MIG/MMA INVERTER WELDER180A

MODEL NO'S: IMIG180.V3

Thank you for purchasing a Sealey product. 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: PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS & CAUTIONS. USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY. KEEP THESE INSTRUCTIONS SAFE FOR FUTURE USE.





manual



Wear a welding mask



Wear protective gloves



Warning! Electricity Shock hazard



Warning! Keep away from rain



Caution required



Arc rays can

burn eves and

injure skin

from welding electrodes can kill



Electric shock Breathing welding fumes can be hazardous to your health





Welding sparks can Electromagnetic fields can cause pacemaker cause explosions or fire malfunction

NOTE:

Diagrams of internal components are for reference only. There may be detail differences in the components of your welder but these will not affect its operation.

SAFETY 1.

1.1. **ELECTRICAL SAFETY**

- WARNING! It is the user's responsibility to check the following:
- Check all electrical equipment and appliances to ensure that they are safe before using. Inspect power supply leads, plugs and all electrical connections for wear and damage. Sealey recommend that an RCD (Residual Current Device) is used with all electrical products
 - Electrical safety information. It is important that the following information is read and understood:
- Ensure that the insulation on all cables and on the appliance is safe before connecting it to the power supply.
- Regularly inspect power supply cables and plugs for wear or damage and check all connections to ensure that they are secure. Important: Ensure that the voltage rating on the appliance suits the power supply to be used and that the plug is fitted with the correct
- **DO NOT** pull or carry the appliance by the power cable.
- DO NOT pull the plug from the socket by the cable.
- DO NOT use worn or damaged cables, plugs or connectors. Ensure that any faulty item is repaired or is replaced immediately by a qualified electrician.
 - If the cable or plug is damaged during use, switch off the electricity supply and remove from use.
- 12 If in any doubt about electrical safety, contact a qualified electrician.
- 1.3. Ensure that the insulation on all cables and on the appliance is safe before connecting it to the power supply.
- 1.4. IMIG180.V3 is a single phase machine and must be run from a minimum 16amp supply.
- To achieve maximum output these models will require a 32Amp fused supply. We recommend you discuss the installation of an industrial 1.5. round pin plug and socket with your electrician.
- 1.6. 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.

1.7. **GENERAL SAFETY**

- DANGER! Unplug the welder from the mains power supply before performing maintenance or service.
- WARNING! DO NOT place the welding power source on a tilted plane as this may lead to the unit toppling over.
- Welding power sources are not suitable for use in rain or snow.
- The output is rated at an ambient temperature of 20 °C and the welding time may be reduced at higher temperatures.
- Risk of electric shock: Electric shock from welding electrode can kill. DO NOT weld in the rain or snow. Wear dry insulating gloves. DO NOT touch electrode with bare hands. DO NOT wear wet or damaged gloves. Protect yourself from electric shock by insulating yourself from workpiece. DO NOT open the equipment enclosure.
- Risk induced by welding fumes: Breathing welding fumes can be hazardous to your health. Keep your head out of the fumes. Use equipment in an open area. Use ventilating fan to remove fumes.
- Risk induced by welding sparks: Welding sparks can cause explosion or fire. Keep flammables away from welding. DO NOT weld near flammables. Welding sparks can cause fires. Have a fire extinguisher nearby and have a watch person ready to use it. DO NOT weld on drums or any closed containers.
- Risk induced by the arc: Arc rays can burn eyes and injure skin. Wear hat and safety glasses. Use ear protection and button shirt collar. Use welding helmet with correct shade of filter. Wear complete body protection.
- Risk induced by electromagnetic fields: Welding current produces electromagnetic field. DO NOT use with medical implants. Never coil welding cables around your body. Route the welding cables together.
- 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 stockist.
- ✓ 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 shoes.
- ✓ Turn voltage switch to OFF when not in use.
- Example 2 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.
- 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. DO NOT use power source for pipe thawing.
- **DO NOT** stand welder on a metal workbench, car bodywork or similar object.
- DO NOT touch any live metal parts of the torch or electrode while the machine is switched on.
- 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.
- DO NOT touch the torch or workpiece immediately after welding as they will be very hot. Allow to cool.
- 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.

1.8. GAS SAFETY

- ✓ Store gas cylinders in a vertical position only and ensure that the storage area is correctly secured.
- 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.
- DO NOT attempt to repair or modify any part of a gas cylinder or valve and DO NOT puncture or damage a cylinder.
- DO NOT obscure or remove any official cylinder labels. Always check the gas identity before use. Avoid getting gas cylinders oily or greasy
- 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

Fan cooled DC power supply. MIG welds steel, stainless steel, copper, nickel, titanium and their alloys. Also suitable for MMA/ARC welding with a variety of rods including rutile, basic and stainless from Ø1.6mm to Ø4mm. Can be used in gas and gasless mode. Thermal overload protection. Supplied with 3m MIG torch, 2m 16mm² earth cable, both with 10-25 quick connectors, 3m gas hose and regulator. Duty Cycle: 20% @ 180A. Wire Capacity: 5kg

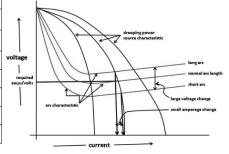
3. SPECIFICATION

Model no.	IMIG180.V3
Applicable Standards	EN 60974-10:2014+A1:2015
	EN IEC 60974-1:2018+A1:2019
MMA Accessory Kit (Optional)	MMA01
Duty Cycle	20% @ 180A
Electrode capacity	Ø1.6-4mm
Gas type	CO2, Argon, CO2/Argon Mix
MMA Accessory Kit (Optional)	MMA01
MMA/ ARC	100% @ 67A , 60%, @ 87A, 20% @ 150A
MIG	100% @ 80A , 60%, @ 104A, 20% @ 180A
Nett Weight	14.5kg
Plug Type	Bare Wire
Pollution degree	Level 3
Power Supply Cable Length	2.2m
Protection	IP21S
Supply	230V**
Wire capacity	5Kg
Welding current	30-180A
MIG Torch	Euro Non-Live BINZEL® MB15*

Class of insulation	Class 1
Duty cycle	20%
Efficiency of the product	80%
EMC classification	Class A

Pollution degree

MIG	30 A / 15.5 V ~ 180 A / 23 V					
MMA	30 A / 21.2 V ~ 150 A / 26 V					
Χ	20 %		60 %		100 %	
				MMA		
2	180 A	150 A	104 A	87 A	80 A	67 A
U2	23 V	26 V	19.2 V	23.5 V	18 V	22.7 V



4. RATING PLATE

On the front panel of the welder is the ratings plate, giving the following data:

- 1 The BS/EU standard relating to the safety and construction of arc welding and associated equipment.
- 2 Single phase transformer.
- 3 Symbol indicates welding with a continuous flow of welding wire.
- 4 Symbol for Single-phase AC supply.
- 5 Rating of internal protection provided by casing.
- 6 Output U_n Rated minimum and maximum no load voltage.
- I,, U, Current and corresponding voltage.
- X Welding ratio based on a 10 minute cycle.

20% indicates 2 minutes welding and 8 minutes rest,

100% would indicate continuous welding.

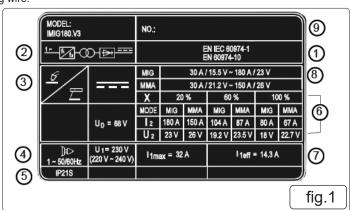
7 - Mains Supply

U, Rated supply voltage and frequency.

I₁max Maximum current.

I₁eff Maximum effective current.

- 8 Welding current range.
- 9 Serial Number. Specifically identifies each welder.



5. CONTENTS



Note: To achieve maximum power a 32A supply may be required.

6. ASSEMBLY

6.1. CONNECTING THE TORCH

6.1.1. Line up the pins in the torch connector with the appropriate holes in the socket on the front panel connector (fig.2), push in, engage and tighten the locking nut (fig.3).

6.2. CONNECTING THE WELDING CURRENT RETURN (EARTH) CABLE

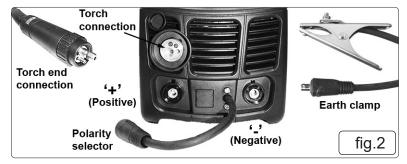
- 6.2.1. Firmly attach the earthing clamp (fig.2) to the workpiece, or to a metal support structure, as close as possible to the joint being made.
- 6.2.2. Insert the earthing clamp quick connector (fig.2) into the required socket, located on the lower front panel.

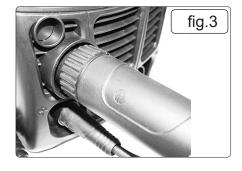
MIG welding:

Insert the polarity selector connector into the '+' (positive) socket and the earth cable connector into the '-' (negative) socket.

Fluxed core gasless welding:

Insert the polarity selector connector into the '-' (negative) socket and the earth cable connector into the '+' (positive) socket.



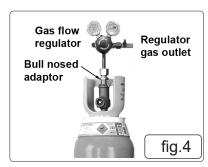


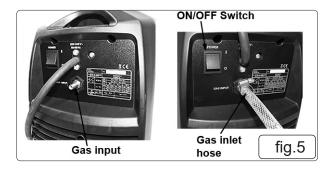
6.3. FITTING THE FLOW REGULATOR

- 6.3.1. If using CO2 gas, screw the flow regulator directly into the cylinder, and tighten with correct size spanner (fig.4).
- 6.3.2. If using argon or argon mixture gas, the supplied "bull nose adaptor" should be fitted to the cylinder and be tighten with correct size spanner, then screw the flow regulator into the "bull nose adaptor", and tighten with correct size spanner (fig.4).
- 6.3.3. Remove the flow regulator and store in a dry childproof location if the welding set is to be stored for any length of time. **NOTE:** The supplied flow regulator may differ from that illustrated.

6.4. ATTACH THE GAS HOSE

- 6.4.1. Push one end of the gas hose fully onto the flow regulator gas outlet connection and secure with the worm drive clip (fig 4).
- 6.4.2. Remove the end dust cap, then push the other end of the gas hose fully onto the gas inlet connection on the rear panel and secure with the worm drive clip (fig 5).



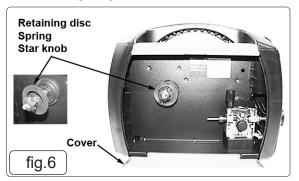


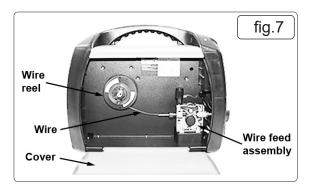
6.5. **FITTING A REEL OF WIRE**

- 6.5.1. Open the wire feed compartment cover and unscrew and remove the star knob, spring and retaining disc (fig.6) and place to one side.
- 652 Slide the wire reel onto the reel holder (fig.7).
- Reattach the star knob, spring and retaining disc and fully tighten (fig.7).
- DO NOT over tighten.

6.5.4. Ensure that the wire is spooling off from the bottom of the wire reel in the direction of the wire drive unit (fig.7).

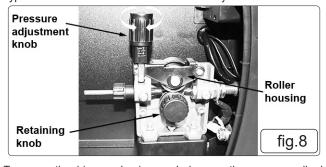
NOTE: The larger 5kg wire reel can also be fitted.

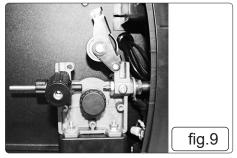




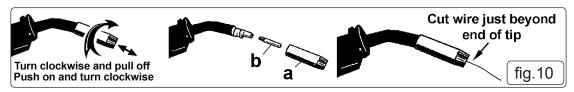
6.6. FEEDING THE WIRE THROUGH THE TORCH

WARNING! Ensure that the wire feed roller, the wire guide hose and the contact tip of the torch correspond to the diameter and type of wire to be used and are fitted correctly.





- 6.6.1. To access the drive mechanism push down on the pressure roller housing (fig.8) and pull the pressure adjustment knob (fig.8) towards you and allow to it to rotate downwards. Release the pressure roller housing allowing it to rotate up towards the right.
- Ensure that the required feed groove (Ø0.8mm and Ø1.0mm wire) is in line with the wire path. See section 5.8 on how to reverse or 6.6.2.
- 6.6.3. Release the wire from the reel and trim off any bent portion and remove any burrs
 - WARNING! Prevent the wire from uncoiling by keeping the wire under tension at all times.
- 6.6.4. Straighten 50-100mm of wire and gently push it through the flexible metal sheathed cable (fig.7) over the feed roller groove and then into the torch cable liner.
- Push down the pressure roller onto the wire feed roller and hold it down then rotate the pressure knob upwards and into the housing 6.6.5. until it snaps into position (fig.8).
- Rotate the tension knob to a medium pressure setting between 2 and 3. 6.6.6.
 - NOTE: Turning the knob clockwise increases the pressure and turning anti-clockwise decreases the pressure (fig.8).



- 6.6.7. Remove the gas cup by turning clockwise and pull it off the end of the torch (fig.10a).
 - WARNING! DO NOT turn the gas cup anti-clockwise. This will damage the internal spring.
- 6.6.8. Unscrew the copper contact tip (fig.10b).
- 669 Check that the welding set is switched off at position '0' (fig.5) and that the earth clamp is isolated away from the torch tip.

- 6.6.10. Connect the welding set to the mains power supply and set the voltage switch to '1'.
- 6.6.11. Set the wire speed control knob to position 5 or 6. Keep the torch cable as straight as possible and press the torch switch and the wire will feed through the torch.
- 6.6.12. When the wire has fully fed through, switch the welding set off and unplug from the mains.
- 6.6.13. Slide the contact tip over the wire and screw back into position.
- 6.6.14. Reattach the gas cup.
- WARNING! DO NOT turn the gas cup anti-clockwise. This will damage the internal spring.
- 6.6.15. Cut the wire so that it is just protruding from the gas cup (fig.10).

7. OPERATION

7.1. SETTING THE WIRE TENSION

7.1.1. Adjust the wire tension by turning the wire tension knob (fig.8). Turn clockwise to increase the tension and anti-clockwise to decrease the tension.

IMPORTANT: Too little or too much tension will cause problematic wire feed and poor weld quality.

7.1.2. Tension between rollers is checked by slowing down the wire between your gloved fingers. If the top feed rollers skid the tension is correct. Use as low a tension as possible; too high a tension will deform wire and result in a blown fuse on the printed circuit board. Adjust tension by turning the pressure knob (fig.8).

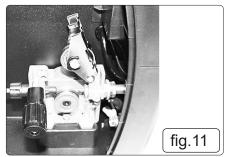
7.2. TURNING/CHANGING THE DRIVE ROLLER

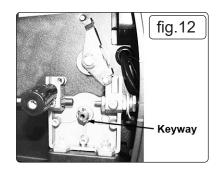
NOTE: Ensure that the contact tip, the groove size on the drive wheel and torch liner correspond to the wire diameter being used. Failure to do this could cause the wire to slip and/or bind.

- 7.2.1. Open the wire feed mechanism. See section 5.6.1.
- 7.2.2. Unscrew and remove the black feed roller retaining knob (fig.8), and put to one side.
- 7.2.3. The roller carrier (fig.11) is keyed to the main drive shaft.
- 7.2.4. With care slide the slide the drive roller off the drive shaft. Ensure the key bar remain in place (fig.12).

NOTE: The size of each wire feed groove is marked on the edge of the roller on the same side as the groove.

- 7.2.5. Reverse or replace the drive roller as required. The required groove should be positioned furthest away from you and be in line with the drive path.
- 7.2.6. Replace the drive roller. Ensure that the keyway is aligned.
- 7.2.7. Reattach the black feed roller retaining knob and tighten.
- 7.2.8. Close the wire feed mechanism.





7.3. WIRE FEED CONTROL

7.3.1. Select the desired wire feed with the 'Wire Feed Control' control located on the front panel of the welding set (fig.13).

7.4. GASLESS WELDING

- 7.4.1. Disconnect gas hose (fig.4) from cylinder. Store cylinder in safe dry childproof location.
- 7.4.2. Connect polarity cable to suit gasless welding. See section 5.2.2.
- 7.4.3. Ensure that the contact tip, the groove size on the drive wheel and torch liner correspond to the wire diameter being used.

7.5. MANUAL METAL ARC WELDING (MMA)

NOTE: Before connecting cables it is important to read and fully understand the electrode manufacturer's instructions on the electrode packaging. This will indicate the correct polarity connection for the electrode, together with the most suitable current to use. In principle, when ARC welding the Electrode Holder "POSITIVE" is normally connected to the "POSITIVE" (+) terminal (fig.2). The EARTH CLAMP cable is connected to the terminal not occupied by the electrode holder cable.

The clamp is connected to either:

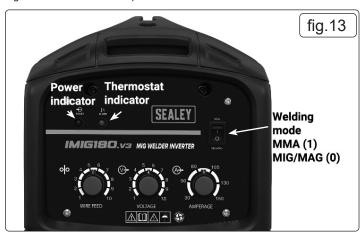
- a) The work piece.
- b) A metallic work bench. The connection must be as close to the proposed weld as possible.
- **WARNING!** Cable connectors must be turned into the quick plugs fully to ensure a good electrical contact. Loose connections will cause overheating, rapid deterioration and loss in efficiency.
- DO NOT use welding cables over 10m in length.

With the exception of a metallic workbench DO NOT connect the return cable to any metallic structure which is not part of the workpiece, as this may be dangerous.

© Jack Sealey Limited Original Language Version IMIG180.V3 Issue 2 10/01/25

8. CONTROLS

8.1. Fig 13 illustrates the main panel control for IMIG180.V3.



8.2. SYSTEM PROTECTION fig.13

A thermostat is built into the system to protect against overheating. The indicator light comes on when overheating occurs and cuts off the power supply. It will reset automatically within a few minutes, after cooling down.

9. MAINTENANCE

9.1. 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. If the wire feed wheel is found worn, it should be replaced in time to prevent uneven wire feeding, and the wire feed pressing wheel should not be pressed too tightly to ensure smooth wire feeding. (Too tight will deform the welding wire, increase the wire feed resistance, and accelerate the wear of the wire feed machine gear.)

9.2. 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.

9.3. CHANGING DRIVE ROLLER (See Section 5.8).

9.4. CONTACT TIP

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. Refer to fig.10 and section 5.6.7 for removal and replacement.

9.5. GAS CUP

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/722308) available from your Sealey stockist. Refer to fig.10 and section 4.12.5 for removal and replacement.

9.6. 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.

10. TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY	
1. Power source stops	Overheating protection activated due to overload.	Protection automatically resets when transformer has cooled (about 15 min).	
2. No weld current	Rectifier blown.	Replace rectifier.	
3. No weld current	Bad connection between clamp & 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.	
4. Feed motor not working	Gear damaged or worn.	Replace gears. (Contact service agent).	
	Motor defective.	Replace motor (Contact service agent).	
5. Wire does not feed, feed roller	Pressure roller improperly adjusted.	Adjust tension.	
rotates	Dirt, copper, dust, etc, has collected in torch liner.	Clean the liner from the machine forward. Use compressed air. If too much dirt, replace the liner.	
	Gas cup (Nozzle) or tip defective.	Replace gas cup (nozzle) and/or tip.	
	Deformed wire.	Check roller tension and adjust it if necessary	

6. 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.	
	Gas cup (Nozzle) spattered.	Clean or replace gas cup (nozzle)	
	Feed roller groove clogged.	Clean feed roller.	
	Feed roller groove deformed.	Replace feed roller.	
	Pressure roller tension improper.	Adjust tension.	
7. Unstable arc	Incorrect settings.	Check settings.	
	Impurities in weld area.	Clean and/or grind workpiece.	
	Worn or defective gas cup (nozzle).	Replace gas cup (nozzle).	
8. Porous weld	No gas.	Open gas cylinder, regulate gas flow.	
	Gas cup clogged.	Clean or replace cup. (nozzle)	
	Draft blowing away shielding gas.	Screen off welding site or increase gas flow.	
	Rusty or dirty joints.	Clean and/or grind workpiece.	
	Torch too far from or at wrong angle to work.	The distance from gas cup to workpiece should be 8 to 10mm.	
	Gas leak.	Check hoses, connections and torch assembly. Press the gas cup in correction position.	
	Faulty Electrovalve.	Clean out or replace.	
Electrode sticking in gas cup	Worn or defective gas cup (nozzle).	Replace gas cup (nozzle).	
(nozzle)	Electrode deformed.	Check roller tension.	
	Wire speed too slow.	See recommendations for wire speed.	
10. Irregular weld head	Torch incorrectly held.	Use correct torch angle.	
	Wire weaving in weld pool.	Check roller tension and adjust as needed.	
11. Weld bead too narrow and	Weld current too low.	Increase power and wire speed.	
raised	Weld speed too high.	Move torch slower and weave a little more.	
12. Weld bead too wide	Weld current too high.	Decrease power and wire speed.	
	Weld speed too low.	Move torch faster and weave less.	
	Arc too long.	Bring torch closer to workpiece.	
13. Poor penetration	Weld current too low.	Increase power and wire speed.	
	Arc too long.	Bring torch closer to workpiece.	
14. Excessive penetration	Weld current too high.	Decrease power and wire speed.	
	Weld speed too slow.	Move torch faster.	
	Incorrect distance of torch to workpiece.	Torch distance should be 8-10mm.	



ENVIRONMENT PROTECTION

Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment. When the product becomes completely unserviceable and requires disposal, drain any fluids (if applicable) into approved containers and dispose of the product and fluids according to local regulations.





WEEE REGULATIONS

Dispose of this product at the end of its working life in compliance with the EU Directive on Waste Electrical and Electronic Equipment (WEEE). When the product is no longer required, it must be disposed of in an environmentally protective way. Contact your local solid waste authority for recycling information.

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. Please note that other versions of this product are available. If you require documentation for alternative versions, please email or call our technical team on technical@sealey.co.uk or 01284 757505.

Important: No Liability is accepted for incorrect use of this product.

Warranty: Lifetime guarantee on Transformer - Comprises 1 year unconditional parts and labour on all parts, followed by a lifetime guarantee (parts and labour) conditional on registering your purchase with us online at www.sealey.co.uk.