



INSTRUCTIONS FOR  
**MINIMIG  
WELDER**

STOCK CODE:  
**S0771**





## INSTRUCTION MANUAL

### MINIMIG WELDER

## STOCK CODE

S0771

Thank you for purchasing a Siegen 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: 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.**

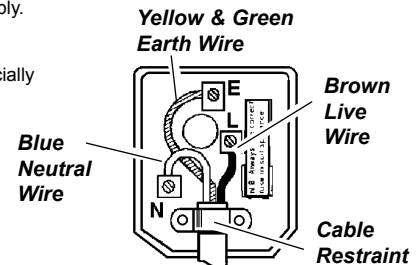
## 1. SAFETY INSTRUCTIONS

### 1.1. ELECTRICAL SAFETY

**⚠ WARNING!** It is the 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 qualified electrician. You may obtain a Residual Current Device by contacting your Sealey/Siegen 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 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 the appliance, and the safety of the appliance operator. **If in any doubt about electrical safety, contact a qualified 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. A 13 amp plug may require a fuse smaller than 13 amps for certain products, see fuse rating at right.
- 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 qualified electrician. A U.K. 3 pin plug with ASTA/BS approval is fitted. In case of damage, cut off and fit a new plug according to the following instructions (discard old plug safely).



**FUSE RATING  
13 AMP**

- 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 correctly connected, that the cable external insulation extends beyond the cable restraint and that the restraint is tight.
- 1.1.10. Some products require more than a 13 amp electrical supply. In such a case, **NO** plug will be fitted. **You must** contact a qualified electrician to ensure that a 30 amp fused supply is available. We recommend you discuss the installation of a industrial round pin plug and socket with your electrician.
  - 1.1.11. **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 1.5mm<sup>2</sup>, 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 2.5mm<sup>2</sup> 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.

### 1.2. GENERAL SAFETY

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

- ✓ Keep the welder 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 welder clean for best and safest performance.
- ✓ Check and spray the gas cup and contact tip regularly with anti-spatter spray, available from your Sealey/Siegen dealer.
- ✓ Locate 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 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 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 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 welder.
- ✓ Stand correctly keeping a good footing and balance, ensure the floor is not slippery and wear non-slip shoes.
- x DO NOT operate the welder if it or the cables are damaged and DO NOT attempt to fit any unapproved torches or other components to the welder.
- x DO NOT get welder 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.
- x DO NOT stand welder on a metal workbench, car bodywork or similar.
- 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. 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.
- 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.



### 3.4. Setting wire tension

**IMPORTANT:** Too little or too much tension will cause erratic wire feed and result in poor welding.

- 3.4.1. 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 deform the wire and result in a blown fuse.

## 4. WELDING PRINCIPLES

### 4.1. MIG/MAG welding

Welding wire is automatically fed through an insulated liner to the tip of the torch. The torch consists of a switch, liner, gas hose, and control cable. The switch activates the wire feed roller and the gas flow. Releasing the switch stops wire feed and gas flow. The weld current is transferred to the electrode (the wire) from the contact tip at the torch end. Four settings control the current to the electrode. Settings are Min/1 = low, then Min/2, Max/1 and Max/2 = high. Wire speed must be adjusted according to current output. The higher the current the faster the wire speed. A gas cup fits over the contact tip to direct gas flow towards the weld, ensuring that the arc welding process is shielded from oxidation. The shielding gas also assists heating of the weld. The torch is connected to the positive side of a DC rectifier, and the negative clamp is attached to the workpiece.

### 4.2. Preparation for welding

**IMPORTANT! BEFORE YOU COMMENCE, MAKE SURE THE MACHINE IS SWITCHED OFF AT THE MAINS. IF WELDING A CAR, DISCONNECT THE BATTERY OR FIT AN ELECTRONIC CIRCUIT PROTECTOR. ENSURE THAT YOU READ, UNDERSTAND AND APPLY THE SAFETY INSTRUCTIONS IN SECTION 1.**

- 4.2.1. 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.  
4.2.2. The weld area must be free of paint, rust, grease, etc.

### 4.3. Gas types and their use

Welding mild steel with CO<sub>2</sub> 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<sub>2</sub> mixture.

- 4.3.1. To weld aluminium use: ✓ Argon Gas ✓ 0.8mm Contact Tip ✓ 0.8mm Aluminium Wire (MIG/2/KAL08).  
4.3.2. The following table is an estimated duration of cylinders based on a flow rate of 2 litres per minute. Actual duration will be dependant upon various job conditions including the operator's welding technique. All times are therefore approximate.

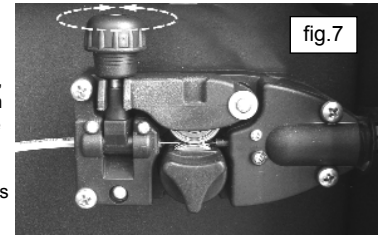
**Disposable cylinders:** CO<sub>2</sub>/100 390g = 1-1/4hours. CO<sub>2</sub>/2/101 600g = 2 hours.

Argon ARG/100 300g = 1hour. Argon/CO<sub>2</sub> MIX/100 300g = 1 hour.

Note: When comparing prices, always check fill weights.

### 4.4. 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 orange light on the front panel will illuminate. Wait for fifteen minutes for the welder to cool down at which time it will reconnect automatically.



## 5. RATINGS PLATE

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

- 1 - The standard relating to the safety and construction of arc welding and associated equipment.
- 2 - Inverter-transformer-rectifier.
- 3 - Welding with a continuous flow of welding wire.
- 4 - Single-phase AC supply.
- 5 - Rating of internal protection provided by casing.
- 6 - Output

U<sub>0</sub>: Maximum open-circuit voltage.

I<sub>2</sub>, U<sub>2</sub>: Current and corresponding voltage.

X: Welding ratio based on a 10 minute cycle. 20% indicates 2 minutes welding and 8 minutes rest, 100% indicates continuous welding.

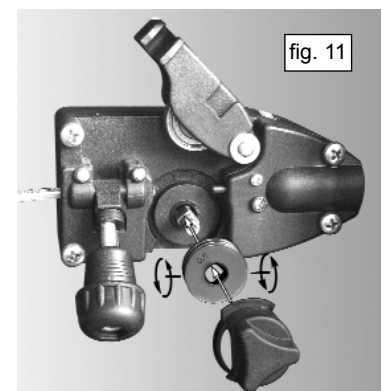
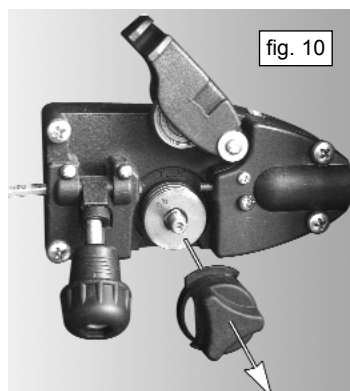
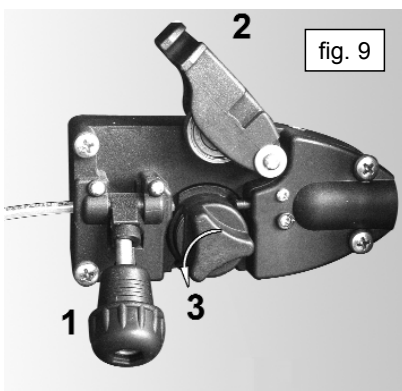
A/V-A/V: Welding current adjustment range and corresponding voltages.

7 - Mains Supply U<sub>1</sub>: Rated supply voltage and frequency. I<sub>1max</sub>: Maximum current. I<sub>1eff</sub>: Maximum effective current.

9 - Serial Number. Specifically identifies each welder.

②	STOCK NO: S0771	NO. 07031320147	⑨
	EN 60974 - 1		①
③	40A/16V ~ 80A/18V		
	X	20 %	50 %
	I <sub>2</sub>	80 A	55 A
	U <sub>2</sub>	18 V	16.7 V
④	U <sub>1</sub> = 230 V	I <sub>1max</sub> = 12 A	I <sub>1eff</sub> = 5.4 A
⑤	IP21S		⑦

## 6. MAINTENANCE



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

- 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. **Torch:** 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.



**6.3. Turning feed roller *IMPORTANT:* Turn the feed roller to suit the wire size.**

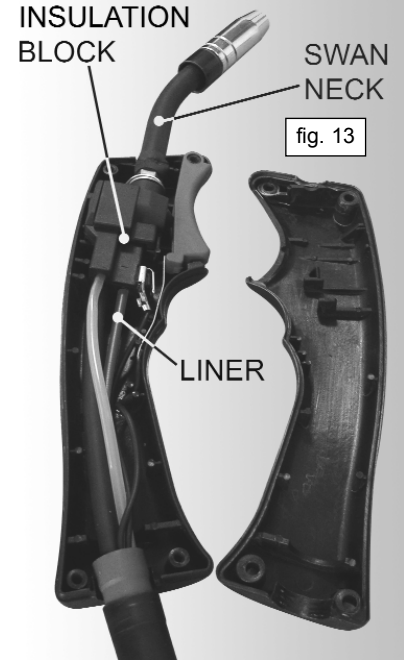
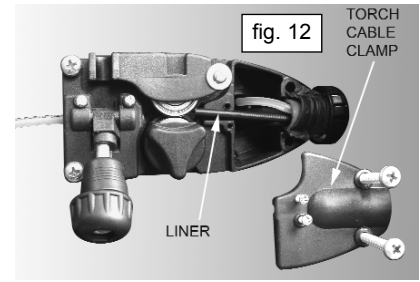
There are two grooves on the feed roller, 0.6mm and 0.8mm. Always have the groove that is being used on the outside of the roller (nearest to you). To turn the feed roller first loosen the wire tension knob and move it into its down position (see fig.9-1) then move the tensioning roller assembly to its up position (see fig.9-2). Take hold of the triangular knob on the roller retainer and rotate it 90° anticlockwise to release it as shown in fig.9.3. Now pull the roller retainer off the drive spindle to reveal the roller as shown in fig.10. Pull the roller off the drive spindle, flip it over and put it back on the drive spindle. (See fig 11) The groove size you require 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.

**6.4. Contact tip (to remove tip follow steps in 3.3.)** 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.

**6.5. Gas cup (to remove cup follow steps in 3.3.)** 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/Siegen dealer.

**6.6. Replacing wire liner.** A worn or damaged wire liner will seriously affect the performance of the welder and should be immediately replaced. 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.12) and take off the clamp. Undo the torch case (fig.13) and pull the wire liner from 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.

**6.7. Replacing 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 damage in the wire drive. 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 smoothly. In this case, open the gearbox, remove the worn or damaged gears and replace with new ones.



**7. TROUBLESHOOTING**

PROBLEM	POSSIBLE CAUSE	REMEDY
Weld current interrupted	Overheating protection activated due to overload	Protection automatically resets when transformer has cooled (approx. 15 min).
No weld current, fuse blowing in 13amp plug	Rectifier blown	Replace rectifier.
No weld current	Bad connection between clamp and workpiece Break in earth lead Break in torch lead	Clean or grind contact surface and weld area. Repair or replace earth lead. Repair or replace.
Feed motor not working	Gear damaged or worn Motor defective	Replace gears (Section 6). Replace motor (Contact service agent).
Wire does not feed, feed roller rotates	Pressure roller improperly adjusted Dirt, copper, dust, etc. have collected in torch liner Gas cup (nozzle) or tip defective Deformed wire	Adjust tension. Clean the liner from the machine forward. Use compressed air. If too much dirt, replace the liner (Section 6). Replace gas cup (nozzle) and/or tip (Section 6). Check roller tension (Section 3).
Wire feeds unevenly	Dirt, etc. in liner Gas cup (nozzle) or tip defective Gas cup (nozzle) spattered Feed roller groove clogged Feed roller groove deformed Pressure roller tension incorrect	Clean the liner from the machine forward using compressed air. Replace gas cup (nozzle) and/or tip (Section 6). Clean or replace gas cup (nozzle) (Section 6). Clean feed roller (Section 6). Replace feed roller (Section 6). Adjust tension (Section 3).
Unstable arc	Incorrect settings Impurities in weld area Worn or defective gas cup (nozzle)	Check settings (Section 4). Clean and/or grind workpiece (Section 4). Replace gas cup (nozzle) (Section 6).
Porous weld	No gas Gas cup clogged Draft blowing away shielding gas Rusty/dirty joints Torch too far from, or at wrong angle to, workpiece Gas leak	Open gas cylinder, regulate gas flow. Clean or replace cup (Section 6). Screen off welding site or increase gas flow. Clean or grind the workpiece (Section 4). Gas cup to workpiece should be 8-10mm. Torch angle approx 75°. Check hoses, connections and torch assembly (Section 6).
Wire sticking in gas cup (nozzle)	Worn or defective gas cup (nozzle) Wire deformed Wire speed too slow	Replace gas cup (nozzle) (Section 6). Check roller tension (Section 3). Increase wire speed.
Irregular weld head	Torch incorrectly held Wire weaving in weld pool	Use correct torch angle. Check roller tension and adjust (Section 3).
Weld bead too narrow and raised	Weld current too low Weld speed too fast	Increase power and wire speed (Section 4). Move torch slower and weave a little more.
Weld bead too wide	Weld current too high Weld speed too slow Arc too long	Decrease current and wire speed (Section 4). Move torch faster and weave less. Bring torch closer to workpiece.
Poor penetration	Weld current too low Arc too long	Increase current and wire speed (Section 4). Bring torch closer to workpiece.
Excessive penetration	Weld current too high Weld speed too slow Incorrect distance of torch to workpiece	Decrease current and wire speed (Section 4). Move torch faster. Torch distance should be 8-10mm.



## 8. CONSUMABLES

Part No.	Description	Pack Qty
MIG955	GAS CUP	3pc
120/722423	GAS CUP	1pc
MIG956	Contact Tip 0.6mm	5pc
120/722415	Contact Tip 0.6mm	1pc
MIG957	Contact Tip 0.8mm	5pc
120/722416	Contact Tip 0.8mm	1pc
MIG927	Contact Tip 0.8mmAlly	2pc
MIG928	Contact Tip 1.0mmAlly	2pc
C02/100	Disposable 390g Gas Cylinder CO <sub>2</sub>	
C02/101	Disposable 600g Gas Cylinder CO <sub>2</sub>	
MIG/MIX/100	Disposable CO <sub>2</sub> /Argon mix	
MIG/ARG/100	Disposable 300g Argon	

### DECLARATION OF CONFORMITY

We, the sole importer into the UK, declare that the product listed below is in conformity with the following standards and directives.

#### Minimig Welder

Model: S0771

73/23/EEC Low Voltage Directive  
89/336/EEC EMC Directive  
93/68/EEC Marking Directive  
2002/95/EC RoHS Directive  
2002/96/EC WEEE Directive

The construction file for this product is held by the Manufacturer and may be inspected, by a national authority, upon request to the Siegen Tool Co.



Signed by Mark Sweetman

30th April 2007

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

Sole UK Distributor, The Siegen Tool Co., Bury St. Edmunds, Suffolk

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