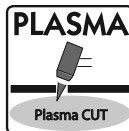
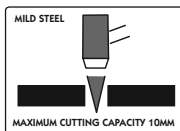


UNI-MIG
WELDING



PLASMA CUT40

Inverter Air Plasma Manual





2 YEARS Warranty*

Machine Model

Description	Part Number
Plasma Cut 40	KUPJR40

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EC DECLARATION OF CONFORMITY

Hereby we declare that our machines for industrial and professional use as stated below:

Type: CUT40

Conform the EMC Directives: 73/23/EEC and 89/336/EEC
European Standard: EN/IEC60974

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.
This instruction manual is issued on Apr. 20th 2005.

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.

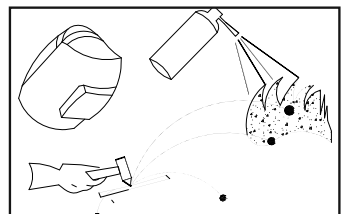
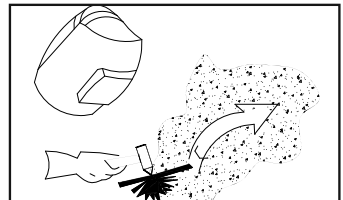
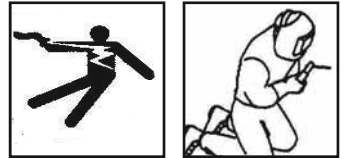
- Do not switch the function modes while the machine is operating.
Switching of the function modes during welding can damage the machine.
Damage caused in this manner will not be covered under warranty.
- Disconnect the electrode-holder cable from the machine before switching on the machine, to avoid 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.

2. GENERAL DESCRIPTION & SAFEGUARDS

The plasma cutting unit generates constant current and has been designed to cut metals. The cutting process is carried out through the melting of the metal caused by high temperature created by the electric arc between the torch electrode and the base metal. The molten material is removed by a high-speed jet of ionized gas (compressed air is the type of gas used).

This cutting machine is manufactured with advanced inverter technology. With high-quality component MOSFET and PWM technology, the inverter converts DC voltage, which is rectified from input AC voltage, to high 100KHz frequency AC voltage; as a consequence, the voltage is transformed and rectified. This results in a small size main transformer and light weight in the inverter plasma cutter.

EMC

Before installing the plasma cutting unit, carry out an inspection of the surrounding area, observing the following guidelines:

- 1 Make sure that there are no other power supply cables, control line, telephone leads or other equipment near the unit.
- 2 Make sure that there are no radio receivers or television appliances.
- 3 Make sure there are no computers or other control systems.
- 4 Make sure that there is no-one with a pacemaker or hearing aid in the area around the unit.
- 5 Check the immunity of any other equipment operating in the same environment. In certain cases additional protective measures may be required. Interference can be reduced in the following ways:
 - (5a) If there is interference in the power supply line, an E.M.C filter should be inserted between the main and the unit.
 - (5b) The output cables of the unit should be shortened; these should be kept close together and stretched along the ground.
 - (5c) All the panels of the unit should be correctly closed after carrying out maintenance.

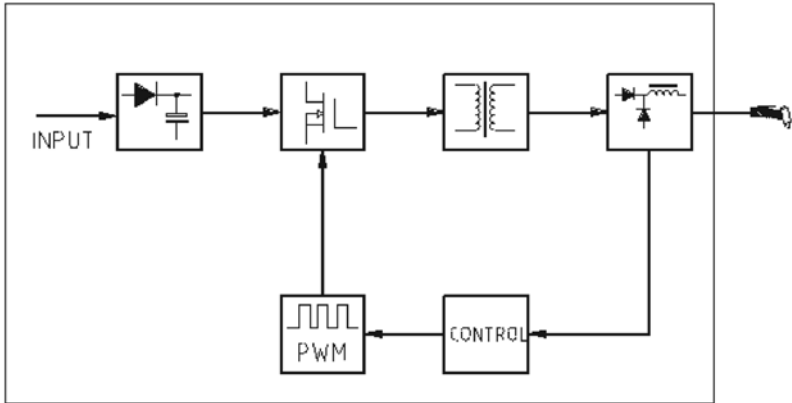
Our plasma cutting units are supplied with the following devices.

- 1 Thermal protection devices which are installed at the points most subject to high temperatures such as the power transformers and the rectifying units. A yellow light on the front panel lights up when the thermal protection device intervenes.
- 2 Electric shock protection device which prevents the operator from coming into contact with the live parts of the torch (such as the electrode) This consists in a safety device built into the body of the torch which breaks the main power circuit when the end part of the torch is removed to replace the electrode or the tip.

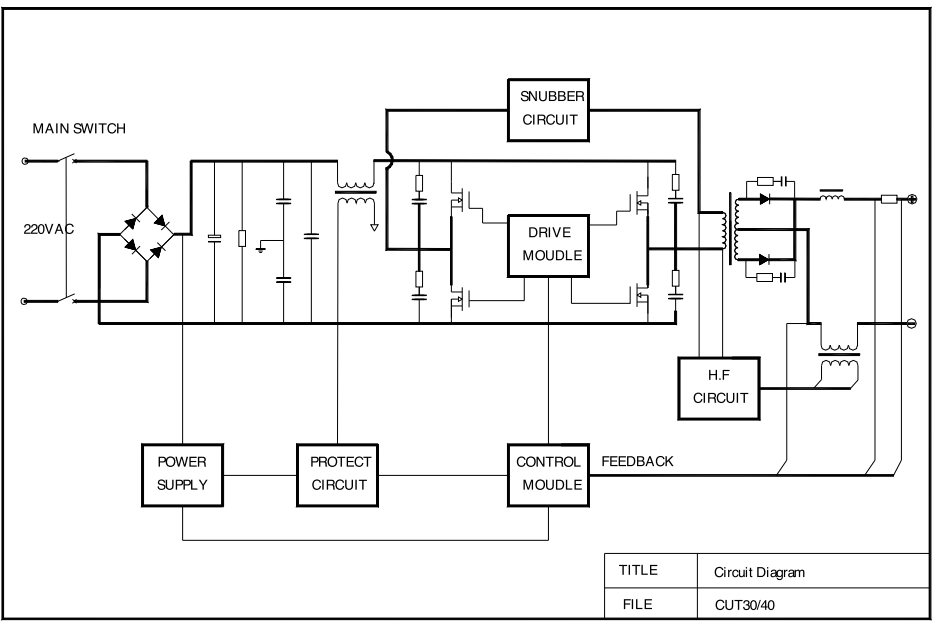
CAUTION:

A Pneumatic protection device which prevents damage to the torch due to operation with little or no air supply is not supplied on this machine. Therefore great care must be taken to ensure that the machine is always used with the correct clean dry air pressure at 4.8 bar 90/lit per min.

3. CIRCUIT DIAGRAM



Single Phase Input



TITLE	Circuit Diagram
FILE	CUT30/40



MAIN PARAMETER

Machine Model

Description	Part Number
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Plasma Cut 40	KUPJR40
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Technical Specification

Input voltage (V)	240V AC \pm 10%
Input Frequency (Hz)	50/60
Input capacitance (KVA)	6
No-load voltage (V)	230
Current range (A)	20-40
Output cutting voltage (V)	96
Rated duty cycle (%)	30% @ 40AMPS / 100% @ 25AMPS
Efficiency (%)	85
Power factor	0.93
Insulation class	B
Protection class	IP23
Arc Starting	Contact Arc Starting (HF)
Air flow (Litres/min)	90
Compressed air pressure	4.8 bar
Max. cutting thickness (mm)	10
Weight (Kg)	12
Size (mm) (LxWxH)	371x155x295
Made in China	

NOTE:

Your plasma cutting unit is fitted with sophisticated safeguards which block functioning and therefore the cutting operations until all the safety conditions are present. The plasma cutting technique requires dangerously high voltage for pilot arc starting and during cutting, therefore the following safety rules must be observed with great care:

INSTALLATION & OPERATION

INSTALLATION AND OPERATION

In order for the unit to function correctly, it must be installed properly.

Follow the procedure given below for correct installation:

- 1 Read the safety rules given in this manual carefully.
- 2 Check on receiving the unit that there are no defective parts or parts damaged during transportation.
- 3 Attach air regulator as show in diagram Regulator Installation.
- 4 Set your unit up in an area which is adequately ventilated and make sure that the air vents are not obstructed.
- 5 Prevent the fan from introducing dust or deposits into the machine.
- 6 Connect the power supply cable to a socket located as near as possible to the work area, so that the unit can be switched off quickly in case of emergency.
- 7 Your machine has a 15 AMP plug fitted, before use check that the green/yellow earth is connected to the earth pin socket of fitted plug.
- 8 Make sure that the mains supply switch and any fuses have a value which is the same or 20% above the maximum current absorbed by the unit.
All fuses should be the slow-blow type.
- 9 Any extensions of power supply cable should have the same cross-section as the power supply cable. The extension leads, however , should only be used when absolutely necessary. It is important to note that any extension of mains cables or torch cables will possibly affect the cutting performance of this cutting equipment, due to the fact that the resistance of the cable will reduce voltage input, which is determined by the length of the cable. The supplied length of main cables and torch cables is recommended.
- 10 Fasten the earth clamp to the piece to be cut, making sure that the piece to be cut and metal bench (if any) have been connected to earth by means of a cable with adequate cross-section. If the surface of the piece to be cut is painted, rusty or covered with insulating material, clean the surface so that satisfactory contact between the piece and the earth clamp can be obtained.
- 11 Make sure that the torch has been assembled with the correct components and that the cutting tip is suitable for the cutting current.
- 12 Connect air to regulator and adjust regulator to deliver 4.8 bar 90 ltr/min
- 13 Switch the unit on using the main switch located on the front panel.
- 14 Contact the copper tip of the torch to the work piece, press the button of the torch until the arc-starting and raise the cutting torch about 1mm above the work piece, and perform the cutting operation.
- 15 Once cutting is over, release the torch button to put out the arc. A period of post-flow time 45 to 75 seconds (required for torch cooling) will follow. Do not disconnect air until this cooling period has been completed. Failure to do this will result in torch head damage.

CAUTION:

Do not point the torch jet at foreign bodies

CAUTION:

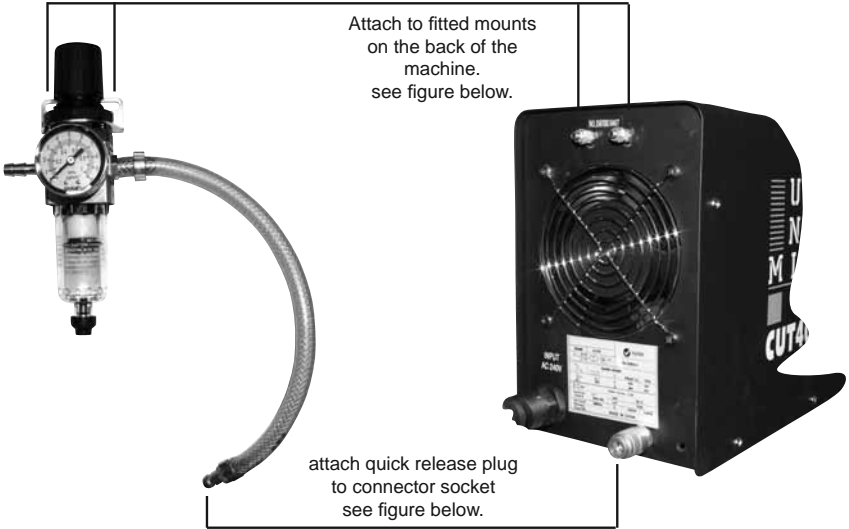
Avoid unnecessary lighting of the pilot arc to prevent excessive consumption of the electrode and nozzle.

CAUTION:

During cutting the speed of the torch movement should be in accordance with the thickness of the piece to be cut. Excessive speed causes a return of incandescent towards the torch which shortens the life of the parts of the torch most subject to wear and tear. The build-up of scale on the nozzle should be removed as soon as possible.

REGULATOR INSTALLATION

AIR REGULATOR



OPERATION

Of the torch

CAUTION:

Before inspecting or changing the parts of the torch, disconnect the power supply to the unit. Special tools are not required to replace torch parts. Simply unscrew the shield cup and all the components of the torch can easily be replaced.

CAUTION:

Unscrew the shield cup only after the cooling air flow has stopped (the observance of this precaution may damage the torch body)

- 1 Check the condition of the Electrode, Cutting tip and the Shield cup.
A worn electrode has a central 1.5-2mm deep crater.

New Electrode



Worn Electrode



- 2 Make sure that the hole in the cutting tip is not too wide or deformed.
An excessively wide or deformed hole may cause problems for the cutting arc.
- 3 Check whether the holes in the protective ring are clean. Blocked holes or a damaged ring may damage the torch due to overheating.
- 4 Check the condition of the torch sheath, making sure it has no parts which are worn or cut or signs of electrical discharge. Replace worn or damaged parts immediately.

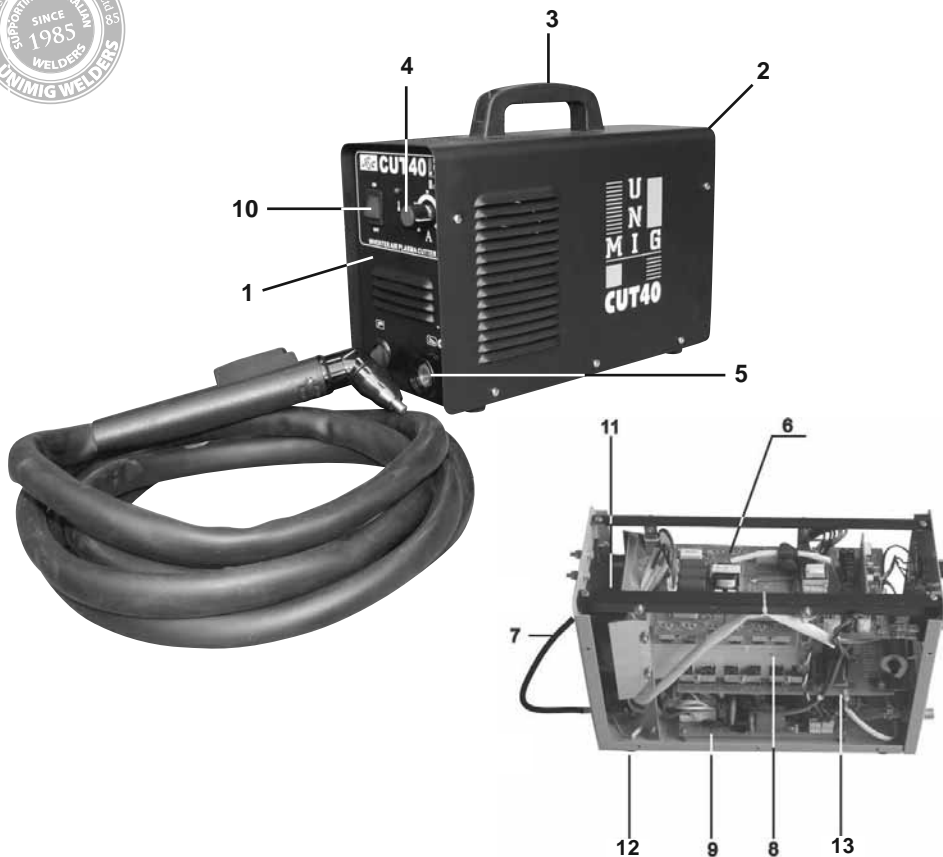
Of the unit:

Maintenance can only be carried out on the unit if the person in charge of this operation has the necessary technical qualifications, knowledge and the correct tools, If this is not the case, contact your nearest service centre.

- 1 Inspect the unit every 3 - 4 months (depending on how often the unit is used) and use compressed air to remove any dust deposits, This must be carried out by a qualified service agent.

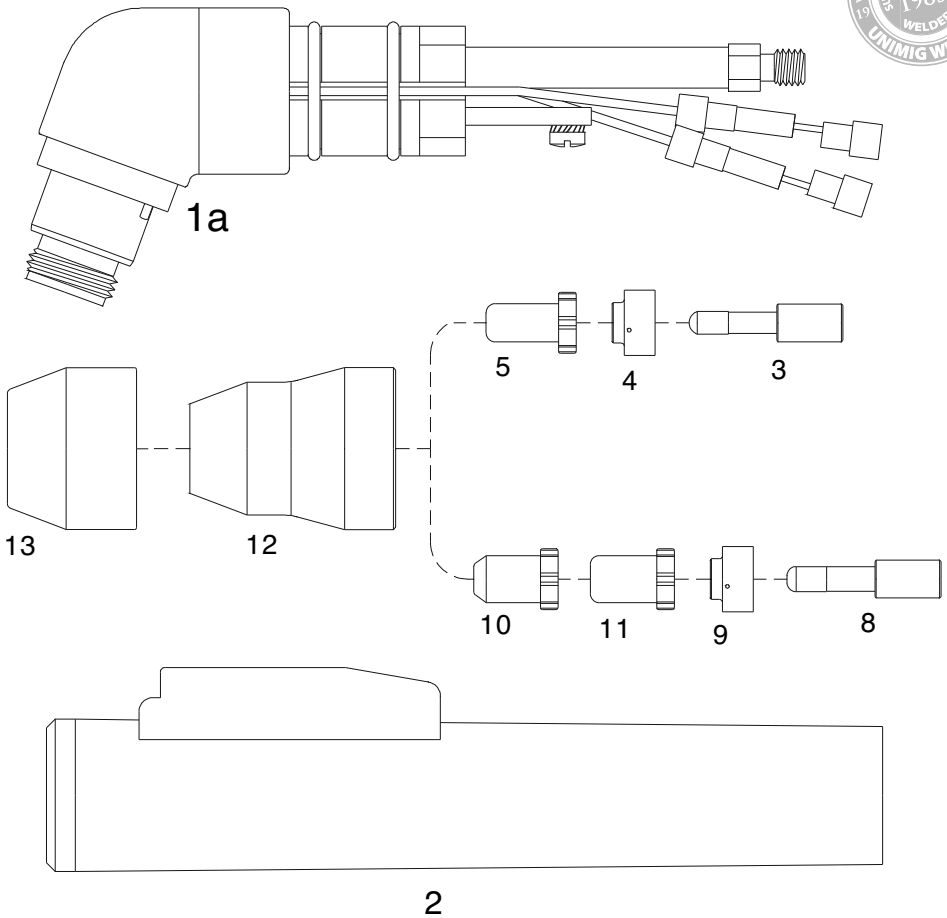
CAUTION: Only use dry compressed air for cleaning.
Do not point jet of air at the electronic circuits.

- 2 Check the air filter regularly. Any condensate must be drained off immediately when the compressed air supply is removed. To simplify this operation, the plasma cutter should be disconnected from the compressed air supply unit whenever it is left unused for more than 1 week.



Spare Parts

No	Description	WGA Part No.
1	Front panel	J02042
2	Cover	J03235
3	Handle	J24005
4	Knob	C16001
5	35/50 Panel socket female	CX0031
6	Top PCB	B01005
7	Input cable	C08608
8	Heat sink	J20003, J20004
9	Bottom PCB	B03012
10	Main switch	C16001
11	Fan	B15002
12	Rubber foot	J24009
13	Center PCB	B02002



Front end consumables

Spare Parts

No	WGA Part No.	Description
1	07035	70° Torch head
3	07103	Handgrip complete with microswitch
4	52519/D	Electrode - Hf
5	60050	Gas Distributor
6	51290	Tip - 35 Amp. Air
8	52523/D	Electrode - Hf (long life)
9	60051	Gas Distributor (long life)
10	51288	Tip - Standoff (long life)
11	51289	Tip - Drag (long life)
12	60347	Shield Cup - Std
13	60339	Shield Cup - Maximum Life (requires 60347)

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.