option:** For connection of the *remote foot control pedal*, connect the 2 pin plug to the  connector and the 3 pin plug to the  connector on the front panel of the machine.

TIG200P ACDC



INSTALLATION & OPERATION

Selector Switches.

3. **Main switch:**

The power switch turns the machine on and off.

4. **AC/DC Selector Switch.**

Select "ARC" for MMA welding

Select "TIG" for Tig welding.

5. **AC/DC Selector Switch.**

Select "AC" for Aluminum and Aluminum Alloys.

Select "DC" for Stainless Steel, Steel, and Cast Iron etc.

6. **2T / 4T Selector Switch.**

Selection of "2T" provides 2 times function of the torch switch.

(1) Pressing the torch switch provides arc ignition and initializes the welding current.

(2) Releasing the torch switch introduces down slope time to minimum current level and then terminates the welding current and introduces the post flow gas. Selection of "4T" provides 4 times function of the torch switch.

(1) Pressing the torch switch provides arc ignition and initializes the welding current.

(2) Releasing the torch switch continues the welding operation.

(3) Pressing the torch switch introduces down slope and current falls to base current level.

(4) Releasing the torch switch terminates the welding operation and introduces the post flow gas.

7. **PULSE Selector Switch.**

(Available only on "P" Models)

Selection of the Pulse mode switch provides pulsed welding current output.

LED Indicator Lights

8. **Thermal Overload Indicator.**

To prevent damage of internal components due to overheating and or exceeding the duty cycle a Thermal Overload will activate causing the LED to light up and welding to terminate. Do not turn off the machine; the fan will assist it to recover after 2 or 3 minutes and return it to operational temperature level.

9. **Indicator of abnormal operation.**

If the machine has an abnormal operation, such as touching the electrode to the workpiece when welding will result in the LED light, lighting up. Turn off the power supply and restart the machine to see if it's normal again; if not, please return machine for service.

10. **Digital meter.**

Indicates the welding current output.



INSTALLATION & OPERATION

1.Connection of Input Cables

11. Pre-flow Gas Timer:

Provides pre-flow gas to purge tig torch gas line prior to the initialization of the arc. Adjustment is 0-2sec.

12. Welding Current Control:

For adjustment and setting of the main welding current.

13. Base Current Control:

(Available Pulse Model Only) For the adjustment and setting of the base current in Pulse mode.

The set value is a percentage of the main welding current.

14. Down Slope Control:

Approaching the end of the weld time the welding current can be reduced gradually until it stops, this prevents craters and pin holes and is referred to as “down slope”.

This dial is for the adjustment and setting of the down slope time.

Adjustment is 0-10sec.

Note: When using the remote foot control set the dial to “0”.

15.Arc Force Control:

(Available Pulse Model Only). Applies only in MMA mode. This dial adjusts the characteristic of the welding arc from forceful arc at maximum to soft arc at minimum.

16.Pulse Frequency Control:

(Available Pulse Model Only). This dial is for the adjustment and setting of the pulse frequency when the machine is set in Pulse mode.

Adjustment is 0.5-300Hz.

17. Pulse Width:

(Available Pulse Model Only). This dial is for the adjustment and setting of the on time of the peak current (pulse width) when the machine is set in Pulse mode. Adjustment is 10% – 90%.

18. AC Balance Control:

In AC TIG welding, the current exchanges between positive and negative directions. When current flow is from tungsten to work piece it is in a positive (+) direction, the arc energy is stronger at the tungsten and is good for removing the oxidized surface of the work piece. However too much + current flow can drive too much energy to the tungsten causing it to overheat and melt the tungsten electrode.

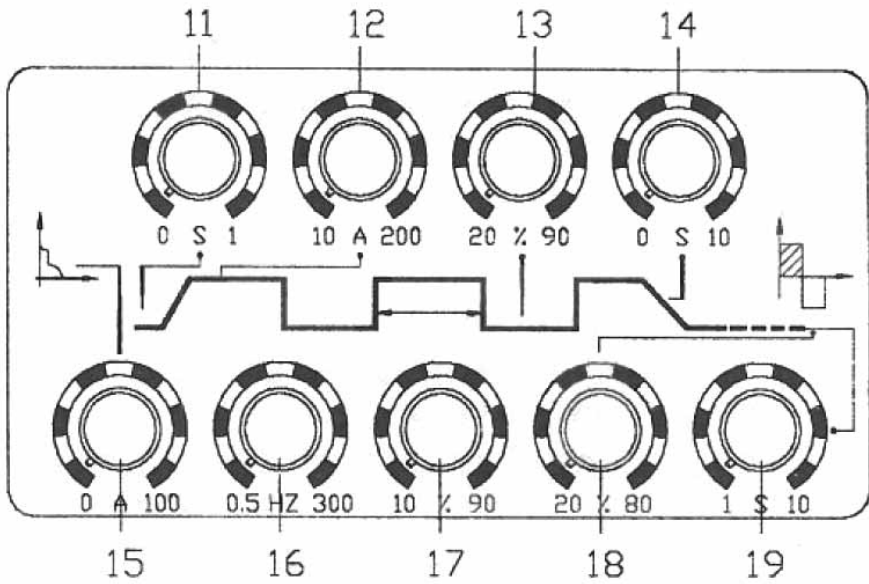
When the current flow is from work piece to tungsten it is in a negative (-) direction, the arc energy is greater at the work piece providing better penetration and the tungsten heats up less. The arc stability is good and ideal for most AC welding situations.

The dial is for adjusting the current flow time between positive and negative. When set at the middle the proportion is 50%. When set at the maximum it is 80% and at the minimum it is 20%. Adjusted in a clockwise direction, the positive current flow time is longer and negative flow is less, and vice versa.

19. Post Flow Gas Timer:

This dial provides an after flow of gas when the welding arc is extinguished. Post flow gas prevents contamination of the molten pool and tungsten electrode during cool down cycle. Adjustment 0-10sec.

Panel board of TIG PAC/DC





INSTALLATION & OPERATION

Instructions for “AC” Tig Welding.

1. Select “AC” mode.
2. Switch on the power source, the machine will energize and the on demand fan will operate.
3. Set the gas flow at the regulator (refer to Parameter).
4. Set the balance according to the degree of oxidization of work piece or preference of arc characteristic.
5. Set the main welding current as required.
6. Press the switch of the welding torch, the gas valve will activate and release gas flow and you will hear the static of the HF points working.
Note: Please press the switch of the welding torch for several seconds to allow the gas flow to purge the gas line of any impurities.
7. Adjust the time of “pre-gas”, “post-gas” and “down slope time” according to the application.
8. The machine is now ready for welding in AC standard mode.

The following steps are available only with “Pulse” Models

9. Select “Pulse” option if required. Set main welding current as required, set “Base” current as required (suggest 40%), Set “Pulse Hz” (suggest 1-2Hz), set “Pulse Width” (Suggest 50%)
10. Adjust the time of “pre-gas”, “post-gas” and “down slope time” according to the practical application.
11. The machine is now ready for welding in AC pulse mode.

Notes:

The remote foot control is optional according to the required application. When connecting the remote foot control set the main weld amperage dial on the front panel to 0 A. When the remote foot control is connected the weld amperage is adjusted variably by depressing the foot pedal.

The distance between tungsten and work piece should be maintained strictly in the range of 2mm to 4mm and a gas flow of between 6 -12 l/min is recommended.

INSTALLATION & OPERATION

Instructions for DC TIG Welding

1. Select “DC” mode.
2. Switch on the power source, the machine will energize and the on demand fan will operate.
3. Set the gas flow at the regulator (refer to Parameter).
4. Set the main welding current as required.
5. Press the switch of the welding torch, the gas valve will activate and release gas flow and you will hear the static of the HF points working.
Note: Please press the switch of the welding torch for several seconds to allow the gas flow to purge the gas line of any impurities.
6. Adjust the time of “pre-gas,” “post-gas” and “down slope time” according to the application
7. The machine is now ready for welding in DC standard mode

The following steps are available only with “Pulse” Models

8. Select “Pulse” option if required. Set main welding current as required, set “Base” current as required (suggest 30%), Set “Pulse Hz” (suggest 10Hz), set “Pulse Width” (Suggest 50%)
9. Adjust the time of “pre-gas,” “post-gas” and “down slope time” according to the practical application.
10. The machine is now ready for welding in DC pulse mode.

Notes:

The remote foot control is optional according to the required application. When connecting the remote foot control set the main weld amperage dial on the front panel to 0 A. When the remote foot control is connected the weld amperage is adjusted variably by depressing the foot pedal.

The distance between tungsten and work piece should be maintained strictly in the range of 2mm to 4mm and a gas flow of between 6 -12 l/min is recommended.



PRE-CAUTIONS

1. Working Environment.

- 1.1 The environment in which this welding equipment is installed must be free of grinding dust, corrosive chemicals, flammable gas or materials etc, and at no more than maximum of 80% humidity.
- 1.2 When using the machine outdoors protect the machine from direct sun light, rain water and snow etc; the temperature of working environment should be maintained within -10°C to +40°C.
- 1.3 Keep this equipment 30cm distant from the wall.
- 1.4 Ensure the working environment is well ventilated.

2. Safety Tips.

- 2.1 Ventilation This equipment is small-sized, compact in structure, and of excellent performance in amperage output. The fan is used to dissipate heat generated by this equipment during the welding operation.

Important: Maintain good ventilation of the louvers of this equipment. The minimum distance between this equipment and any other objects in or near the working area should be 30 cm. Good ventilation is of critical importance for the normal performance and service life of this equipment.

2.2 Thermal Overload protection.

Should the machine be used to an excessive level, or in high temperature environment, poorly ventilated area or if the fan malfunctions the Thermal Overload Switch will be activated and the machine will cease to operate.

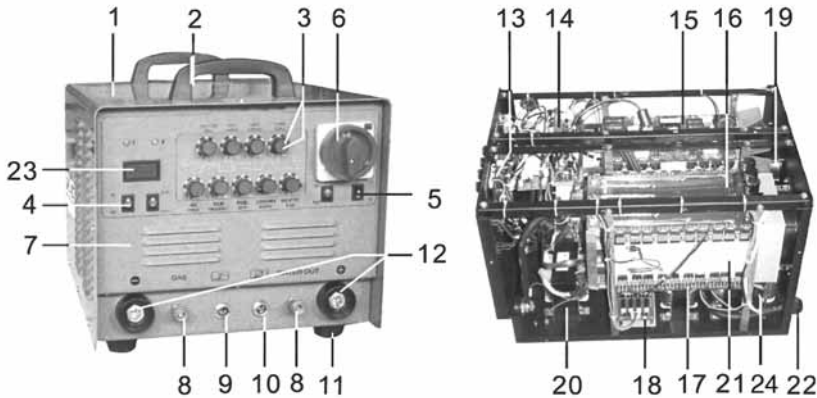
Under this circumstance, leave the machine switched on to keep the built-in fan working to bring down the temperature inside the equipment. The machine will be ready for use again when the internal temperature reaches safe level.

2.3 Over-Voltage Supply

Regarding the power supply voltage range of the machine, please refer to “Main parameter” table. This equipment is of automatic voltage compensation, which enables the maintaining of the voltage range within the given range. In case that the voltage of input power supply amperage exceeds the stipulated value, it is possible to cause damage to the components of this equipment.

Please ensure your primary power supply is correct.

- 2.4 Do not come into contact with the output terminals while the machine is in operation. An electric shock may possibly occur.



Spare Parts

No	Description	WGA Part No.
1	Cover	J03245
2	Handle	J24005
3	Button	C14004
4	Function switch	C16009
5	Function switch	C16012
6	Main switch	C16001
7	Front panel	J02162
8	Fast-socket	J21009
9	Pilot-socket(2 pins)	C08146
10	Pilot-socket(3 pins)	C04002
11	Rubber foot	J24010
12	Coupling socket	C02015
13	Panel PCB	B04045
14	Control PCB	B04046
15	Top PCB(left)	B01024
16	Inverter PCB 1	B16007
17	Inverter PCB 2	B16008
18	AC Driver PCB	B05003
19	Fan	D28005
20	Inductance	D16212
21	Heat sink	J20031/J20032
22	Input cable	C09013
23	Digital meter	D20006
24	EMC Filter Board	

The layout of the following machines is similar to the above photo, but some critical parts may be different.

MAINTENANCE

WARNING:

Exposure to extremely dusty, damp, or corrosive air is damaging to the welding machine. In order to prevent any possible failure or fault of this welding equipment, clean the dust at regular intervals with clean and dry compressed air of required pressure.

Please note that: lack of maintenance can result in the cancellation of the guarantee; the guarantee of this welding equipment will be void if the machine has been modified, attempt to take apart the machine or open the factory-made sealing of the machine without the consent of an authorized representative of the manufacturer.

TROUBLESHOOTING

Caution:

Only qualified technicians are authorized to undertake the repair of this welding equipment. For your safety and to avoid Electrical Shock, please observe all safety notes and precautions detailed in this manual.

WARRANTY

- 2 Years from date of purchase.

• Welding Guns of Australia Pty Ltd warranties all goods as specified by the manufacturer of those goods. This Warranty does not cover freight or goods that have been interfered with. All goods in question must be repaired by an authorised repair agent as appointed by this company. Warranty does not cover abuse, mis-use, accident, theft, general wear and tear. New product will not be supplied until

Welding Guns of Australia Pty Ltd has inspected product returned for warranty and agree's to replace product. Product will only be replaced if repair is impossible. If in doubt please ring.



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For further information please call Welding Guns of Australia Pty Ltd.

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UNIMIG pursue a policy of continuous research and development, and therefore reserve the right to change the specifications, or design, without prior notice. • 2 year warranty power source.