SEALEY POWER WELDERS

INSTRUCTIONS FOR:

GASLESS MIG WELDERS

MODEL No:

PMG100.V2
PMG110.V2
PMG135XT.V2
PMG155XT.V2

Original Language Version

INSTRUCTIONS FOR:

GASLESS MIG WELDERS

PMG100.V2, PMG110.V2, PMG135XT.V2, PMG155XT.V2

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 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 responsibility of the owner and the operator to read, understand and comply with the following:
You must check all electrical products, before use, to ensure that they are safe. You must inspect power cables, plugs, sockets and any other connectors for wear or damage. You must ensure that the risk of electric shock is minimised by the installation of appropriate safety devices. A Residual Current Circuit Breaker (RCCB) should be incorporated in the main distribution board. We also recommend that a Residual Current Device (RCD) is used. It is particularly important to use an RCD with portable products that are plugged into a supply which is not protected by an RCCB. If in any doubt consult a qualified 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 that all portable electrical appliances, if used on business premises, are 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 those appliances and the safety of the appliance operators. **If in any doubt about electrical safety, contact a qualified electrician.**

1.1.3. Ensure that the insulation on all cables and on the appliance is safe before connecting it to the power supply. See 1.1.1. and 1.1.2. and use a Portable Appliance Tester.

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

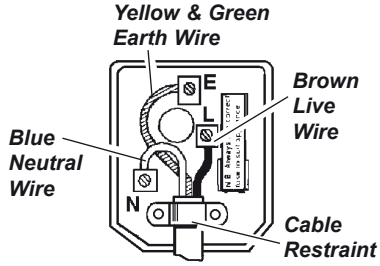
1.1.5. Regularly inspect power supply cables and plugs for wear or damage and check all connections to ensure that none is loose.

1.1.6. **Important:** Ensure that the voltage marked on the appliance matches the power supply to be used and that the plug is fitted with the correct fuse - see fuse rating at right.

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

1.1.8. **DO NOT** pull the plug from the socket by the cable.

1.1.9. **DO NOT** use worn or damaged cables, plugs or connectors. Immediately have any faulty item repaired or replaced by a qualified electrician. When a BS 1363/A UK 3 pin plug is damaged, cut the cable just above the plug and **dispose of the plug safely.**
Fit a new plug according to the following instructions (UK only).
a) Connect the GREEN/YELLOW earth wire to the earth terminal 'E'.
b) Connect the BROWN live wire to the 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 outer insulation extends beyond the cable restraint and that the restraint is tight.
Double insulated products, which are always marked with this symbol ⧈, are fitted with live (brown) and neutral (blue) wires only. To rewire, connect the wires as indicated above - **DO NOT** connect either wire to the earth terminal.



FUSE RATING 13 AMP

1.1.10. Products which require more than 13 amps are supplied without a plug. In this case you must contact a qualified electrician to ensure that a suitably rated supply is available. We recommend that you discuss the installation of an industrial round pin plug and socket with your electrician.

1.1.11. If an extension reel is used it should be fully unwound before connection. A reel with an RCD fitted is preferred since any appliance plugged into it will be protected. The cable core section is important and should be at least 1.5mm², but to be absolutely sure that the capacity of the reel is suitable for this product and for others which may be used in the other output sockets, we recommend the use of 2.5mm² section cable.

1.2. GENERAL SAFETY

▲ ***DANGER! Unplug the welder from the 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 the wire liner and keep the welder clean for best and safest performance.
✓ Locate welder in a suitable work area. Ensure that the area has adequate ventilation as welding fumes are harmful.
✓ Keep work area clean and tidy and free from unrelated materials. Also ensure that the work area has adequate lighting and that a fire extinguisher is at hand.
❒ **WARNING: Use a welding head shield to protect eyes and avoid exposing skin to the ultraviolet rays given off by the 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 welding.
✓ Avoid unintentional contact with workpiece. Accidental or uncontrolled use of the torch may be dangerous and will wear the nozzle.
✓ Keep others away from the work area. Anyone working within the area must wear protective head shield and gloves.
✓ Operators must receive adequate training before using the welder.
✓ Stand correctly keeping good footing and balance. Ensure that the floor is not slippery and wear non-slip shoes.
✓ Turn voltage switch to "0" (off) when not in use.
✗ DO NOT operate the welder if it or the cables are damaged.
✗ DO NOT attempt to fit any unapproved torch, component, or part to the welder unit.

✗ DO NOT get the welder wet or use in damp or wet locations or areas where there is condensation.
✗ DO NOT weld without a welding safety head shield.
▲ ***DANGER! DO NOT weld near flammable materials - solids, liquids or gases.***
✗ DO NOT weld containers or pipes which have held flammable materials - gases, liquids or solids. Avoid welding materials which have been cleaned with chlorinated solvents and DO NOT weld near such solvents.
✗ DO NOT stand welder on a metal workbench, car bodywork or similar.
✗ DO NOT touch any live metal parts of the torch or electrode while the machine is switched on.
✗ DO NOT pull welder by the cable, or torch, and DO NOT bend or strain cables. Protect cables from sharp or abrasive items, and DO NOT stand on them.
✓ Protect cables from heat. Long lengths of slack must be gathered and neatly coiled.
✗ DO NOT place cables where they endanger others.
✗ DO NOT touch the workpiece close to the weld as it will be very hot. Allow to cool.
✗ DO NOT touch the torch immediately after use. Allow the torch 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. IF USING GAS

✓ Ensure that you understand the properties and associated hazards before using a gas.
✓ Spray the gas cup and contact tip regularly with anti-spatter spray available from your Sealey dealer.
✓ 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 exceeds 50°C.
✗ 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 labels from a cylinder and always check the identity of the gas before use.
✗ DO NOT use direct heat on a cylinder. Always keep gas cylinders cool.
✗ DO NOT get a gas cylinder oily or greasy.
✗ DO NOT lift a cylinder by its cap, guard or valve. Always keep caps and guards in place and close valve when not in use.

2. INTRODUCTION & DESCRIPTION

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 weld. If you have no experience, we recommend that you seek training from an expert source. Mig welding is relatively easy, but does require a steady hand and time practicing under supervision with scrap metal. You will only gain the required skills through continued practice.
Dualmig machines weld without external gas by using a flux-cored wire that creates its own gas shroud as it welds (the gas protects the molten weld pool from the atmosphere. Without the gas the weld would oxidise, resulting in porosity). Gasless welding is used for mild steel and has the advantage of keeping costs down as you do not need to purchase and store gas bottles. You can also weld in wind, breeze or draughts.

The units have integral wire feed which prevents dust and dirt getting to the wire. They are supplied with a 0.9mm flux-cored wire with which only mild steel and low alloy steel can be welded.
NOTE: To weld stainless steel and aluminium, models PMG110, PMG135XT and PMG155XT must be converted to gas. PMG100 is for gasless operation only.

3. SPECIFICATIONS

	PMG100	PMG110	PMG135XT	PMG155XT
Welding Current	55-90A	55-90A	50-130A	50-150A
No Gas/Gas Operation	No Gas only	Dual Operation	Dual Operation	Dual Operation
Duty Cycle	20% @ 55A	20% @ 55A	100% @ 35A	100% @ 45A
	10% @ 80A	10% @ 80A	20% @ 90A	60% @ 55A
			15% @ 105A	15% @ 115A
Penetration - Steel	2mm	2 - 2.75mm	2.5 - 3.0mm	3.5mm
Penetration - Aluminium	-	3.5mm	4mm	4.5mm
Cooling System	Air Cooled	Air Cooled	Forced Air	Forced Air
Torch	Live	Non Live	Non Live	Non Live
Power Input	230V 1ph	230V 1ph	230V 1ph	230V 1ph
Power Efficiency	2.8kVA	2.9kVA	4.1kVA	4.3kVA
Conversion Kit	N/A	GM/CK	GM/CK	GM/CK
Flux-cored Wire (0.9kg x Ø0.9mm)	TG100/1	TG100/1	TG100/1	TG100/1
Spare Tips (Pack of 5)	TG100/2	TG100/2	TG100/2	TG100/2

4. ASSEMBLY

❒ **WARNING! ENSURE THAT THE WELDER IS DISCONNECTED FROM THE POWER SUPPLY.**

4.1. Wheel Assembly - PMG135XT & PMG155XT only

4.1.1. Fit a wheel to one end of the axle and secure with a circlip.

4.1.2. Pass the axle through the tube in the rear cover and then fit the second wheel.

4.2. Handle - PMG135XT & PMG155XT only

4.2.1. Remove the screw (fig. 1.1) holding the front of the main handle.

4.2.2. Fit the handle extension (fig. 1.2) into the main handle and replace the retaining screw.

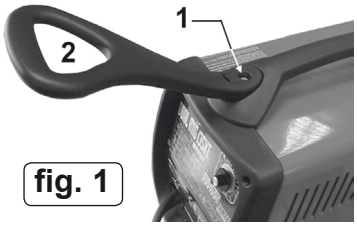


fig. 1

4.3. Welding Mask Assembly: Separate the main components of the mask as shown in A and B below into their separate parts. Trim any spikes and burrs of excess plastic from the pieces in preparation for assembly.

4.3.1. Overlap the two main halves of the mask so that the fixing holes line up and insert one fixing (1) from the outside into the hole above the window. Place the assembly face downwards.

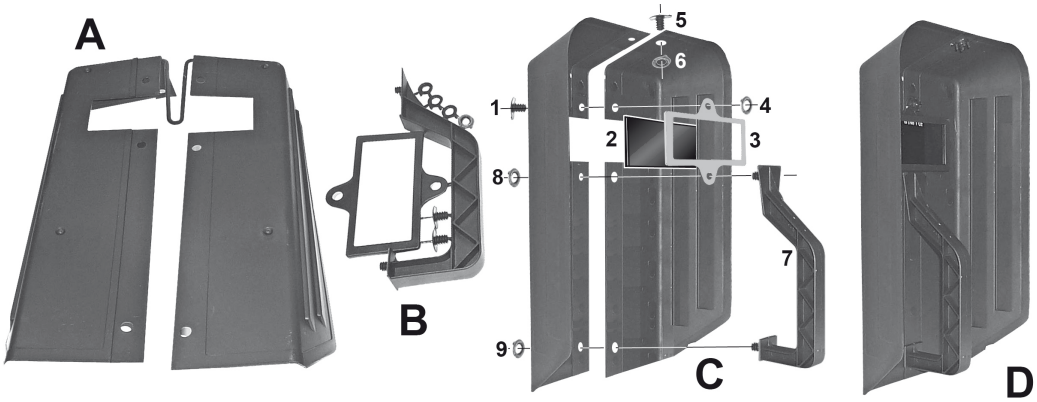
4.3.3. Lay the tinted glass window (2) over the window opening and lay the frame (3) over the glass. Screw a plastic retainer ring (4) onto fixing (1).

4.3.4 Lift up the assembly and insert the handle threads (7) through the two holes below the window. Turn the assembly over and fix the handle with plastic retaining rings 8 and 9.

4.3.5 Insert fixing (5) through the remaining hole in the top of the mask and fix it with the remaining retaining ring (6).

4.4. Use: Always hold mask close to the face to provide maximum protection from radiation and droplets of molten metal.

4.4.1. Before each use check that the mask is undamaged and that the filter glass is in position and firmly retained. Remove any metal droplets that may be on the glass. **Danger! Never use a filter glass that is chipped, cracked or otherwise faulty as severe eye damage may result. Warning! Do not allow the mask to come into contact with flame as the fumes produced are harmful.**



4.4.2 Clean with soapy water, do not use solvents.

4.5. Fitting wire reel

Your machine will accept spools of wire up to 5kg without modification.

4.5.1. Align spindle (fig. 2.A) with holes in internal side panel and secure with two self tapping screws (B). Place spool (C) onto spindle, ensuring that the spool rotates clockwise with wire drawing off the top (see fig. 4), followed by plastic reel ring nut (D), reel spring (E) and handwheel (F).

4.5.2. Undo the lock screw and lift the wire feed lever up and to the right (fig. 4).

4.5.3. Straighten about 40-50mm of spool wire (*do not allow wire to uncoil*), and gently push it through the plastic guide and across the 6 or 9mm roller groove (fig. 5, also refer to para. 9.3).

4.5.4. Carefully lower the tension arm and secure with the lock screw.

4.5.5. Remove the gas cup (fig. 3.a) and contact tip (fig. 3.b) from the end of the torch as follows:
1) Take torch in left hand with the torch tip facing to the right.
2) Grasp gas cup firmly in your right hand.
3) Turn gas cup ***clockwise only*** (fig. 3.c) and pull cup off to the right.
❒ ***WARNING!*** *Do not turn the gas cup anti-clockwise, as this will damage the internal spring.*
4) Unscrew the copper contact tip (*righthand thread*).

4.5.6. Check welder is switched off "0", (fig. 6.C) and that the earth clamp is away from the torch tip. Connect the welder to the power supply and set the voltage switch(es) to "1" and "Min".

4.5.7. Set the wire speed knob (fig. 6.A) to position 5 or 6. The higher the number the faster the speed.

4.5.8. Switch the welder on "I" and, keeping the torch cable as straight as possible, press the torch switch. The wire will feed through the torch.

4.5.9. When the wire has fed through, switch welder off and unplug from mains.
1) Take torch in left hand and screw contact tip back into place.
2) 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) Cut wire so that it is protruding 1/4" (6mm) from the cup (fig. 3.d).

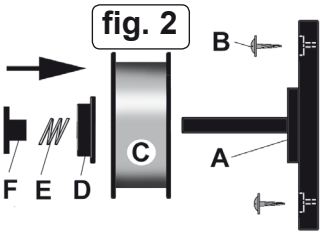


fig. 2

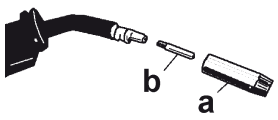


fig. 3

4.6. Setting wire tension

IMPORTANT: Set the correct tension. Too little or too much tension will cause problematic wire feed and result in poor welding.

4.6.1. For mild steel 0.6mm wire the wire lock screw must be tightened fully and undone approximately two to three complete turns (fig. 7).

4.6.2. Tension between rollers is checked by slowing down the wire between your fingers. If the 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.

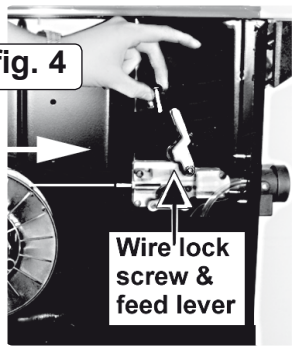


fig. 4

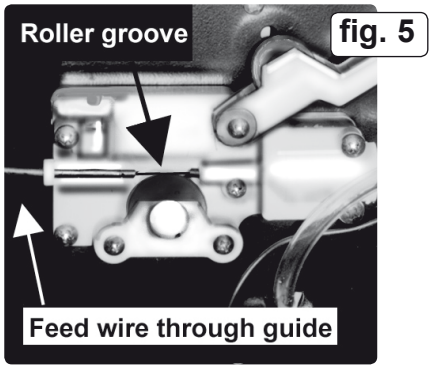


fig. 5

fig. 6

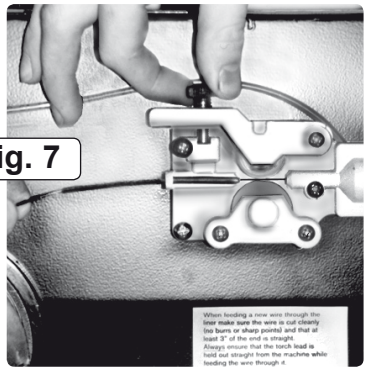


fig. 7

5. GASLESS OPERATION

❒ **WARNING! ENSURE THAT YOU READ, UNDERSTAND AND APPLY SAFETY INSTRUCTIONS BEFORE OPERATING THE MACHINE. IF WELDING A VEHICLE, DISCONNECT THE BATTERY OR FIT AN ELECTRONIC CIRCUIT PROTECTOR.**

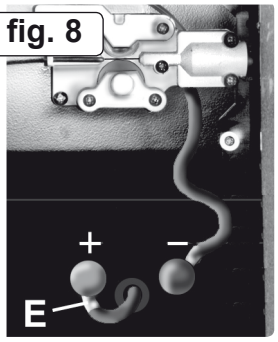


fig. 8

5.1. Ensure that the welder is disconnected from the main power supply, open the side panel and check that the earth clamp wire is connected to the POSITIVE (+) terminal and the power (torch) lead is connected to the NEGATIVE (-) terminal (fig. 8).

5.2. To ensure a complete circuit, the earth clamp must be securely attached to the workpiece.
a) Obtain the best connection by grinding the point of contact on the workpiece before connecting the clamp.
b) The weld area must also be free of paint, rust, grease, etc.

5.3. If welding a vehicle, disconnect the battery or fit a “Electronic Circuit Protector” (available from your Sealey dealer).

5.4. Wire feed switch controls the speed of wire feed. The lower the power setting, the slower the wire speed.

5.5. Power settings are Min/ 1 (low), Min/2, Max/1, Max/2 (high), (fig. 5) - set the wire speed accordingly. Wire from the spool is automatically fed through an insulated liner in the torch to the tip. The torch assembly consists of a switch, wire liner, gas hose (not PMG100) and control cable. The switch activates the wire feed roller (to stop wire feed release the switch). As wire comes into contact with the workpiece an arc is struck. The arc melts the wire which is deposited into the weld.

6. CONVERSION TO MIG (GAS) WELDING

For welding stainless steel or aluminium, the gasless mig welder (with the exception of model PMG100) can be converted to a conventional mig welder. To convert to gas, order a reel of regular wire, a bottle of gas, tips and nozzles and a conversion kit. Kit 120.802032 contains a regulator plus connection hoses, hose adaptor and jubilee clips. See right.

6.1. Welder conversion. Ensure that the welder is disconnected from the mains power supply and open the side panel. Re-connect the power leads as follows. Remove the earth clamp cable from the POSITIVE (+) terminal (fig. 8.E) and the power (torch) cable from the NEGATIVE (-) terminal. Connect the earth to the NEGATIVE terminal and the power (torch) cable to the POSITIVE terminal.

6.1.1. Remove flux cored wire and fit steel wire (0.6 or 0.8mm).

6.1.2. If necessary, remove wire feed roller retaining screws and bracket and turn roller (fig. 9) so that the appropriately sized groove is towards the outside.

6.1.3. Tension as in para. 4.4.

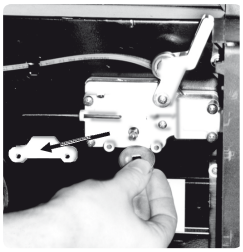


fig. 9

6.2. Gas cylinder. Strap the gas cylinder to the back of the machine.

6.2.1. Screw the flow regulator onto the cylinder **(finger tight only**). Once the cylinder has been opened (sound of gas escaping) screw the flow regulator a further full turn, which is sufficient to seal the cylinder.

❒ **WARNING! Excessive tightening of the flow regulator will over-compress the rubber sealing washer and allow the gas to escape slowly without being detected.**

6.2.2. Push the larger diameter hose onto the gas input tube on the back of the welder. Slide a jubilee clip over the hose and tube and tighten it. Slide the other jubilee clip onto the hose and push the small end of the adaptor into the hose. Slide the jubilee clip back over the joint and tighten it. Push one end of the small diameter gas hose into the open end of the adaptor and push the other end into the regulator outlet, it will seal automatically. To release the gas hose, press the collar on the quick coupler and pull the hose (fig. 10).

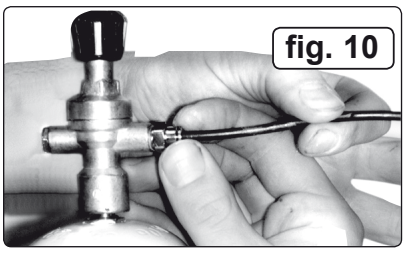


fig. 10

6.2.3. With the set on, turn the regulator knob halfway for 2ltr/min and all the way for maximum of 4ltr/min.

6.2.4. Always remove the flow regulator after use if the machine is to be stored for any length of time.

6.3. Gas types. 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, you must use an CO_2/Argon mixture. To weld aluminium use:

✓ Argon gas ✓ 0.8mm Contact Tip ✓ 0.8mm Aluminium Wire (MIG/2/KAL08)

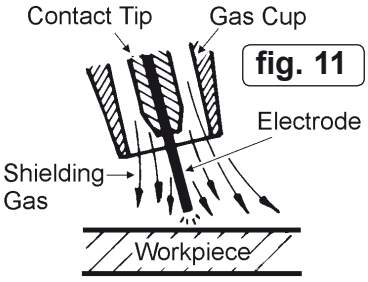


fig. 11

6.4. Other. You can use large industrial gas cylinders if preferred (the machine is no longer portable). To do so, contact your local Sealey dealer to obtain an industrial regulator and cylinder adaptor kit.

7. MIG/MAG GAS WELDING PRINCIPLES

7.1. Mig/Mag welding

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 consists of a switch, liner, gas hose (not PMG100) 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 power settings (two settings only on PMG100) increase or decrease the amperage transferred to the electrode. Settings (fig. 6) are Min & 1 (low) then Min/2, Max/1 to Max/2 (high). 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 the gas flow towards the weld ensuring the arc welding process is shielded from the oxidising air. The shielding gas also assists heating the weld (fig. 11). The torch is connected to the positive output and the negative clamp is attached to the workpiece.

7.2. Spot welding

Remove the gas cup and fit a spot welding gas cup. Turn the power and wire speed to the highest settings available. Drill a small hole in the top workpiece. Push the gas cup onto the material to be welded. The castellations 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 it for 1 to 3 seconds. Depending on the metal thickness, the wire will feed through during the allotted time and create the weld.

7.3. Preparations for welding

❒ **WARNING! ENSURE THAT THE MACHINE IS SWITCHED OFF AT THE MAINS. IF WELDING A VEHICLE, DISCONNECT THE BATTERY OR FIT AN ELECTRONIC CIRCUIT PROTECTOR. ENSURE THAT YOU READ AND UNDERSTAND THE ELECTRICAL SAFETY INSTRUCTIONS IN SECTION 1.**

7.3.1. To ensure a complete circuit, the earth clamp must be securely attached to the workpiece.
1) The best connection is obtained by grinding the point of contact on the workpiece before connecting the clamp.
2) The weld area must also be free of paint, rust, grease, etc.
3) If welding a vehicle, disconnect the battery or fit an "Electronic Circuit Protector" (available from your Sealey dealer).

7.3.2. The following table is an estimated duration of cylinders based on a flow rate of 2ltr/min.
Actual duration will depend upon various job conditions including the operator's welding technique. All times are, therefore, approximate.

a) Refillable cylinder: CO_2 1000g = 3.3 hours. Refill service via local Sealey dealers.

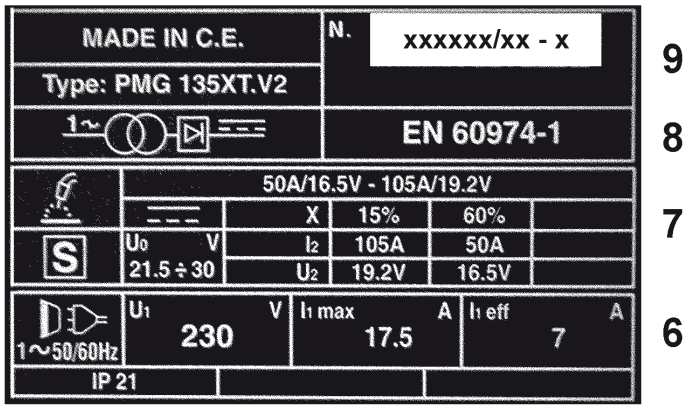
b) Disposable cylinders: CO_2 390g = 1-1/4 hours, 600g = 2 hours.

Argon 300g = 1 hour, CO_2/Argon 300g = 1 hour Note:When comparing cylinder prices, always check fill weights.

8. RATING PLATE

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

1 - Transformer-rectifier.
2 - Welding procedure: manual arc welding with covered electrode.
3 - S: Indicates that welding may be carried out in environments with a heightened risk of electric shock e.g. very close to large metallic objects.
4 - Power Supply Type: Single-phase AC.
5 - Rating of internal protection provided by casing.
6 - Power Supply
U_1: Rated supply voltage.
I_{max}: Maximum current.
I_{1eff}: Maximum effective current.
7 - Output
U_0: Maximum open-circuit voltage.
I_2, U_2: Current and corresponding voltage.
X: Welding ratio based on a 10 minute cycle. 30% indicates 3 minutes welding and 7 minutes rest, 100% indicates continuous welding.
A/V-A/V: Welding current adjustment range and corresponding voltages.
8 - The standard relating to the safety and construction of arc welding, and associated, equipment.
9 - Serial Number. Specifically identifies each welder.



9. MAINTENANCE

9.1. Wire feed unit

Check the wire feed unit at regular intervals. The feed roller wire guide plays an important part in obtaining consistent results. Poor wire feeding affects welding. Clean the rollers weekly, especially the feed roller groove, removing all dust deposits.

9.2. Torch

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

9.3. Changing feed roller

IMPORTANT: *Adjust the feed roller to the corresponding wire size.*There are two grooves on the feed roller, 0.6mm and 0.9mm. Always use the groove on the outside of the roller, (the groove nearest to you). To remove the feed roller, undo the two screws and remove the plastic cover (fig. 12). Clean, turn or change the feed roller as appropriate and refit the plastic cover.

9.4. Contact tip *(to remove tip follow steps in 4.3.5. to 4.3.8.).*

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.

9.5. Gas cup *(to remove cup follow steps in 4.3.5. to 4.3.8.).*

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 Pressure Spray (MIG/722308) available from your Sealey Dealer.

9.6. **Replacing torch body.** Remove hook and four screws on handle. Pull apart, pull out torch body. Disconnect gas hose, wire liner and switch cable. Unscrew swan-neck. Fit new body.

9.7. **Replacing wire liner.** Wind the wire back on to the spool and secure it. Remove three screws securing torch cable to wire feed unit. Take off plastic cover (fig. 13). Undo the torch case and disconnect wire liner from torch head. Pull out the liner and insert new one. Reverse the process to re-assemble and trim liner as close to the feed roller as possible.

9.8. **Changing 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 stripping in the drive motor. 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, you may also observe the feed roller vibrating instead of rotating. Should this be the case, open the gearbox, remove the worn or damaged gears and replace with new ones.

fig. 12

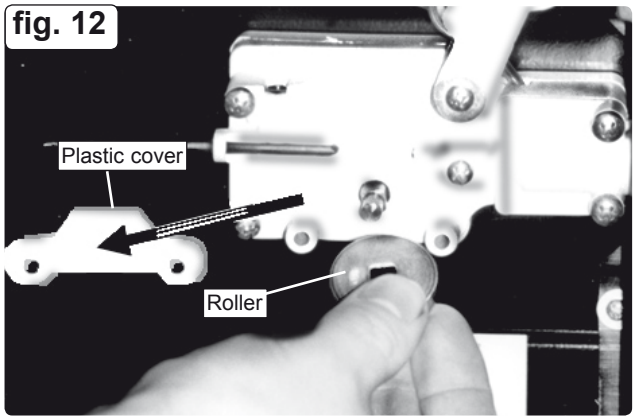
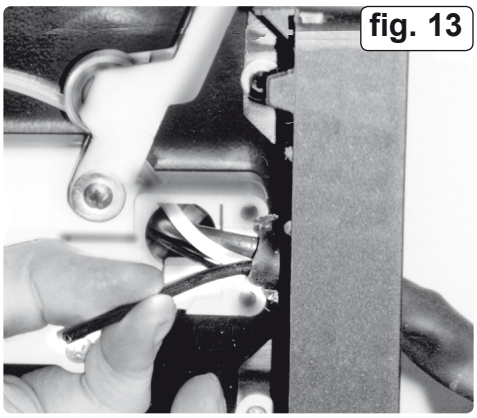


fig. 13



10. TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	REMEDY
1. Power source stops	Overheating protection activated due to overload	Protection automatically resets when transformer has cooled (about 15min).
2. No weld current, fuse blowing in 13 amp plug	Rectifier blown	Replace rectifier.
3. 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 torch.
4. Feed motor not working, lamp is on	Motor fuse blown Gear damaged or worn Motor defective	Replace fuse. Replace gears (Section 9). Replace motor (Contact service agent).
5. Wire does not feed, feed roller rotates	Pressure roller incorrectly adjusted Dirt, copper, dust, etc, have collection in torch liner Gas cup (Nozzle) or tip defective Deformed wire	Adjust tension (Section 4). Clean the liner from the machine forward. Use compressed air. If too much dirt, replace the liner (Section 9). Replace gas cup (nozzle) and/or tip (Section 9). Check roller tension and adjust it if necessary (Section 4).
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 incorrect	Clean the liner from the machine forward. Use compressed air. Replace gas cup (nozzle) and/or tip (Section 9). Clean or replace gas cup (nozzle) (Section 9). Clean feed roller (Section 9). Replace feed roller (Section 9). Adjust tension (Section 4).
7. Unstable arc.	Incorrect settings Impurities in weld area Worn or defective gas cup (nozzle)	Use correct settings. Clean and/or grind workpiece (Section 5). Replace gas cup (nozzle) (Section 9).
8. Porous weld	No gas Gas cup clogged Draft blowing away shielding gas Rusty or dirty joints Torch too far from workpiece Gas leak	Open gas cylinder, regulate gas flow. Clean or replace cup (Section 9). Screen off welding site or increase gas flow. Clean or grind the workpiece (Section 5). The distance from gas cup to workpiece should be 8-10mm. Check hoses, connections and torch assembly.
9. Electrode sticking in gas cup (nozzle)	Worn or defective gas cup (nozzle) Electrode deformed Wire speed too slow	Replace gas cup (nozzle) (Section 9). Check roller tension (Section 4). See recommendations for wire speed. (Section 5).
10. Irregular weld head	Torch incorrectly held Wire weaving in weld pool	Use correct torch angle (Section 8). Check roller tension and adjust as needed (Section 4).
11. Weld bead too narrow and raised	Weld current too high Weld speed too low	Increase power and wire speed (Section 5). 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 (Section 5). Move torch faster and weave less. Bring torch closer to workpiece.
13. Poor penetration	Weld current too low Arc too long	Increase power and wire speed (Section 5). 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 (Section 5). Move torch faster. Torch distance should be 8-10mm.
15. Fuse blowing	Tension too great Gas cup contact tip clogged	Reduce tension (Section 4). Clean gas cup and contact tip (Section 9).

11. ELECTROMAGNETIC COMPATIBILITY

11.1. THIS EQUIPMENT IS IN CONFORMITY WITH THE EUROPEAN STANDARD ON THE ELECTROMAGNETIC COMPATIBILITY OF ARC WELDING EQUIPMENT AND SIMILAR PROCESSES (e.g. ARC AND PLASMA CUTTING)

11.2. **Protection against interference. (E.M.C.)** The emission limits in this standard may not, however, provide full protection against interference to radio and television reception when the equipment is used closer than 30m to the receiving antenna. In special cases, when highly susceptible apparatus is being used in close proximity, additional mitigation measures may have to be employed in order to reduce the electromagnetic emissions. At the same time there could occur some potential difficulties in having electromagnetic compatibility in a non-industrial environment (e.g. in residential areas). Therefore it is most important that the equipment is used and installed according to the following instructions.

11.3. **Installation and use.** The user is responsible for installing and using the equipment according to these instructions. If electromagnetic disturbances are detected, then it shall be the responsibility of the user of the equipment to resolve the situation with the technical assistance of the supplier. In some cases this remedial action may be as simple as earthing the circuit (see Note). In other cases it could involve constructing an electromagnetic screen, enclosing the welding power source and the work, complete with associated input filters. In all cases the electromagnetic disturbances shall be reduced to the point where they are no longer troublesome.
Note: The welding/cutting circuit may or may not be earthed for safety reasons. Changing the earthing arrangements should only be authorised by a person who is competent to assess whether the changes will increase the risk of injury, e.g. by allowing parallel welding/cutting circuit return paths which may damage the earth circuits of other equipment. Further guidance is given in IEC 974-13 'Arc Welding Equipment - Installation and Use.'

11.4. **Assessment of area.** Before installing the equipment the user shall make an assessment of potential electromechanical problems in the surrounding area. The size of the surrounding area to be considered will depend on the structure of the building and other activities that are taking place. The surrounding area may extend beyond the boundaries of the premises.
The following shall be taken into account :
a) Other supply cables, control cables, signalling and telephone cables, above, below and adjacent to the welding equipment.
b) Radio and television transmitters and receivers.
c) Computer and other control equipment.
d) Safety critical equipment, e.g. security monitoring of industrial equipment.
e) The health of people in the vicinity, e.g. persons fitted with a pacemaker or hearing aid.
f) Equipment used for calibration or measurement.
g) The immunity of other equipment in the environment. The user shall ensure that other equipment being used in the environment is compatible. This may require additional protective measures.
h) The time of day that welding and other activities are to be carried out.

11.5. **Mains supply.** The equipment should be connected to the mains supply according to these instructions. If interference occurs, it may be necessary to take additional precautions such as filtering of the mains supply. Consideration should also be given to shielding the supply cable of permanently installed equipment in metallic conduit or equivalent. This shielding should be connected to the power source so that good electrical contact is maintained between the conduit and the welding power source enclosure.

11.6. **Maintenance of the equipment.** The equipment should be routinely maintained according to these instructions. All access and service covers should be closed and properly fastened when the welding equipment is in operation. The welding equipment should not be modified in any way except for those changes and adjustments covered in these instructions. In particular, the spark gaps of any arc striking and stabilising devices should be adjusted and maintained according to the instructions.

11.7. **Cables.** The welding/cutting cables should be kept as short as possible and should be positioned close together, running at or close to the floor level.

11.8. **Equipotential bonding.** Bonding of all metallic components in the welding/cutting installation and adjacent to it should be considered. However, metallic components bonded to the workpiece will increase the risk that the operator could receive a shock by touching these metallic components and the electrode at the same time. The operator should be insulated from all such bonded metallic components.

11.9. **Earthing of the workpiece.** Where the workpiece is not bonded to earth for electrical safety, nor connected to earth because of its size and position, e.g. ship's hull or building steelwork, a connection bonding the workpiece to earth may reduce emissions in some, but not all instances. Care should be taken to prevent the earthing of the workpiece increasing the risk of injury to others or damage to other electrical equipment. Where necessary, the connection of the workpiece to earth should be made by a direct connection to the workpiece, but in some countries where direct connection is not permitted, the bonding should be achieved by a suitable capacitance, selected according to national regulations.

11.10. **Screening and shielding.** Selective screening and shielding of other cables and equipment in the surrounding area may alleviate problems of interference. Screening of the entire welding/cutting installation may be considered for special applications.

GASLESS
MIG WELDERS

PMG100.V2
PMG110.V2
PMG135XT.V2
PMG155XT.V2

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

CE

Sole UK Distributor, Sealey Group,
Kempson Way, Suffolk Business Park,
Bury St. Edmunds, Suffolk,
IP32 7AR

01284 757500 www.sealey.co.uk
01284 703534 sales@sealey.co.uk