



INSTRUCTIONS FOR:

# SUPERMIG WELDER

MODEL No: **SUPERMIG250**



Thank you for purchasing a Sealey welder. Manufactured to a high standard this product will, if used according to these instructions and properly maintained, give you years of trouble free performance.



**IMPORTANT: BEFORE USING THIS PRODUCT, PLEASE READ THE INSTRUCTIONS CAREFULLY. MAKE CAREFUL NOTE OF SAFETY INSTRUCTIONS, WARNINGS AND CAUTIONS. THIS PRODUCT SHOULD ONLY BE USED FOR ITS INTENDED PURPOSE. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY. RETAIN THESE INSTRUCTIONS FOR FUTURE USE.**

## 1. SAFETY INSTRUCTIONS

### 1.1. ELECTRICAL SAFETY

- ☐ **WARNING!** It is the responsibility of the owner and the operator to read, understand and comply with the following:
  - You must check all electrical products, before use, to ensure that they are safe. You must inspect power cables, plugs, sockets and any other connectors for wear or damage. You must ensure that the risk of electric shock is minimised by the installation of appropriate safety devices. A Residual Current Circuit Breaker (RCCB) should be incorporated in the main distribution board. We also recommend that a Residual Current Device (RCD) is used. It is particularly important to use an RCD with portable products that are plugged into a supply which is not protected by an RCCB. If in any doubt consult a qualified electrician. You may obtain a Residual Current Device by contacting your Sealey dealer.
  - You must** also read and understand the following instructions concerning electrical safety.
- 1.1.1. The **Electricity at Work Act 1989** requires that all portable electrical appliances, if used on business premises, are tested by a qualified electrician, using a Portable Appliance Tester (PAT), at least once a year.
- 1.1.2. The **Health & Safety at Work Act 1974** makes owners of electrical appliances responsible for the safe condition of those appliances and the safety of the appliance operators. **If in any doubt about electrical safety, contact a qualified electrician.**
- 1.1.3. Ensure that the insulation on all cables and on the appliance is safe before connecting it to the power supply. See 1.1.1. and 1.1.2. and use a Portable Appliance Tester.
- 1.1.4. Ensure that cables are always protected against short circuit and overload.
- 1.1.5. Regularly inspect power supply cables and plugs for wear or damage and check all connections to ensure that none is loose.
- 1.1.6. **Important:** Ensure that the voltage marked on the appliance matches the power supply to be used and that the supply is correctly fused.
- 1.1.7. **DO NOT** pull or carry the appliance by the power cable.
- 1.1.8. **DO NOT** pull the plug from the socket by the cable.
- 1.1.9. **DO NOT** use worn or damaged cables, plugs or connectors. Immediately have any faulty item repaired or replaced by a qualified electrician.
- 1.1.10. **SUPERMIG250 is a single phase machine.**
  - IMPORTANT: TO ACHIEVE MAXIMUM OUTPUT THIS MODEL WILL REQUIRE A 30AMP FUSED SUPPLY. WE RECOMMEND YOU DISCUSS THE INSTALLATION OF AN INDUSTRIAL ROUND PIN PLUG AND SOCKET WITH YOUR ELECTRICIAN.**
  - Fit a plug according to the following instructions (UK only).
  - a) **Connect the GREEN/YELLOW earth wire to the earth terminal 'E'.**
  - b) **Connect the BROWN live wire to the live terminal 'L'.**
  - c) **Connect the BLUE neutral wire to the neutral terminal 'N'.**
  - d) **After wiring, check that there are no bare wires, that all wires have been correctly connected, that the cable outer insulation extends beyond the cable restraint and that the restraint is tight.**
- 1.1.11. When a cable extension reel is used it should be fully unwound before connection. A cable reel with an RCD fitted is recommended since any product which is plugged into the cable reel will be protected.
  - The cross-section of the cable on the cable reel must be suitable for the unit and never lower than the cross-section of the mains cable supplied with the unit.

### 1.2. GENERAL SAFETY

- ▲ **DANGER! Unplug the welder from the mains power supply before performing maintenance or service.**
- ✓ Keep the welder and cables in good condition. *Take immediate action to repair or replace damaged parts.*
- ✓ Use genuine parts and accessories only. *Unapproved parts may be dangerous and will invalidate the warranty.*
- ✓ Use an air hose to regularly blow out any dirt from the liner and keep the welder clean for best and safest performance.
- ✓ Check and spray the gas cup and contact tip regularly with anti-spatter spray which is available from your Sealey dealer.
- ✓ Locate the welder in a suitable work area. Ensure that the area has adequate ventilation as welding fumes are harmful.
- ✓ Keep work area clean, tidy and free from unrelated materials. Also ensure that the work area has adequate lighting and that a fire extinguisher is at hand.
- ☐ **WARNING! Use welding head shield to protect eyes and avoid exposing skin to ultraviolet rays given off by electric arc. Wear safety welding gauntlets.**
- ✓ Remove ill fitting clothing, remove ties, watches, rings and other loose jewellery and contain long hair.
- ✓ Ensure that the workpiece is correctly secured before operating the welder.
- ✓ Avoid unintentional contact with workpiece. Accidental or uncontrolled use of the torch may be dangerous and will wear the nozzle.
- ✓ Keep unauthorised persons away from the work area. Any persons working within the area must wear protective head shield and gloves.
- ✓ Operators must receive adequate training before using the welder.
- ✓ Stand correctly, keeping a good footing and balance, and ensure that the floor is not slippery. Wear non-slip safety shoes.
- ✓ Turn voltage switch to "0" (Off) when not in use.
- x **DO NOT** operate the welder if it or its cables are damaged and **DO NOT** attempt to fit any unapproved torch or other parts to the welder unit.
- x **DO NOT** get welder wet or use in damp or wet locations or areas where there is condensation.
- ▲ **DANGER! DO NOT weld near inflammable materials, solids, liquids, or gases, and DO NOT weld containers or pipes which have held flammable materials or gases, liquids or solids. Avoid operating on materials cleaned with chlorinated solvents or near such solvents.**
- x **DO NOT** stand welder on or against a metal workbench or the workpiece.
- x **DO NOT** touch any live metal parts of the torch or electrode while the machine is switched on.
- x **DO NOT** pull the welder by the cable or the torch and **DO NOT** bend or strain cables. Protect cables from sharp or abrasive items and **DO NOT** stand on them. Protect from heat. Long lengths of slack must be gathered and neatly coiled. **DO NOT** place cables where they could endanger other people.
- x **DO NOT** touch the torch or workpiece immediately after welding as they will be very hot. Allow to cool.
- x **DO NOT** operate welder while under the influence of drugs, alcohol or intoxicating medication, or if tired.
- ✓ When not in use store the welder in a safe, dry, childproof area.

### 1.3. GAS SAFETY

- ✓ Store gas cylinders in a vertical position only and ensure that the storage area is correctly secured.
- x **DO NOT** store gas cylinders in areas where temperature exceeds 50°C. **DO NOT** use direct heat on a cylinder. Always keep gas cylinders cool.
- x **DO NOT** attempt to repair or modify any part of a gas cylinder or valve and **DO NOT** puncture or damage a cylinder.
- x **DO NOT** obscure or remove any official cylinder labels. Always check the gas identity before use. Avoid getting gas cylinders oily or greasy.
- x **DO NOT** lift a cylinder by the cap, guard or valve. Always keep caps and guards in place and close valve when not in use.

## 2. INTRODUCTION & SPECIFICATION

**IMPORTANT:** These instructions contain information you require to prepare your machine for welding, together with maintenance and a troubleshooting section. The instructions are not intended to show the inexperienced how to weld. If you have no experience, we recommend that you seek training from an expert source. Mig welding is relatively easy to perform, but does require a steady hand. Only time spent practising will enable you to produce consistently good welds. Supermig250 is suitable for welding with CO<sub>2</sub>, Argon or CO<sub>2</sub>/Argon mix. It uses a forced air cooling system to slow transformer heating in order to increase duty cycle and a non-live torch to prevent the risk of accidentally striking an arc. Supplied with an industrial Argon/CO<sub>2</sub> regulator. Gas bottles and gas are not included. A contract for the supply of gas should be arranged with your local gas distributor.

THE SUPERMIG250 COMES EQUIPPED WITH: ✓ Torch ✓ Mini reel of 0.8mm wire ✓ Regulator ✓ Gas hose.

Welding Current	30-240A	Spot Welding	Spot Weld Timer
Duty Cycle	100% @ 95A 60% @ 125A 15% @ 200A	Gas Types	CO2/Argon & Argon Mix
Input	230V - 1ph, 7.7kW	Wire Capacity	5-15kg
Cooling	Turbo Fan	Wire sizes	0.6mm, 0.8mm and 1.0mm (optional)
		Torch	Euro Non-live
		Weight	50kg

### 3. ASSEMBLY & PREPARATION

#### 3.1. Wheel and handle assembly (fig.1)

- 3.1.1. Turn machine upside down, and remove the screws attached to the bottom front. Use these screws to attach the front castor wheels.
- 3.1.2. Attach the rear axle to the underside of the base using the U-brackets, bolts, washers and nuts.
- 3.1.3. Slide a washer on to the axle, then the wheel, a second washer and then secure with a split pin and repeat for the other side.
- 3.1.4. Attach the handle to the top of the welder using the two screws.

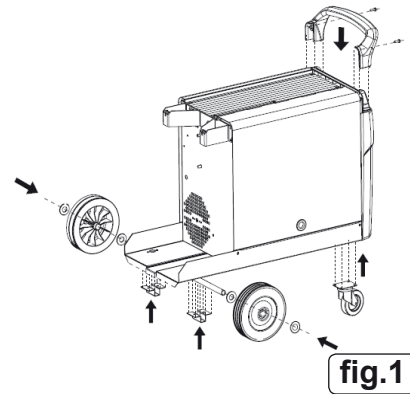


fig.1

#### 3.2. Connecting the gas cylinder

- 3.2.1. Lift the gas cylinder onto the platform on the back of the welder and secure with the chain. Ensure that the chain is around the top half of the cylinder. Maximum cylinder weight 20kg.
- 3.2.2. Check the threads on the gas cylinder and the regulator for damage and cleanliness, use compressed air or crack open the cylinder very briefly to blow out any dust or debris. When using Argon or Argon mixtures, use the Bull Nose Adaptor. Fit the Bull Nose Adaptor to the cylinder with a spanner. If you intend to use CO<sub>2</sub> gas, the regulator will fit directly onto the cylinder. **WARNING! DO NOT** use PTFE tape or any thread sealant or lubricant on the joints. If the threads are damaged, the fittings must be replaced before using.
- 3.2.3. Fit the gas regulator on the Bull Nose Adaptor and connect it to the machine gas hose (fig.2) and secure with the supplied hose clip.
- 3.2.4. Turn the regulator knob anti-clockwise to ensure that the regulator is not subjected to a pressure surge when the gas cylinder valve is opened. Gently crack open the cylinder valve and turn the regulator knob clockwise to open the valve to the machine. Check all the joints with an approved leak detector (available from your gas supplier).
- 3.2.5. Set the regulator flow rate to 5-8 litres/min depending on the material to be welded.



fig.2

#### 3.3. Mobile use of welder with gas cylinder attached

The welder should only be moved with a small or medium gas cylinder attached.

#### 3.4. Euro connection

Your welder has a Euro torch connection. Line up pins in the torch connector with the appropriate holes in the socket, push in and tighten knurled ring (fig.3).

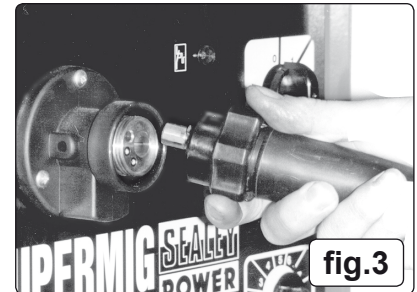


fig.3

#### 3.5. Fitting a reel of wire

Wire capacity: (Mild Steel) 5-15kg.

- 3.5.1. Push wire reel over reel holder end springs and onto reel holder ensuring that the spool rotates clockwise, with the wire drawing off the reel from the top (see fig.4b). Large spools of wire have a guide hole which must be pushed onto the plastic pin located at the end of the reel holder. This pin will stop larger reels from free-wheeling on the spool.
- 3.5.2. To secure the reel of wire take the plastic spacer(s), use one or two as required. Place the spacer over the spool end springs and onto the spool ensuring that the two cut-outs are facing outward from the reel of wire and locate on the two end springs (fig.4a).
- 3.5.3. Undo the wire lock screw and lift the wire feed lever up to the right (fig.5a). The outer groove of the roller must match the size of the wire to be used. If required undo the two screws and turn the roller around so that the appropriate groove is outermost.
- 3.5.4. Free the end of the wire from the reel (*do not allow wire to uncoil*) and remove the distorted end with a clean cut with no burrs. Gently push wire through the wire guide infeed and through the 0.6 or 0.8mm roller groove (fig.5), and pushing it through 50 to 100mm into the torch fitting (fig.5c).
- 3.5.5. Carefully return the tension arm and secure with the wire lock screw.
- 3.5.6. Remove gas cup (fig.6a) and contact tip from end of torch as follows:

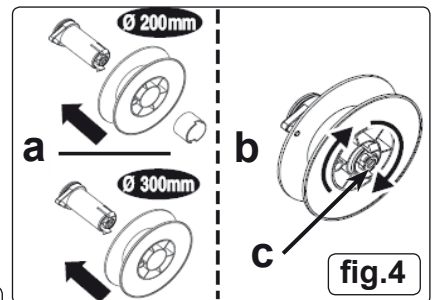


fig.4

- a) Hold the torch.
  - b) Grasp gas cup firmly and turn clockwise at the same time pulling the cup away from the torch.
- WARNING! do not turn gas cup anti-clockwise, as this will damage the internal spring.**
- c) Unscrew copper contact tip (*right hand thread*) to remove.

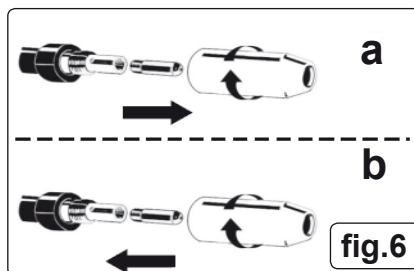


fig.6

- 3.5.7. Check welder power switch is switched off "0", and that the earth clamp is away from the torch tip. Connect the welder to the mains power supply and switch on "I".

- 3.5.8. Set the current regulator switch (fig.8) to one.
- 3.5.8. Set the wire speed knob (fig.7) to position 5 or 6. Keep the torch cable as straight as possible and press the torch switch. The wire will feed through the torch.

- 3.5.9. When the wire has fed through by 10 to 15cm, switch welder off, unplug from mains.

- a) Feed the wire through the contact tip and screw the tip back into place.
- b) Push the gas cup onto torch head turning **clockwise only** at the same time (fig.6b).
- c) Cut wire so that approx 10mm is protruding from the cup.

#### 3.6. Setting wire tension (fig.5)

**IMPORTANT: You must set the correct tension. Too little or too much tension will cause problematic wire feed and result in poor welding.**

- 3.6.1. Tension between rollers is checked by slowing down the wire between your fingers. If top feed roller skids the tension is correct. Use as low a tension as possible, too high a tension will disfigure wire and may result in damage to the machine.

#### 3.7. Spool adjustment

- 3.7.1. Once the wire is fed through the torch, switch on the machine and set the wire speed to maximum.
- 3.7.2. Depress torch switch and release quickly. If the spool overruns it indicates that the spool is too loose.
- 3.7.3. Tighten the screw, located in the centre of the wire spool holder (fig.4c), with a screwdriver and test the machine as above until the wire stops overrunning.

**Note: DO NOT** overtighten the spool as this will cause wire feed problems and strain the motor.

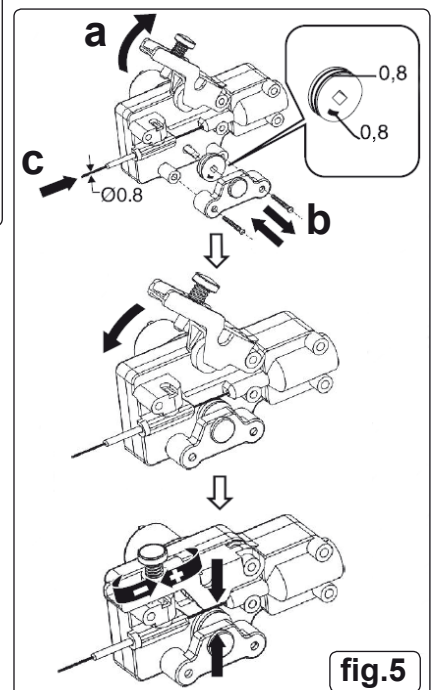
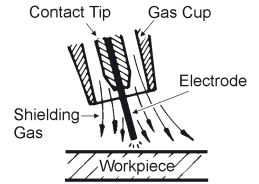


fig.5

## 4. MIG/MAG WELDING

A spool of welding wire is positioned on the spool holder and the wire is automatically fed through an insulated liner in the torch to the tip. The torch assembly consist of a switch, liner, gas hose and control cable. Pressing the switch activates the wire feed roller and the gas flow, releasing the switch stops the wire feed and gas flow. The weld current is transferred to the electrode (the wire) from the contact tip at the end of the torch. A gas cup fits over the contact tip to direct the gas flow towards the weld, ensuring that the arc welding process is shielded from the air.

The torch is connected to the positive side of a DC rectifier, and the negative clamp is attached to the workpiece.



### 4.1. PREPARATION FOR WELDING

**IMPORTANT:** BEFORE YOU COMMENCE, MAKE SURE THE MACHINE IS SWITCHED OFF AT THE MAINS. IF WELDING A VEHICLE, DISCONNECT THE BATTERY OR FIT AN ELECTRONIC CIRCUIT PROTECTOR. WE STRONGLY RECOMMEND THE USE OF SEALEY PROSAF/12 OR PROSAF/24 IN ORDER TO PROTECT THE VEHICLE ELECTRONICS. ENSURE THAT YOU READ, UNDERSTAND AND APPLY THE ELECTRICAL SAFETY INSTRUCTIONS IN SECTION 1.

#### 4.1.1. Connecting the earth lead

To ensure a complete circuit, the earth lead must be securely attached to the workpiece.

- Best connection is obtained by grinding clean the point of contact on the workpiece before connecting the earth clamp.
- The weld area must also be free of paint, rust, grease, etc.
- When welding a vehicle, be sure the vehicle battery is disconnected or fit an Electronic Circuit Protector available from your Sealey dealer.

**4.1.2. Current Regulator switch (fig.8).** Set the switch to position 1 or 2 for welding up to 2mm thickness. Use settings 3 to 8 for thicker welds.

**4.1.3. Setting the welder controls (fig.7)** In principle, the lower the amperage required, the slower the wire speed. See setting chart for voltage and corresponding wire speeds.

**Note:** These settings are only a guide and will vary according to the operator's experience.

#### 4.1.4. Welding mild steel

Hold the nozzle between 8mm and 10mm away from the workpiece at an angle of about 20° from the vertical with the nozzle shroud angled forward.

#### 4.1.5. Welding aluminium

To weld aluminium use: ✓ Argon gas, ✓ 0.8mm Contact Tip (120/722556), ✓ 0.8mm Aluminium Wire, (MIG/2/KAL08).

#### 4.1.6. Spot welding

Spot welding may be carried out as shown in fig.9.

It will be necessary to fit a spot welding gas cup (Sealey Part No.120/722687).

(a) Overlapping metal sheets with a maximum thickness of 0.8 mm may be welded as indicated.

(b) Alternatively they may be welded edge to surface as indicated.

(c) For thicker sheet pre-drilled holes may be employed.

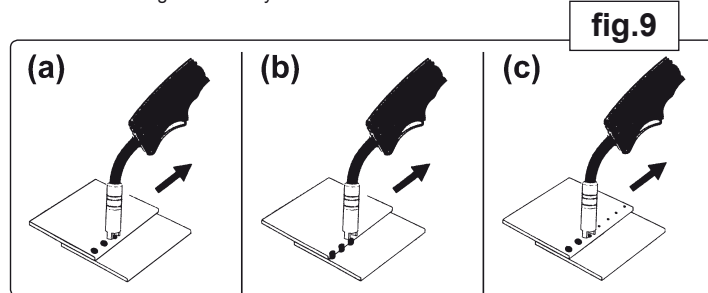
**4.1.7.** Use the wire feed control in conjunction with the spot weld timer below it. To activate the timer turn the knob clockwise. The settings indicated in the black portion of the chart are for guidance only.

#### IMPORTANT:

If you have no welding experience, we recommend you seek training from an expert source to ensure your personal health and safety. Good welding will be achieved only with continued practice.

#### 4.1.8. Overload protection

Thermostatic overload protection is provided. When an overload has occurred, leave the unit to cool. The thermostat will automatically reset when the temperature has returned to within limits.



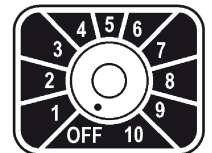
### SETTINGS SHOWN AS GUIDE ONLY

#### Wire 0.6mm Steel Argon/CO2 Mix

Voltage Step:	1	2	3	4	5	6
Wire Speed:	5	6	7	8	9	10
Spot Welding Timer						6

#### fig.7

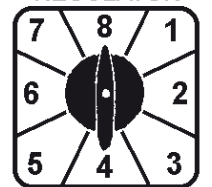
#### Wire Feed Control



#### Spot Welding Timer

#### fig.8

#### CURRENT (A) REGULATOR



## 5. RATING PLATE

### GUIDE TO RATING PLATE AND SYMBOLS For the actual ratings of your model refer to front panel.

Made in European Community ▶	MADE IN E.C.		N.		Serial number
Welder model ▶	MODEL No: SUPERMIG				
Transformer and rectifier ▶			EN 60974-1		European Standard number
MIG/MAG welding symbol ▶			A/V - A/V		Power output range shown as minimum and maximum welding current and the corresponding voltages
Indicates a welding power source suitable for use in an environment with increased hazard of electric shock		U <sub>0</sub>	V	X	%
			I <sub>2</sub>		
			U <sub>2</sub>		
	Rated no-load voltage: (a) Peak value in case of direct current, (b) Peak and r.m.s. values in case of alternating current				
	Rated supply voltage ▼		Rated maximum supply current ▼		
Indicates an alternating current power supply, phases and frequency		U <sub>i</sub>	V	I <sub>1 max</sub>	A
International standard relating to casing protection	IP			I <sub>1 eff</sub>	A
					Maximum effective supply current

## 6. MAINTENANCE

### 6.1. Wire feed unit

Check the wire feed unit at regular intervals. The feed roller wire guide plays an important part in obtaining consistent results. Poor wire feed affects welding. Clean the rollers weekly, especially the feed roller groove, removing all dust deposits.

### 6.2. Cleaning / Changing feed roller

**IMPORTANT:** The feed roller groove must correspond to the wire size.

There are two grooves on the feed roller, 0.6mm and 0.8mm, (optional 1.0mm roller available Part No: 120/722629). Always use the groove on the outside of the roller (the groove nearest to you). To remove the feed roller, undo the two screws and remove the plastic cover (fig.4b).

Clean the roller or change if damaged, refit with the groove corresponding to the wire in use on the outside and then replace the plastic cover.

### 6.3. Torch

Protect the torch cable assembly from mechanical wear. Clean the liner from the machine forwards by using compressed air. If the liner is clogged it must be replaced.

### 6.4. Contact Tip

**To remove/replace tip follow steps in 3.5.6./3.5.9. very carefully.**

The contact tip is a consumable item and must be replaced when the hole becomes enlarged or oval. The contact tip **MUST** be kept free from spatter to ensure an unimpeded flow of gas.

### 6.5. Gas Cup

**To remove/replace cup follow steps in 3.5.6./3.5.9. very carefully.**

The gas cup must also be kept clean and free from spatter. Build up of spatter inside the gas cup can cause a short circuit at the contact tip which will result in either the fuse blowing on the printed circuit card or expensive machine repairs. To keep the contact tip free from spatter, we recommend the use of Sealey anti-spatter spray (MIG/722307) and a nozzle cleaning tool (AK107) available from your Sealey Dealer.

### 6.6. Replacing the liner

Wind the wire back on to the spool and secure it. Unscrew the torch from the machine and undo the brass nut. The liner should now be visible. Pull it out and replace with a new one. **Note:** If using 1.0mm wire the optional liner (120/722689) will be required.

### 6.7. Changing gears

An inexperienced welder can allow spatter to build up in the tip and shroud. In severe cases this can block the wire feed causing gear stripping in the drive motor. To check if the gears are worn, depress the button on the torch with the set switched on. If the gears are worn, a grating sound will be heard coming from the wire feed motor and you may also observe the feed roller vibrating instead of rotating. Should this be the case, open the gearbox, remove the worn or damaged gears and replace with new ones.

## 7. ELECTROMAGNETIC COMPATIBILITY

7.1. THIS EQUIPMENT IS IN CONFORMITY WITH THE EUROPEAN STANDARD ON THE ELECTROMAGNETIC COMPATIBILITY OF ARC WELDING EQUIPMENT AND SIMILAR PROCESSES (e.g. ARC AND PLASMA CUTTING).

7.2. **Protection against interference. (E.M.C.)** The emission limits in this standard may not, however, provide full protection against interference to radio and television reception when the equipment is used closer than 30m to the receiving antenna. In special cases, when highly susceptible apparatus is being used in close proximity, additional mitigation measures may have to be employed in order to reduce the electromagnetic emissions. At the same time there could occur some potential difficulties in having electromagnetic compatibility in a non-industrial environment (e.g. in residential areas). Therefore it is most important that the equipment is used and installed according to the following instructions.

7.3. **Installation and use.** The user is responsible for installing and using the equipment according to these instructions. If electromagnetic disturbances are detected, then it shall be the responsibility of the user of the equipment to resolve the situation with the technical assistance of the supplier. In some cases this remedial action may be as simple as earthing the circuit (see Note). In other cases it could involve constructing an electromagnetic screen, enclosing the welding power source and the work, complete with associated input filters. In all cases the electromagnetic disturbances shall be reduced to the point where they are no longer troublesome.

**Note:** The welding/cutting circuit may or may not be earthed for safety reasons. Changing the earthing arrangements should only be authorised by a person who is competent to assess whether the changes will increase the risk of injury, e.g. by allowing parallel welding/cutting circuit return paths which may damage the earth circuits of other equipment. Further guidance is given in IEC 974-13 'Arc Welding Equipment - Installation and Use'.

7.4. **Assessment of area.** Before installing the equipment the user shall make an assessment of potential electromechanical problems in the surrounding area. The size of the surrounding area to be considered will depend on the structure of the building and other activities that are taking place. The surrounding area may extend beyond the boundaries of the premises.  
The following shall be taken into account:

- Other supply cables, control cables, signalling and telephone cables, above, below and adjacent to the welding equipment.
- Radio and television transmitters and receivers.
- Computer and other control equipment.
- Safety critical equipment, e.g. security monitoring of industrial equipment.
- The health of people in the vicinity, e.g. persons fitted with a pacemaker or hearing aid.
- Equipment used for calibration or measurement.
- The immunity of other equipment in the environment. The user shall ensure that other equipment being used in the environment is compatible. This may require additional protective measures.
- The time of day that welding and other activities are to be carried out.

7.5. **Mains supply.** The equipment should be connected to the mains supply according to these instructions. If interference occurs, it may be necessary to take additional precautions such as filtering of the mains supply. Consideration should also be given to shielding the supply cable of permanently installed equipment in metallic conduit or equivalent. This shielding should be connected to the power source so that good electrical contact is maintained between the conduit and the welding power source enclosure.

7.6. **Maintenance of the equipment.** The equipment should be routinely maintained according to these instructions. All access and service covers should be closed and properly fastened when the welding equipment is in operation. The welding equipment should not be modified in any way except for those changes and adjustments covered in these instructions. In particular, the spark gaps of any arc striking and stabilising devices should be adjusted and maintained according to the instructions.

7.7. **Cables.** The welding/cutting cables should be kept as short as possible and should be positioned close together, running at or close to the floor level.

7.8. **Equipotential bonding.** Bonding of all metallic components in the welding/cutting installation and adjacent to it should be considered. However, metallic components bonded to the workpiece will increase the risk that the operator could receive a shock by touching these metallic components and the electrode at the same time. The operator should be insulated from all such bonded metallic components.

7.9. **Earthing of the workpiece.** Where the workpiece is not bonded to earth for electrical safety, nor connected to earth because of its size and position, e.g. ship's hull or building steelwork, a connection bonding the workpiece to earth may reduce emissions in some, but not all instances. Care should be taken to prevent the earthing of the workpiece increasing the risk of injury to others or damage to other electrical equipment. Where necessary, the connection of the workpiece to earth should be made by a direct connection to the workpiece, but in some countries where direct connection is not permitted, the bonding should be achieved by a suitable capacitance, selected according to national regulations.

7.10. **Screening and shielding.** Selective screening and shielding of other cables and equipment in the surrounding area may alleviate problems of interference. Screening of the entire welding/cutting installation may be considered for special applications.

## 8. TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
Power source stops.	Overheating protection activated due to overload.	Protection automatically resets when transformer has cooled (about 15 min).
No weld current, supply fuse blown.	Rectifier blown.	Replace rectifier.
No weld current.	Bad connection between clamp and workpiece.	Clean or grind contact surface and weld area.
	Break in earth lead.	Repair or replace earth lead.
	Break in torch lead.	Repair or replace torch.
Feed motor not working, lamp is on.	Fuse blown.	Replace fuse.
	Gear damaged or worn.	Replace gears (Section 6).
	Motor defective.	Replace motor (Contact service agent).
Wire does not feed, feed roller rotates.	Pressure roller incorrectly adjusted.	Adjust tension.
	Dirt, dust, etc, have collected in torch liner.	Clean the liner from the machine forward. Use compressed air. If too much dirt, replace the liner (Section 6).
	Gas cup (nozzle) or tip defective.	Replace gas cup (nozzle) and/or tip (Section 6).
	Deformed wire.	Check roller tension and adjust it if necessary (Section 3).
Wire feeds unevenly.	Dirt, etc., in liner.	Clean the liner from the machine forward. Use compressed air.
	Gas cup (nozzle) or tip defective.	Replace gas cup (nozzle) and/or tip (Section 6).
	Gas cup (nozzle) spattered.	Clean or replace gas cup (nozzle) (Section 6).
	Feed roller groove clogged.	Clean feed roller (Section 6).
	Feed roller groove deformed.	Replace feed roller (Section 6).
	Pressure roller tension incorrect.	Adjust tension (Section 3).
Unstable arc.	Incorrect settings.	Check settings. (Section 4).
	Impurities in weld area.	Clean and/or grind workpiece. (Section 4).
	Worn or defective gas cup (nozzle).	Replace gas cup (nozzle). (Section 6).
Porous weld.	No gas.	Open gas cylinder, regulate gas flow.
	Gas cup clogged.	Clean or replace cup (Section 6).
	Draft blowing away shielding gas.	Screen off welding site or increase gas flow.
	Rusty or dirty joints.	Clean or grind the workpiece (Section 4).
	Torch too far from, or at wrong angle to work.	The distance from gas cup to workpiece should be 8-10mm
	Gas leak.	Check hoses, connections and torch assembly.
	Faulty electrovalve.	Clean out or replace.
Electrode sticking in gas cup (nozzle).	Worn or defective gas cup (nozzle).	Replace gas cup (nozzle). (Section 6).
	Electrode deformed.	Check roller tension. (Section 3).
	Wire speed too slow.	See recommendations for wire speed. (Section 4).
Irregular weld bead.	Torch incorrectly held.	Use correct torch angle.
	Wire weaving in weld pool.	Check roller tension and adjust as needed. (Section 3).
Weld bead too narrow and raised.	Weld current too low.	Increase power and wire speed. (Section 4).
	Weld speed too high.	Move torch slower and weave a little more.
Weld bead too wide.	Weld current too high.	Decrease power and wire speed. (Section 4).
	Weld speed too low.	Move torch faster and weave less.
	Arc too long.	Bring torch closer to workpiece.
Poor penetration.	Weld current too low.	Increase power and wire speed. (Section 4).
	Arc too long.	Bring torch closer to workpiece.
Excessive penetration.	Weld current too high.	Decrease power and wire speed. (Section 4).
	Weld speed too slow.	Move torch faster.
	Incorrect distance of torch to workpiece.	Torch distance should be 8-10mm.
Fuse blowing.	Wire tension too great.	Adjust tension. (Section 3).
	Gas cup contact tip clogged.	Clean gas cup and contact tip. (Section 6).

**NOTE:** It is our policy to continually improve products and as such we reserve the right to alter data, specifications and component parts without prior notice.

**IMPORTANT:** No liability is accepted for incorrect use of this product.

**WARRANTY:** Guarantee is 12 months from purchase date, proof of which will be required for any claim.

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MODEL No:

**SUPERMIG250**

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