
parweld

# XTM 221Di

## OPERATOR MANUAL

**ISSUE 2**

# Welcome

Thank you for choosing Parweld. This Owner's Manual is designed to help you get the most out of your Parweld products. Please take time to read the Safety Precautions. They will help you protect yourself against potential hazards in the workplace. With proper maintenance this equipment should provide years of reliable service. All our systems conform to ISO9001: 2015 and are independently audited by NQA.

The product range carries the CE and UKCA mark, and is constructed in accordance with European directives and the product specific standards where they apply.

## Further Information

Parweld is the UK's leading supplier of MIG, TIG and Plasma torches and consumables.

For more information about Parweld's complete range visit: www.parweld.com

# Contents

# 1.0 Safety Precautions

**ELECTRIC SHOCK can kill.**
Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on. In semi automatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

Do not touch live electrical parts.

Wear dry, sound insulating gloves and body protection.

Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work ground.

Additional safety precautions are required when any of the following electrically hazardous conditions are present: in damp locations or while wearing wet clothing; on metal structures such as floors, gratings, or scaffolds; when in cramped positions such as sitting, kneeling, or lying; or when there is a high risk of unavoidable or accidental contact with the work piece or ground. For these conditions, use the following equipment in order presented: 1) a semi automatic DC constant voltage (wire) welder, 2) a DC manual (stick) welder, And, do not work alone!

Disconnect input power before installing or servicing this equipment. Lockout/tagout input power according to Safety Standards.

Properly install and ground this equipment according to national and local standards.

Always verify the supply ground - check and ensure that input power cable ground wire is properly connected to ground terminal in the receptacle outlet.

When making input connections, attach proper grounding conductor first - double-check connections.

Frequently inspect input power cable for damage or bare wiring - replace cable immediately if damaged - bare wiring can kill.

Turn off all equipment when not in use.

Do not use worn, damaged, under sized, or poorly spliced cables.

Do not drape cables over your body.

If earth grounding of the work piece is required, ground it directly with a separate cable.

Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.

Use only well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.

Wear a safety harness if working above floor level.

Keep all panels and covers securely in place.

Clamp work cable with good metal-to-metal contact to workpiece or worktable as near the weld as practical.

Insulate work clamp when not connected to a workpiece to prevent contact with any metal object.

Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

**FUMES AND GASES can be hazardous.**

Do not breathe the fumes.

Ensure local extraction is effective or use a personal filtration system. Welding fume can be carcinogenic.

Read and understand the Material Safety Data Sheets (MSDS's) and the manufacturer s instructions for metals, consumables, coatings, cleaners, and de-greasers.

Work in a confined space only while wearing an air-supplied respirator. Always have a trained watch person nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.

Do not weld / cut in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapours to form highly toxic and irritating gases.

Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

**ARC RAYS can burn eyes and skin.**

Arc rays from the welding / cutting process produce intense, visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

Wear an approved welding helmet fitted with a proper shade of filter lenses to protect your face and eyes when welding, cutting or watching.

Wear approved safety glasses with side shields under your helmet.

Use protective screens or barriers to protect others from flash, glare and sparks; warn others not to watch the arc.

Wear protective clothing made from durable, flame-resistant material (leather, heavy cotton, or wool) and foot protection. Welding / cutting on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot workpiece, and hot equipment can cause fires and burns. Accidental contact of an electrode to metal objects can cause sparks, explosion, overheating or fire. Check and be sure the area is safe before doing any welding / cutting.

**WELDING AND CUTTING can cause fire or explosion.**
Remove all flammables within 10m of the welding / cutting arc. If this is not possible, tightly cover them with approved covers.

Do not weld or cut where flying sparks can strike flammable material.

Protect yourself and others from flying sparks and hot metal.

Be alert that welding / cutting sparks and hot materials from welding / cutting can easily go through small cracks and openings to adjacent areas.

Watch for fire, and keep a fire extinguisher nearby. Be aware that welding or cutting on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.

Do not weld or cut on closed containers such as tanks, drums, or pipes, unless they are properly prepared according to local regulations

Connect work cable to the work as close to the welding / cutting area as practical to prevent current from travelling along possibly unknown paths and causing electric shock, sparks, and fire hazards.

Cut off welding wire at contact tip when not in use.

Wear oil-free protective garments such as leather gloves, heavy shirt, cuffless trousers, high shoes, and a cap. Remove any combustibles, such as a butane lighter or matches, from your person before doing any welding / cutting.

**FLYING METAL can injure eyes.**
Welding, cutting, chipping, wire brushing, and grinding cause sparks and flying metal. As welds cool they can throw off slag. Wear approved safety glasses with side shields even under your welding helmet.

**BUILDUP OF GAS can injure or kill.**
Shut off shielding gas supply when not in use. Always ventilate confined spaces or use approved air-supplied respirator.

**HOT PARTS can cause severe burns.**
Do not touch hot parts with bare handed.

Allow cooling period before working on gun or torch.

To handle hot parts, use proper tools and/or wear heavy, insulated welding gloves and clothing to prevent burns.

**MAGNETIC FIELDS can affect pacemakers.**
Pacemaker wearers keep away.

Wearers should consult their doctor before going near arc welding, cutting, gouging, or spot welding operations.

**NOISE can damage hearing.**
Noise from some processes or equipment can damage hearing.

Wear approved ear protection if noise level is high.

Shielding gas cylinders contain gas under high pressure.

**CYLINDERS can explode if damaged.**
Protect compressed gas cylinders from excessive heat, mechanical shocks, physical damage, slag, open flames, sparks, and arcs.

Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping. Keep cylinders away from any welding or other electrical circuits. Never drape a welding torch over a gas cylinder. Never allow a welding electrode to touch any cylinder. Never weld or cut on a pressurized cylinder - explosion will result. Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.

Turn face away from valve outlet when opening cylinder valve.

Use the right equipment, correct procedures, and sufficient number of persons to lift and move cylinders.

Read and follow instructions on compressed gas cylinders, associated equipment, and Compressed Gas Association (CGA)

**WARNING**

**When using an open arc process, it is necessary to use correct eye, head, and body protection.**

# 2.0 Product Description

The XTM 221Di is a multi-mode welding machine using inverter technology. A micro controller allows the machine to be quickly and easily configured for MIG, TIG, MMA and Plasma operations. Within each welding mode there are features and functions which improve the welding performance and ease of use as detailed below.

All processes can be rapidly configured through the use of synergic programs where the base settings are already programmed into the machine and the user only needs to provide information on the material type and thickness.

MIG welding controls:- Synergic or manual parameter setting for Volts and Wire speed( Amps). Dynamic Arc starting program eliminating the need for soft start function. Adjustable burn back to vary the wire stick out after welding.

TIG welding controls:- Synergic or manual parameter setting for Pre Gas, Upslope, Welding current, pulse parameters, AC frequency, downslope and post gas time.

MMA Controls:- Synergic or manual setting of welding Power. Automatic Hotstart which assists electrode striking by boosting the start current.

Automatic Antisticking which drops the welding current when the electrode is shorted during welding to prevent the electrode welding itself to the job.

Arc Force increases the current when the arc gets too short, to prevent the electrode sticking to the job; the level of arc force is user adjustable. You may wish to increase arc force so you can dig the electrode into the work piece for improved penetration; the level of arc force selected will depend upon the type of electrode and joint configuration.

PLASMA Controls:- Synergic parameter setting of Amps. The recommended air pressure will be displayed on the screen but will need to be manually set on the regulator. There are 3 plasma modes available, mesh, standard and gouging.

# 3.0 Technical Specifications

The XTM 221Di, is a compact type machine with integrated wire feed unit for use with single phase 110/230V supply with smart input switching.

| Process | Feature | XTM 221Di | |
|---|---|---|---|
| | Input Voltage | 110V+/10% | 230V+/-10% |
| | Hz | 50/60 | |
| | Phases | 1 | |
| | KVA | 3.7 | |
| | Generator Size | 7 KVA | |
| | No-load Voltage (V) | 45V | |
| | Wire Drive | 4 Roll | |
| | Fuse Rating (A) | 32 | 16 |
| | IP Rating | IP23S | |
| | Weight (Kg) | 27.8 | |
| MIG | DC Input Current (A) | 35.5 | 26.2 |
| | DC Input effective Current (A) | 19.4 | 14.4 |
| | DC Welding Current (A) | 10~140 | 10~200 |
| | Welding Voltage (V) | 14.5~21 | 14.5~24 |
| TIG | DC Input Current (A) | 32.2 | 25.0 |
| | DC Input effective Current (A) | 17.7 | 12.5 |
| | AC Input Current (A) | 31.9 | 25.7 |
| | AC Input effective Current (A) | 17.5 | 14.1 |
| | DC Welding Current (A) | 10~140 | 10~200 |
| | AC Welding Current (A) | 10~140 | 10~200 |
| | Welding Voltage (V) | 10.4~15.6 | 10.4~18.8 |
| MMA | DC Input Current (A) | 30.8 | 29.7 |
| | DC Input effective Current (A) | 21.8 | 16.2 |
| | AC Input Current (A) | 33.8 | 32.2 |
| | AC Input effective Current (A) | 20.0 | 16.1 |
| | DC Welding Current (A) | 10~110 | 10~200 |
| | AC Welding Current (A) | 10~110 | 10~200 |
| | Welding Voltage (V) | 20.4~24.4 | 20.4~28 |
| Plasma | DC Input Current (A) | 49.1 | 29.2 |
| | Input effective (A) | 21.9 | 16.0 |
| | Load Voltage | 140V | 140V |
| | No load Voltage | 226V | 226V |
| | DC Output Current (A) | 15-25 | 15-40 |

**Duty Cycle (DC)**

| | 110V input | | | 230V input | | |
|---|---|---|---|---|---|---|
| MIG | 30% | 60% | 100% | 30% | 60% | 100% |
| | 140A | 100A | 75A | 200A | 140A | 110A |
| TIG | 30% | 60% | 100% | 25% | 60% | 100% |
| | 140A | 100A | 75A | 200A | 130A | 100A |
| MMA | 50% | 60% | 100% | 30% | 60% | 100% |
| | 110A | 100A | 80A | 200A | 140A | 110A |
| Plasma | 20% | | | 30% | 60% | 100% |
| | 25A | | | 40A | 28A | 22A |

**Duty Cycle (AC)**

| | 110V input | | | 230V input | | |
|---|---|---|---|---|---|---|
| TIG | 30% | 60% | 100% | 30% | 60% | 100% |
| | 140A | 100A | 75A | 200A | 140A | 110A |
| MMA | 30% | 60% | 100% | 25% | 60% | 100% |
| | 110A | 80A | 60A | 200A | 130A | 100A |

# 4.0 Installation

**Read entire installation section before starting installation.**

## SAFETY PRECAUTIONS

- **ELECTRIC SHOCK can kill.**
- **Only qualified personnel should perform this installation.**
- **Only personnel that have read and understood the Operating Manual should install and operate this equipment.**
- **Machine must be grounded per any national, local or other applicable electrical regulations.**
- **The MIG power switch is to be in the OFF position when installing work cable and torch and when connecting other equipment.**

## 4.1 Location

Position the power source so that its cooling air inlets and outlets are not obstructed.


**A. 100mm (4in.) minimum**

**B. 100mm (4in.) minimum**

### 4.2 Input and Grounding Connection

**WARNING**

**Before starting the installation, check that your power supply is adequate for the voltage, amperage, phase, and frequency specified on the Machine nameplate.**

The 110/230 volt 50 Hz machine is supplied with a 3m input cable and without plug, ensure that you connect a plug that is suitably rated for the power draw of the machine and the environmental location.

Have a qualified electrician connect the input plug.

## 5.0 Description of Controls and Torch Connections


1. Power Switch for Incoming Mains
2. QF Incoming Gas Connection MIG
3. QF Incoming Gas Connection TIG
4. QF Incoming Air Connection Plasma
5. MIG Torch Connector
6. Work Lead Connector
7. TIG Torch / Electrode Holder Socket


8. Wire Spool Holder
9. Wire Feed Unit
10. Air pressure regulator (plasma)


11. Multifunction Control Knob
12. Amperage / Wire Speed Adjustment
13. Voltage / Downslope / Arc Force Adjustment
14. Inductance / Post Gas Control
15. Digital Display
16. TIG Torch Gas Connector
17. TIG Torch Trigger Connector
18. Plasma torch connector

# 6.0 Operation

## 6.1 Use of Controls

**Multifunction Control Knob.**

Rotate and Select

Rotate left or right to highlight an option on the screen.
Press to select
Press and hold to step back in menu tree
Short press at end of menu returns to start menu

## 6.2 Language of Operation




Short Press (1 sec) to return to start menu

## 6.3 Process Selection

**MIG SYN** Synergic MIG Welding Allows Simple and Rapid Setup.


**MIG MAN** Manual MIG Welding Setup


**TIG** Synergic TIG Welding Setup


**MMA** Synergic MMA Welding Setup


**Plasma Cutting** setup

## 6.4 MIG Welding Preparing the Machine


1. Open the Wire Drive Compartment Door by lifting the 2 finger catches on the side panel.
2. Release the pressure on the idle roll by swinging the adjustable pressure arms down towards the side of the machine. Lift the idle roll assemblies and allow it to sit in an upright position.
3. Unscrew the knob retaining the lower grooved feed roll and slide off the feed roll.
4. Ensure the wire size marked on the side of the feed roll matches the wire size to be used.
5. Replace the drive in reverse of the above procedure ensuring the wire size to be used is marked on the outward facing side of the roller as it is refitted.

**Note: Be sure that the torch liner and contact tip are also sized to match the selected wire size.**

### Welding Wire Installation

1. Position the wire spool so that it will rotate in a direction when feeding so as to be de-reeled from the bottom of the coil. If using 200 mm spool use the spacer to ensure the spool is aligned with the feed box.

**Note: There is a friction brake on the reel hub assembly to prevent the wire spool over running when welding stops; ensure this is slackened to the minimum setting. It can be adjusted by means of the nut visible when the plastic hand nut is removed.**

2. Turn the Spool until the free end of the electrode is accessible. While securely holding the electrode, cut off the bent end and straighten the first six inches. (If the electrode is not properly straightened, it may not feed properly through the wire drive system). Manually feed the wire from the wire reel and through the wire guide and then over the top of the wire feed roller (ensure the pressure arm is in its raised position).
3. Continue to feed the wire through the outlet guide until 20mm of wire is protruding from the front of the machine torch connector.
4. Reposition the adjustable pressure arms to their original position to apply pressure. Adjust pressure as necessary.

**Note: The pressure arms should be adjusted in order to give the minimum amount of pressure on the wire to allow reliable feeding.**

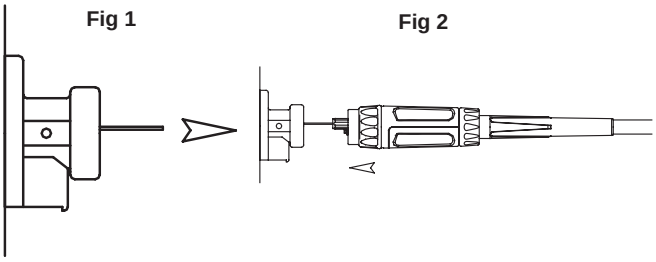
### MIG Torch Installation

Your Parweld MIG/MAG Welding Torch has been supplied ready to weld. It has been supplied with the standard consumables denoted in the product brochure.

**To connect the torch to the power source:**

1. Remove the contact tip.
2. Inch the wire from the exit of the wire guide on the feed unit as Figure 1. Ensure that it does not short out on any machine panels.
3. Carefully slide the electrode wire into the torch liner and slowly locate the torch gun plug body into the feed unit central connector and tighten the gun plug nut as Figure 2

**Fig 1** **Fig 2**



**Note: To aid the initial location of a new torch and to prevent damage to the gas nipple O-Ring a very light application of grease to the O-Ring is beneficial.**

4. Keeping the torch as straight as possible, use the power source inch facility or torch trigger to feed the electrode wire 50mm from the end of the torch.
5. Once the electrode wire has stopped, refit the contact tip and gas nozzle.
6. Trim the electrode wire to within 5mm of the face of the nozzle; this will facilitate jolt free arc initiation.

**Note: Check that drive rolls, and torch parts are correct for the wire size and type being used**

7. The optimum idle roll pressure varies with type of wire, wire diameter, surface conditions, lubrication and hardness. As a general rule, hard wires may require greater pressure, and soft or aluminium wire, may require less pressure than the factory setting. The optimum idle roll setting can be determined as detailed on the following page.

## MIG Torch Installation (continued)

8. Press end of gun against a solid object that is electrically isolated from the welder output and press the gun trigger for several seconds.
9. If the wire "bird nests", jams or breaks at the drive roll, the idle roll pressure is too great. Back the adjustment knob out 1/2 turn, run new wire. If the only result was drive roll slippage, loosen the Hand nut on the central connector and pull the torch forward about 6" (15cm) away from the power source. There should be a slight waviness in the exposed wire. If there is not waviness, the pressure is too low. Tighten the adjustment knob 1/4 turn, reinstall the torch cable and repeat the above steps.
10. When triggering, the electrode and drive mechanism are electrically "LIVE" relative to work and ground and remain "LIVE" several seconds after the gun trigger is released.

**Burn back**

Adjusted on screen from the Help Menu.


**Soft start**

The machine has a pre-set soft start system.

# 7.0 Setting the Machine for Welding

### 7.1 MIG Torch Selection

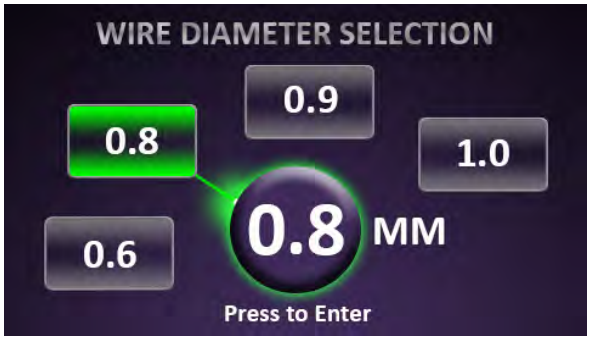
Select the HELP menu from the main Process Selection screen and follow the screen prompts as follows.

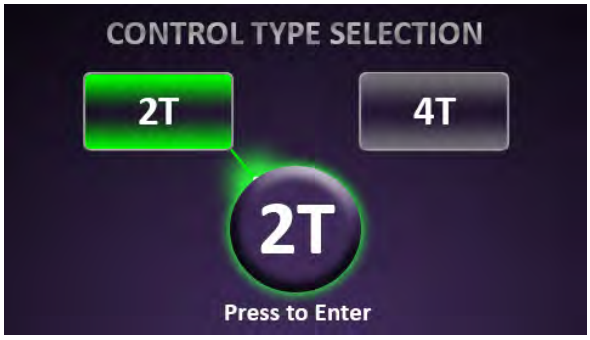



### 7.2 MIG SYN Synergic MIG Welding Allows Simple and Rapid Setup.

Follow the screen prompts to complete the machine setup. Example setting.

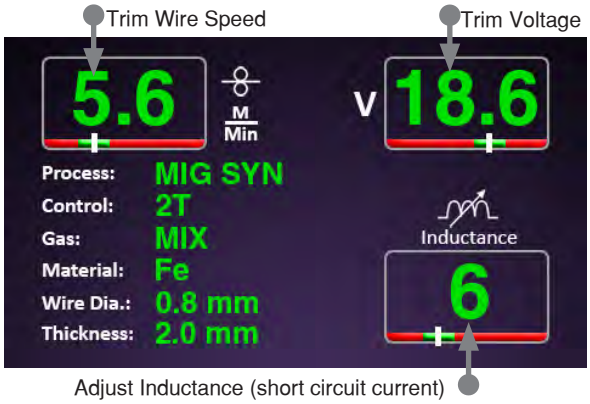






**Operating screen (MIG SYN)**

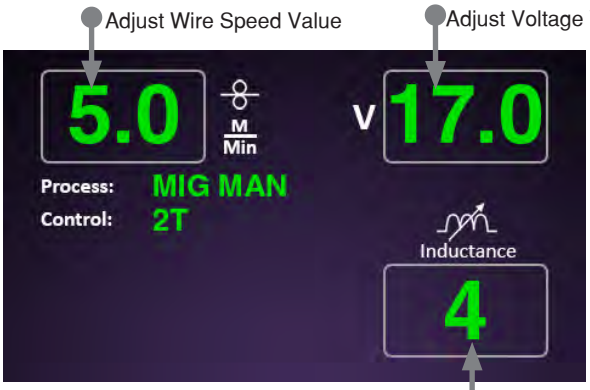



Adjust Inductance (short circuit current)

## 7.3 **MIG MAN** Manual MIG welding setup

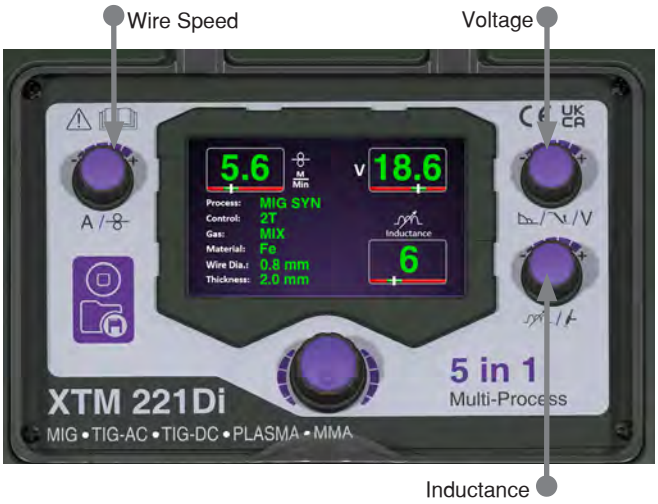
Follow the screen prompts to complete the machine setup. Example setting.






Adjust Inductance (short circuit current)

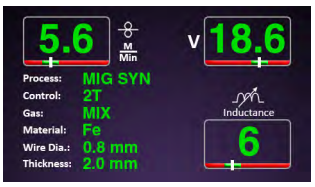
In manual mode you can adjust the parameters using the controls indicated.



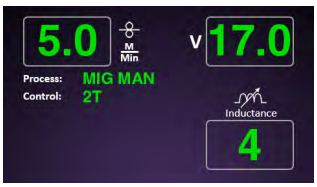

## 7.4 Remote Control MIG Torch

Allows remote adjustment of the Voltage and wire speed from the torch handle when in the welding screen.

**MIG SYN**

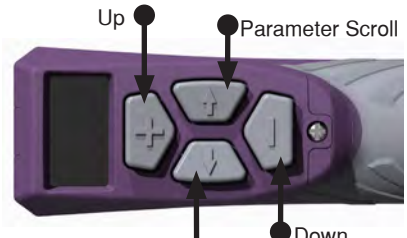



**MIG MAN**

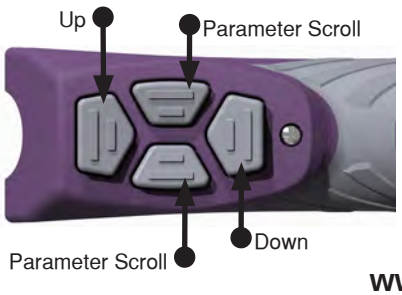



Adjust by Pressing Torch Buttons on the Handle.

**Torch with OLED Display**




**Torch with 4 Button Control**

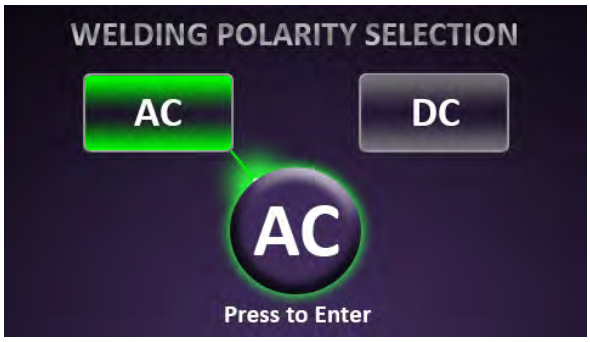


## 7.5 MIG Welding Procedure

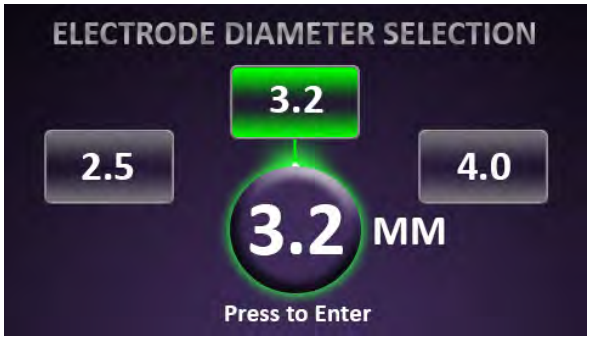
1. Position wire over joint. The end of the wire may be lightly touching the work.
2. Lower welding helmet, operate torch trigger, and begin welding. Hold the torch so the contact tip to work distance is about 3/8" (10 mm).
3. To stop welding, release the torch trigger and then pull the torch away from the work after the arc goes out.
4. When no more welding is to be done, close valve on gas cylinder (if used), momentarily operate torch trigger to release gas pressure and turn off the machine.

## 7.6 MMA Welding

Follow the screen prompts to complete the machine setup. Example setting.







Adjust Amperage Value

Adjust Arcforce Value


## 7.7 TIG Welding

Follow the screen prompts to complete the machine set up.

### 7.7.1 TIG Torch Selection

Select the HELP menu from the main Process Selection screen and follow the screen prompts as follows.



### 7.7.2 TIG Torch Installation

See page 7 for Torch Connections to the Machine.

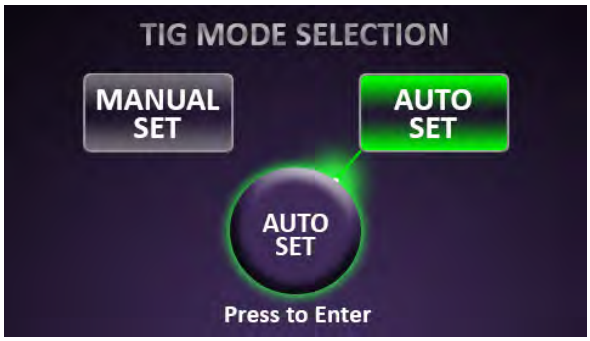
### 7.7.3 TIG Welding Set Up

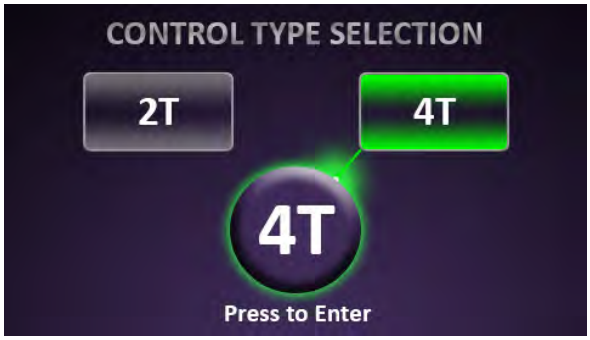
Follow the screen prompts to complete the machine set up.

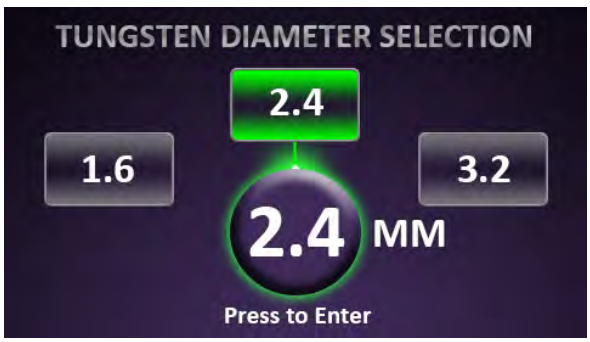

Manual Set allows adjustment of all weld parameters.

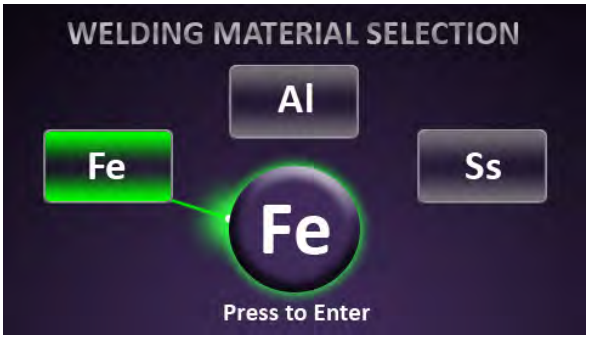
Auto Set allows rapid setting of the machine based on material type and thickness, with HF starting.

**Auto Set Example**

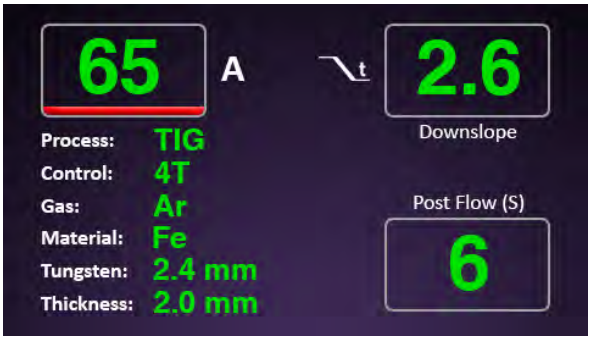


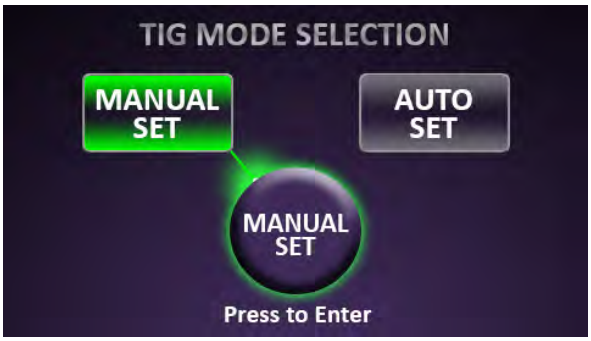



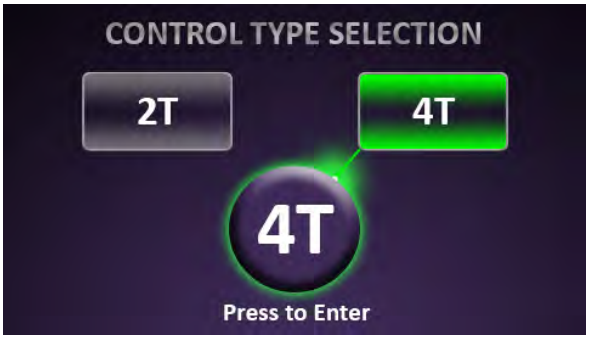


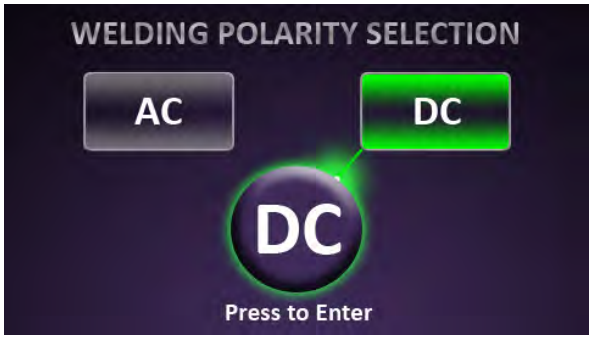



Adjust downslope and post flow to user preference using the knobs on the right of the screen.

**Manual Set Example**



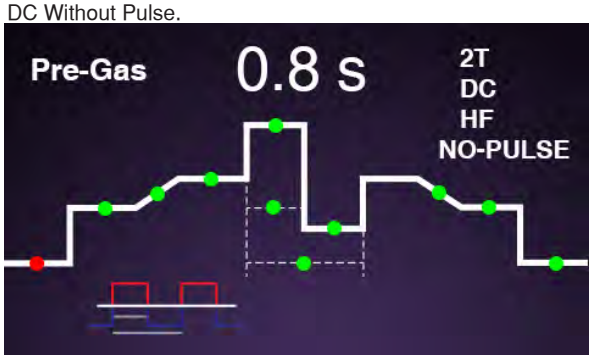







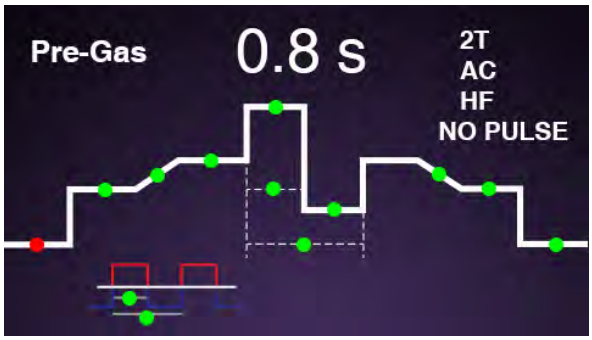

## Welding Screens

DC Without Pulse.




DC With Pulse.


AC Without Pulse.




AC With Pulse.

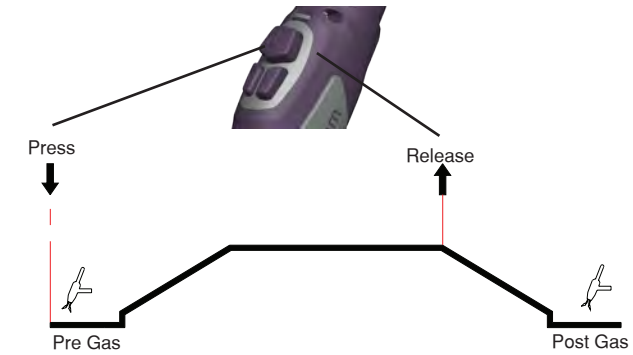

### To Select and adjust Pre-Gas, Slope Up, Welding Current, Slope Down, or Post Gas do the following:

Rotate control knob to move red dot
Press to select (flashing)
Rotate control knob to adjust
Press control knob to deselect (stops flashing)

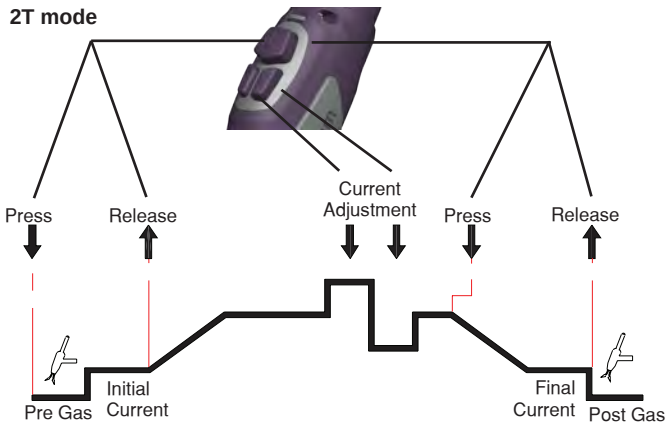
### TIG Welding Trigger Operation

**-2T -4T**

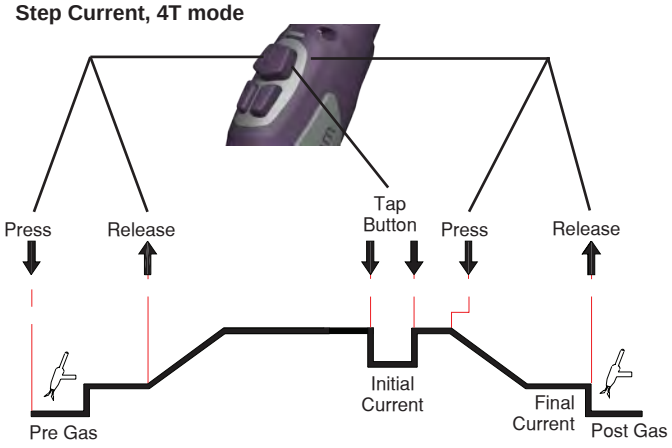
This toggles between 2 step and 4 step operation of the torch trigger. In 2 step mode the trigger should be pressed and held down until the end of the weld. In 4 step mode the trigger is pressed and released to start and pressed and released to finish the weld. Not all functions are available in 2T mode.




**2T mode**



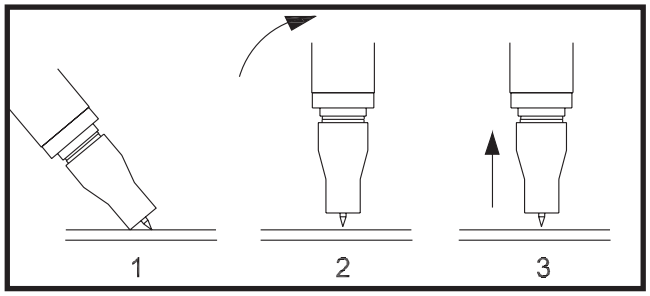
**Step Current, 4T mode**




## 7.7.4 TIG Welding Guide

**Torch starting in Lift TIG mode**

Ensure the gas supply is switched on to the machine. Briefly contact the tip of the tungsten electrode down onto the work piece with the torch at around $70^0$ from vertical. Depress the trigger to start the gas flow and switch on the power, lift the torch up from the work piece to draw out an arc. To prevent melting of the end of the tungsten the machine will increase the output current when it detects the rise in arc voltage as the tungsten is lifted from the work piece. At the end of the weld release the torch trigger and the power will slope down and switch off.




At the end of the weld release the trigger and allow the power and gas to switch off before moving the torch from the weld.

**Torch starting in HF mode**

Ensure the gas supply is switched on to the machine. Hold the torch with the tip of the tungsten approx 2-3 mm from the job. Depress the trigger to start the gas flow and switch on the power. At the end of the weld release the torch trigger and the power will slope down and switch off.

**TIG welding guide ranges**

| Electrode diameter | AC current (amps) | DC current (amps) |
|---|---|---|
| 0.040 (1.0mm) | 15-30 | 20-60 |
| 1/16 (1.6mm) | 60-120 | 75-150 |
| 3/32 (2.4mm) | 100-180 | 150-250 |

**Tungsten electrode types**

| Type | Application | Colour |
|---|---|---|
| Thoriated 2% | DC welding of mild steel,<br>Stainless steel and Copper | Red |
| Ceriated 2% | DC welding of mild steel, Stainless steel, Copper<br>AC welding of aluminium, magnesium and their alloys | Grey |
| Zirconiated | AC welding of aluminium, magnesium and their alloys | White |

Guide for selecting filler wire diameter

| Filler wire diameter | Current range |
|---|---|
| 1/16 (1.6 mm) | 20 - 90 |
| 3/32 (2.4 mm) | 65 - 115 |
| 1/8 (3.2 mm) | 100 - 165 |
| 3/16 (4.8 mm) | 200-350 |

The filler wire diameter specified is a guide only, other diameter wires may be used according to the welding application.

Shielding gas selection

| Alloy | Shielding gas |
|---|---|
| Aluminium & alloys | Pure Argon |
| Carbon steel | Pure Argon |
| Stainless steel | Pure Argon |
| Nickel alloy | Pure Argon |
| Copper | Pure Argon |
| Titanium | Pure Argon |

## 7.7.5 DC TIG welding (No Pulse)

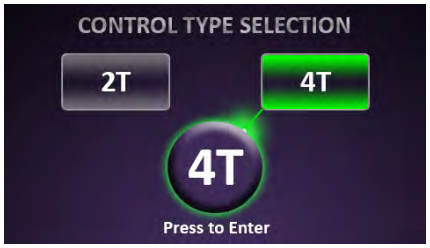
**Note:- shorting or dipping the electrode into the weld pool for more than 1 second will cause the machine to reduce the welding power to zero in order to protect the tungsten and minimise contamination.**

1) Connect the torch to the TIG torch socket and the gas hose to the gas outlet.

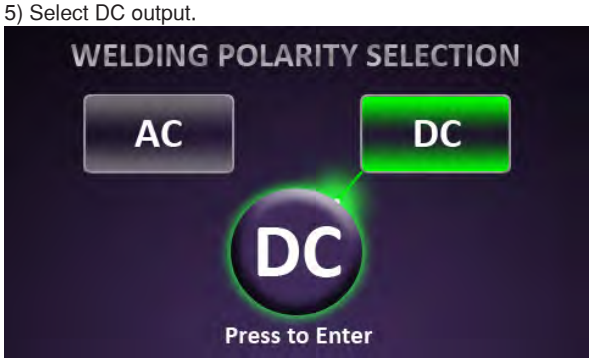
2) Connect the trigger control plug on the torch to the trigger socket.

3) Connect the Earth lead to the Earth socket.

4) Set the process mode to 2T or 4T if you prefer a latching trigger action. (Note in 4T position you must press and release to start the process and press and release again to stop the process).

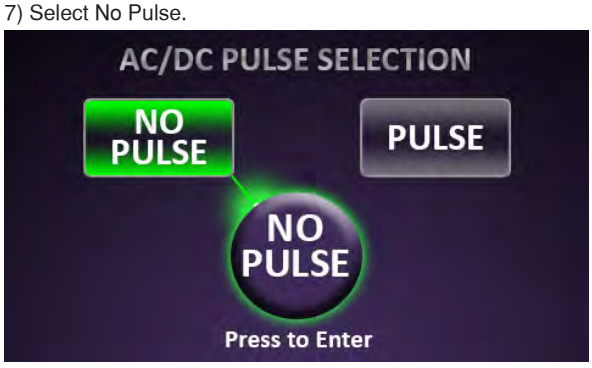


5) Select DC output.

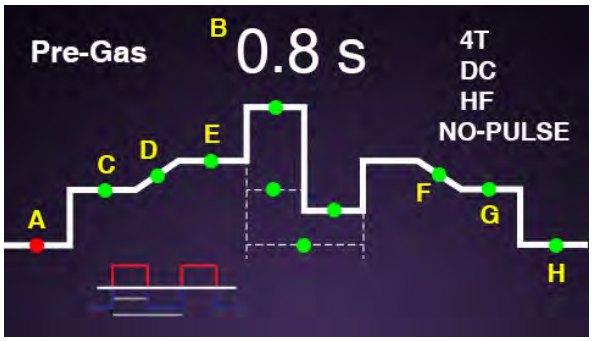



6) Select HF start


7) Select No Pulse.




8) Rotate the control knob to move the illuminated LED to the gas pre-flow position (A).




9) Press the control knob to select the parameter. The red LED will now flash. Adjust the value by rotating the control knob. This can be adjusted from 0.1 to 0.3 seconds. The value is displayed on the digital display (B) Press the control knob again to accept the setting.

10) Rotate the control knob to move the LED to the initial current (C) This can be adjusted from 5 to 100% of the main welding current. The value is displayed on the digital display (B). 50% is a good initial setting. **Note this function only operates in 4T switch mode**.

11) Rotate the control knob to move the LED to the slope up time (D) This can be adjusted from 0 to 10s. The value is displayed on the digital display (B). 2s is a good initial setting.

12) Rotate the control knob to move the LED to the main welding current (E) This can be adjusted from 5 to 200A. The value is displayed on the digital (B). Refer to the TIG welding guide for a recommended welding current.

13) Rotate the control knob to move the LED to the slope down time (F) This can be adjusted from 0 to 10s. The value is displayed on the digital display (B). 2s is a good initial setting.

14) Rotate the control knob to move the LED to the final current (G) This can be adjusted from 5 to 100% of the main welding current. The value is displayed on the digital display (B). 10% is a good initial setting. **Note this function only operates in 4T switch mode**

15) Rotate the control knob to move the LED to the Post Gas time (H). This can be adjusted from 0.1 to 10s. The value is displayed on the digital display (B). 3s is a good initial setting.

You are now ready to weld. These settings are a guide and you should adjust to suit the job you are welding. If you are unfamiliar with the machine try to adjust only one parameter at a time so you become familiar with its effect.

## 7.7.6 AC TIG welding (No Pulse)

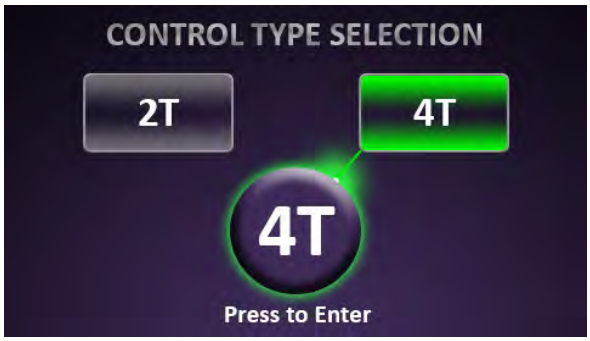
**Note:- shorting or dipping the electrode into the weld pool for more than 1 second will cause the machine to reduce the welding power to zero in order to protect the tungsten and minimise contamination.**

1) Connect the torch to the TIG torch socket and the gas hose to the gas outlet.

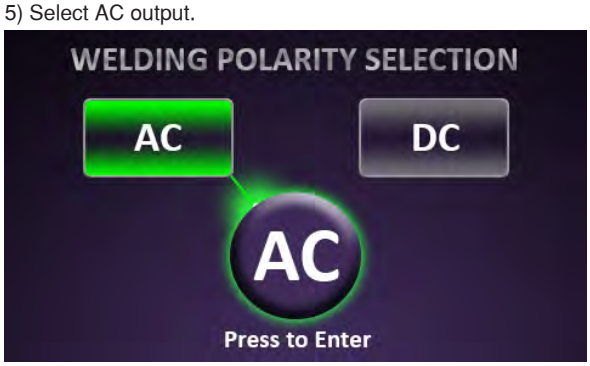
2) Connect the trigger control plug on the torch to the trigger socket.

3) Connect the Earth lead to the Earth socket.

4) Set the process mode to 2T or 4T if you prefer a latching trigger action. (Note in 4T position you must press and release to start the process and press and release again to stop the process).



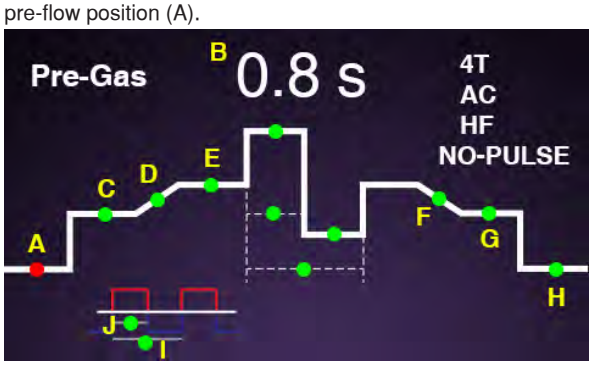

5) Select AC output.



6) Select HF start.


7) Select No Pulse.


8) Rotate the control knob to move the illuminated LED to the gas pre-flow position (A).




9) Press the control knob to select the parameter. The red LED will now flash. Adjust the value by rotating the control knob. This can be adjusted from 0.1 to 0.3 seconds. The value is displayed on the digital display (B) Press the control knob again to accept the setting.

10) Rotate the control knob to move the LED to the initial current (C) This can be adjusted from 5 to 100% of the main welding current. The value is displayed on the digital display (B). 50% is a good initial setting. **Note this function only operates in 4T switch mode.**

11) Rotate the control knob to move the LED to the slope up time (D) This can be adjusted from 0 to 10s. The value is displayed on the digital display (B). 2s is a good initial setting.

12) Rotate the control knob to move the LED to the main welding current (E) This can be adjusted from 5 to 200A. The value is displayed on the digital (B). Refer to the TIG welding guide for a recommended welding current.

13) Rotate the control knob to move the LED to the slope down time (F) This can be adjusted from 0 to 10s. The value is displayed on the digital display (B). 2s is a good initial setting.

14) Rotate the control knob to move the LED to the final current (G) This can be adjusted from 5 to 100% of the main welding current. The value is displayed on the digital display (B). 10% is a good initial setting. **Note this function only operates in 4T switch mode.**

15) Rotate the control knob to move the LED to the Post Gas time (H). This can be adjusted from 0.1 to 10s. The value is displayed on the digital display (B). 3s is a good initial setting.

16) Rotate the control knob to move the LED to the AC frequency (I) This can be adjusted from 25 to 200Hz dependant on the welding amperage. The value is displayed on the digital display (B). 60hz is a good initial setting. Increaseing the frequency has the effect of stiffening and focussing the arc making it good for welding close to threads or for crater filling.

Note the maximum frequency available depends upon the welding amperage selected.

| | |
|---|---|
| <50A | 50 to 250Hz |
| 50-100A | 50-200Hz |
| 100-150A | Max 150Hz |
| 150-200A | Max 100Hz |

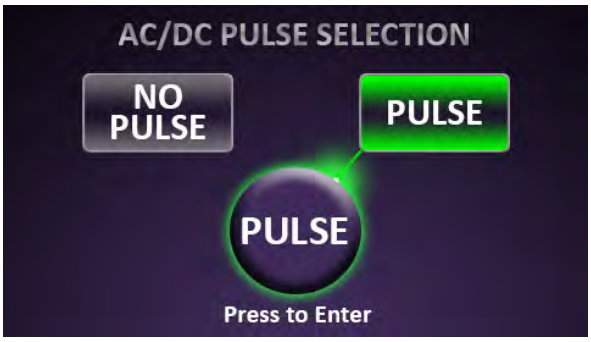
17) Rotate the control knob to move the LED to the AC balance (J) This can be adjusted from 15 to 50% . The value is displayed on the digital display (B). 15% is a good initial setting. Increasing the percentage has the effect of increasing the time the arc spends in the electrode positive state which gives a greater cleaning effect on the material but will reduce weld speed. For good clean material you should be able to keep the cleaning percentage set at 15 to 20%

You are now ready to weld. The above settings are a guide and you should adjust to suit the job you are welding. If you are unfamiliar with the machine try to adjust only one parameter at a time so you become familiar with its effect.

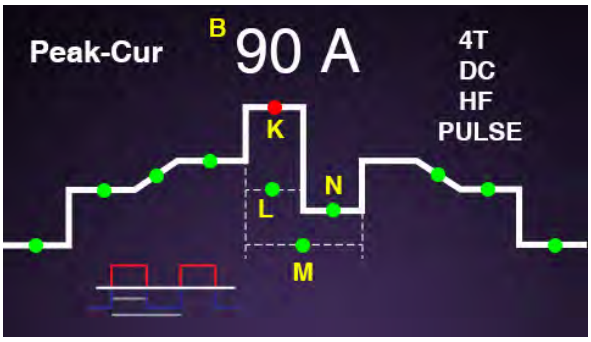
### 7.7.7 TIG welding (With Pulse)

It is possible to use the pulse function with both AC and DC TIG welding. Power Pulsing can give significant advantages on thinner material to control heat and penetration.

1) Follow the setup as previously described for AC or DC TIG welding. At the Pulse Selection menu select Pulse.




3) Press the control knob to move the LED to the Peak current (K) This can be adjusted from 5 to 200A (10-200A for AC welding) dependant on the welding amperage. The value is displayed on the digital display (B). Peak current is the maximum amperage that will be output.



4) Rotate the control knob to move the LED to the Peak duration (L) This can be adjusted from 5 to 100% Peak duration is the percentage of time the peak current is on relative to the background current. 30% is a good starting point.

5) Rotate the control knob to move the LED to the Background current (N) This can be adjusted from 5 to 200A (10-200A for AC welding). The value is displayed on the digital display (B). Background current is the minimum amperage that will be output. It cannot be higher than the peak current and generally will be set withing 50 to 70% Amps of the peak current.

6) Rotate the control knob to move the LED to the Pulse Frequency (M) This can be adjusted from 0.5 to 200Hz. The value is displayed on the digital display (B). Pulse Frequency is the number of pulses per second generally a range of 50 to 150 hz will be used with 100Hz being a good base setting.

30-40Hz will help agitate the weld puddle and allow you to weld at a lower amperage than without pulse.

50-150Hz really stiffen the arc and let you pinpoint the arc more than without pulse.

0.5-10Hz reduce heat input the most.

The selected amperage and the consistency of travel speed can negate some of the effects of Power pulsing.

## 7.8 Plasma Cutting

1) Push the torch connector into the socket on the machine taking care to line up the pins.

2) Tighten the hand nut on the torch to secure the torch.

**CAUTION: Before switching on the machine ensure all spares are fitted correctly to the torch and in good condition. Failure to do so can result in the destruction of the torch head.**

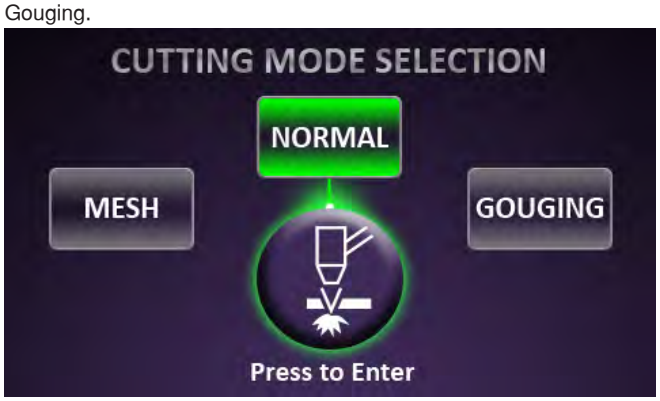
### 7.8.1 Setting Air pressure

Connect the air line to the rear of the machine and Switch on the machine. The air supply should be capable of supplying compressed air at a pressure of 5Bar and a flow rate of 155lpm free air delivery.

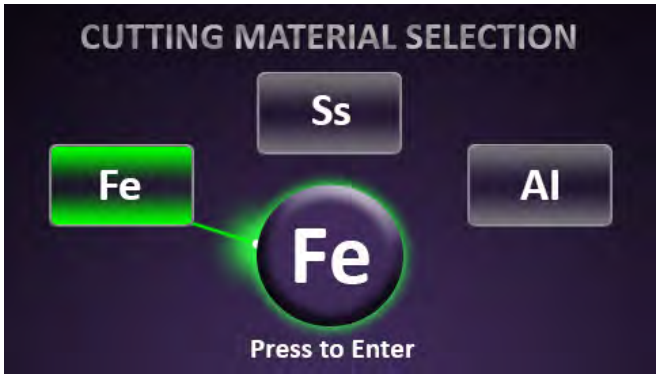
### 7.8.2 Preparing to Cut

Switch on the machine and return to the home menu, then select the Plasma Cut option.


Select the type of cutting operation, Mesh, Normal cutting or Gouging.

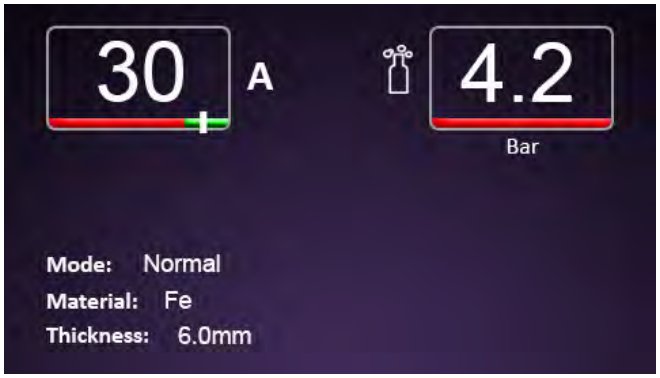



Select the material type to be Cut or Gouged




Select the material thickness using the main control knob to increase or reduce the thickness and press to select.


You are now ready to operate. On the following example screen, the air pressure quoted is the suggested air pressure for the parameters selected. Adjust the regulator inside the machine to match this.



### 7.8.3 Mesh cutting


With the torch in starting position press and hold the trigger. After an initial gas purge, the main arc will come on. Once on, the main arc remains on as long as the trigger switch is held down. As you move across the mesh the machine will automatically switch between cutting mode and pilot arc mode when in a gap before swtching back to cutting mode when the arc contacts the material again. To shut off the torch simply release the trigger switch. When the switch is released a 15 second post-flow will occur. If the torch switch is closed during the post-flow, the cutting arc will restart after switching off the air. Refer to the flow chart below for the operating sequence.

### 7.8.4 Normal cutting


With the torch in starting position press and hold the trigger. After an initial gas purge, the main arc will come on. Once on, the main arc remains on as long as the trigger switch is held down, unless the torch is withdrawn from the work or torch motion is too slow. If the cutting arc is interrupted, the cutting process must be restarted. To shut off the torch simply release the trigger switch. When the switch is released a 15 second post-flow will occur. If the torch switch is closed during the post-flow, the cutting arc will restart after switching off the air. Refer to the flow chart below for the operating sequence.

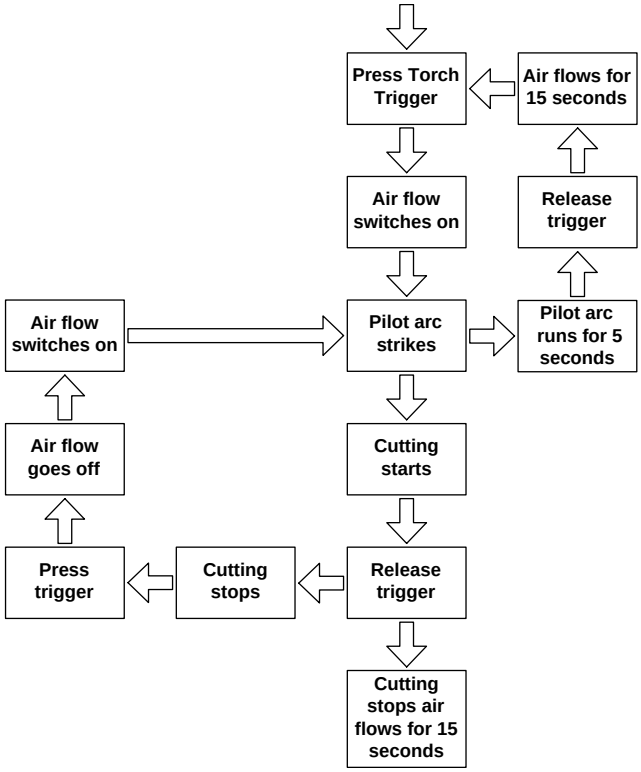
### 7.8.5 Gouging


Hold the torch so that the nozzle is 1-2mm from the workpiece before starting the torch. Angle the torch 40 Deg. to the workpiece with a small gap between the torch tip and the workpiece. Maintain an approximate 40 Deg. angle to the workpiece as you move along the gouge in the direction of the uncut material. Keep a small distance between the torch tip and the molten metal to avoid reducing consumable life or damaging the torch.

Changing the torch angle changes the dimensions of the gouge.

A steeper angle (closer to 90 Deg) and slower forward movement gives a deeper gouge, while a lower angle (less than 40 Deg) and faster movement gives a shallower gouge.

### 7.8.6 Torch Operation logic

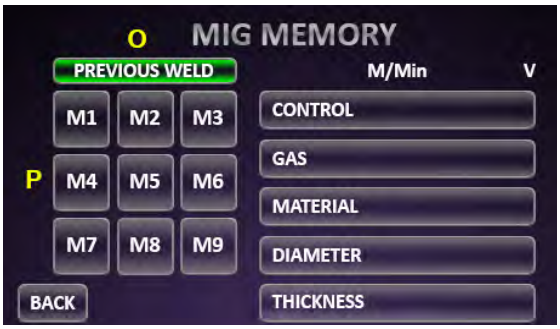


## 7.9 Saving to Memory

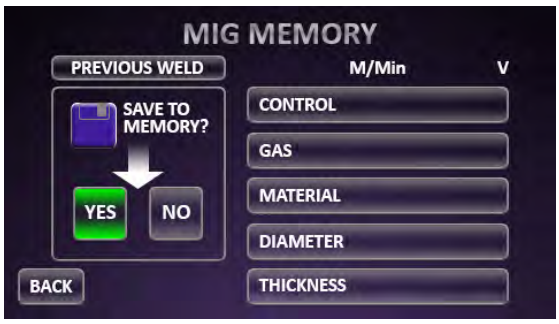
In any welding screen press the memory button.


Memory button

From here you can see the last weld setting used (O) or select one of the memory locations (P) to save the job to.



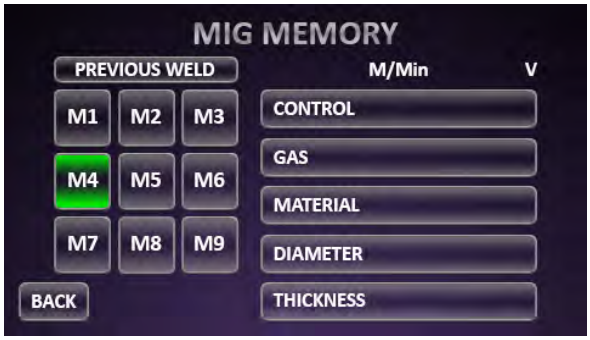

After selecting a memory location, the following screen loads and gives the option to save to memory.




To recall from memory location, from main menu, press the memory button.


Memory button

Select job to recall by rotating the control knob to the required memory location and pressing the knob to select.



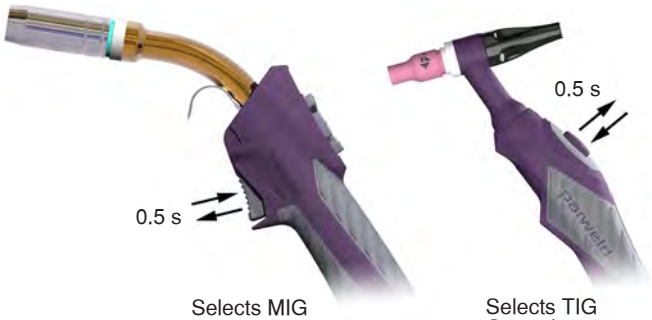

## 7.10 Process Switch

The XTM221Di allows instant swapping between the MIG, TIG and Plasma processes which is ideal for pipe applications or multi process workshops.

Connect the MIG, TIG and Plasma torches as previously described. Ensure all gas types are connected to the rear of the machine.

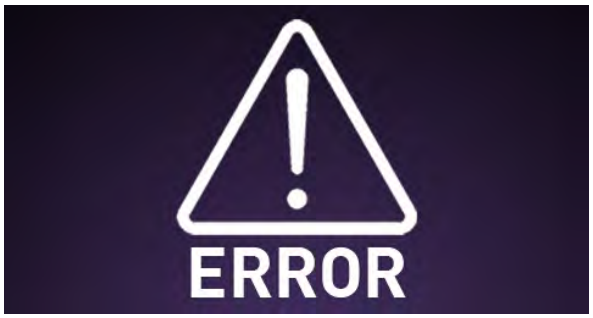
Set the machine from the main menu for the MIG,TIG and Plasma as required.

Switching the process. Press the torch trigger briefly to select the process.




Please note this machine uses auto polarity switching so there is no need to change the work lead connections on the front of the machine.

# 8.0 Fault Finding




- **If error message is displayed allow machine to cool with power off for 10 minutes.**
- **If error remains switch off and on again.**
- **Reduce welding current to prevent over current condition.**
- **If error remains contact your local service centre.**

## 8.1 MIG Welding Problems

| Problem | Cause/Corrective Action |
|---|---|
| Porosity - small cavities or holes resulting from gas pockets in weld metal. | Inadequate shielding gas coverage. Check for proper gas flow rate.<br>Remove spatter from gun nozzle.<br>Check gas hoses for leaks.<br>Eliminate drafts near welding arc.<br>Place nozzle 6-13 mm from work piece and hold gun near bead at end of weld until molten metal solidifies.<br>Wrong gas. Use welding grade shielding gas; change to different gas.<br>Dirty welding wire. Use clean, dry welding wire. Eliminate pickup of oil or lubricant on welding wire from feeder or liner.<br>Work piece dirty. Remove all grease, oil, moisture, rust, paint, coatings, and dirt from work surface before welding. Use a more highly deoxidizing welding wire (contact supplier).<br>Welding wire extends too far out of nozzle.<br>Be sure welding wire extends not more than 13 mm beyond nozzle. |
| Incomplete fusion to base metal. | Work piece dirty. Remove all grease, oil, moisture, rust, paint, coatings, and dirt from work surface before welding.<br>Insufficient heat input. Select higher voltage range and/or adjust wire feed speed.<br>Improper welding technique. Place stringer bead in proper locations at joint during welding.<br>Adjust work angle or widen groove to access bottom during welding.<br>Momentarily hold arc on groove side walls when using weaving technique.<br>Keep arc on leading edge of weld puddle. Use correct gun angle of 0 to 15 degrees. |

## 8.1 MIG Welding Problems (continued)

| Problem | Cause/Corrective Action |
|---|---|
| Excessive Penetration - weld metal melting through base metal and hanging underneath weld. | Excessive heat input. Select lower voltage range and reduce wire feed speed.<br>Increase travel speed. |
| Lack of Penetration - shallow fusion between weld metal and base metal. | Improper joint preparation. Material too thick. Joint preparation and design must provide access to bottom of groove while maintaining proper welding wire extension and arc characteristics.<br>Improper weld technique. Maintain normal gun angle of 0 to 15 degrees to achieve maximum penetration. Keep arc on leading edge of weld puddle. Ensure welding wire extends not more than 13 mm beyond nozzle.<br>Insufficient heat input. Select higher wire feed speed and/or select higher voltage range.<br>Reduce travel speed. |
| Burn-Through - weld metal melting completely through base metal resulting in holes where no metal remains. | Excessive heat input. Select lower voltage range and reduce wire feed speed.<br>Increase and/or maintain steady travel speed. |
| Excessive Spatter - scattering of molten metal particles that cool to solid form near weld bead. | Wire feed speed too high. Select lower wire feed speed.<br>Voltage too high. Select lower voltage range.<br>Electrode extension (stick out) too long. Use shorter electrode extension (stick out).<br>Work piece dirty. Remove all grease, oil, moisture, rust, paint, undercoating, and dirt from work surface before welding.<br>Insufficient shielding gas at welding arc. Increase flow of shielding gas at regulator/flow meter and/or prevent drafts near welding arc.<br>Dirty welding wire. Use clean, dry welding wire. Eliminate pickup of oil or lubricant on welding wire from feeder or liner. |
| Wire feed unit operates but no gas flow . | Gas cylinder empty<br>Gas regulator closed<br>Faulty solenoid<br>Restriction in torch cables |

| Problem | Cause/Corrective Action |
|---|---|
| Wire feed unit operates, but does not feed | Insufficient drive roll pressure<br>Incorrect drive rolls<br>Excessive wire spool brake tension<br>Incorrect liner<br>Blocked liner<br>Bird nesting<br>Burn back |
| Bird nesting | Excessive feed roll pressure<br>Incorrect or blocked liner<br>Incorrect contact tip size<br>Contact tip overheating<br>Restriction in torch cable<br>Misaligned drive rolls or wire guides<br>Excessive cable kinkage |
| Burn back | Improper voltage setting<br>Improper stick out<br>Erratic wire feed<br>Incorrect or blocked liner<br>Contact tip overheating<br>Excessive cable kinking |
| Erratic Wire Feeding or Arc | Improper drive roll tension<br>Improper drive roll size<br>Worn drive rolls<br>Incorrect or blocked liner<br>Incorrect wire guide size<br>Misaligned drive rolls or wire guide<br>Gaps at liner or wire guide junctions<br>Incorrect contact tip size<br>Contact Tip overheating<br>Spatter adhesion on exit geometry of tip bore<br>Excessive cable kinkage<br>Poor earth or cable connections<br>Weld joint area dirty |

## 8.2 MMA Welding Problems

| Description | Possible cause | Remedy |
|---|---|---|
| Gas pockets or voids in weld metal (porosity) | (a) Electrodes are damp<br>(b) Welding current is too high.<br>(c) Surface impurities such as oil, grease, paint, etc | (a) Dry electrodes before use<br>(b) Reduce welding current<br>(c) Clean joint before welding |
| Crack occurring in weld metal soon after solidification. | (a) Rigidity of joint.<br>(b) Insufficient throat thickness.<br>(c) Cooling rate is too high. | (a) Redesign to relieve weld joint of severe stresses or use crack resistance electrodes.<br>(b) Travel slightly slower to allow greater build up in throat.<br>(c) Preheat plate and cool slowly. |
| A gap is left by failure of the weld metal to fill the root of the weld | (a) Welding current is too low.<br>(b) Electrode too large for joint.<br>(c) Insufficient gap<br>(d) Incorrect sequence | (a) Increase welding current<br>(b) Use smaller diameter<br>electrode.<br>(c) Allow wider gap<br>(d) Use correct build-up sequence |
| Portions of the weld run do not fuse to the surface of the metal or edge of the joint. | (a) Small electrodes used on heavy cold plate<br>(b) Welding current is too low<br>(c) Wrong electrode angle<br>(d) Travel speed of electrode is too high<br>(e) Scale or dirt on joint surface | (a) Use larger electrodes and preheat the plate<br>(b) Increase welding current<br>(c) Adjust angle so the welding arc is directed more into the base metal<br>(d) Reduce travel speed of electrode<br>(e) Clean surface before welding. |

| Description | Possible cause | Remedy |
|---|---|---|
| Non-metallic particles are trapped in the weld metal (slag inclusion). | (a) Non-metallic particles may be trapped in undercut from previous run<br>(b) Joint preparation too restricted<br>(c) Irregular deposits allow slag to be trapped.<br>(d) Lack of penetration with slag trapped beneath weld bead.<br>(e) Rust or mill scale is preventing full fusion.<br>(f) Wrong electrode for position in which welding is done. | (a) If bad undercut is present, clean slag out and cover with a run from a smaller diameter electrode.<br>(b) Allow for adequate penetration and room for cleaning out the slag<br>(c) If very bad, chip or grind out Irregularities<br>(d) Use smaller electrode with sufficient current to give adequate penetration. adequate penetration. Use suitable tools to remove all slag from corners<br>(f) Use electrodes designed for position in which welding is done, otherwise proper control of slag is difficult. |

## 8.3 TIG Welding Problems

Weld quality is dependent on the selection of the correct consumables, maintenance of equipment and proper welding technique.

| Description | Possible cause | Remedy |
|---|---|---|
| Excessive bead build up or poor penetration or poor fusion at edges of weld | Welding current is too low | Increase weld current and/or faulty joint preparation |
| Weld bead too wide and flat or undercut at edges of weld or excessive burn through | Welding current is too high | Decrease weld current |
| Weld bead too small or insufficient penetration or ripples in bead are widely spaced apart | Travel speed too fast | Reduce travel speed |
| Weld bead too wide or excessive bead build up or excessive penetration in butt joint | Travel speed too slow | Increase travel speed |
| Uneven leg length in fillet joint | Wrong placement of filler rod | Re-position filler rod |
| Electrode melts when arc is struck | Electrode is connected to the '+' terminal | Connect the electrode to the '-' terminal |
| Dirty weld pool | (a) Electrode contaminated through contact with work piece or filler rod material<br>(b) Gas contaminated with air | (a) Clean the electrode by grinding off the contaminates<br>(b) Check gas lines for cuts and loose fitting or change gas cylinder |
| Electrode melts or oxidizes when an arc is struck | (a) No gas flowing to welding region<br>(b) Torch is clogged with dust<br>(c) Gas hose is cut<br>(d) Gas passage contains impurities<br>(e) Gas regulator is turned off<br>(f) Torch valve is turned off<br>(g) The electrode is too small for the welding current | (a) Check the gas lines for kinks or breaks and gas cylinder contents<br>(b) Clean torch<br>(c) Replace gas hose<br>(d) Disconnect gas hose from torch then raise gas pressure to blow out impurities.<br>(e) Turn on<br>(f) Turn on<br>(g) Increase electrode diameter or reduce the welding current |
| Poor weld finish | Inadequate shielding gas | Increase gas flow or check gas line for gas flow problems |

| Description | Possible cause | Remedy |
|---|---|---|
| Arc flutters during TIG welding | (a) Tungsten electrode is too large for the welding current<br>(b) Absence of oxides in the Weld pool. | (a) Select the right size electrode. Refer to basic TIG welding guide.<br>(b) Refer basic TIG welding guide for ways to reduce arc flutter |
| Welding arc cannot be established | (a) Work clamp is not connected to the work piece or the work/torch leads are not connected to the machine<br>(b) Torch lead is disconnected<br>(c) Gas flow incorrectly set, cylinder empty or the torch valve is off | a) Connect the work clamp to the work piece or connect the work/torch leads to the right welding terminals.<br>(b) Connect it to the '-' terminal.<br>(c) Select the right flow rate, change cylinders or turn torch valve on. |
| Arc start is not smooth | (a) Tungsten electrode is too large for the welding current .<br>(b) The wrong electrode is being used for the welding job.<br>(c) Gas flow rate is too high.<br>(d) Incorrect shielding gas is being used.<br>(e) Poor work clamp connection to work piece | (a) Select the right size electrode<br>(b) Select the right electrode type. Refer to basic TIG welding guide<br>(c) Select the correct rate for the welding job. Refer to basic TIG welding guide<br>(d) Select the right shielding gas. Refer to basic TIG welding guide<br>(e) Improve connection to work piece |

## 8.4 Plasma Cutting Problems

| Description | Possible cause | Remedy |
|---|---|---|
| Torch cuts but not adequately | 1. Current set too low<br>2. Torch is being moved too fast across work piece<br>3. Oil or moisture in torch | 1. Increase current setting.<br>2. Reduce cutting speed<br>3. Ensure water trap on rear of machine is empty (disconnect air supply to allow it to drain). Put machine in setting mode Hold torch 1/8 inch (3 mm) from clean surface while purging and observe oil or moisture buildup (do not activate torch) |
| Heavy dross on under-side of plate | Cutting power is to low | Increase cutting power |
| Cut is not straight | 1.Tip is damaged<br>2. Cut direction is not correct. | Reduce travel speed; ensure correct tip is fitted for amperage. Observe correct standoff and direction of cut |

**Power source problems**

Cut quality is dependent on the selection of the correct consumable, maintenance of equipment and proper cutting technique.

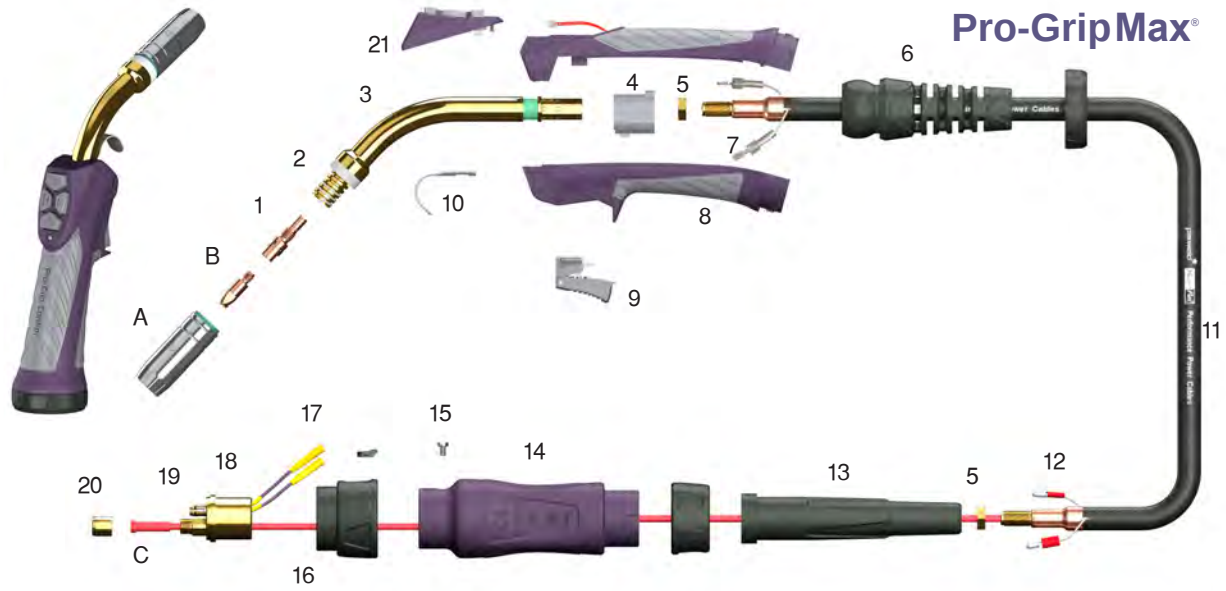
| Description | Possible cause | Remedy |
|---|---|---|
| Interlock light illuminates when trigger pressed | Air pressure is set to low | Adjust air pressure to 5Bar. Restart the power source |
| Interlock light flashes when trigger pressed | Outer nozzle or other consumable not installed correctly | re-assemble front end spares to ensure outer nozzle is seated fully. Restart the power source |
| Interlock light illuminates when trigger pressed, and the air flow is intromittent | Cutting tip or electrode not installed correctly<br>Short circuit in side the torch or cable | re-install the tip and electrode. Restart the power source<br>Have it checked by a qualified engineer |
| Fault light illuminates | Machine has over heated.<br>Input voltage is to high<br>Internal machine fault | Allow machine to cool with fan running<br>Ensure input voltage is correct<br>Have machine inspected by qualified engineer |
| Torch does not start when trigger pressed | Machine is in Set mode | Change switch to run mode on front panel |

# 9.0 Control Torch Schematic

## Pro-Grip Control® 250A

### Air Cooled MIG Torch

230A $CO_2$, 200A Mixed Gas @ 60% Duty Cycle, EN60974-7 .030"-.045"/0.8mm to 1.2mm Wires




## Models

| | Stock Code | Description |
|---|---|---|
| | **PRO2500-30ER4** | Pro-Grip Control® Welding Torch c/w Euro Fitting x 3m |
| | **PRO2500-40ER4** | Pro-Grip Control® Welding Torch c/w Euro Fitting x 4m |
| | **PRO2500-50ER4** | Pro-Grip Control® Welding Torch c/w Euro Fitting x 5m |
| | NB. For OLED Display version add a **D** to the end of the stock code. | |

## Nozzles

| | Stock Code | Description |
|---|---|---|
| A | B2507 | Cylindrical Nozzle 5/7"/18mm Bore |
| | B2508* | Conical Nozzle 19/32"/15mm Bore |
| | B2509 | Tapered Nozzle 15/32"/12mm Bore |
| | B2510 | Bottle Nozzle 19/32"/15mm Bore |
| | B2511 | Spot Welding Nozzle 5/7"/18mm Bore |

## Contact Tips

| | Stock Code | Description |
|---|---|---|
| B | B2504-08 | Contact Tip .030"/0.8mm M6 ECu |
| | B2504-09 | Contact Tip .035"/0.9mm M6 ECu |
| | B2504-10* | Contact Tip .040"/1.0mm M6 ECu |
| | B2504-12 | Contact Tip .045"/1.2mm M6 ECu |
| | B2505-08 | Contact Tip .030"/0.8mm CuCrZr |
| | B2505-09 | Contact Tip .035"/0.9mm CuCrZr |
| | B2505-10 | Contact Tip .040"/1.0mm CuCrZr |
| | B2505-12 | Contact Tip .045"/1.2mm CuCrZr |

## Components

* Denotes Standard Build

| | Stock Code | Description |
|---|---|---|
| 1 | B2506* | Tip Adaptor M6 |
| NI | B2536 | Tip Adaptor M8 (See M8 Tips) |
| 2 | B2502 | Shroud Spring |
| 3 | B2501 | Swan Neck |
| 4 | B1515/PG | Handle Location Body |
| 5 | B1505 | Lock Nut |
| 6 | B8015 | Cable Support c/w Knuckle Joint |
| 7 | B1521 | Cable Terminal |
| 8 | B8514-MC4 | Pro-Grip Control® Handle Kit c/w 4 Button Control |
| 9 | B8516 | Pro-Grip Max® Trigger |
| 10 | B2517 | Hanger Hook |
| 11 | B2503-30 | Hyperflex™ Cable Assembly x 3m |
| | B2503-40 | Hyperflex™ Cable Assembly x 4m |
| | B2503-50 | Hyperflex™ Cable Assembly x 5m |
| 12 | B1522 | Cable Terminal-Male |
| 13 | B2841 | Cable Support |
| 14 | B1518 | Gun Plug Housing c/w Nut |
| 15 | B1526 | Gun Plug Screw |
| 16 | B1519 | Gun Plug Nut c/w Insert |
| 17 | Spring Pin 2 | Spring Pin Assembly |
| 18 | B1528 | Gun Plug Body c/w Spring Pins |
| 19 | B1524 | Gun Plug 'O' Ring |
| 20 | B1525 | Liner Nut |
| 21 | PROMC4 | 4 Button MIG Control Module |
| | PROMC4D | OLED Display MIG Control Module |

## Liners

| | Stock Code | Description |
|---|---|---|
| C | B1535-30 | Steel Liner .023"-.035"/0.6mm-0.9mm x 3m |
| | B1535-40 | Steel Liner .023"-.035"/0.6mm-0.9mm x 4m |
| | B1535-50 | Steel Liner .023"-.035"/0.6mm-0.9mm x 5m |
| | B2524-30* | Steel Liner .040"-.045"/1.0mm-1.2mm x 3m |
| | B2524-40* | Steel Liner .040"-.045"/1.0mm-1.2mm x 4m |
| | B2524-50* | Steel Liner .040"-.045"/1.0mm-1.2mm x 5m |
| | B1536-30 | Teflon Liner .023"-.035"/0.6mm-0.9mm x 3m |
| | B1536-40 | Teflon Liner .023"-.035"/0.6mm-0.9mm x 4m |
| | B1536-50 | Teflon Liner .023"-.035"/0.6mm-0.9mm x 5m |
| | B2513-30 | Teflon Liner .040"-.045"/1.0mm-1.2mm x 3m |
| | B2513-40 | Teflon Liner .040"-.045"/1.0mm-1.2mm x 4m |
| | B2513-50 | Teflon Liner .040"-.045"/1.0mm-1.2mm x 5m |

# 10.0 Accessories

## 10.1 Feed Rolls

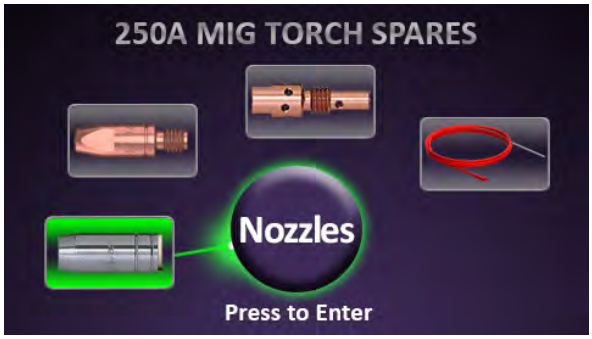
### Size: 30mm O/D x 10mm I/D x 12mm Wide

| Part No. | Groove | Wire Sizes | Wires |
|---|---|---|---|
| DR5V0608 | Plain V | 0.6 - 0.8 | Fe, Ss |
| DR5V0810 | Plain V | 0.8 - 1.0 | Fe, Ss |
| DR5V0910 | Plain V | 0.9 - 1.0 | Fe, Ss |
| DR5V1012 | Plain V | 1.0 - 1.2 | Fe, Ss |
| DR5K1012 | Knurled V | 1.0 - 1.2 | FC |
| DR5U0910 | Plain U | 0.9 - 1.0 | Al |
| DR5U1012 | Plain U | 1.0 - 1.2 | Al |

## 10.2 MIG Torch Spares

Available on page 26 of this manual, and from the machine HELP menu.






## 10.3 Gas Equipment

### Everyday Gas Regulators 300 BAR

### Single Stage


**Features**

Flow rate up to 96m³/h (3389 ft³/h).

Full 300 bar capability.

Outlet pressure indicated on the bonnet.

Bottom entry design suited for top outlet cylinder valves.

**Fittings**

Fitted with standard 3/8" BSP outlet.
Fitted with 5/8" BSP inlet connections.

| Stock Code | Description | Maximum Outlet Pressure |
|---|---|---|
| E700140 | Argon Preset Regulator | 3.0 Bar |
| E700141 | Argon Indicator Regulator | 3.0 Bar |
| E700113 | 1 Gauge Argon | 30 lpm flow |
| E700123 | 2 Gauge Argon | 30 lpm flow |

### Flow Meters

**Features**

Designed from brass bar whilst the tube and cover are moulded from high quality polycarbonate to ensure high impact resistance and clarity.

Calibrated to operate at an inlet pressure of 30PSI.

Sensitive needle valve provides easy adjustment and the downward facing outlet connection eliminates hose kinking.

**Fittings**

Fitted with standard 3/8" BSP inlet and outlet connections.

| Stock Code | Description |
|---|---|
| 706101 | Flow Meter Mixed Gas 25 lpm (MIG) |
| 706100 | Flow Meter 0-12 lpm (TIG) |

### Gas flow Tester

Designed to check gas flow at the front of MIG Torches.

| Stock Code | Description |
|---|---|
| 806001 | Gas flow Tester |

# 11.0 EC Declaration of Conformity

Hereby we declare that the machines as stated below

Type: XTM 221Di

Conform to the EC Directives:
Low Voltage Directive 2014/35/EEC
EMC Directive 2014/35/EEC
Harmonised European standard: EN/IEC 60974-1

This is to certify that the tested sample is in conformity with all provisions of the above detailed EU directives and product standards.

## 11.1 RoHS Compliance Declaration

Directive 2011/65/EU of the European Parliament
Amended 2015/863 and 2017/2102
Restriction of use of certain hazardous substances in electrical and electronic equipment

Type: XTM 221Di

The above listed products are certified to be compliant with the RoHS directive with all homogeneous component parts being controlled to ensure material contents as per the list below.

Cadmium 0.01% by weight
Lead 0.1% by weight
Mercury 0.1% by weight
Hexavalent chromium 0.1% by weight
Polybrominated biphenyl s (pbbs) 0.1% by weight
Polybrominated diphenyl ethers (pbdes) 0.1% by weight

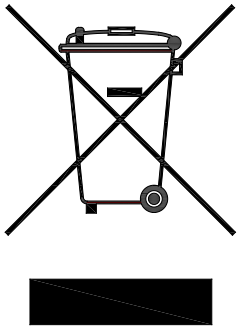
It should be noted that under specific exempted applications, where lead is used as an alloying element the following limits are applied in accordance with the regulations.

Copper and copper alloy parts use less than 4% by weight of each homogeneous component.

Steel and steel alloy parts use less than 4% by weight of each homogeneous component.

Aluminium and aluminium alloy parts use less than 4% by weight of each homogeneous component.

**Only dispose of in authorised sites for electrical and electronic waste, do not dispose of with general refuse or landfill waste.**



## 11.2 WEEE Statement

WEEE (Waste Electrical & Electronic Equipment) 2012/19/EU.

In relation to implementing the legislation, Parweld has established relevant recycling and recovery methods. We have been fully compliant against the marking requirements since August 2005. Parweld is registered in the UK with the Environment agency as detailed below. For WEEE compliance outside the UK please contact your Supplier/Importer.

Parweld is registered with a compliance scheme Official registration number is WEE/FD0255QV.

When your equipment reaches the end of its service life you should return it to Parweld where it will be reconditioned or processed for recycling.

## 11.3 Statement of Warranty

Limited Warranty:

Parweld Ltd, hereafter, “Parweld” warrants its customers that its products will be free of defects in workmanship or material. Should any failure to conform to this warranty appear within the time period applicable to the Parweld products as stated below, Parweld shall, upon notification thereof and substantiation that the product has been stored, installed, operated, and maintained in accordance with Parweld’s specifications, instructions, recommendations and recognized standard industry practice, and not subject to misuse, repair, neglect, alteration, or accident, correct such defects by suitable repair or replacement, at Parweld’s sole option, of any components or parts of the product determined by Parweld to be defective.

Parweld makes no other warranty, express or implied. This warranty is exclusive and in lieu of all others, including, but not limited to any warranty of merchantability or fitness for any particular purpose.

Limitation of Liability:

Parweld shall not under any circumstances be liable for special, indirect or consequential damages, such as, but not limited to, lost profits and business interruption. The remedies of the purchaser set forth herein are exclusive and the liability of Parweld with respect to any contract, or anything done in connection therewith such as the performance or breach thereof, or from the manufacture, sale, delivery, resale, or use of any goods covered by or furnished by Parweld whether arising out of contract, negligence, strict tort, or under any warranty, or otherwise, shall not, except as expressly provided herein, exceed the price of the goods upon which such liability is based. No employee, agent, or representative of Parweld is authorized to change this warranty in any way or grant any other warranty.

Purchaser’s rights under this warranty are void if replacement parts or accessories are used which in Parweld’s sole judgement may impair the safety or performance of any Parweld product.

Purchaser’s rights under this warranty are void if the product is sold to purchaser by non-authorized persons.

The warranty is effective from the date that the authorized Distributor delivers the products to the purchaser. Not withstanding the foregoing, in no event shall the warranty period extend more than the time stated plus one month from the date Parweld delivered the product to the authorized distributor.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