INSTRUCTIONS FOR:

MIG WELDER INVERTERS 160A,180A

MODEL NO's: **IMIG160, IMIG180**

Thank you for purchasing a Sealey product. Manufactured to a high standard, this product will, if used according to these instructions and maintained properly, 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.**


Refer to Instruction Manual


Wear Protective Gloves


Warning: Arc Rays


Warning: Fumes and Gases


Warning: Electric Shock


Warning: Fire Hazard


Warning: Magnetic Fields


Warning: Crushing of Hands

1. SAFETY

1.1. ELECTRICAL SAFETY

❒ **WARNING!** It is the user's responsibility to read, understand and comply with the following: You must check all electrical equipment and appliances to ensure they are safe before using. You must inspect power supply leads, plugs and all electrical connections for wear and damage. You must ensure the risk of electric shock is minimised by the installation of appropriate safety devices. An RCCB (Residual Current Circuit Breaker) should be incorporated in the main distribution board. We also recommend that an RCD (Residual Current Device) is used with all electrical products. It is particularly important to use an RCD together with portable products that are plugged into an electrical supply not protected by an RCCB. If in doubt consult a competent 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 all portable electrical appliances, if used on business premises, to be tested by a competent 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 the appliance, and the safety of the appliance operator. **If in any doubt about electrical safety, contact a competent electrician.**

1.1.3. Ensure the insulation on all cables and the product itself is safe before connecting to the mains power supply. See 1.1.1. & 1.1.2. above and use a Portable Appliance Tester (PAT).

1.1.4. Ensure that cables are always protected against short circuit and overload.

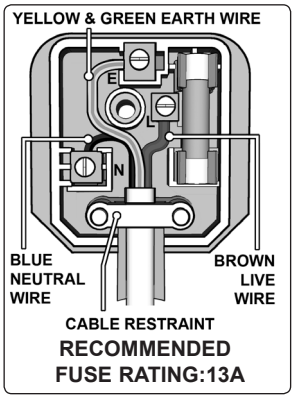
1.1.5. Regularly inspect power supply leads, plugs and all electrical connections for wear and damage and especially power connections, to ensure that none is loose.

1.1.6. Important: Ensure the voltage marked on the product is the same as the electrical power supply to be used and check that plugs are fitted with the correct capacity fuse.

1.1.7. **DO NOT** pull or carry the powered appliance by its power supply lead.

1.1.8. **DO NOT** pull power plugs from sockets by the power cable.

1.1.9. **DO NOT** use worn or damaged leads, plugs or connections. Immediately replace or have repaired by a competent electrician. A U.K. 3 =pin plug must be fitted according to the following instructions. (UK only - see diagram).



Ensure the unit is correctly earthed via a three-pin plug (unless being connected to a 32A supply)

a) Connect the green/yellow earth wire to the earth terminal 'E'.

b) Connect the brown live wire to 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 connected correctly, that the cable external insulation extends beyond the cable restraint and that the restraint is tight.

1.1.10. **Cable extension reels.** 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 section of the cable on the cable reel is important and should be at least 1.5mm², but to be absolutely sure that the capacity of the cable is suitable for this product and for others that may be used in the other output sockets, we recommend the use of 2.5mm² section cable.

❒ **WARNING! Be very cautious if using a generator to power the welder. The generator must be self-regulating and stable with regard to voltage, wave form and frequency. The output must be greater than the power consumption of the welder. If any of these requirements is not met the electronics within the welder may be affected. NOTE: The use of an unregulated generator may be dangerous and will invalidate the warranty on the welder.**

❒ **WARNING! The welder may produce voltage surges in the mains supply which can damage other sensitive equipment e.g. computers. To prevent this happening, it is recommended that the welder is connected to a power supply that does not feed any sensitive equipment.**

1.1.11. **IMPORTANT! If using welder to full capacity, we recommend a 32A supply. We recommend you discuss the installation of a 32A industrial round pin plug and socket with your electrician.**

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 to hand.

❒ **WARNING! Use a 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.

❒ **WARNING! Use a 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 machine OFF when not in use.

✗ **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 flammable materials, solids, liquids, or gases, and DO NOT weld containers or pipes which have held such products. Avoid operating on materials cleaned with chlorinated solvents or near such solvents.**

✗ **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.

1.3. 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

Manufactured with a pressed steel outer casing, these units are lighter than traditional models, with weights of up to only 15kg. Inverter welders offer many advantages over the traditional transformer type, giving greater duty cycles and more power factor efficiency. Fan cooled DC power supply, suitable to weld steel, stainless steel, copper, nickel, titanium and their alloys. Thermal overload protection which automatically switches the welder off when it exceeds maximum temperature. Front panel includes dials for voltage output and wire speed with indicator lights for input power and alarm status. Includes 1.8mtr MIG torch, 1.8mtr earth cable, gas hose, industrial regulator and 0.6, 0.8 and 0.9mm contact tips.

3. SPECIFICATION

Model No:	**IMIG160**	**IMIG180**
Welding Current:	30-160A	30-180A
Duty Cycle:	30% @ 160A	25% @ 180A
Wire Capacity:	5kg	5kg
Cooling System:	Forced Air	Forced Air
Gas Type:	CO_2, Argon, CO_2/Argon Mix	CO_2, Argon, CO_2/Argon Mix
Torch:	1.8mtr Non-Live	1.8mtr Non-Live
Supply	230V	230V
Weight:	12.5kg	12.5kg

4. SETTING UP

4.1. Connecting the gas cylinder

4.1.1. When using Argon or Argon mixtures, you will need to use the “bull nose adaptor”. Fit the bull nose adaptor to the cylinder with a spanner. (If you intend to use CO_2 gas the regulator will fit directly onto the cylinder).

4.1.2. Fit the gas regulator on to the bull nose adaptor as shown in fig.1.

4.1.3. Push the clear gas tube provided (fig.1) onto the gas inlet nozzle and retain it with the wire clip provided. Push the other end of the tube onto the gas outlet nozzle on the regulator and retain it with the other wire clip provided (fig.2)

4.1.4. When you are ready to weld set the regulator flow rate to 5-8 litres/min depending on the material to be welded, and whether there are draughts which are strong enough to disturb the gas flow.

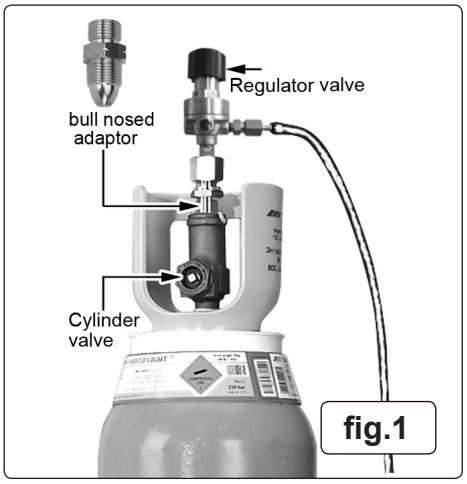


fig.1

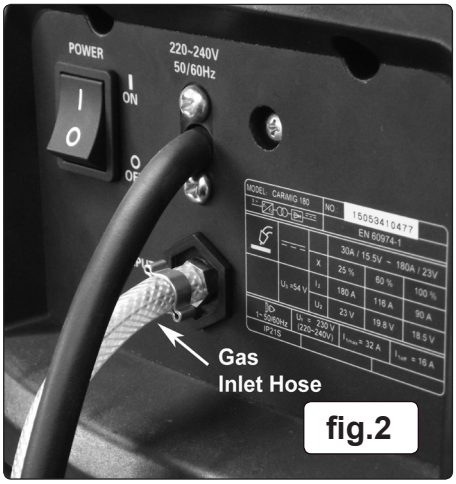


fig.2

4.2. Fitting a reel of wire.

4.2.1. Open the side compartment on the welder by pressing the black catch down to release. The interior of the side compartment is shown in fig. 3.

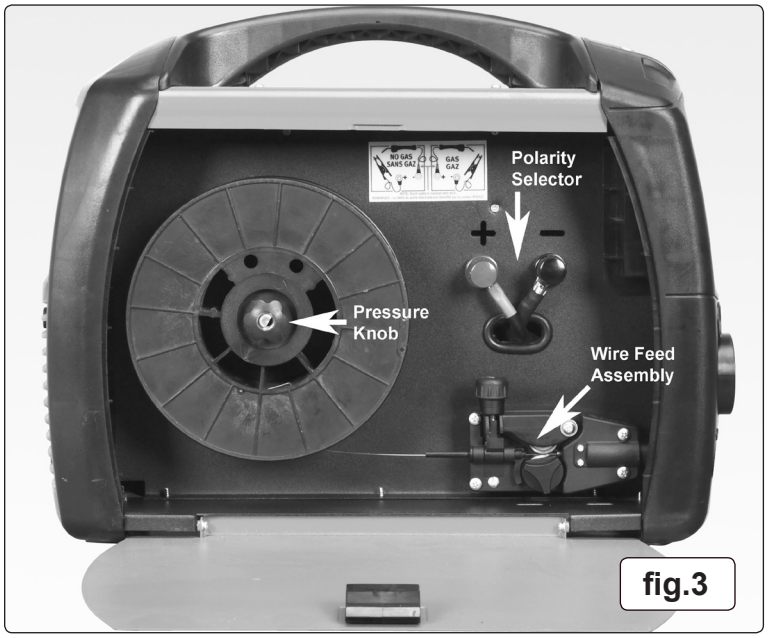


fig.3

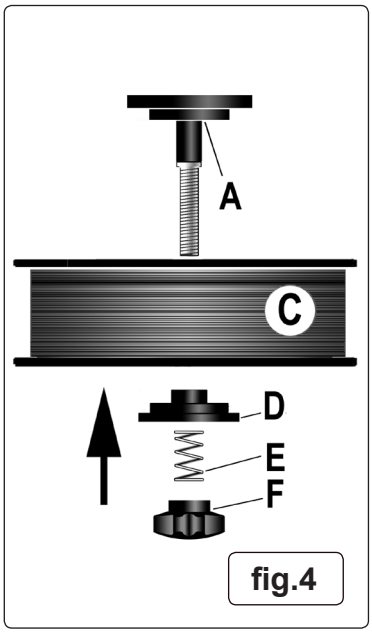


fig.4

4.2.2. Rotate the pressure knob (fig.4.F) anti-clockwise and remove it from the threaded spindle together with the spring (fig.4.E) and the top disc (fig.4.D). Small reels of wire will run on the spindle itself. The larger 5kg wire reel will run on the larger diameter flange at the base of the reel spindle (fig.4.A). Place the wire reel (fig.4.C) onto the spindle ensuring that the wire withdraws from the spool in a forwards direction and on the same side of the compartment as the wire feed unit. Place the plastic top disc (fig.4.D) over the end of the spindle followed by the reel spring (fig.4.E). Thread the pressure knob (fig.4.F) onto the end of the spindle and screw it down clockwise until the spring is partially compressed. The reel take off pressure should be set to provide a mild braking effect to prevent overrun where loose coils of wire form on the reel. Do not overtighten this knob as too much braking will conflict with the wire tension set on the wire drive unit.

4.2.3. Turn the knob on the wire lock screw (fig.5.1) anti-clockwise and unlatch it from the pressure roller moulding. Swing the pressure roller moulding (fig.5.2) away from the drive roller.

4.2.4 Straighten 40-50mm of spool wire (do not allow wire to uncoil), and push the wire gently through the plastic guide and through the 0.6 or 0.8mm feed roller groove and into the torch liner. Refer to section 4.5 on how to reverse the roller for either 0.6 or 0.8mm wire.

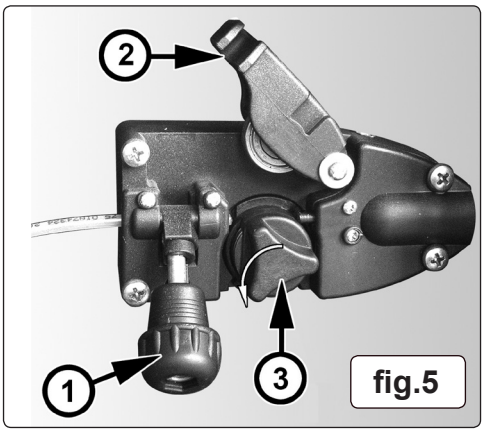


fig.5

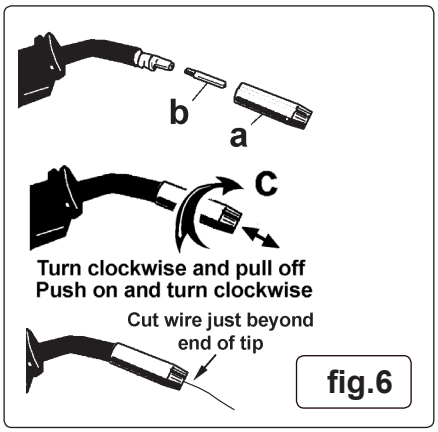


fig.6

fig.7

4.2.5. Move the pressure roller moulding back round onto the grooved drive wheel and swing the wire lock screw up to lock it in place. See 4.4. regarding wire tension.

4.3. Feeding the wire through to the torch. (fig.6)

Remove gas cup (a) and contact tip (b) from end of torch as follows:

a) Take torch in left hand with the torch tip facing to the right.

b) Grasp gas cup firmly in your right hand.

c) Turn gas cup clockwise only and pull cup out to the right.

WARNING! do not turn gas cup anti-clockwise, as this will damage internal spring.

d) Unscrew the copper contact tip (right hand thread) to remove.

4.3.1. Check welder is switched off “0” (fig.2) and that the earth clamp is away from the torch tip. Connect the welder to the electric power supply and set the voltage control (fig.7) to 1.

4.3.2. Set the wire speed control (fig.7) to position 5 or 6. Switch the main switch on “I”. Keep the torch cable as straight as possible and press the torch switch. The wire will feed through the torch.

4.3.3. When wire has fed through, switch welder off, unplug from mains.

a) Take torch in left hand and screw contact tip back into place.

b) Grasp gas cup in right hand, push onto torch head and turn clockwise only.

WARNING! do not turn gas cup anti-clockwise, as this will damage internal spring.

c) Cut the wire so that it is just protruding from the cup.

4.4. Setting Wire Tension.

IMPORTANT: You must set the correct tension, too little or too much tension will cause problems with wire feed and result in a poor weld.

4.4.1. For mild steel 0.6mm wire the wire tension screw must be fully tightened and undone approximately two complete turns (fig.8).

4.4.2. Correct tension between the rollers is checked by slowing down the wire between the fingers. If the pressure roller skids the tension is correct. Try to use the lowest tension possible as too high a tension will deform the wire and may result in blowing a fuse on the printed circuit board.

Note: Damaged torches and cables are not covered under warranty.

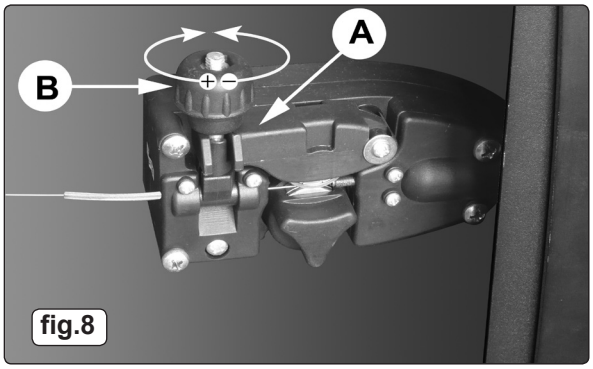


fig.8

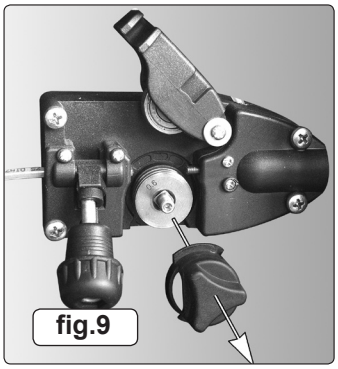


fig.9

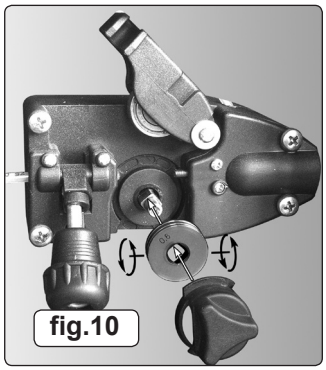


fig.10

4.5 Turning the Feed Roller *IMPORTANT:* Always turn the feed roller to suit the wire size.

4.5.1. There are two grooves on the feed roller, 0.6mm and 0.8mm. Always have the groove that is to be used on the outside of the roller. To turn the feed roller first loosen the wire tension knob and swing it into its down position then move the tensioning roller assembly to its up position (see fig.5). Take hold of the triangular knob on the roller retainer and rotate it 90°anticlockwise to release it (fig.9). Now pull the roller retainer off the drive spindle to reveal the roller.

4.5.2. Pull the roller off the drive spindle, flip it over and put it back on the drive spindle(fig.10). The groove size required should now be visible on the face of the roller. Push the roller retainer back onto the drive spindle with the opening facing left. Ensure that the flanges at the base of the retainer, seat fully into the circular recess in the main moulding and then rotate the retainer through 90° to lock it in place.

4.6. Gasless Welding.

4.6.1. The machine is supplied configured for gas welding.

4.6.2. To use the machine for gasless welding, reverse the polarity of the connections in the side compartment (fig.3). For gasless welding, the negative (black) lead should be secured to the positive (+) terminal and the positive (red) lead to the negative (-) terminal.

4.6.3. The feed roller should be turned to present the larger setting.

4.6.4. Restore the original settings before commencing gas welding.

5. OPERATION

5.1 Preparation for welding: IMPORTANT! BEFORE YOU COMMENCE, MAKE SURE THE MACHINE IS DISCONNECTED FROM THE ELECTRICAL SUPPLY. IF WELDING A VEHICLE, DISCONNECT THE BATTERY OR FIT AN ELECTRONIC CIRCUIT PROTECTOR. ENSURE THAT YOU READ, UNDERSTAND AND APPLY THE SAFETY INSTRUCTIONS IN SECTION 1.

5.1.1. To ensure a complete circuit, the negative lead must be securely attached to the workpiece close to the weld area. Best connection is obtained by grinding the point of contact on the workpiece before connecting the clamp.

5.1.2. The weld area must be free of paint, rust, grease, etc.

5.3. Gas types and their use

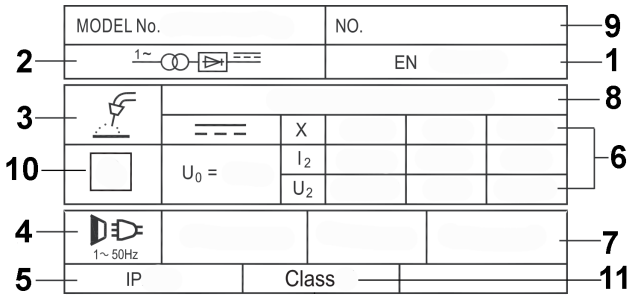
Welding mild steel with CO_2 gas is appropriate for most welding tasks where spatter and high build-up of weld do not pose a problem. To achieve a spatter free and flat weld however, requires an Argon/CO_2 mixture.

5.3.1. To weld aluminium use: ✓Argon Gas ✓0.8mm Contact Tip ✓0.8mm Aluminium Wire (MIG/2/KAL08).

5.4. Thermal Protection

Should the welder become overheated due to prolonged use beyond the stated duty cycle the thermal protection will cause the welder to cut out and the alarm light on the front panel will illuminate. Wait for fifteen minutes for the welder to cool down at which time it will restart. automatically.

6. RATING PLATE



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

1 - The BS/EU standard relating to the safety and construction of

2 - Inverter-transformer-rectifier symbols

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_0: Maximum open-circuit voltage.

I_2, U_2: Current and corresponding voltage.

X: Welding ratio based on a 10 minute cycle.

20% indicates 2 minutes welding and 8 minutes rest, 100% would indicates continuous welding.

7 - Mains Supply U_1: Rated supply voltage and frequency.

I_1max: Maximum current. I_1eff: Maximum effective current.

8 - A/V - A/V: Welding current adjustment range and corresponding voltages.

9 - Serial Number. Specifically identifies each welder.

10- Symbol for welding power sources which are suitable for supplying power to welding operations carried out in an environment with increased risk of electric shock (if applicable).

11- Insulation Class.

7. MAINTENANCE

▲ **DANGER! Unplug the welder from the mains power supply before performing maintenance or service.**

7.1. Wire feed unit:

7.1.1. 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 the weld. Clean the rollers weekly, especially the feed roller groove, removing all dust deposits.

7.2. Torch:

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

7.3. Contact tip *(to remove tip follow steps in section 4.3)*

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

7.4. Gas cup *(to remove cup follow steps in section 4.3)*

7.4.1. 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 anti-spatter spray (MIG/722307) available from your Sealey dealer.

7.5. Replacing wire liner.

7.5.1. A worn or damaged wire liner will affect the performance of the welder seriously and should be replaced immediately. First wind the wire back onto the spool and secure it. Remove the four screws securing the torch cable clamp to the wire feed unit (fig.11) and take off the clamp. Undo the torch case (fig.12) and pull the wire liner from the insulation block. Pull out the liner from the torch cable and insert the new one. Reverse the process to re-assemble. Ensure the liner is fully inserted into the torch insulation block and reassemble the torch. Trim the other end of the liner as close to the feed roller as possible. Replace the torch cable clamp.

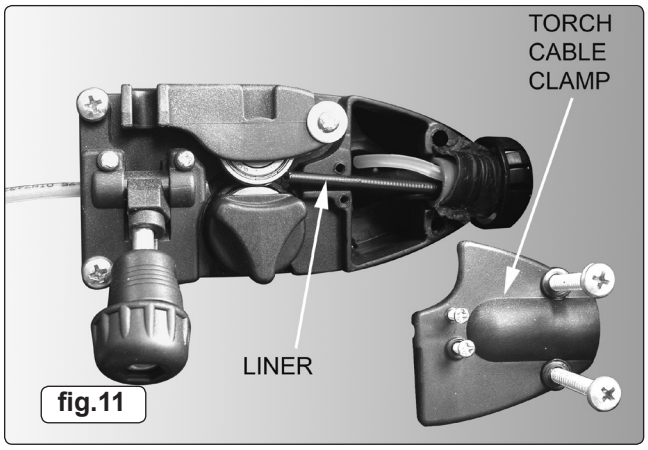


fig.11

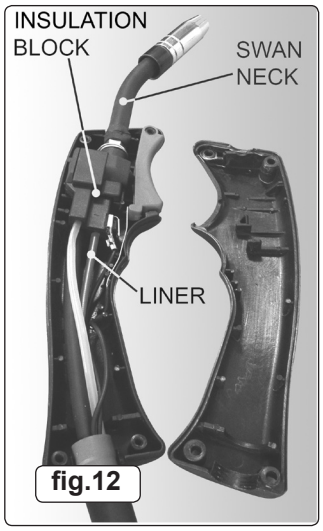


fig.12

Parts support is available for this product. To obtain a parts listing and/or diagram, please log on to www.sealey.co.uk, email sales@sealey.co.uk or telephone 01284 757500.

Environmental 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 off any fluids (if applicable) into approved containers and dispose of the product and the 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 improve products continually 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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