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OWNER'S OPERATING MANUAL

INVERTER MIG 160
ELECTRONIC INVERTER
DUAL PURPOSE WELDER
GAS/GASLESS

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SAFETY INSTRUCTIONS

When using power equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and personal
injury, including the following. If used correctly, welders pose little
risk to the operator; however, care should always be taken to ensure
safety and proper performance. Read all owner's operating instructions before attempting to operate any product.

WARNING: PERSONS FITTED WITH ELECTRONIC DEVICES INCLUDING BUT NOT LIMITED TO PACEMAKERS AND HEARING AIDS SHOULD NOT OPERATE ELECTRONIC INVERTER WELDERS

WARNING: CONTACT LENS SHOULD BE REMOVED BEFORE USE

FOR SAFE OPERATION:

- **KEEP THE WORK AREA CLEAN:** Cluttered working areas (indoor and outdoor) invite injuries.
- **CONSIDER THE WORK ENVIRONMENT:** Don't expose power equipment to rain. Don't use welding equipment in damp or wet locations. Keep the work area well lit. Don't use welding equipment in the presence of flammable liquids or gases.
- **GUARD AGAINST ELECTRIC SHOCK:** Avoid body contact the grounded surfaces (e.g. pipes, radiator, and electrical appliances).
- **KEEP CHILDREN AND VISITORS AWAY:** Keep children, infirmed persons and visitors away from the area of operation. Do not let children, infirmed persons or visitors touch equipment or extension cables.
- **STORE IDLE TOOLS:** When power equipment is not in use, keep them in a dry, high or locked area, out of reach of children.
- **SECURE WORK:** Use clamps or a vice whenever possible to secure work.
- **WEAR SAFETY GLASSES:** Always wear safety goggles or other suitable eye protection when using welding equipment .

- **DON'T OVERREACH:** Keep proper footing and balance at all times.
- **DRESS PROPERLY:** DO NOT wear loose clothing or jewellery. They can be caught in moving parts. Wear protective hair covering to cover long hair, and gloves and non-slip footwear is recommended when working outdoors.
- **TAKE CARE OF CABLES:** Never carry welding equipment by the cable and never pull the cable to disconnect it from a socket. Keep cables away from heat, oil and sharp edges. Replace damaged cables.
- **DISCONNECT TOOLS:** Disconnect welding equipment when not in use, before servicing, and when changing accessories such as blades, bits and cutters.
- **AVOID UNINTENTIONAL OPERATION:** Do not carry plugged in welding equipment with a finger on the switch. Be sure that the switch is off when plugging in.
- **OUTDOOR USE EXTENSION CABLES:** When electric power equipment is used outdoors, only use extension cables marked as suitable for outdoor use.
- **STAY ALERT:** Watch what you are doing. Use common sense. Do not operate welders when you are tired or under the influence of alcohol or drugs.
- **CHECK DAMAGED PARTS:** Before using welding equipment, parts that are damaged should be carefully checked to determine that they will operate properly and perform their intended function. Any part that is damaged should be properly repaired or replaced by an authorized service agent. Have defect switches replaced by an authorised repair agent. Do not operate power equipment if it cannot be turned off and on by the switch.
- **REPAIR OF POWER EQUIPMENT BY EXPERTS:** Power equipment is built in accordance with relevant safety authority requirements. The repair of power equipment must only be carried out by experts; non-expert repairs may cause considerable danger for the user and void warranty.

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INVERTER MIG 160 DUAL PURPOSE WELDERS

The welding machine is manufactured with advanced inverter technology and is suitable for MIG/MAG/MOG welding. It is highly reliable, handy, compact and can be supplied with single-phase voltage from 220V to 240V, 50/60Hz. It allows the MIG welding for copper, special and nickel-based and high strength steels, the MAG welding for low carbon steels, stainless steels and the MOG welding for flux cored wires, weldable without the aid of the gas.

It can automatically manage many functions that allow the good result of the welding. It is equipped with "HOT START", "ARC FORCE" and "ANTI STICK" functions. The user interface is simple to use because consists of two knobs and two displays.

This welding machine is for professional use only and is reserved for the industry.

DESCRIPTION OF THE MACHINE

FRONT PANEL

On the front side of the machine are:

1. Control Panel
2. Euro connector
3. Socket positive '+'
4. Cable GAS / NO GAS
5. Socket negative '-'

REAR PANEL

On the back panel of the machine are:

1. Power Switch ON / OFF
2. Power supply cable
3. MIG gas attachment

INSTALLATION

Warning: Use all precautions required in the safety manual before operating the welder, reading carefully the risks linked to the welding process. The installation must be made by trained personnel in compliance to the standard IEC 60974-9 and the current legislation.

To lift the machine you must use the handle positioned on top of the product with the machine in OFF position and the welding cable disconnected. The input voltage must match the voltage indicated on the technical plate located on the product. The equipment shall only be used on a supply system that is a single-phase, three-wire system with an earthed neutral.

Use the machine on electric system having supply features and power protection that are compatible with the current required for its use, for more details see the information on the nameplate affixed to the machine. The machine has an IP21 S protection level.

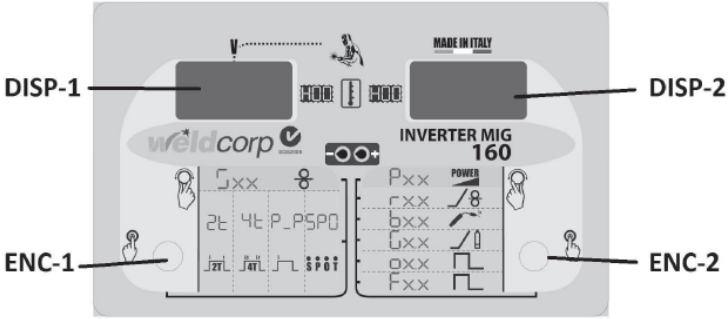
INSTALLATION (cont.)

HANDLE ASSEMBLY

Assemble the handle on the welding machine mantle like in Fig. 2. Make sure of the correct tightening of the screws and of the held of handle before lilt the machine.

WELDER INFORMATION

The machine functions are controlled by the control panel on the front panel. The panel is composed of two displays, "DISP-1" and "DISP-2" and two knobs, "ENC-1" and "ENC-2", which allow the rotation and the pressure.



LEGEND

Wire Speed: set the speed of the wire.
Pre-gas: set the time of gas opening before the arc starts.
Ramp up: set the gradual increase of speed till the set value "speed wire".
Bum back: set the residue length of the wire from the torch at the end of welding.
Time on: set the length of time for the welding type Pause-time and spot. If it's set to 0 the welding is manual.
Pause time: set the length of the pause in welding type pause time.

RESET PARAMETERS

To reset the welding parameters to basic settings (factory settings) follow the steps below:

1) Switch off the welding machine if it is on.
2) Press without release ENC1.
3) Switch on the machine.
4) If the displays show "ooo ooo" the reset was successful, otherwise do again from point nr 1.
5) Release ENC1.
6) Leave on the machine (after few seconds the machine will work)

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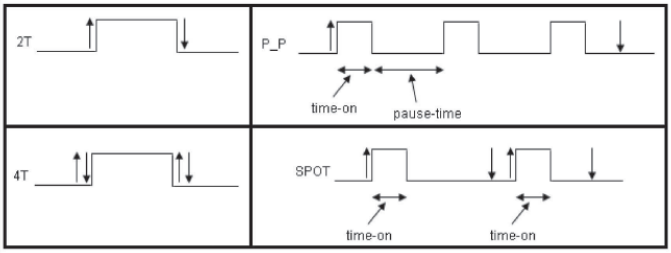
WELDER INFORMATION (cont.)

Through the pressure and rotation of ENC-1 it's possible to set the following settings shown on DISP-1:

Number of pressures	Function	Shown on the Display	Setting	Adjusting Settings
0	Wire Speed	SXX	(in %)	Rotate the knob ENC-1 to regulate the wire speed
1	Welding type	2T 4T P_P SPO	2 Times 4 Times Pause-time Spot	Rotate the knob ENC-1 to set the welding type

Setting description:



After 3 seconds, if the knobs aren't pushed, or the machine is in stand by mode, the display DISP-1 shows the value set for the wire speed, while display DISP-2 shows the value set for the power.

During the welding, DISP-1 shows the value of the welding voltage, while display DISP-2 (in Page 8) shows the value set for the power.

WELDER INFORMATION (cont.)

Pressing and turning ENC-2, it is possible to set the following functions, shown on the display DISP-2:

Number of pressures	Function	Shown on the Display	Setting	Adjusting Settings
0	Power	PXX	Example P10= 10%	Rotate the knob ENC-2 to regulate the power
1	Ramp-up	rX.X	example r0.5=0.5s	Rotate the knob ENC-2 to set the Ramp-up
2	Burn-back	bX.X	example b0.0 = 0.0mm	Rotate the knob ENC-2 to set the Burn-back
3	Pre-gas	GX.X	example G0.0 = 0.0s	Rotate the knob ENC-2 to set Pre-gas
4	Time-on	oX.X	example o1.0 = 1.0s	Rotate the knob ENC-2 to set Time On
5	Pause-time	FX.X	example F1.0 = 1.0s	Rotate the knob ENC-2 to set Pause-time

PROTECTION DEVICE

The duty cycle is the fraction or percentage of a ten-minute cycle that a power source may be used without overheating. For example, a welding machine with 150 amp - 30% duty cycle can weld continuously at 150 amps for 3 minutes, and then must cool down during the remaining 7 minutes to prevent overheating, with the ambient temperature of 40"C.

Use the machine with the proper duty cycle according to the selected welding current allows to prevent overheating. In case of overheating of the machine, the display will flash and show the code "HOO", the yellow LED (LED term) is on to indicate that the thermal protection is on.

You can start welding again as soon as the word "HOO" disappears from the display.

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MACHINE SET UP - MIG / MAG / MOG

Below are shown guidelines to set up the machine for a MIG/MAG and MOG welding.

1) Turn off the welding machine.
2) Connect the plug of the work clamp to the Negative socket "-" (Figure 1.A.5) and the plug of the cable GAS I NO GAS (Figure 1.A.4) to the Positive socket "+" (Figure 1.A.3) on the machine.
3) Insert the plug of the MIG torch in the EURO connector (Figure 3) on the front panel (Figure 1.A.2).
4) Connect the tube of the gas cylinder on the rear panel of the machine, (Figure 1 B 3). The gas used is generally a mixture of Argon and C02 (MIX), otherwise only C02. It is recommended to use the Argon for the welding of the aluminum.
5) Open the side mantle, place the wire spool on the paddle wheel (if it there isn't) and insert the wire in the wire feeder (Fig. 4).
WARNING: The roller has two grooves: changing the roller, you can choose the appropriate groove according to the diameter of the wire that you want to use. When changing the diameter of the wire is necessary to change both the roller and the contact tip (end part of the torch from which one you can see the wire coming out). Unscrew the gas nozzle and the contact tip to facilitate the passage of the wire.
6) Unroll the torch cable so as to prevent the thread from curling.
7) Stop the roller.
8) Connect the power supply plug to the power outlet and turn on the welding machine.

MIG WITHOUT GAS (MOG)

1) Turn off the welding machine.
2) Connect the plug of the work clamp to the Positive socket "+" (Figure 1.A.3), and the plug of the cable GAS I NO GAS (Figure 1.A.4) to the Negative socket"-" (Figure 1.A.5).
3) Follow from the step 5 as in the "MIG I MAG" use but, mount the flux cored wire spool and choose the roller for the flux cored wire.

MAINTENANCE

All maintenance and repairs must be carried out by an authorised repair agent. Any non-authorised repairs will void warranty. Personnel in compliance to the norm (IEC 60974-4).

WELDING GUIDE

GENERAL RULE

When welding on the lowest output settings, it is necessary to keep the arc as short as possible. This should be achieved by holding the welding torch as close as possible and at an angle of approximately 60 degrees to the work piece. The arc length can be increased when welding on the highest settings, an arc length up to 20mm (0,8in). can be enough when welding on maximum settings.

GENERAL WELDING TIPS

From time to time, some faults may be observed in the weld owing to external influences rather than due to welding machine faults. Hara are some that you may come across:

Porosity: small holes in the weld, caused by break-down in gas coverage of the weld or sometimes by foreign bodies inclusion. Remedy is, usually, to grind out the weld. Remember, check before the gas flux (about 8 litres/minutes), clean well the working place and finally incline the torch while welding.

Spatter: small balls of molten metal which come out of the arc. A little quantity is unavoidable, but it should be kept down to a minimum by selecting correct settings and having a correct gas flow and by keeping the welding torch clean.

Narrow heap welding: caused by moving the torch too fast or by an incorrect gas flow .

Very thick or wide welding: can be caused by moving the torch too slowly.

Wire bums back: It can be caused by wire feed slipping, loose or damaged welding tip, poor wire, nozzle held too close to work or voltage too high.

Poor penetration: It can be caused by moving torch too fast, too low voltage setting or incorrect feed setting, reversed polarity, insufficient blunting and distance between strips. Take care of operational parameters adjustment and improve the preparation of the work pieces.

Work pieces piercing: it may be caused by moving the welding torch too slow, too high welding power or by an invalid wire feeding.

Heavy spatter and porosity: can be caused by nozzle too far from work, dirt on work or by low gas flow. You have the two parameters; remember that gas must not be lower than 7-8 litres/min. and that the current of welding is appropriate to the wire you are using. It is advisable to have a pressure reducer of input and output. On the manometer you can read the range expressed in litre.

Welding arc Instability: it may be caused by an insufficient welding voltage, irregular wire feed, and insufficient protective welding gas

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TROUBLESHOOTING

FAULT	REASON	REMEDY
Wire is not conveyed when the wire feeder is turning	1. Dirt in liner and/or contact tip 2. The friction brake in the hub is too tightened 3. Faulty welding torch	Blow with compressed air, Replace contact tip Loosen Check sheating of torches wire guide
Wire feeding in jerk or erratic way	1. Contact tip defect 2. Burns in contact tip 3. Dirt in feed rool groove 4. Feed roll's groove worn	Replace Replace Clean Replace
No arc	1. Bad contact between work clamp and workpiece 2. Short-circuit between contact tip and gas shroud	Tighten work clamp and check the connections Clean, replace tip and/or shroud as necessary
Porous welding seams	1. Failure of gas shield owing to spatters in gas shroud 2. Wrong welding torch distance and/or inclination from workpiece 3. Too small gas flux 4. Humid workpieces 5. Heavily rusted workpieces	Clean gas shroud from spatters The length of stick out wire from tip must be 5-10 mm (0.2-0.4 in). Inclination not less than 60° degrees in relation to workpiece Increase flux of welding gas Dry with heat producer Clean workpieces from rust
The machine suddenly stops welding operations after an extended and heavy duty use	1. welding machine overheated due to an excessive use in stated duty cycle	Don't switch off the machine, let it cool down. You will restart welding as soon as the "H00" signs will disappear from the displays.

If you are still having difficulty with your welder, do not hesitate to contact our service team on:

1800 011 812

MIG 160 WELDER

Fig 1
A

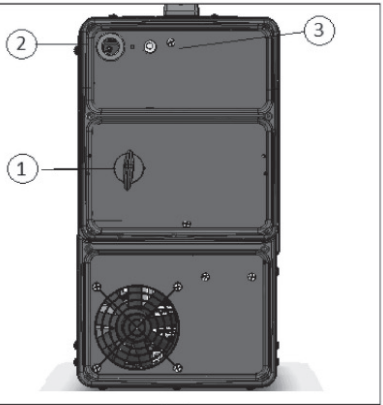


Fig 1
B

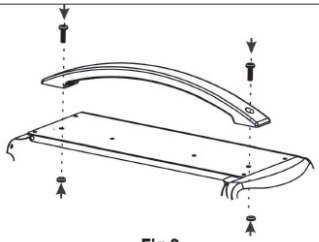


Fig 2

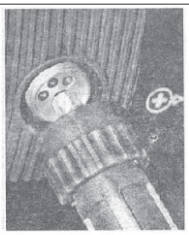
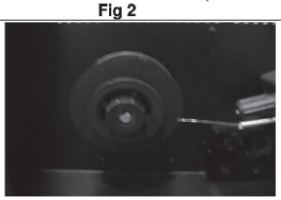


Fig 3



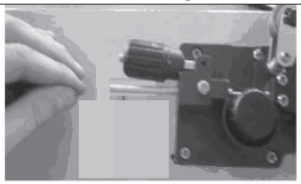


Fig 4

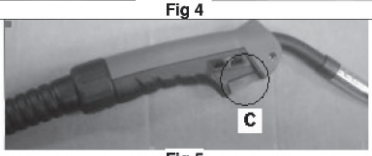


Fig 5

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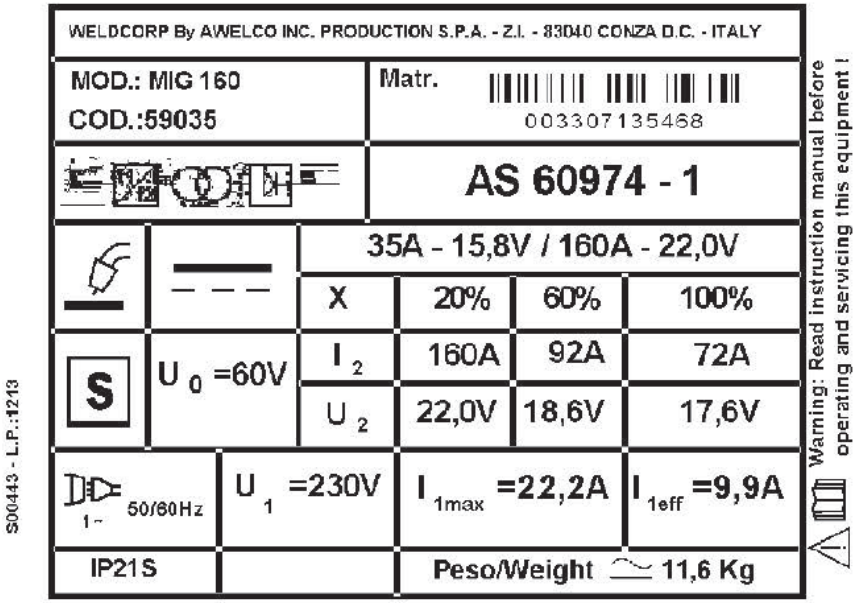
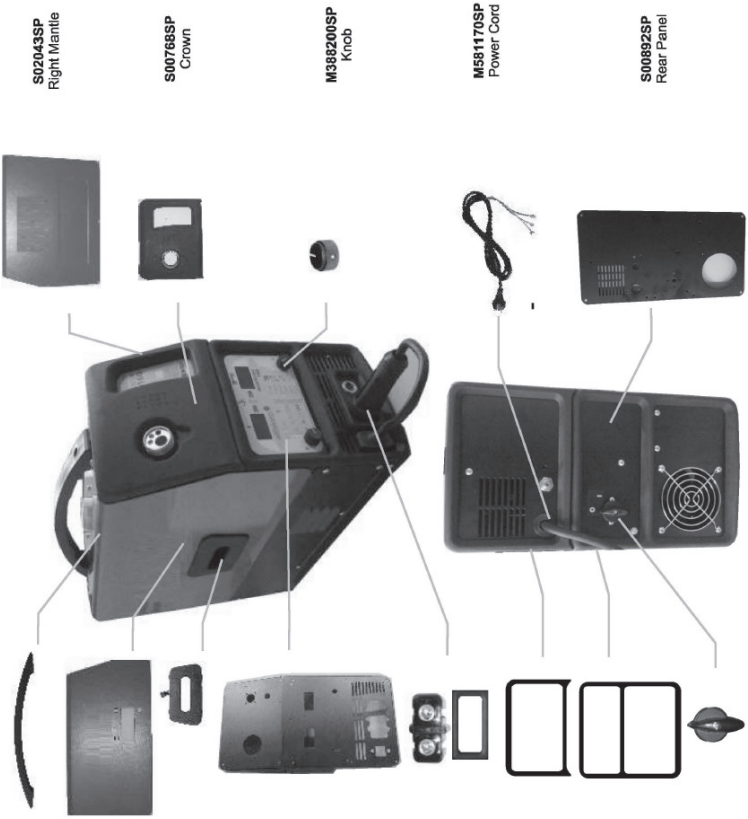
WELDING MACHINE TECHNICAL DATA



P 60% INPUT	V-I characteristic	W x H x L [mm]	CONNECTABLE TO POWER GENERATOR
2,6 kVA(MIG)		210x 425 x 455	MINIMUM POWER OF THE POWER GENERATOR 7,7 kVA

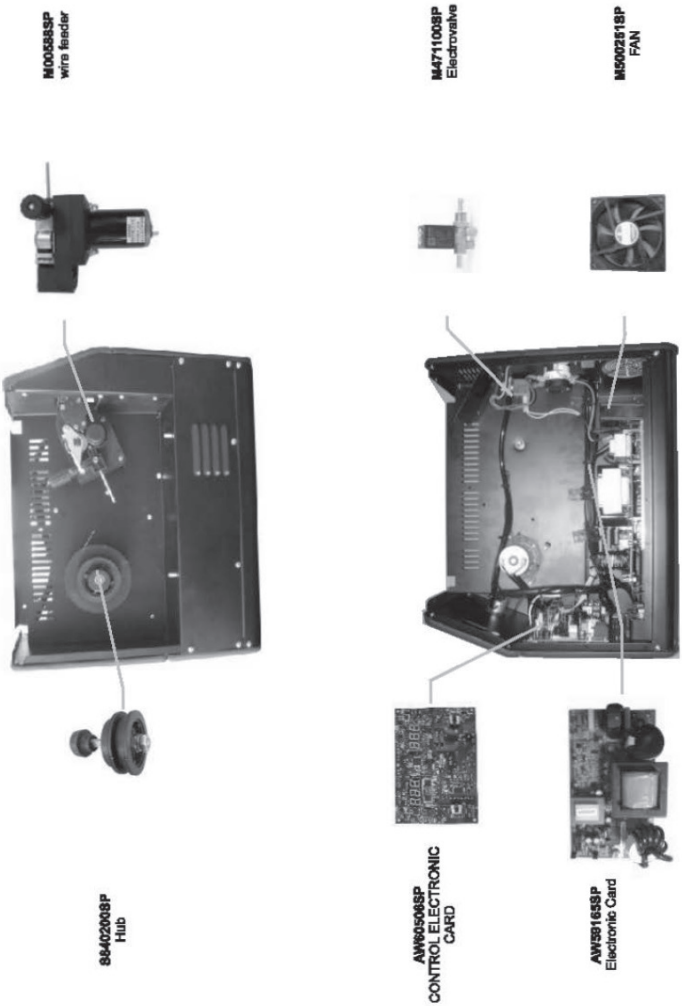
SPARE PARTS LIST - INVERTER MIG 160 DUAL PURPOSE

Product Code: WCM0005



SPARE PARTS LIST - INVERTER MIG 160 DUAL PURPOSE

Product Code: WCM0005



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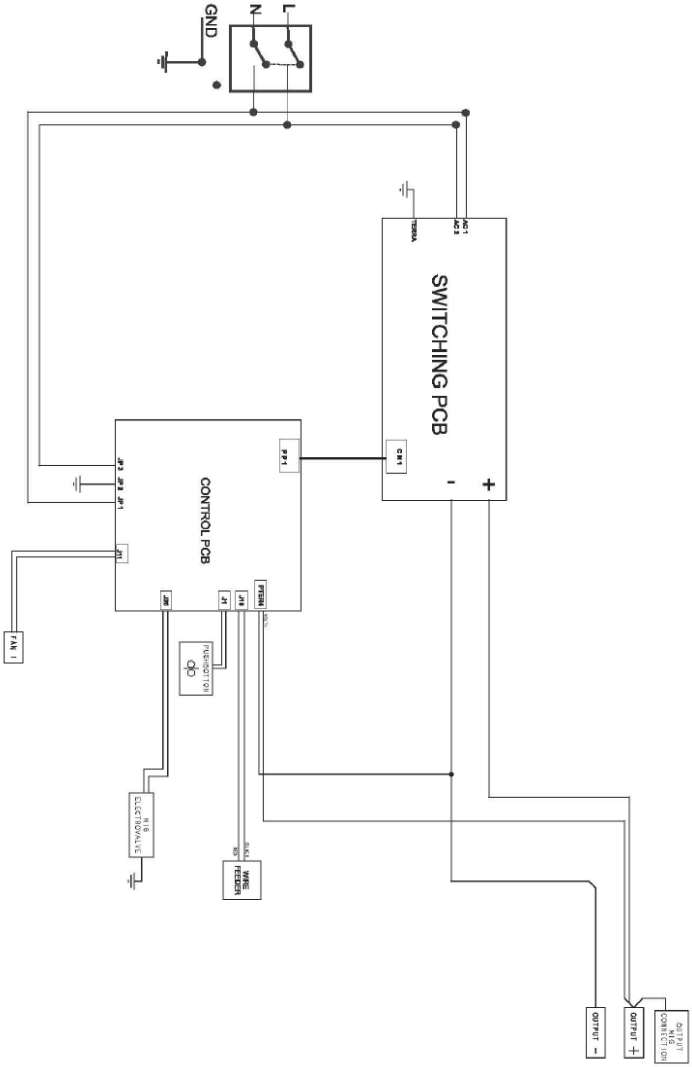
WIRING DIAGRAM



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1 YEAR WARRANTY

Subject to the warranty conditions below, this Weldcorp product ("the Product") is warranted by ITW Group, a division of ITW Australia Pty Ltd ("the Company") to be free from defects in material or workmanship for a period of 12 months from the date of original purchase ("the Warranty Period").

Under this warranty, the Company will, subject to the conditions below and at the Company's option, repair or replace the Product, or refund the purchase price of the Product, if such a defect becomes apparent during the Warranty Period.

In the event of such a defect, the Product must be returned to the place of purchase, together with proof of purchase. Any handling and transportation (and other expenses) incurred in claiming under this warranty are not covered by this warranty and will not be borne by the Company.

The Company's dealers or agents are not permitted to offer any warranty or guarantee on the Company's behalf in relation to the Product, except as expressly stated in this warranty.

The Company's obligations under this warranty are subject to: (a) the Product having been used in accordance with the Company's directions, instructions and recommendations; (b) the Product having been used under normal conditions and with reasonable care (including in relation to the maintenance of the Product); (c) the Product not having been altered, tampered with or otherwise dealt with by any person in a manner other than as intended in respect of the Product. For the avoidance of doubt, this warranty does not cover damage, malfunction or failure resulting from misuse, neglect, abuse, or where the Product has been used for a purpose for which it was not designed or is not suited, or if repairs, alterations or modifications have been attempted by a person who is not an Authorised Service Agent of the Company. This warranty also does not apply to accidental damage or normal wear and tear.

In addition to other rights and remedies that may be available under law, our goods come with guarantees that cannot be excluded under Australian Consumer Law (for consumers in Australia) and the Consumer Guarantees Act (for consumers in NZ). If you are a consumer in Australia, you are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. If you are consumer in New Zealand, we will comply with our obligations to you under the Consumer Guarantees Act.

ITW Group, a division of ITW Australia Pty Ltd (ACN 004 235 063)
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Wetherill Park, New South Wales, 2164
Australia
Ph: 1800 011 812
Email: weldcorp-enq@prager.com.au

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WARRANTY FORM

THIS WARRANTY FORM SHOULD BE REAINED BY THE CUSTOMER AT ALL TIMES

For your record and to assist in establishing date of purchase (necessary for in warranty service) please keep your purchase docket and this form completed with the following particulars.

PURCHASED FROM _____

SUBURB _____

DATE _____

MODEL NO. _____

SERIAL NO. _____

Present this form with your original receipt when warranty service is required.

HELPLINE 1800 001 1812

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ENGLISH - EC-DECLARATION OF CONFORMITY

We declare under our sole responsibility that this product is in conformity with the following standards or standardized documents:

ITW Group, Division of ITW Australia Pty Ltd	
MACHINE DESCRIPTION	INVERTER MMA Welding Machine
Applicable EC Directives:	- Low Voltage Directive CE 2006/95 EC - Electromagnetic Compatibility (EMC) Directive 2004/108 EC
Applicable harmonized Standards:	EN 60974 - 1 AS/NZ 60974.1 : 2006 EN 60974 -10 AS/NZ 60974.6 : 2006 (Clause 5.1 only)
Place:	Conza d. C. (AV) – Italy
Date:	05.06.2013
Title of Signatory:	M. Di Leva - Amministratore

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