160A, 180A MIG/MMA WELDER INVERTER

MODEL NO: **IMIG160.V2, IMIG180.V2**

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.



Refer to instructions | Wear eye protection | Wear protective gloves | Wear safety footwear | Wear protective clothing | Wear a welding helmet | Keep away from rain | Warning



Electric shock from welding electrodes can kill | Electromagnetic fields can cause pacemaker malfunction | Welding sparks can cause explosions or fire | Arc rays can burn eyes and Injure skin | Breathing welding fumes can be hazardous to your health

1. SAFETY

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.
Ensure that the insulation on all cables and on the appliance is safe before connecting it to the power supply.

× **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.
Ensure that repairs are carried out by a qualified electrician.

✓ Sealey recommend that an RCD (Residual Current Device) is used with all electrical products.
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 fuse.

× **DO NOT** pull or carry the appliance by the power cable.

× **DO NOT** pull the plug from the socket by the cable.
This product comes without a plug. ***You must*** contact a qualified electrician to ensure an adequate supply is available.
If fitting such a plug -
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 welding set. 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 welding set. If any of the requirements are not met the electronics within the welding set may be affected.
NOTE: The use of an unregulated generator may be dangerous and will invalidate the warranty on the welding set.

❑ **WARNING!** The welding set 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 welding set is connected to a power supply that does not feed any sensitive equipment.**
IMPORTANT! If using the welding set to it's full capacity, we recommend a 32amp supply. We recommend you discuss the installation of a 16amp industrial round pin plug and socket with your electrician.

1.2. GENERAL SAFETY

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

✓ Keep the welding set and cables in good working order and 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 welding set clean for best and safest performance.

✓ Check and spray the gas cup and contact tip regularly with anti-spatter spray, available from your Sealey stockist.

✓ Locate the welding set 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 the working 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 the ultraviolet rays given off by electric arc. Wear safety welding gauntlets**.

© Jack Sealey Limited

- ✓ Remove ill fitting clothing, remove ties, watches, rings and other loose jewellery and contain long hair.
- ✓ Ensure the workpiece is correctly secured before welding.
- ✓ Avoid unintentional contact with the 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 a protective head shield and gloves.
- ✓ Operators must receive adequate training before using the welding set.
- ✓ Stand correctly keeping a good footing and balance, ensure the floor is not slippery and wear non-slip shoes.
- × **DO NOT** operate the welding set if it or the cables are damaged and **DO NOT** attempt to fit any unapproved torches or other components to the welding set.
- × **DO NOT** get the welding set wet or use in damp or wet locations or areas where there is condensation.
- ▲ ***DANGER! DO NOT weld near flammable solids, liquids or gases and DO NOT weld containers or pipes which have held flammable materials. Avoid welding materials which have been cleaned with chlorinated solvents or welding near such solvents.***
- × **DO NOT** stand the welding set on a metal workbench, car bodywork or similar.
- × **DO NOT** touch any live metal parts of the torch or electrode while the welding set is switched on.
- × **DO NOT** pull the welding set by the cable, or the torch. Protect cables from sharp or abrasive items. **DO NOT** bend, strain or stand on cables or leads.
- ✓ Protect from heat. Long lengths of slack must be gathered and neatly coiled. **DO NOT** place cables where they endanger others.
- × **DO NOT** touch the torch or workpiece immediately after welding as they will be very hot. Allow to cool.
- × **DO NOT** operate the welding set while under the influence of drugs, alcohol or intoxicating medication, or if tired.
- ✓ When not in use store the welding set in a safe, dry, childproof area.

1.3. VOLTAGE BETWEEN ELECTRODE HOLDERS OR TORCHES

Working with more than one welding machine on a single piece or on pieces that are connected electrically may generate a dangerous amount of no-load voltage between the two electrode holders or torches, the value of which may reach double the allowed limit. Measuring instruments should be used to determine the existence of a risk and suitable precautions taken.

1.4. ELECTROMAGNETIC INTERFERENCE

The electromagnetic fields generated by the welding process may interfere with the operation of electrical and electronic equipment. Users of vital electronic and electrical devices such as pacemakers and respirators are advised not to remain in the vicinity of an operating welding set. If in doubt seek medical advice before entering a welding area. Users of such devices should not operate the welding set. This welding set complies with the requirements of the technical standard for the use of this type of product, only and exclusively in industrial environments and for professional purposes. It is not guaranteed to meet electronic compatibility requirements in the home.

1.5. 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 the temperature may exceed 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.
- × **DO NOT** puncture or damage a cylinder.
- × **DO NOT** obscure or remove any official labels on a cylinder.
- ✓ 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% @ 160A (IMIG160) and 20% @ 180A (IMIG180). Wire Capacity: 5kg.

IMPORTANT: These instructions contain the information you require to prepare your welding set for welding, together with a maintenance section.

THESE INSTRUCTIONS ARE NOT INTENDED TO TEACH YOU HOW TO WELD.

If you have no experience, we recommend that you seek training from an expert source.

3. SPECIFICATION

Model	IMIG160.V2	IMIG180.V2
Welding Current:	30 - 160A	30 - 180A
MIG:	100% @ 72A , 60%, @ 92A, 20% @ 160A	100% @ 80A , 60%, @ 104A, 20% @ 180A
MMA:	100% @ 58A , 60%, @ 75A, 20% @ 130A	100% @ 67A , 60%, @ 87A, 20% @ 150A
Wire Capacity:	5Kg	5Kg
Electrode capacity:	Ø1.6-4mm	Ø1.6-4mm
Gas Type:	CO2, Argon, CO2/Argon Mix	CO2, Argon, CO2/Argon Mix
Supply:	230V**	230V**
Protection:	IP21S	IP21S
MIG Torch:	Euro Non-Live BINZEL® MB15*	Euro Non-Live BINZEL® MB15*
MMA Accessory Kit (Optional):	MMA01	MMA01

Note: *Included as standard,
**To achieve maximum power a 32A supply may be required.

4. RATING PLATE

Detailed technical data relative to the performance of the welding set is located on the back panel.
NOTE: The rating plate detailed in fig.1 is an example only intended to assist with the explanations of the symbols. To determine the correct technical values of the welding set refer to the data plate on your machine and the specification table above.

1: The relevant standard.
2: Inverter-transformer-rectifier symbols.
3: Symbol indicates welding with a continuous flow of welding wire.
Manual arc welding with covered electrode.
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.

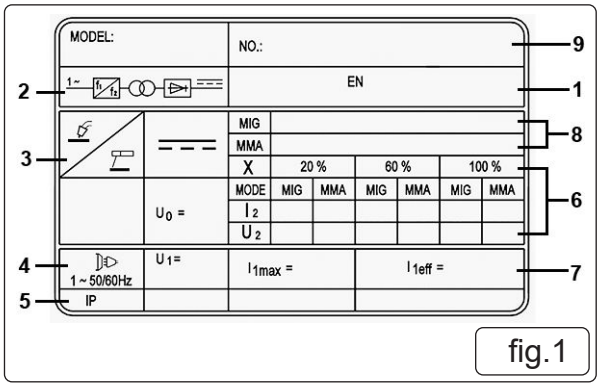


fig.1

5. ASSEMBLY

5.1. CONNECTING THE TORCH

5.1.1. 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).

5.2. CONNECTING THE WELDING CURRENT RETURN (EARTH) CABLE

5.2.1. 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.

5.2.2. 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.

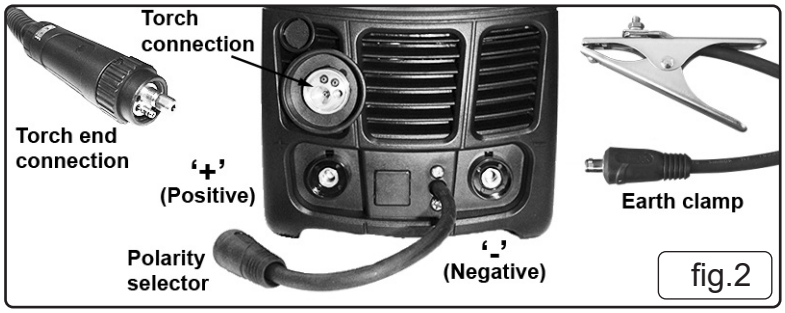
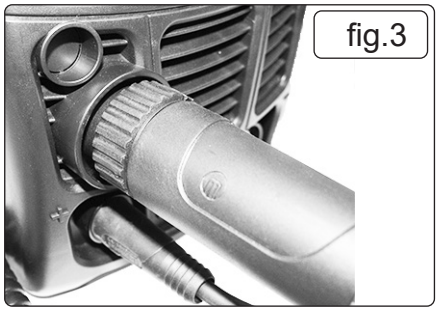


fig.2


fig.3

5.3. FITTING THE FLOW REGULATOR

5.3.1. If using CO2 gas, screw the flow regulator directly into the cylinder, and tighten with correct size spanner (fig.4).

5.3.2. 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).

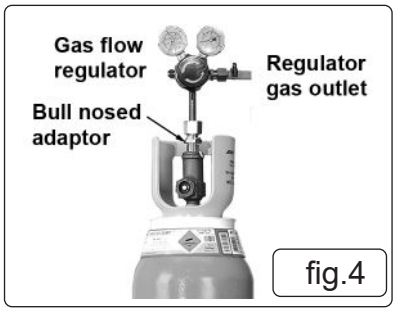
5.3.3. Remove the flow regulator and store in a dry childproof location if the welding set is to be stored for any length of time.
NOTE: The supplied flow regulator may differ from that illustrated.

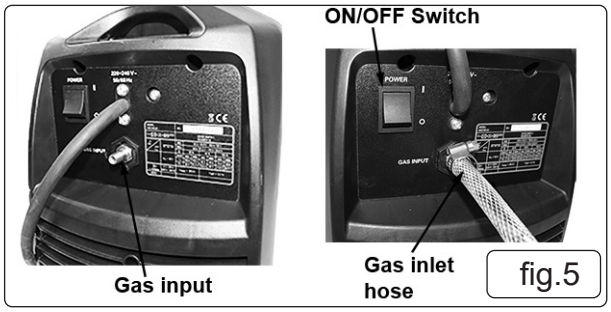
5.4. ATTACH THE GAS HOSE

5.4.1. Push one end of the gas hose fully onto the flow regulator gas outlet connection and secure with the worm drive clip (fig 4).

5.4.2. 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).

© Jack Sealey Limited





5.5. FITTING A REEL OF WIRE

5.5.1. Open the wire feed compartment cover and unscrew and remove the star knob, spring and retaining disc (fig.6) and place to one side.

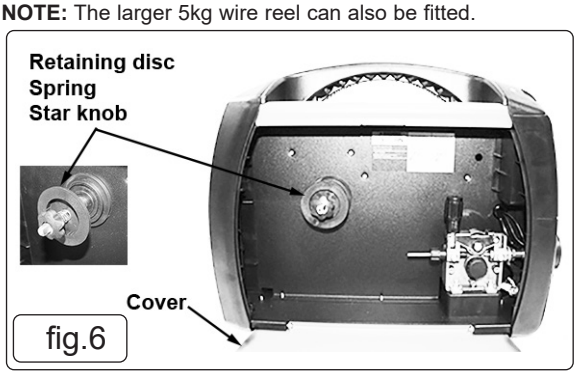
5.5.2. Slide the wire reel onto the reel holder (fig.7).

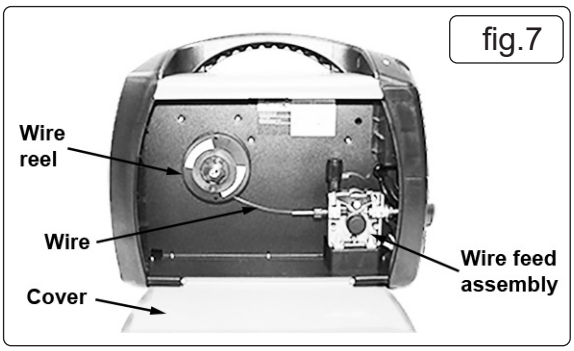
5.5.3. Reattach the star knob, spring and retaining disc and fully tighten (fig.7).

× **DO NOT** over tighten.

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

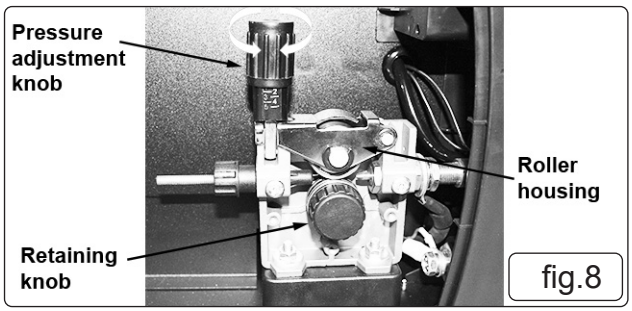
NOTE: The larger 5kg wire reel can also be fitted.

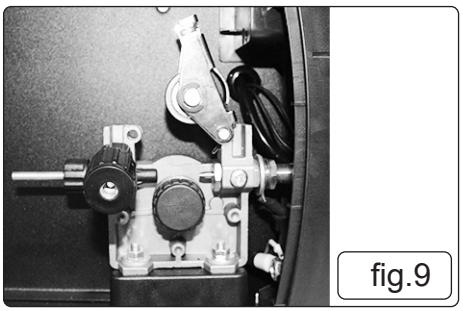




5.6. FEEDING THE WIRE THROUGH THE TORCH

❑ **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.





5.6.1. 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.

5.6.2. 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 change the roller.

5.6.3. Release the wire from the reel and trim off any bent portion and remove any burrs

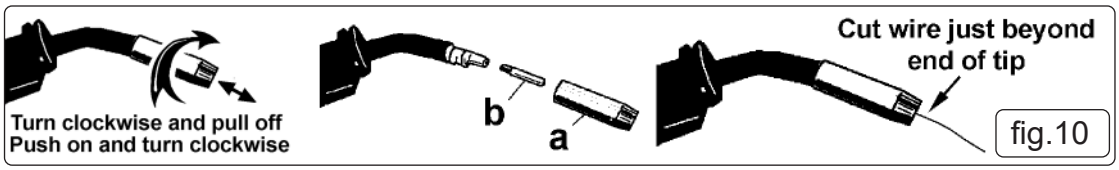
❑ **WARNING!** Prevent the wire from uncoiling by keeping the wire under tension at all times.

5.6.4. 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.

5.6.5. Push down the pressure roller onto the wire feed roller and hold it down then rotate the pressure knob upwards and into the housing until it snaps into position (fig.8).

5.6.6. Rotate the tension knob to a medium pressure setting between 2 and 3.

NOTE: Turning the knob clockwise increases the pressure and turning anti-clockwise decreases the pressure (fig.8).



5.6.7. 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.

5.6.8. Unscrew the copper contact tip (fig.10b).

5.6.9. 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.

5.6.10. Connect the welding set to the mains power supply and set the voltage switch to '1'.

5.6.11. 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.

5.6.12. When the wire has fully fed through, switch the welding set off and unplug from the mains.

© Jack Sealey Limited

5.6.13. Slide the contact tip over the wire and screw back into position.

5.6.14. Reattach the gas cup.

❑ **WARNING! DO NOT** turn the gas cup anti-clockwise. This will damage the internal spring.

5.6.15. Cut the wire so that it is just protruding from the gas cup (fig.10).

5.7. SETTING THE WIRE TENSION

5.7.1. 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.

5.7.2. 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).

5.8. 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.

5.8.1. Open the wire feed mechanism. See section 5.6.1.

5.8.2. Unscrew and remove the black feed roller retaining knob (fig.8), and put to one side.

5.8.3. The roller carrier (fig.11) is keyed to the main drive shaft.

5.8.4. 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.

5.8.5. 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.

5.8.6. Replace the drive roller. Ensure that the keyway is aligned.

5.8.7. Reattach the black feed roller retaining knob and tighten.

5.8.8. Close the wire feed mechanism.

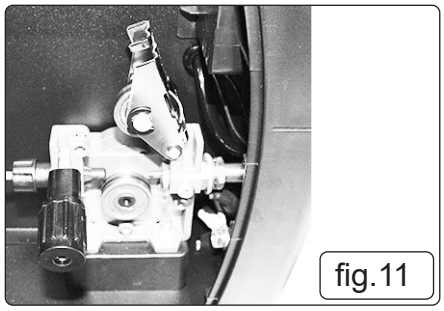


fig.11

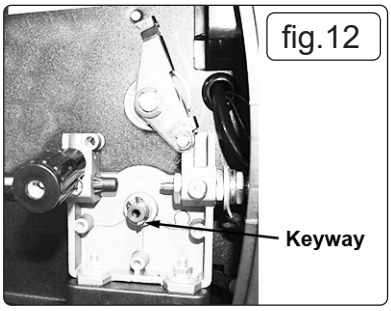


fig.12

5.9. WIRE FEED CONTROL

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

5.10. GASLESS WELDING

5.10.1. Disconnect gas hose (fig.4) from cylinder. Store cylinder in safe dry childproof location.

5.10.2. Connect polarity cable to suit gasless welding. See section 5.2.2.

5.10.3. Ensure that the contact tip, the groove size on the drive wheel and torch liner correspond to the wire diameter being used.

5.11. 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.

6. CONTROLS

6.1. Fig 13 illustrates the main panel control for IMIG160.V2. The panel control for IMIG180.V2 is identical.

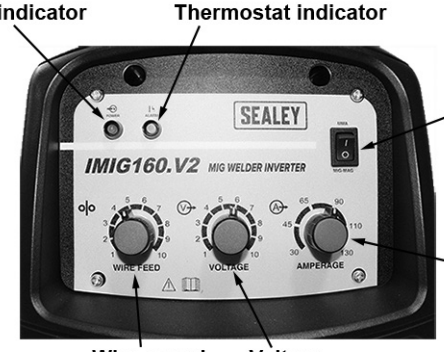


fig.13

6.2. SYSTEM PROTECTION

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.

7. MAINTENANCE

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 welding results. Poor wire feed affects welding quality. Clean the rollers weekly 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 with compressed air. Replace the liner if it becomes clogged.

7.3. FEED ROLLER REPLACEMENT

7.3.1. See section 5.8.

7.4. CONTACT TIP

7.4.1. 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.

7.5. GAS CUP

7.5.1. 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 Sealey anti-spatter spray (MIG/722307) available from your Sealey stockist.

7.6. REPLACING THE LINER

7.6.1. Wind the wire back onto the spool and secure.

7.6.2. Unscrew the torch from the welding set and undo the brass nut.

7.6.3. The liner should now be visible.

7.6.4. Pull the liner out and replace with a new one.

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.

REGISTER YOUR PURCHASE HERE

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: Guarantee is 36 months from purchase date, proof of which is required for any claim.

Jack Sealey Ltd t/a Sealey Group, Kempson Way, Suffolk Business Park, Bury St Edmunds, Suffolk, IP32 7AR UK
Jack Sealey (EU) Ltd t/a Sealey Group, Farney Street, Carrickmacross, Co. Monaghan, A81 PK68 Ireland
Tel: 01284 757500 • **Email:** sales@sealey.co.uk • **Web:** www.sealey.co.uk

© Jack Sealey Limited