

INSTRUCTION MANUAL

CUT40 Plasma Cutter (240V) 10mm Steel #KUPJR40



C422

CONTENTS

- Safety	2
- General Description	5
- Technical Specifications	6
- Installation & Operation	7
- Maintenance	9
- Spare Parts List - Machine	10
- Spare Parts List - Torch	11

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.

WARRANTY

- 1 Year from date of purchase on power source only.
- 90 days on plasma torch for manufacturing defects only, this does not cover normal consumable wear and damage caused by contamination of air supply. Please note damage to torch due to lack of air supply will void warranty.
- 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 Australian 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.

CAUTION!

BEFORE INSTALLING, OPERATING OR CARRYING OUT MAINTENANCE ON THE PLASMA CUTTER, READ THE CONTENTS OF THIS MANUAL CAREFULLY, PAYING PARTICULAR ATTENTION TO THE SAFETY RULES.

In the event of these instructions not being clear, please contact your supplier.

CONGRATULATIONS ON YOUR NEW PURCHASE!

YOU ARE NOW IN POSSESSION OF ONE OF THE SAFEST AND MOST TECHNOLOGICALLY ADVANCED PLASMA CUTTER ON THE MARKET.

FOLLOW OUR SUGGESTIONS AND YOU WILL BE GUARANTEED SAFE AND PROBLEM-FREE OPERATION.

SAFETY RULES AND GENERAL WARNINGS

INTRODUCTION

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:



ELECTRICITY

- 1 - Make sure that the unit is earthed and that the supply line has an adequate earth connection
- 2 - Make sure that the work bench has satisfactory earth connection.
- 3 - Avoid contact between the metal bars being cut and bare skin or damp clothes .
- 4 - Do not lean on the piece being cut or hold it in your hands.
- 5 - Do not carry out cutting operations in damp environments or on wet surfaces.
- 6 - Do not use the unit if the torch cables appear damaged.
- 7 - Always turn the unit off before replacing the electrode, the nozzle or any other torch consumable.
- 8 - Always switch the unit off and remove the mains power cable from the main socket before carrying out any maintenance inside the unit.

CAUTION:

Only qualified technicians are authorized to undertake the repair task of this cutting equipment in case of machine fault.

CAUTION:

If during the cutting operation a slight electric shock is felt, stop work immediately and do not use the unit until the fault has been discovered and resolved.

EYE AND BODY PROTECTION

One of the hazards during the cutting process is the emission of electromagnetic waves due to the electric arc. The length of these waves ranges from infrared to ultraviolet. If these rays hit the eyes, they can cause various complaints such as conjunctivitis, burns to the retina, deterioration of sight, etc. Moreover a high concentration of ultraviolet rays can burn the skin. It is , therefore, extremely important that the operator uses adequate safety equipment and clothing, such as:

- 1 - Leather gloves
- 2 - Leather aprons
- 3 - Shin guards
- 4 - Safety shoes
- 5 - Safety mask (or even better a helmet) large enough to cover the whole of the face, equipped.

With safety lenses able to filter all the radiation and reduce the intensity of the light absorbed by the eye.

CAUTION:

Never, under any circumstances, look at an electric arc without eye protection.

CAUTION:

A Further hazard for eyes is the risk of splinters or particles which may be detached during the cutting operations or during grinding, brushing or hammering away of the scale. Always wear goggles or protective shields with transparent lenses during these operations to prevent splinters or other foreign bodies from entering the eye.

IMPORTANT: Safety welding screens should be installed around the welding area to protect other people, who may be working in adjacent areas, from the radiation given out by the arc.

CUTTING FUMES AND GASES

Harmful fumes and metallic powders are produced during the cutting operation. Metals which are painted or coated or which contain mercury, zinc, lead and graphite may produce harmful concentrations of toxic fumes during cutting.

To protect the operator or other persons from exposure to possible toxic fumes, fume respirators should be worn and work areas should be adequately ventilated.

When working in enclosed environments, suction units should be fitted below the cutting area.

CAUTION:

When halogenated solvents or degreasing agents are present, the material to be cut should be cleaned properly to prevent the formation of toxic gases. Some chlorinated solvents may decompose in the presence of the radiation given out by the arc and may generate phosgene gas.

FIRE HAZARDS

- 1 - Prevent sparks or hot scale from producing flames
- 2 - Remove flammable or combustible materials from cutting area.
- 3 - Make sure that the fire-fighting equipment is located near work area.
- 4 - Situate the unit in a area where the air can be sucked in and exhausted from the grilles on the panel.

CAUTION:

Do not cut fuel or lubricant containers even if they are empty.

Do not cut containers or casings which contain flammable material

Never cut in environments which are polluted by flammable gas or combustible liquid vapours (such as petrol)

NOISE

Noise is generated during the cutting process. The noise level depends on the cutting parameters used.

CAUTION:

Noise can damage hearing
Wear adequate hearing protection.

BURNS

The operator should be adequately protected during cutting operations. This should be routine practice.

CAUTION:

Do not point the torch jet at people or foreign bodies.

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.

DESCRIPTION OF SAFEGUARDS

Our plasma cutting units are supplied with the following devices.

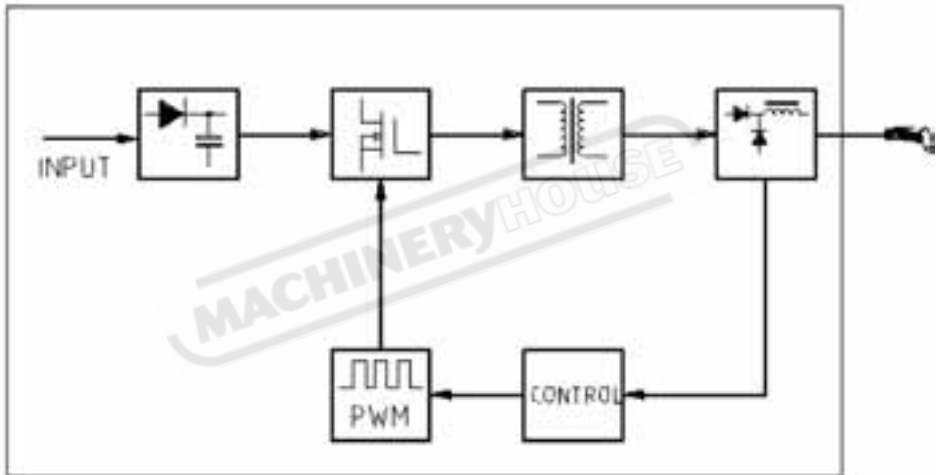
- 1 - Thermal protection devices which are installed at the points most subject to high temperatures such as the power transformers and the rectifying units. A yellow light on the front panel lights up when the thermal protection device intervenes.
- 2 - Electric shock protection device which prevents 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:

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/ltr per min.

GENERAL DESCRIPTION

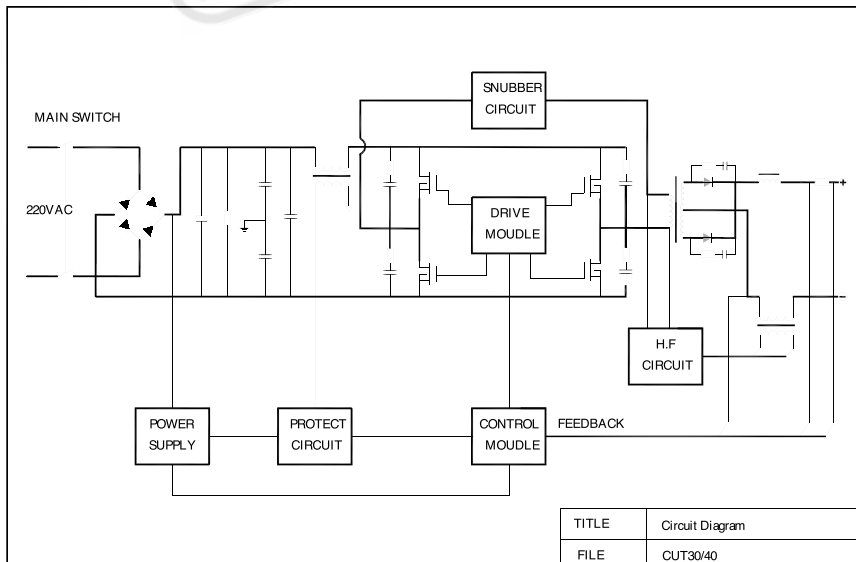
The plasma cutting unit generates constant current and has been designed to cut metals. The cutting process is carried out through the melting of the metal caused by high temperature created by the electric arc between the torch electrode and the base metal. The molten material is removed by a high-speed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



TECHNICAL SPECIFICATIONS

TYPE	CUT40(B)
Input voltage (V)	240V AC +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	

Circuit diagram (Single Phase Input)



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.

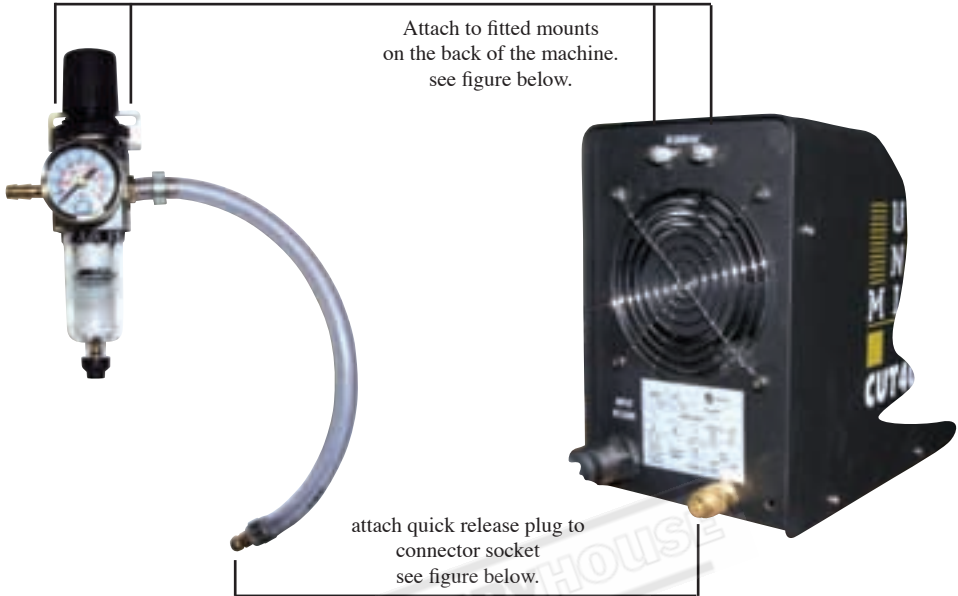
CAUTION:

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



MAINTENANCE AND INSPECTION

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 (in 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 knowledge and the correct tools. If this is not the case, contact your nearest service centre.

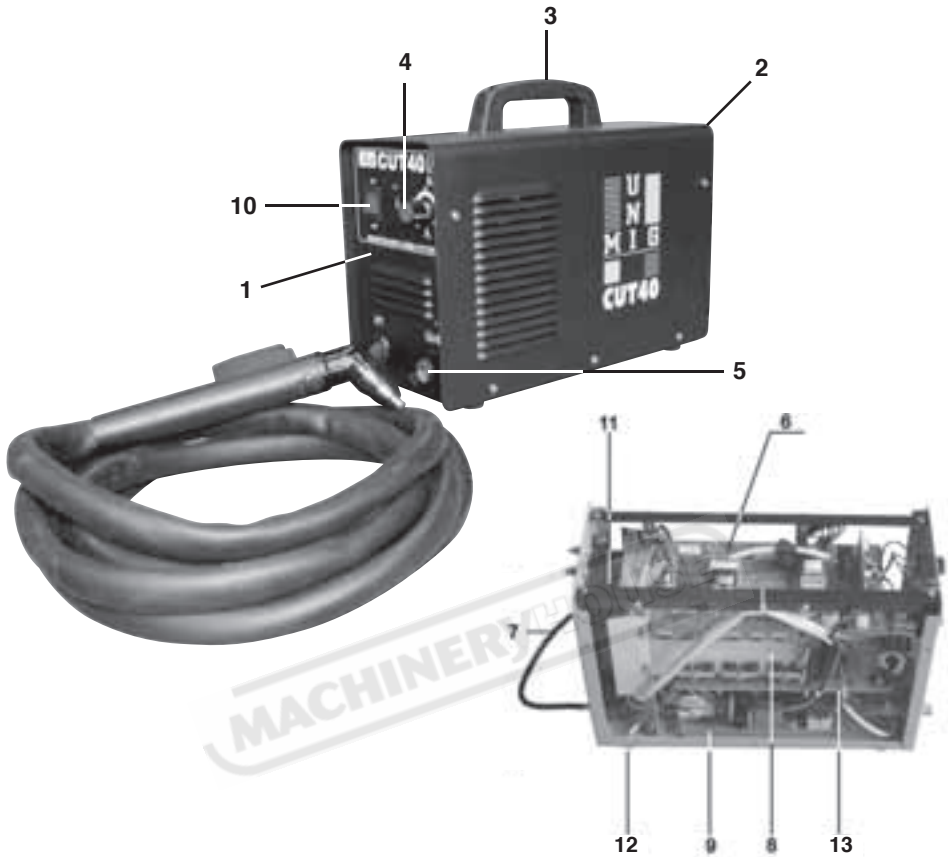
1 - Inspect the unit every 3 - 4 months (depending on how often the unit is used) and use compressed air to remove any dust deposits. This must be carried out by a qualified service agent.

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.

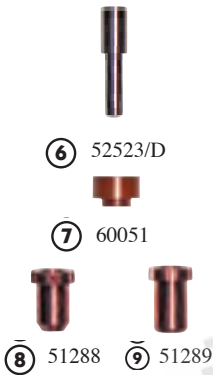
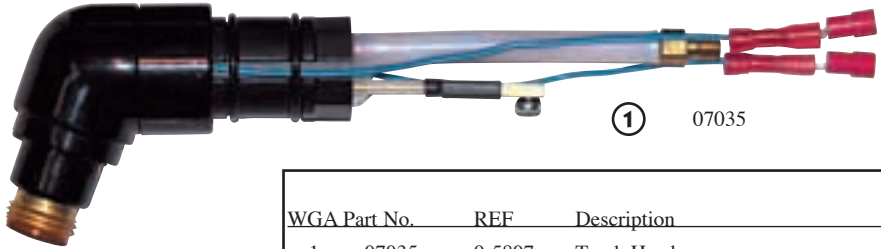
SPARE PARTS



DESCRIPTION	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

TORCH PARTS

PCH/M 35 Replacement Parts



⑥ 52523/D

⑦ 60051

⑧ 51288

⑨ 51289



⑩ 60347



⑪ 60339



③ 52519/D

④ 60050

⑤ 51290

② 07103



WGA Part No.	REF	Description
1	07035	9-5807 Torch Head
2	07103	8-4305 Handgrip
3	52519/D	9-6006 Electrode
4	60050	9-6007 Gas Distributor
5	51290	9-6000 Cutting Tip 35A
6	52523/D	9-6506 Electrode Long life
7	60051	9-6507 Gas Distributor Long life
8	51288	9-6500 Cutting Tip Stand off Long life
9	51289	9-6501 Cutting Tip Drag Long life
10	60347	9-6003 Shield cup
11	60339	9-6503 Shield cup
12	02902	Complete Torch

These parts are manufactured in Italy by TECMO and are offered as replacement parts suitable for "PCH/M 35" style torches.