parweld

XTM 161i
XTM 201i

OPERATOR MANUAL

ISSUE 2

Welcome

Thank you and congratulations on 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 entire product range carries the CE 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 manufacturer of MIG, TIG and Plasma torches and consumables.
For more information about Parweld's complete range visit: www.parweld.co.uk

parweld.com @ParweldLtd ParweldTV parweld_uk

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.

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 or 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.

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 work piece or worktable as near the weld as practical.

Insulate work clamp when not connected to work piece 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.

Keep your head out of the fumes. Do not breathe the fumes. Ventilate the area and use local forced ventilation at the arc to remove welding fumes and gases or, wear an approved respirator.

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

Work in a confined space only if it is well ventilated, or 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 in locations near de-greasing, 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 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 lense to protect your face and eyes when welding 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 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 work piece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or fire. Check and be sure the area is safe before doing any welding.

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

Do not weld where flying sparks can strike flammable material.

Protect yourself and others from flying sparks and hot metal.

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

Watch for fire, and keep a fire extinguisher nearby. Be aware that

welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.

Do not weld 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 area as practical to prevent welding current from travelling along, possibly unknown paths and causing electric shock, sparks, and fire hazards.

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.

FLYING METAL can injure eyes.
Welding, 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 hands.

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, 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 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) recommendations.

2.0 Product Description

This welding machine is manufactured using advanced inverter technology. The input voltage is rectified to DC and then inverted to high frequency AC voltage. before being converted back to DC for the output .This allows the use of a much smaller transformer and so allowing weight saving and improved power efficiency.

3.0 Technical Specifications

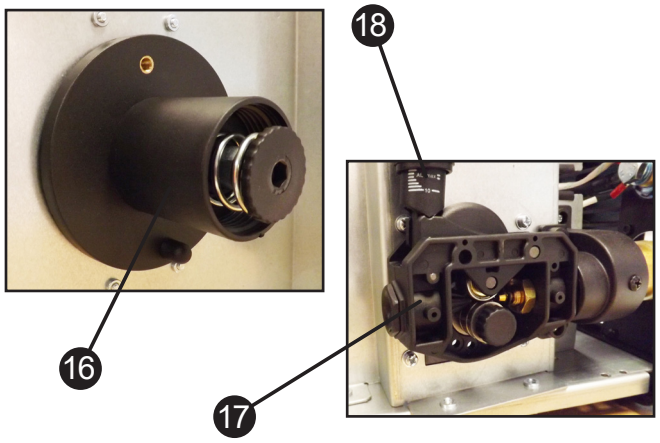
Model	XTM 161i	XTM 201i
Input Voltage (V)	230V 1P	230V 1P
Frequency	50/60Hz	50/60Hz
Input Current A (MAX)	25.7	36
Input Current A (Eff)	16.3	18
Fuse rating	16A	18A
Output OCV	45V	45V
Load Voltage	14.5V-22V	14.5V-24V
KVA	3.7	4.2

Duty Cycle	XTM 161i	XTM 201i
25%	-	200A
40%	160A	-
60%	140A	150A
100%	130A	130A

Note: Refer to the rating label on the machine for more detail.

4.0 Description of Controls

1. Amperage Display. Displays the welding amperage when the wire size is selected, or wire speed during welding when SPL (manual mode) is selected.
2. Voltage Display. Displays the welding voltage during welding.
3. Amperage control for adjusting the Amperage (wire feed speed).
4. Voltage control. This function controls the MIG welding voltage. It can be adjusted infinitely within the working voltage range. It also controls TIG Downslope and MMA Arc Force.
5. Wire Diameter / SPL (Manual MIG).
6. Material Type Selector (MIG).
7. Latching trigger selector. 2T denotes momentary trigger, 4T denotes latching trigger.
8. MIG Torch euro connector, for connection of the MIG or TIG torch.
9. Positive output for MMA electrode holder or TIG torch work return lead.
10. Negative output connection used to connect the work return lead for MIG or MMA welding. This is the 50mm Twist lock connection socket.
11. Process Selector MIG, TIG, or MMA.
12. Inductance control, this hardens or softens the arc in MIG welding.
13. Fault Light.
14. Power Indicator shows when the machine is turned on.
15. ON/OFF Switch for switching the mains supply to the machine on or off (mounted on the rear of the machine).
16. MIG wire spool holder accepts 5KG (200mm) or 1KG spools.
17. Wire feed box.
18. Wire tension adjuster.



5.0 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 power switch is to be in the OFF position when installing work cable and electrode cable and when connecting other equipment.**

5.1 Unpacking the Machine

Carefully remove the machine from the packaging, we recommend you retain the packaging until the machine has been fully installed and tested incase it has been damaged in transit and has to be returned to the re-seller.

5.2 Location

Be sure to locate the welder according to the following guidelines:

In areas, free from moisture and dust.

Ambient temperature between 0-40^{0}C.

In areas, free from oil, steam and corrosive gases.

In areas, not subjected to abnormal vibration or shock.

In areas not exposed to direct sunlight or rain.

Place at a distance of 12” (300 mm) or more from walls or similar that could restrict natural airflow for cooling.

5.3 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.

Operate the welding power source from a single-phase 50/60 Hz, AC power supply. The input voltage must match one of the electrical input voltages shown on the input data label on the unit nameplate. The XTM161i and XTM201i machine should only be used on 230V supply. Refer to the specifications table for voltage tolerances.

Have a qualified electrician connect the input plug. For long runs over 30m , larger copper wires should be used. The green/yellow wire in the input cable connects to the frame of the machine. This ensures proper grounding of the machine when the machine plug is inserted into the receptacle.

5.4 MIG welding torch setup

The welder, as shipped from the factory, is connected for electrode positive (+) polarity. This is the normal polarity for MIG welding with gas. If you are MIG Welding without Gas change the polarity setting by releasing the thumb screws and swinging the link over so it is connected to the negative terminal. Move the work return lead to the + terminal on the front panel.”

5.4.1 Changing Feed Roll Sets

1. Turn off the power source.
2. Release the pressure arm by rotating the pressure adjuster down towards the front of the machine.
3. Unscrew the plastic knob retaining the grooved feed roll and slide off the drive roller.
4. Ensure the wire size marked on the side of the feed roll matches the wire size to be used.
5. Replace the feed roll in reverse of the above procedure ensuring the wire size to be used is marked on the outward facing side of the feed roll as it is refitted.

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

5.4.2 Welding wire installation

Open the Wire Drive Compartment Door

6. Unscrew the plastic retaining wheel from the end of the spool holder shaft.
7. 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.
8. Slide the wire spool all the way onto the shaft and refit the plastic retaining nut.

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

9. 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 100mm. (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.)
10. Continue to feed the wire through the outlet guide until 20mm of wire is protruding from the front of the machine torch connector.
11. Reposition the adjustable pressure arm to its original position to apply pressure. Adjust pressure as necessary.

Note the pressure arm should be adjusted in order to give the minimum amount of pressure on the wire to allow reliable feeding,

5.4.3 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 tip adaptor and contact tip
2. Inch the wire from the exit of the wire guide on the feed unit as Figure 1 (see p8). 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 (see p8).

Fig 1

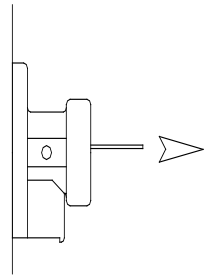
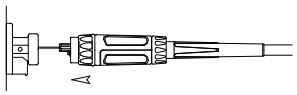


Fig 2



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 torch trigger to feed the electrode wire 50mm from the end of the liner conduit.
5. Once the electrode wire has stopped, refit the tip adaptor, diffuser, 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.
7. Press the gas purge button and check the gas flow is adequate for your application.
8. An inexpensive flow meter is available from Parweld reference 806001.

5.4.4 Work return lead connection

Insert the work return lead connector into the Negative Twist lock receptacle on the front panel of the machine and twist it clockwise until tightly secured.

Connect the earth clamp to the work piece as close as possible to the point to be welded and ensure that a good electrical connection is created to bare metal.

5.4.5 Shielding gas connection

1. Using the gas hose supplied connect the hose to the gas inlet connection on the rear of the machine and tighten it with a spanner.
2. Connect the opposite end of the gas hose to the output connection of a gas regulator capable of supplying the correct gas flow for the welding operation.

Note The gas cylinder should be secured to ensure it cannot fall.

6.0 Operation

WARNING

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

6.1 MIG Welding

Synergic MIG Welding

Controls used

(7) 2T/4T sets the trigger to momentary or latching for longer welding runs.

(5) Wire size selector toggle through the different wire sizes to match the wire size installed in the machine

(6) Material type select the material type that matches your material.

(3) Current control. Adjust the current to the desired level this will automatically adjust the welding voltage for you. If the power level is to low then increase the current, if the power level is too high then decrease the current.

If you wish to trim the voltage control to fine tune the parameters you can increase or decrease the voltage independently using (4) the voltage adjustment. You may also wish to adjust the inductance which will alter the arc from soft to hard. (12)

Manual Welding

(5) Wire size selector toggle through the different wire sizes to the SPL setting

(4) Voltage adjustment knob, allows the adjustment of welding voltage

(3) Current adjustment knob controls the wire feed speed

(12) Inductance adjustment knob controls the smoothness of the arc

Using primarily the Voltage and the Current (wire speed) knobs, adjust until you reach a stable arc condition.

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

1. 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 wires, may require less pressure than the factory setting. The optimum idle roll setting can be determined as follows:
2. Press end of torch against a solid object that is electrically isolated from the welder output and press the torch trigger for several seconds.
3. 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 no waviness, the pressure is too low. Tighten the adjustment knob 1/4 turn, reinstall the torch cable and repeat the above steps.

6.1.1 Feeding wire electrode

1. When triggering, the electrode and drive mechanism are electrically “LIVE” relative to work and ground and remain “LIVE” several seconds after the torch trigger is released.

WARNING

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

2. Position wire over joint. The end of the wire may be lightly touching the work.
3. 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).
4. To stop welding, release the torch trigger and then pull the torch away from the work after the arc goes out.
5. 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.

6.1.2 Optimising Weld Parameters (Manual)

NOTE These settings are guidelines only. Material and wire type, joint design, fit up, position, shielding gas, etc. affect settings. Produce test welds to be sure they comply to specifications.

Material thickness determines weld parameters.

1. Convert Material Thickness to Amperage (A) (0.25mm = 1 Amp) 3.2mm = 125 A
2. Select Wire Size

Amperage Range	Wire Size
40 - 145 A	0.8 mm
50 - 180 A	1.0 mm

3. Select Wire Speed (Amperage)

Wire Size	Feed speed
0.8 mm	0.05m/min per Amp
1.0 mm	0.04m/min per Amp

So based on 3.2 mm material thickness amperage should be 125A if using 1.0mm wire then the wire feed speed should be

0.04 X 125= 5m/min

Wire speed (amperage) controls weld penetration

4.Select Voltage. Voltage controls height and width of weld bead.

Low Voltage: wire stubs into work

High Voltage: arc is unstable (spatter)

Set voltage midway between high/low, then fine tune accordingly.

6.1.3 Optimising Weld Parameters (Synergic)

In synergic mode you may wish to trim the voltage (4) to optimize the welding process, you can rotate the voltage control left or right to decrease or increase the preset welding voltage. You can also adjust the inductance (11) to change the hardness of the arc.

6.1.4 Burn Back

The amount of wire stick out at the end of the torch after welding can be adjusted by using the burn back control inside the spool cover shown in Figure 3. Increasing burn back will reduce the amount of wire projecting from the torch at the end of a weld.

Fig.3

6.2 MMA welding

6.2.1 Torch installation

MMA cable connections

Connect work return lead to negative terminal.

6.2.2 Work return lead connection

MMA cable connections

Connect work return lead to negative terminal.

6.2.3 Operation

Select the operating mode on the front panel to MMA (11)

Using the optional electrode holes clamp a welding electrode in the holder and adjust the welding amperage on the front panel so that it is approximately 40A per mm diameter of electrode e.g. 3.2mm electrode requires 3.2x 40A= 128A . Strike the arc by stroking the electrode on the workpiece. And lift away when you wish to break the arc.

6.3 TIG Welding Operation

To begin TIG welding operation:

NB: this machine is only operates in DC Lift TIG mode and therefore NOT suitable for TIG welding aluminium.

1. Unthread the MIG welding wire from the MIG Torch and remove the spool or secure the wire to prevent unspooling.

2. Remove the MIG Welding Torch from the Euro Connection (8).

3. Attach the specially adapted optional TIG Torch (Stock Code PRO17-12S1MPG) to the Euro Connection (8).

4. Connect the Work Return Lead to the + Outlet (9).

5. Connect the Machine via the Gas Hose & Regulator to a suitable gas source (for TIG operation this will be Pure Argon and may differ to what was being used for the MIG process)

6. Adjust the Polarity Bridge shown in Figure 3 so that it is connected to the – pole

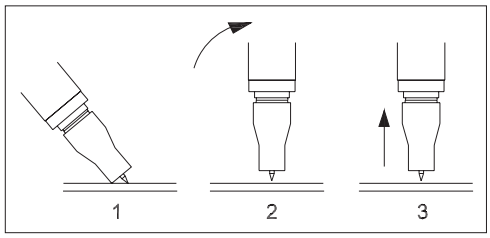
7. Use the function selection control (11) to select the TIG function

8. Adjust the Amperage control (3) to the desired power output (as a guide only 1.0mm material thickness = 30amps of welding Current)

9. Adjust the Down Slope control (4) 2-3 seconds should be sufficient

10. Adjust the 2T, 4T (7) control this operates the trigger action

11. You are now ready to begin. Lightly touch the Tungsten Electrode to the work piece press the trigger switch and draw the torch away extending the arc to around 3-5mm (The gas will be automatically activated and stopped with the trigger action).



In 2T mode keep the trigger switch depressed, the arc will stabilise allowing the welding process to proceed to finish welding release the trigger, the arc will stop decreasing power over the Down Slope time set earlier.

In 4T mode after the initial soft arc has been drawn out release the trigger, the arc will increase power to the welding amperage set earlier. This allows for continuous welding without the need the keep the trigger depressed. To stop welding, depress the trigger this activates the Down Slope function, releasing the trigger will stop the operation.

7.0 Fault Finding

TIG WELDING GUIDE RANGES

Electrode diameter	DC current (amps)
0.040” (1.0mm)	30 – 60
1/16” (1.6mm)	60 – 115
3/32” (2.4mm)	100 – 165

TUNGSTEN ELECTRODE TYPES

Electrode type	Welding application	Colour code
Thoriated 2%	DC welding of mild steel, stainless steel and copper. Excellent arc starting, long life, high current carrying capacity.	RED
Ceriated 2%	DC welding of mild steel, stainless steel, copper, aluminium, their alloys longer life, more stable arc, easier starting, wider current range, narrower more concentrated arc	GREY

GUIDE FOR SELECTING FILLER WIRE DIAMETER

Filler wire diameter	DC 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

MMA WELDING PROBLEM

Description	Possible cause	Remedy
Gas pockets or voids in weld metal (porosity)	(a) Electrodes are damp (b) Welding current is too high. (c) Surface impurities such as oil, grease, paint, etc	(a) Dry electrodes before use (b) Reduce welding current (c) Clean joint before welding

MMA WELDING PROBLEM

Description	Possible cause	Remedy
Crack occurring in weld metal soon after solidification.	(a) Rigidity of joint. (b) Insufficient throat thickness. (c) Cooling rate is too high.	(a) Redesign to relieve weld joint of severe stresses or use crack resistance electrodes. (b) Travel slightly slower to allow greater build up in throat. (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. (b) Electrode too large for joint. (c) Insufficient gap (d) Incorrect sequence	(a) Increase welding current (b) Use smaller diameter electrode. (c) Allow wider gap (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 (b) Welding current is too low (c) Wrong electrode angle (d) Travel speed of electrode is too high (e) Scale or dirt on joint surface	(a) Use larger electrodes and preheat the plate (b) Increase welding current (c) Adjust angle so the welding arc is directed more into the base metal (d) Reduce travel speed of electrode (e) Clean surface before welding.
Non-metallic particles are trapped in the weld metal (slag inclusion).	(a) Non-metallic particles may be trapped in undercut from previous run (b) Joint preparation too restricted (c) Irregular deposits allow slag to be trapped. (d) Lack of penetration with slag trapped beneath weld bead. (e) Rust or mill scale is preventing full fusion. (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. (b) Allow for adequate penetration and room for cleaning out the slag (c) If very bad, chip or grind out Irregularities (d) Use smaller electrode with sufficient current to give adequate penetration. adequate penetration. Use suitable tools to remove all slag from corners (f) Use electrodes designed for position in which welding is done, otherwise proper control of slag is difficult.

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 (b) Gas contaminated with air	(a) Clean the electrode by grinding off the contaminates (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 (b) Torch is clogged with dust (c) Gas hose is cut (d) Gas passage contains impurities (e) Gas regulator is turned off (f) Torch valve is turned off (g) The electrode is too small for the welding current	(a) Check the gas lines for kinks or breaks and gas cylinder contents (b) Clean torch (c) Replace gas hose (d) Disconnect gas hose from torch then raise gas pressure to blow out impurities. (e) Turn on (f) Turn on (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 (b) Absence of oxides in the Weld pool.	(a) Select the right size electrode. Refer to basic TIG welding guide. (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 (b) Torch lead is disconnected (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. (b) Connect it to the '.' terminal. (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 . (b) The wrong electrode is being used for the welding job. (c) Gas flow rate is too high. (d) Incorrect shielding gas is being used. (e) Poor work clamp connection to work piece	(a) Select the right size electrode (b) Select the right electrode type. Refer to basic TIG welding guide (c) Select the correct rate for the welding job. Refer to basic TIG welding guide (d) Select the right shielding gas. Refer to basic TIG welding guide (e) Improve connection to work piece

POWER SOURCE PROBLEMS

Description	Possible cause	Remedy
The welding arc cannot be established	(a) The primary supply voltage has not been switched on (b) The welding power source switch is switched off (c) Loose connections internally	(a) Switch on the primary supply voltage (b) Switch on the welding power source. (c) Have a qualified service engineer repair the connection
Maximum output welding current cannot be achieved with nominal mains supply voltage	Defective control circuit	Have a qualified service engineer inspect then repair the welder
Welding current reduces when welding	Poor work lead connection to the work piece	Ensure that the work lead has a reliable electrical connection to the work piece

POWER SOURCE PROBLEMS

Description	Possible cause	Remedy
A total loss of power, pilot lamp is off, no output, the fan is not operating	(a) Failure of input voltage (b) Possible over voltage (c) Internal fault with the machine	(a) Re-establish mains supply (b) Check voltage and if necessary move machine to alternative supply (c) Have a qualified service engineer inspect then repair the welder
Fault lamp is on, no power output	(a) Machine overheated (b) Over current state (c) Internal fault with machine	(a) Allow to cool with fan running (b) Switch off mains power to the machine and re start (c) Have a qualified service engineer inspect then repair the welder

ROUTINE MAINTENANCE

The only routine maintenance required for the power supply is a thorough cleaning and inspection, with the frequency depending on the usage and the operating environment.

Warning

Disconnect primary power at the source before removing the cover. Wait at least two minutes before opening the cover to allow the primary capacitors to discharge.

To clean the unit, remove the screws securing the outer cover, lift off the outer cover and use a vacuum cleaner to remove any accumulated dirt and dust. The unit should also be wiped clean, if necessary; with solvents that are recommended for cleaning electrical apparatus.

8.0 Accessories

8.1 Feed Rolls

Part No.	Groove	Wire Sizes	Wires
DR2V0608	Plain V	0.6 - 0.8	Fe, Ss
DR2V0609	Plain V	0.6 - 0.9	Fe, Ss
DR2V1012	Plain V	1.0 - 1.2	Fe, Ss
DR2K0809	Knurled V	0.8 - 0.9	FC
DR2K1012	Knurled V	1.0 - 1.2	FC
DR2U0809	Plain U	0.8 - 0.9	Al
DR2U1012	Plain U	1.0 - 1.2	Al

8.2 Torch Spares

Stock Code	Description
CKE403	Electrode Holder with 3m Lead
CKC403	Earth Lead 3m with Clamp
PRO17-12S1MPG	Pro-Grip TIG Torch
WP17AK	Tig Spares Kit in Plastic Case

8.3 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

8.4 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.

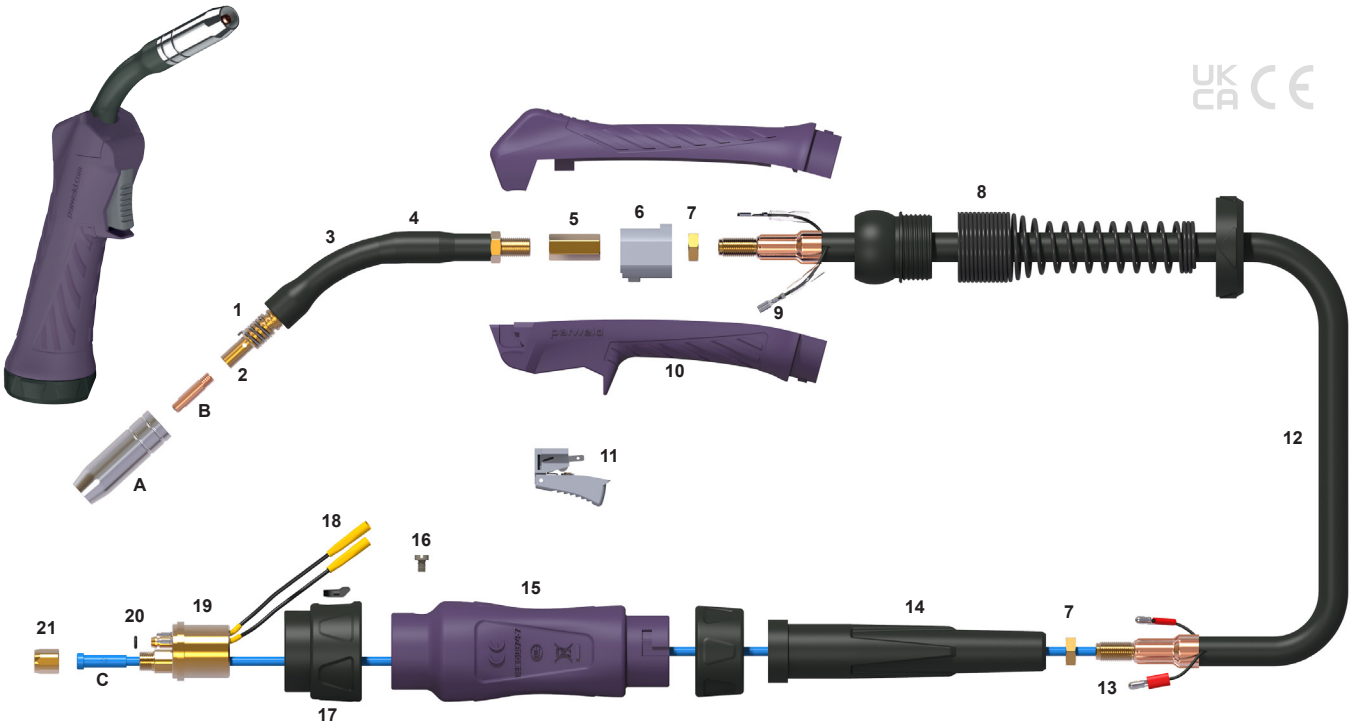
Fittings
- Fitted with standard 3/8" BSP inlet and outlet connections

Stock Code	Description
706100	Flow Meter Mixed Gas 15 lpm

9.0 Torch Schematic - ECO-GRIP MAX® 150A

Air Cooled MIG Welding Torch

Rating: 140A CO_2 140A mixed gas, @ 60% duty cycle. EN60974-7 .023”-.040”/0.6-1.0mm wires



Model

	Stock Code	3M	4M	Model Description
	ECR1500	-30ER	-40ER	Eco-Grip MAX Torch Package c/w Euro Fitting

Nozzles

	Stock Code	Description
A	ECO1530*	Eco Conical Nozzle 15/32”/12mm Bore
	B1529	Cylindrical Nozzle 5/8”/16mm Bore
	B1531	Tapered Nozzle 7/16”/11mm Bore
	B1532	Bottle Nozzle 1/2”/13mm Bore
	B1533	Spot Welding Nozzle 5/8”/16mm Bore

Contact Tips

	Stock Code	Description
B	ECO1527-06	Eco Contact Tip 0.023”/0.6mm M6 Eco
	ECO1527-08*	Eco Contact Tip 0.030”/0.8mm M6 Eco

Liners

	Stock Code	Description
C	ECO1535-30	Eco Steel Liner .023”-.030”/0.6-0.9mm x 3m
	ECO1535-40	Eco Steel Liner .023”-.030”/0.6-0.9mm x 4m

Components

	Stock Code	Description
1	B1504	Shroud Spring
2	B1507 L/H	Tip Adaptor
3	ECO1501	Swan Neck c/w Tip Adaptor & Insulation Sleeve
4	ECO1502	One Piece Neck Insulation Sleeve
5	B2519	Hexagonal Fitting
6	B1515/PG	Handle Location Body
7	B1505	Lock Nut
8	ECO8020	Spring Cable Support c/w Knuckle Joint
9	B1521	Cable Terminal – Female
10	ECO8514	Eco-Grip MAX Handle Kit
11	B8516	Eco-Grip MAX Trigger
12	B1517-30	Cable Assembly x 3.0m
	B1517-40	Cable Assembly x 4.0m
	B1517-50	Cable Assembly x 5.0m
13	B1522	Cable Terminal – Male
14	B1841	Cable Support
15	B1518	Gun Plug Housing c/w Nut
16	B1526	Gun Plug Screw
17	B1519PL	Gun Plug Nut, Plastic c/w Insert
18	Spring Pin 2	Spring Pin Assembly
19	B1528	Gun Plug Body c/w Spring Pins
20	B1524	Gun Plug ‘O’ Ring
21	B1525	Liner Nut

* Denotes Standard Build

10.0 EC Declaration of Conformity

Hereby we declare that the machines as stated below

Type: XTM 161i XTM 201i

Conform to the Low Voltage Directive: 2014/35/EEC
EMC Directive 2014/35/EEC

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.

10.1 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 161i XTM 201i

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

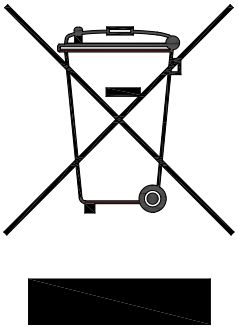
It should be noted that under specific exempted applications, where lead is used as an alloying element the following limits are applied in accordance with the regulations.

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



10.2 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 WEE 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.

10.3 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 for the time stated below beginning on the date that the authorized Distributor delivers the products to the purchaser. Notwithstanding the foregoing, in no event shall the warranty period extend more than the time stated plus one year from the date Parweld delivered the product to the authorized distributor.

Parweld Limited
Bewdley Business Park
Long Bank
Bewdley
Worcestershire
England
DY12 2TZ

tel. +44 1299 266800
fax. +44 1299 266900

www.parweld.co.uk
info@parweld.co.uk