



INSTRUCTIONS FOR

# **POWERMIG WELDERS**

Models:

**POWERMIG2500**

**POWERMIG2750**

**POWERMIG3500**

**POWERMIG4500**



## INSTRUCTIONS FOR:

# POWERMIG2500, POWERMIG2750, POWERMIG3500, POWERMIG4500.

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

**⚠ IMPORTANT: BEFORE USING THIS PRODUCT, PLEASE READ THE INSTRUCTIONS CAREFULLY. MAKE CAREFUL NOTE OF SAFETY INSTRUCTIONS, WARNINGS AND CAUTIONS. THIS PRODUCT SHOULD ONLY BE USED FOR ITS INTENDED PURPOSE. FAILURE TO DO SO MAY CAUSE DAMAGE 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 professional 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 a business premises, to be tested by a qualified Electrician at least once a year by using a Portable Appliance Tester (PAT).
- 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, especially power connections, to ensure that none are 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 correct capacity fuse.
- 1.1.7. DO NOT pull or carry the powered appliance by its power supply lead or output cables.
- 1.1.8. DO NOT pull power plugs from sockets by the power cable.
- 1.1.9. DO NOT use worn or damage 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 model, (discard old plug safely).
- 1.1.10. Some products require more than a 13Amp electrical supply. In such a case, **NO** plug will be fitted. **You must** contact a qualified Electrician to ensure a 30 amp fused supply is available. We recommend you discuss the installation of a industrial round pin plug & 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 cross-section of the cable on the cable reel must be suitable for the unit and never lower than the cross-section of the main cable supplied with the unit.

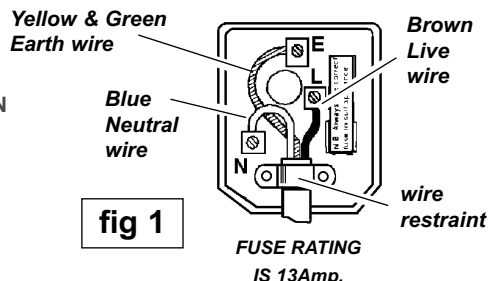
### 1.2. MODEL POWERMIG 2500 only, IS A SINGLE PHASE MACHINE.

**IMPORTANT: TO ACHIEVE MAXIMUM OUTPUT THIS MODEL WILL REQUIRE A 30AMP FUSED SUPPLY. WE RECOMMEND YOU DISCUSS THE INSTALLATION OF AN INDUSTRIAL ROUND PIN PLUG & SOCKET WITH YOUR ELECTRICIAN.**

- 1.2.1. To fit a 13Amp plug proceed as follows:  
(UK only - see diagram figure 1). **Ensure the unit is correctly earthed via a three-pin plug.**
  - 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'.**After wiring, check there are no bare wires, that all wires have been correctly connected and that the wire restraint is tight.**

- 1.2.2. **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 cross-section of the cable on the cable reel must be suitable for the unit and never lower than the cross-section of the main cable supplied with unit.



### 1.3. MODELS POWERMIG 2750, 3500 & 4500. ARE 3 PHASE MACHINES AND MUST HAVE AN APPROPRIATE PLUG FITTED.

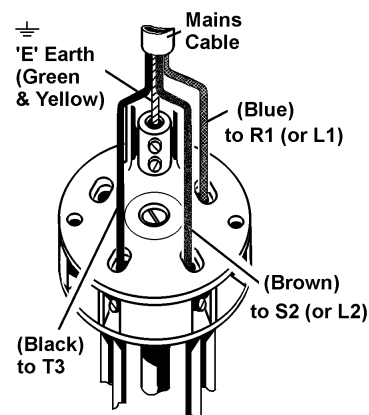
**⚠ WARNING! ELECTRICAL INSTALLATION OF WELDER TO A 3 PHASE 415VOLT SUPPLY MUST ONLY BE CARRIED OUT BY A QUALIFIED ELECTRICIAN. Make sure the power supply cable is correctly connected to the Earth.**

- 1.3.1. **This product must be fitted with a 3 phase plug according to diagram figure 2, and will require a minimum of 16AMPS per phase, (preferably 32AMP) electrical supply. You must contact a qualified Electrician to ensure an appropriately fused supply is available.**

Connect GREEN/YELLOW wire to Earth 'E'  
Connect BLUE wire to R1 (or L1) Terminal.  
Connect BROWN wire to S2 (L2) Terminal.  
Connect the BLACK wire to terminal 3.

**When completed, check there are no bare wires, that all wires have been connected correctly and the cable restraint is tight.**

- 1.3.2. **DO NOT** use this product with a standard extension cable. Only use **ARMoured** extension cable.



## 1.4 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. (Non recommended 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 dealer.
- ✓ Locate welder in adequate working area for its function. Ensure area has adequate ventilation as welding fumes are harmful.
- ✓ Keep working 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 operating the welder.
- ✓ Avoid unintentional contact with workpiece. Accidental or uncontrolled use of the torch may be dangerous and will wear the nozzle.
- ✓ Keep non essential persons away from the working area. Any persons working within the area must use protective head shield and gloves.
- ✓ Operators must receive adequate training before using the welder. The welder must only be operated under supervision.
- ✓ Stand correctly keeping a good footing and balance, and ensure the floor is not slippery, and wear non-slip shoes.
- ✓ Turn voltage switch to "0" or off when not in use.
- x DO NOT operate the welder if it or its cables are damaged and DO NOT attempt to fit any non genuine torches, components, or parts to the welder unit.
- x DO NOT get welder wet or use in damp or wet locations or areas where there is condensation.
- ▲ **DANGER! DO NOT weld near inflammable materials, solids, liquids, or gases, and DO NOT weld containers or pipes which have held flammable materials or gases, liquids or solids. Avoid operating on materials cleaned with chlorinated solvents or near such solvents.**
- x DO NOT stand welder on a metal workbench, car bodywork or similar object.
- x DO NOT touch any live metal parts of the torch or electrode while the machine is switched on.
- x DO NOT pull the welder by the cable, or the torch, and DO NOT bend or strain cables, protect from sharp or abrasive items, and DO NOT stand on cables or leads. Protect from heat. Long lengths of slack must be gathered & 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 fatigued.
- ✓ When not in use store the welder in a safe, dry, childproof area.

## 1.5. GAS SAFETY

- ✓ Store gas cylinders in a vertical position only and ensure the storage area is correctly secured.
  - x DO NOT store gas cylinders in areas where temperature exceeds 50°C. DO NOT use direct heat on a cylinder. Always keep gas cylinders cool.
  - x DO NOT attempt to repair or modify any part of a gas cylinder or valve, and DO NOT puncture or damage a cylinder.
  - x DO NOT obscure or remove any official labels from a cylinder. Always check the gas identity before use. Avoid getting gas cylinders oily or greasy.
  - x DO NOT try to lift or handle cylinder by its cap, guard or valve. Always keep caps and guards in place and close valve when not in use.
- The gas cylinder is heavy, use mechanical lifting equipment. Ensure the cylinder is correctly situated on the welder base stand and secured with chain.

## 2. INTRODUCTION & SPECIFICATIONS

**IMPORTANT:** These instructions contain information you require to prepare your machine for welding, together with maintenance and a trouble shooting section. If you have no previous experience the instructions are not intended to show you how to become a welder. Should you have no experience, we recommend that you seek training from an expert source. Mig welding is relatively easy to perform, but does require a steady hand and time practising under supervision with scrap metal as it is only with continued practice that you will achieve the desired results.

Tried and trusted by fabricators and professional car repair shops across the UK. Superb quality, Swedish made electronic wire drive motors and heavy duty transformers make these machines unmatched in performance and value. The Powermig 2500 is the most powerful mig in our range capable of operating on 230 Volt single phase input. Just check the specifications. Ideal for industrial use where 400/440V 3ph is not available. Other models are 415V 3 phase machines. Each unit comes with 0.8mm steel wire, non live torch and industrial Argon/CO<sub>2</sub> regulator. All can be used with CO<sub>2</sub>, Argon or Argon mix gas and accept any bottle size.

Model POWERMIG2500	Model POWERMIG2750	Model POWERMIG3500	Model POWERMIG4500
12 level rotary control power selection.	10 level rotary power selection.	. . . . .12 level rotary power selection.	. .18 level rotary power selection.
Output Range: . . . . .30-250 Amps	. . . . .35-275 Amps	. . . . .35-350 Amps	. . . . .35-450 Amps
Duty Cycle: . . .25% @ 250A, 30% @ 200A	. .10% @ 260A, 30% @ 240A	. . . . .10% @ 330A, 15% @ 320A	. . . . .10% @ 430A, 15% @ 420A
. . . . .60% @ 150A, 100% @ 120A	. .60% @ 160A, 100% @ 130A	. . . . .25% @ 300A, 60% @ 200A, 100% @150A	. .25% @ 400A, 60% @ 260A, 100% @ 200A
Power Supply: . . . . .230 Volt 1ph	. . . . .415 Volt 3ph	. . . . .415 Volt 3ph	. . . . .415 Volt 3ph
Power Efficiency: . . . . .6.6 kVA	. . . . .8.0 kVA	. . . . .12.5 kVA	. . . . .18.5 kVA
Cooling System: . . . . .Turbo Fan	. . . . .Turbo Fan	. . . . .Turbo Fan	. . . . .Turbo Fan
Accepts Bottle Size: . . . . .All	. . . . .All	. . . . .All	. . . . .All
Spot Welding: . . . . .Timer Fitted	. . . . .Timer Fitted	. . . . .Timer Fitted	. . . . .Timer Fitted
Weight: . . . . .67 kg	. . . . .60 kg	. . . . .95 kg	. . . . .110 kg

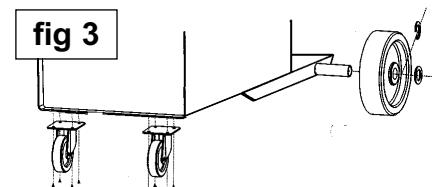
## 3. ASSEMBLY

To fit the mains power plug see safety instructions (Chapter 1).

Carefully remove outer carton and packing. Be very careful when removing the welding unit from the packing base as the unit is very heavy, we recommend that unpacking the base and wheel assembly is undertaken by two persons. Check the welder and contents. Should there be any damaged or missing parts contact your supplier immediately.

### 3.1. WHEEL ASSEMBLY (fig 3).

- 3.1.1. For models that do not already have the front caster wheels attached, locate the caster wheels in the parts box and fix them to the front of the unit.
- 3.1.2. Take the rear axle and pass through holes in the back gas bottle stand, place wheels on each side of axle then slip the washer on each end and fix with cir-clips.



### 3.2. CONNECTING THE GAS CYLINDER.

- 3.2.1. Stand the gas cylinder on the base at the rear of the welder and secure with chain supplied.
- 3.2.2. If using Argon or Argon mixtures, you will need to use the "bull nose adaptor" enclosed. If you intend to use CO<sub>2</sub> gas the regulator will fit directly onto the cylinder. If using the bull nose, fit nose adaptor to the cylinder and tighten with a spanner.
- 3.2.3. Remove regulator from box and screw it to the bull nose (or CO<sub>2</sub> cylinder). Place the small jubilee clip over the rubber hose from the welder, connect the hose to the regulator "BP" output and secure with the jubilee clip (fig 4).
- 3.2.4. Set the regulator flow rate to 4litres/min depending on the material to be welded, also taking into consideration any draughts which are strong enough to disturb the gas flow.
- 3.2.5. If the welder is to be stored for a long time always remove the flow regulator.



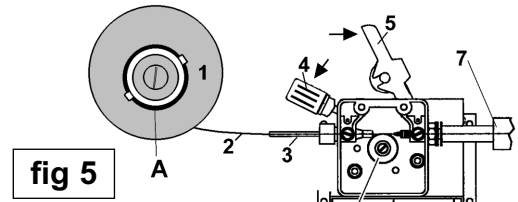
### 3.3. TORCH "Euro Connection".

Your welder is fitted with a "Euro Connection" quick release torch. Simply line the pins in the torch up with appropriate holes on the front panel connector and push in and tighten the locking nut.

**3.4. FIT A REEL OF WIRE. Ensure the welder is unplugged from the mains power.**

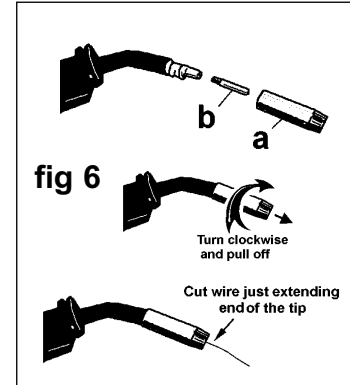
Machine is supplied with a mini spool of wire, but will accept up to 15kg spools without modification.

- 3.4.1. Open the side of the unit, remove the spacer from the holder (fig 5. A) and push the reel of wire (fig 5.1) over the holder end springs and onto the holder ensuring the spool rotates anti-clockwise with the wire drawing off the reel from the bottom (2). Large spools of wire have a guide hole which must be pushed onto the plastic pin located at back of reel holder. When large reel has been located on this pin, push the spacer (A) back onto holder to keep reel pushed onto the pin. Pin will stop large reels from free wheeling around the holder.
- 3.4.2. Undo wire lock screw and lower to the left (4) and lift wire feed tension arm up to the right (5).
- 3.4.3. Straighten about 40-50mm of spool wire (2) (*do not allow wire to uncoil*). Round end of wire off ensuring any burrs or sharp points are removed, and gently push wire through plastic guide (3) and through the 6mm or 8mm roller groove (6) (refer to "Maintenance for roller groove information") and through to torch (7). Note: Burrs or sharp points at wire tip may damage the liner.
- 3.4.4. Carefully return the tension arm (5) and secure wire with the wire lock screw (4).



**3.5. FEED WIRE THROUGH TO THE TORCH.**

- 3.5.1. **Models POWERMIG 4500 & 3500** Twist off gas cup then unscrew copper contact tip (*right hand thread*) to remove. The reel is fitted to a portable feed unit inside the welder. Connect the two power supply leads from the portable unit to sockets at the left side of the feed unit compartment (fig A). Then follow instruction points 3.5.3. to 3.5.5. Replace contact tip and gas cup. Cut wire so that it is protruding 1/4" from the cup.
- 3.5.2. **Model POWERMIG 2500, 2750** Remove gas cup (fig 6.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. (Cup is a friction fit.)
  - c) Turn gas cup **clockwise only** (fig 6) and pull cup out to the right.

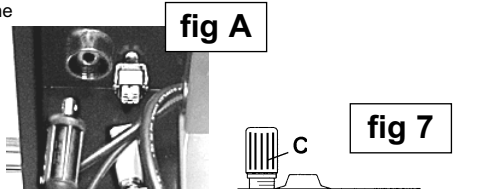


- **WARNING!** do not turn gas cup anti-clockwise, as this will damage the internal spring.
- d) Unscrew the copper contact tip (*right hand thread*) to remove.

**3.5.3. Models 2500 & 2750.**

Check welder is switched off "0", and that the earth clamp is isolated and away from the torch tip. Connect the welder to the mains power supply and set the voltage switch to "1".  
**Models 3500 & 4500** have a portable feed unit inside the welder. Connect the two power supply leads from the feeder to plugs at the left of the unit (fig A). Connect to the mains power supply and set the voltage switch to "1".

- 3.5.4. Set the wire speed knob to position 5 or 6, (the higher the number the faster the speed). Keep the torch cable as straight as possible and press the torch switch to feed wire through the torch.
- 3.5.5. When wire has fed through, switch welder off, unplug from mains.
- 3.5.6. Take torch in left hand and screw contact tip back into place as follow:
- 3.5.7. 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 the internal spring.

**3.6. SETTING WIRE TENSION.**

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

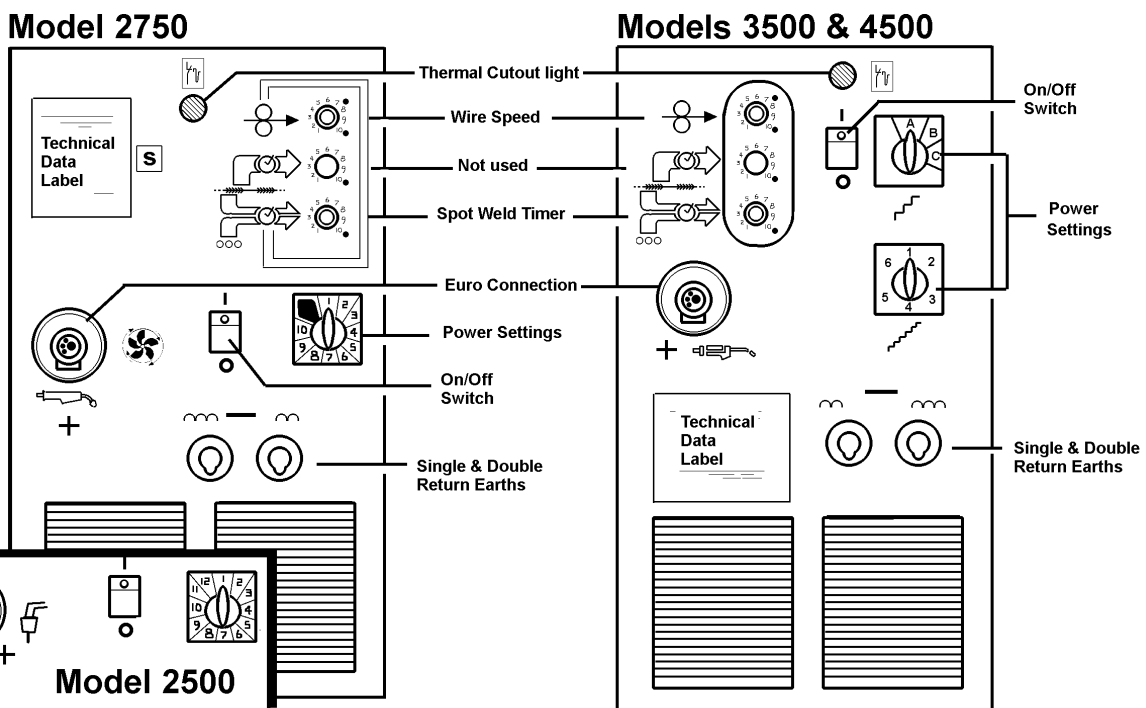
- 3.6.1. Tension between rollers is checked by slowing down the wire between your fingers. If top feed roller skids the tension is correct. Use as low a tension as possible, too high a tension will deform wire and result in a blown fuse on the printed circuit board. Adjust tension by turning knob (fig 7.C).

**3.7. CLUTCH ADJUSTMENT**

It is essential that the clutch is adjusted correctly. Once the wire is fed through the torch, switch on the machine and set the wire speed and voltage switch to maximum. Depress the torch switch and release quickly. If spool overruns it indicates that the clutch is too loose. Tighten the clutch (located in the centre of the wire spool holder (fig 8.B), and test the machine as above until the wire stops over running.

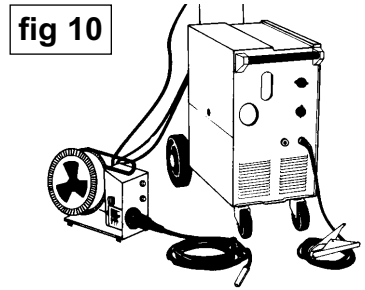
- **WARNING!** DO NOT over tighten the clutch as this will cause wire feed problems.

**fig 9**  
**Front Panel Description**



**3.8. USING PORTABLE WIRE DRIVE Models 3500 & 4500. (fig 10).**

Lift the side panel to access the drive unit.  
 Unplug the circular dinse connector and the adjacent square connector.  
 Undo the butterfly bolt that secures the unit.  
 The unit may be placed on top of the welder where location hole is to be found, and secured with butterfly bolt.  
 Re-connect the dinse and square connectors, and fit torch to the euro-connection on the portable unit (fig 10).  
 The wire drive may be used away from the welder with optional umbilical extensions.  
 Contact your local Sealey dealer to order:  
 3 metre umbilical lead assembly ask for 120/802271.  
 9 metre umbilical lead assembly ask for 120/802272.



**3.9. SYSTEM PROTECTION**

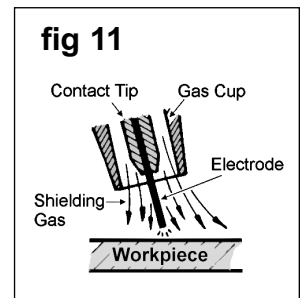
To provide a level of protection against faults such as short circuits or overheating, two safety features are incorporated in the welder unit.  
 The auxiliary circuit is protected by a 1 Amp fuse located on the auxiliary transformer.  
 Two thermostats are built into the system to protect against overheating, the second providing a margin of safety should the first thermostat fail. Regularly check the thermostats to ensure they are correctly in contact with adjacent parts.

**4. WELDING PRINCIPLES**

**IMPORTANT.**

Should you have no welding experience, we recommend you seek training from an expert source to ensure your personal health & safety. You must familiarise yourself with welding applications and limitations, and specific potential hazards peculiar to welding. Good Mig welding may be achieved only with continued, supervised practice.

**4.1. Mig/Mag welding. (See fig 5, and fig 7 ).** A spool of welding wire is placed on spool holder and automatically fed through an insulated liner in the torch to its tip. The torch consist 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. Wire speed must be adjusted according to power 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 the arc welding process is shielded from oxidising air contamination (fig 11). The shielding gas also assists heating of the weld. The torch is connected to the positive side of a DC rectifier, and 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 YOU READ AND UNDERSTAND THE SAFETY INSTRUCTIONS IN CHAPTER 1.**

**4.2.1. Connecting the Earth Lead**

Models 2750, 3500 & 4500  
 Use the single return earth for steel up to 6mm in thickness, and the double return earth for steel over 6mm  
 Model 2500 only operates on a single return earth

To ensure a complete circuit, the earth lead must be securely attached to the work piece that is to be welded.

- a) Best connection is obtained by grinding the point of contact on the workpiece before connecting clamp to the workpiece.
- b) The weld area must also be free of paint, rust, grease, etc.
- c) If welding a vehicle, disconnect vehicle battery or fit an "Electronic Circuit Protector" to battery, (available from your Sealey dealer).

**4.2.2.** Wire feed switch controls the speed of the wire feed. In principle, the lower the amperage number the slower the wire speed.

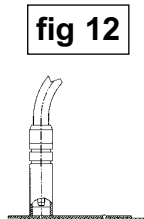
**4.3. Gas types and their use.**

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, you must use an Argon/CO<sub>2</sub> mixture.

To weld aluminium use: ✓ Argon gas or Argo-Helium mixture, ✓ 0.8mm Contact Tip, ✓ 0.8mm Aluminium Wire, (MIG/2/KAL08).

**4.4. Spot Welding.**

Remove the gas cup and fit a spot welding gas cup. Turn the power and wire speed to the highest setting allowed by your machine and set the spot weld timer according to the thickness of the metal sheets. Drill a small hole in the top workpiece. Push the spot gas cup onto the material to be welded (fig 12). The castelations on the cup keep it the correct distance from the weld pool and allow you to push the two pieces being welded together. Press the torch trigger and hold until the pre set spot welding time has been achieved. The wire will feed through during the allotted time and create the weld.



**4.5. Aluminium Welding.**

Argon or an Argon-Helium mixture should be used for shielding. The wire used must have the same characteristics as the material to be welded. Always use an alloy wire (i.e. aluminium/silicium); DO NOT use pure aluminium wire. A problem you may experience when aluminium MIG welding is in pulling the wire for the whole length of the torch, as aluminium has poor mechanical characteristics. The smaller the diameter of wire the more difficult the wire feed may be. To overcome this problem, replace the torch guide hose with a Teflon guide hose. To withdraw the hose loosen screws at the end of the torch.

Use contact tip suitable for aluminium.

Replace the wire puller rollers with aluminium compatible rollers.

Replace the steel guide hose for wire feed with a Teflon guide hose. Contact your local Sealey dealer for information.

**4.6. Rivet Welding. (Fig 13).**

Process to re-structure/re-shape dented or misshaped metal sheets, without the need to hammer sheet from behind. This is useful when repairing inaccessible sections of bodywork.

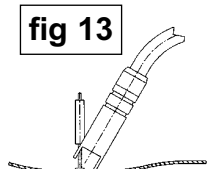
Replace the torch nozzle with a rivet nozzle. This nozzle has a side inlet tube for housing the rivet.

Turn the current switch to position 3.

Adjust the wire speed according to the current and the diameter of the rivet.

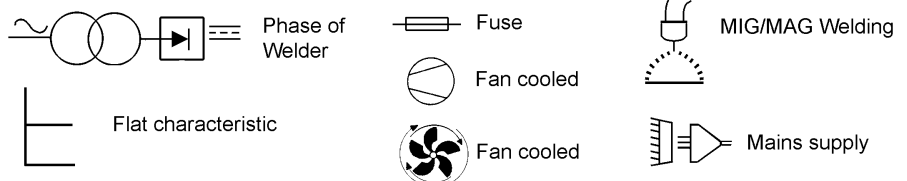
Set the timer for 1 to 1.5 seconds.

A spot will take place at the point where the head of the rivet is located and will join the rivet to the metal. The rivet may now be used as an anchor point in order to re-shape using appropriate appliances.



**4.7. MACHINE SYMBOLS**

Not all models will have the same symbols



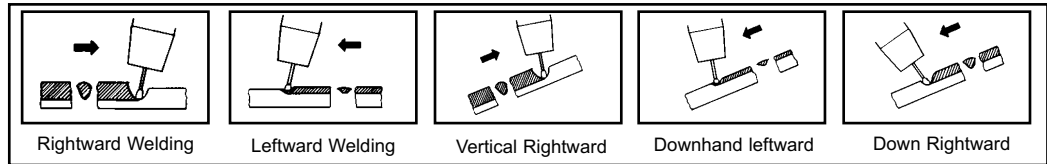
## 4.8 Overview of the welding process.

### IMPORTANT.

Should you have no welding experience, we recommend you seek training from an expert source to ensure your personal health & safety. You must familiarise yourself with welding applications and limitations, and specific potential hazards peculiar to welding. Good Mig welding may be achieved only with continued, supervised practice.

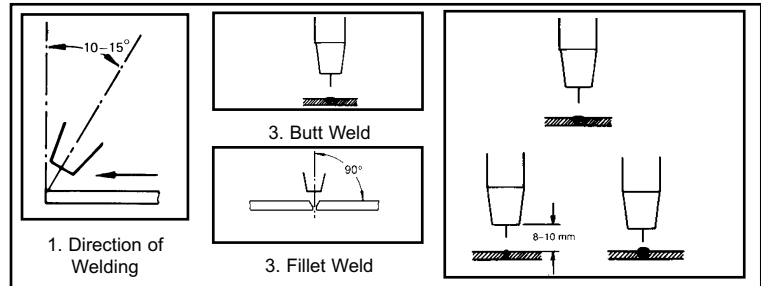
For example:

Correct torch angle and direction of travel in relation to the workpiece is essential for the appearance and quality of the weld. Illustrations demonstrate various positions and directions.



Welding with a long arc reduces penetration and widens the arc. This in turn results in more spatter. A long welding arc can be appropriate for welding butt joints in thin materials. Welding with a short arc (*at the same weld settings*) results in greater penetration and a narrower weld and reduces the amount of spatter.

*We recommend expert training and supervised practice.*



## 5. MAINTENANCE

**⚠ WARNING! Ensure the unit is disconnected from the mains power supply before performing any maintenance or service.**

- 5.1 Regularly check all welding cables and secondary terminals to ensure they are in good order and connected correctly, also check during welding to ensure they are not overheating.
- 5.2 Check that the gas hose connections are tight and that there are no gas leaks.
- 5.3 Regularly inspect the machine interior according to the frequency of use and dust in the working area. When removing dust from transformer, choke tap and rectifier always use dry air of not more than 10bars.  
**NOTE:** Care must be taken NOT to direct compressed air towards the control modules, which may be cleaned with a soft brush.
- 5.4 **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 feeding affects welding. Clean the rollers weekly, especially the feed roller groove, removing all dust deposits.
- 5.5 **Changing Feed Roller IMPORTANT: Adjust the feed roller to the corresponding wire size.**  
There are two grooves on the feed roller, one to take 0.6mm and the other 0.8mm wire. Use groove on the inside of the roller, (that is the groove farthest from you). To remove the bottom feed roller, lift the top feed roller and undo the central screw on the bottom roller sliding it off the spindle. Clean and turn the feed roller (or replace if damaged) then refit it by pushing it back onto the spindle, locating it on the keyway and securing in place with the central screw.
- 5.6 **Torch**  
Protect torch cable assembly from mechanical wear. Clean liner from the machine forwards by using compressed air. If the liner is clogged it must be replaced.
- 5.7 **Contact Tip (to remove tip follow steps in 3.5, depending on model).**  
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.
- 5.8 **Gas Cup (to remove cup follow steps in 3.5, depending on model).**  
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 Dealer.
- 5.9 **Changing Fuses**  
The fuse is located on the auxiliary transformer and is mainly blown for the following reasons:  
✓ Spatter collecting in the gas cup, causing contact tip to short circuit. ✓ Wire tension is too great. ✓ A sudden surge of current.

## 6. TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY <i>(Numbers refer to chapter and item heading)</i>
1. Power source stops	Overheating protection activated due to overload	Protection automatically resets when transformer has cooled (about 15 min).
2. No weld current, fuse blowing in 13amp plug	Rectifier blown	Replace rectifier.
3. No weld current	Bad connection between clamp & 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 torch, lead.
4. Feed motor not working, lamp is on	Fuse blown Gear damaged or worn Motor defective	Replace fuse 1.5 amp. (Chapter 5). Replace gears. (Chapter 5). Replace motor (Contact service agent).
5. Wire does not feed, feed roller rotates	Pressure roller improperly adjusted Dirt, copper, dust, etc, have collection in torch liner  Gas cup (Nozzle) or tip defective. Faulty speed control Deformed wire Spot timer is ON.	Adjust tension. Clean the liner from the machine forward. Use compressed air. If too much dirt, replace the liner. Replace gas cup (nozzle) and/or tip. (Chapter 5). Check roller tension and adjust it if necessary (Chapter 3).
6. 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 improper	Clean the liner from the machine forward. Use compressed air. Replace gas cup (nozzle) and/or tip. (Chapter 5). Clean or replace gas cup (nozzle) (Chapter 5). Clean feed roller. (Chapter 5). Replace feed roller. (Chapter 5). Adjust tension. (Chapter 3).
7. Unstable arc.	Incorrect settings Impurities in weld area Worn or defective gas cup (nozzle)	Check settings. (Chapter 4). Clean and/or grind workpiece. (Chapter 4). Replace gas cup (nozzle). (Chapter 5).
8. Porous weld	No gas Gas cup clogged Draft blowing away shielding gas Rusty or dirty joints Torch too far from or at wrong angle to work  Gas leak Dirty Workpiece	Open gas cylinder, regulate gas flow. Clean or replace cup. (Chapter 5). Screen off welding site or increase gas flow. Clean or grind the workpiece (Chapter 4). The distance from gas cup to workpiece should be 8-10mm See chapter 4 for angle. Check contact tip and nozzle. Check hoses, connections and torch assembly. (Chapter 5). Press the gas cup into correct position.
9. Electrode sticking in gas cup (nozzle)	Worn or defective gas cup (nozzle) Electrode deformed Wire speed too slow	Replace gas cup (nozzle). (Chapter 5). Check roller tension. (Chapter 3). See recommendations for wire speed.
10. Irregular weld head	Torch incorrectly held Wire weaving in weld pool	Use correct torch angle. (Chapter 4). Check roller tension and adjust as needed. (Chapter 3).
11. Weld bead too narrow and raised	Weld current too high Weld speed too low	Increase power and wire speed. Move torch slower and weave a little more.
12. Weld bead too wide	Weld current too high Weld speed too low Arc too long	Decrease power and wire speed. Move torch faster and weave less. Bring torch closer to workpiece.
13. Poor penetration	Weld current too high Arc too long	Increase power and wire speed. Bring torch closer to workpiece.
14. Excessive penetration	Weld current too high weld speed too slow incorrect distance of torch to workpiece	Decrease power and wire speed. Move torch faster. Torch distance should be 8-10mm.
15. Fuse blowing	Tension too great Gas cup contact tip clogged	Release tension. (Chapter 3). Clean gas cup and contact tip. (Chapter 5).
16. Coils of wire on reel overlap, or wire is oxidised. Coils break or fall under wheel.	Tension too loose or tight. Coil damaged or wire twisted.	Reset tension. Change wire reel.
17. Wire runs through torch but there is no welding current.	Defective contactor. Worn contacts of contactor regulator. Regulation switch problem Faulty rectifier.  Fault on electronic circuit of contactor. Work cable not connected correctly.	Check coil ends, change coil if necessary. Check, clean contacts, change if oxidation is present. Check secondary voltage for each switch setting. Disconnect rectifier from secondary, check each diode goes one way only. If not change rectifier. Change control module. Connect work clamp directly to workpiece. Check wire is in good condition and making good contact with clamp.

**Declaration of Conformity** We, the sole importer into the UK, declare that the products listed below are in conformity with the following EEC standards and directives.

**Models: POWERMIG2500, POWERMIG2750,  
POWERMIG3500, POWERMIG4500.**

Low Voltage Directive (S.I. 1994/3260) 73/23/EEC  
EMC Directive (S.I. 1992/2372 & Amendments).  
89/336/EEC



The construction files for these products are held by the Manufacturer and may be inspected by a national authority by contacting Jack Sealey Ltd

Signed by Mark Sweetman

27th October 2000

*For Jack Sealey Ltd. Sole importer into the UK of Sealey as Power Welders*

**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 product. **WARRANTY:** Guarantee is 12 months from purchase date, proof of which will be required for any claim. **INFORMATION:** Call us for a copy of our latest catalogue on 01284 757525 and leave your full name and address including your postcode.



Sole UK Distributor  
Sealey Group,  
Bury St. Edmunds, Suffolk.



01284 757500



01284 703534

**E-mail:** sales@sealey.co.uk