Oxford

MULTI-TIG AC DC & DC

British made high performance TIG & MMA machines.

USER INSTRUCTION MANUAL

Safety – multiple risks – please read carefully

Before using, make sure all operators are familiar with the plasma cutting process and have had appropriate training relating to the risks involved.

Please visit the UK HSE sites below to understand & control the risks from welding & cutting.
https://www.hse.gov.uk/welding/other-welding-risks.htm
https://www.hse.gov.uk/welding/welding-controls.htm
https://www.hse.gov.uk/welding/health-risks-welding.htm

Basic safety information is summarised below.

- When welding or cutting in an environment with increased risk of electric shock extra precautions must be observed. Typical conditions with increased risk of electric shock are working in wet or damp conditions, working inside vessels, working in cramped conditions and exposed to conductive parts. You should only use welding machines marked with S for higher risk applications. OXFORD MULTI-TIG machines are all marked with the S symbol.
- Before use check the local area for flammable materials & ensure suitable fire extinguishers are available to hand. Do not weld near or on flammable materials or any product that may contain flammable compounds or gasses or fumes inside such as tanks & cylinders. After welding check the local area carefully for any burning or smoking materials & recheck after 30 mins or so.
- Always use correct PPE (eye and body protection) when using this machine. Recommended eye protection is with a shade 10-12 lenses, for most general work, for high power use up to shade 15. Full face protection is essential. Wear leather gloves & ensure all exposed skin has protection from burns.
- Use correct LEV (fume extraction) equipment & always avoid inhaling welding fume.
- Ensure other persons in the area have sufficient PPE from the welding arc, sparks & fumes.
- Electromagnetic fields are created by the welding process, these can be hazardous & may affect pacemakers, keep welding cables as far as possible away from your body. Do not coil cables around the body, keep cables at ground level where possible. If you have a pacemaker do not weld until you have consulted your medical adviser.
- Keep bodily parts & clothing well away fans, & other moving parts.
- Gas cylinders must be treated with care; a damaged cylinder may explode. Transport cylinders safely, only use in upright position & ensure they are secured from falling.
- Only use & move this machine on a flat stable surface, take extra care if a gas cylinder is attached, the extra height & weight of a cylinder can cause instability.
- This machine is only designed for TIG welding & MMA ARC welding. It should not be used for anything else.
- To avoid stray welding currents flowing in power supply input cables or other conductive materials always connect the welding earth clamp directly to the work piece.
- This machine is rated to IP23S so may be used indoors or outside, if used outside it must be protected from water & excess damp.
- Do not use in a wet environment, this machine & torch should be kept dry.
- Do not use this machine with side panels missing or other parts missing or damaged.

Further information on the safe use of welding & cutting machines can be found in IEC60974-9
A documented risk assessment should be carried out prior to installation & use of this machine.

Declaration of conformity

OXFORD MULTI-TIG models 220A-270A AC DC & 220A-400A DC

Are manufactured in Great Britain

To comply with

Low voltage directive 2014/35/EU
EMC directive 2014/30/EU
Eco design directive 2009/125/EC (EU2019/1784)
RoHS directive 2011/65/EU

In accordance with the following standards & regulations.

IEC60974-1
IEC60974-10
EU2019/1784
IEC61000-3-12

CE UKCA

Date 14/10/2025

R P Rycroft *R Rycroft* **Managing Director Technical Arc Ltd York UK. www.tecarc.com**

Pre installation & EMC information

This is 'Class A' equipment and is designed for use in industrial premises. If used on domestic supplies or in other environments there could be potential difficulties with electromagnetic interference. It is the user's responsibility to ensure that if any electromagnetic disturbances are detected, these are resolved this before continuing.
The installer of this equipment should make an assessment of the area before installing.
All welding & cutting machines create electromagnetic disturbances, it is preferable to use as far away as possible from sensitive electrical or electronic equipment such as computers, telecom equipment, safety critical equipment, transmitters and receiving equipment etc.
There is a risk to sensitive equipment from radiated or conducted emissions from this machine.
Consideration must be also given to other premises as the emissions may not be limited to the installed premises.
The following are methods to reduce emissions.

1) Keep all cables short close together, and at ground level.
2) Equipotential bonding of metal components in the work area including the work piece can be considered & is in many cases advised. However, there is an increased risk of electric shock if the electrode is touched. **Before bonding the area consult an experienced Engineer & refer to IEC60974-9.**
3) This equipment must be properly maintained and all screws holding the sides etc kept in place.
4) Sometimes it may be necessary to fit additional mains input filters or even screen the cables and / or work area. This will involve consulting an experienced engineer or contact OXFORD WELDERS

MULTI-TIG models comply with IEC61000-3-12 if the input main supply has a short circuit power (Ssc) equal or greater than that specified in the technical specifications. (Measured at the point of entry from the public supply network to the users incoming supply point).

Basic description

OXFORD MULTI-TIG models are all designed & manufactured in York England.
We give you class welding performance combined with unbeatable long term reliability.
Unlike other TIG machines our models are relatively unaffected by harsh operating or storage conditions. They contain no microprocessors, no surface mount PCB's & no programable technology just simple reliable electronics & controls. Happy to work all day long 7 days a week in industry or stored in a barn for years & rolled out when needed.
All are equipped with our electronic HF for clean instant TIG arc starts.
Analogue knob controls provide the fastest & easiest way to set up TIG machines.
A foot pedal or other remote control device can be used to adjust output amps.
MULTI-TIG's have a high efficiency to comply with ECODESIGN regulations. As well as kind to the environment, this also means we provide more output power from a lower input supply.
Built in protection circuits are standard, with automatic shut down for over voltage, under voltage & over temperature. In any of these situations the digital display will show E for error.
The cooling fan is 'on demand' so only runs when needed to cool the internals, this minimises idling power & excessive build up of internal dust.
These are tough & rugged machines, built on a galvanised steel chassis construction with almost no plastics used, these significantly exceed drop test standards specified in IEC60974-14.
OXFORD machines are always designed for maximum reliability & easy serviceability. At the heart of these machines is an industrial H bridge power inverter, made using only two IGBT power modules 100A, 150A, or 200A rated. These are no specialist parts used, virtually everything can be sourced in any country around the world.
Internally, control PCBs are fitted in the top compartment away from dirty air. Only power parts are located in the ventilated area.
LEDs are fitted to the control PCB to indicate status & functions, also test points are marked on PCB,s This together with simple logical circuits allows easy long term maintenance anywhere in the world.

Technical specifications MULTI-TIG AC-DC & DC models

Model	Input Volts	Amps range	Duty cycle @40C - TIG	Rec fuse *	Ieff amps	Recommended input cable	Min KVA @100% rating**	Idle power	Ssc*** PKVA	OCV	Weight approx.
221	230V 1ph	5-220A	220A@35%, 170A@60%	16A *13A	13A	3x1.5mm	3.6	20W	1100	85V DC	17kg
271	230V 1ph	5-270A	270A@60%, 210A@100%	32A *13A	23A	3x2.5mm	5.5	20W	1380	85V DC	22kg
273	400V 3ph	5-270A	270A@60%, 210A@100%	16A	8A	4x1.5mm	5	20W	2350	85V DC	21kg
413 DC only	400V 3ph	10-410A	410A@60%, 320A@100%	16A	13A	4x2.5mm	8	20W	3400	85V DC	25kg

Specifications common to all models

Pulse range	Pulse base range.	Slope up	Slope down	Ac freq (ac dc only)	Gas pre F.	Gas post F.
1Hz-200	10-100% of A	0-5 sec	0-10 sec	20-200Hz	0.5 sec #	0.5-14 sec

Power source case size 230Wx510Lx400H (or 460mm including top handle).
All ratings for KVA, duty cycle & input power are calculated for TIG welding.
For use on MMA output range is the same as TIG, duty cycle is reduced up to 6%, input power ratings may need increasing.
*Recommended fuse is 'D' slow type, a lower size such as 13A on 230V is OK up to 200A on TIG.
Duty cycle is tested at 40°C, at 20°C the duty cycle increases by approx. 5%.
**For max output power on a generator supply increase min generator rating by 40-50%.
*** This equipment meets the requirements of IEC61000-3-12 if the short circuit input power (Ssc) is equal or greater than the value specified above. It is the installers or users responsibility to ensure that the input power is suitable for this equipment.
# Gas pre flow time can be changed internally if needed.
Efficiency – AC DC models = 83% (273) 82% (221/271)
Efficiency – DC models = 86% (273/413) 85% (221/271)
Compliance with BS IEC60974-1, WEE/HD0071UZ, EU2019/1784.
Protection class - IP23S (suitable for use outside with cover).

Electrical Installation

This machine must be connected to the electricity supply by a competent person

Connecting to mains supply
Make sure that the mains supply is of the correct voltage and current capability for the machine.
Ensure that any extension cables used are of sufficient current carrying capacity.
Ensure that the mains plug fitted (and socket if fitted) are in good condition and they are the correct current carrying capacity.

NOTE!
Minimum input cable diameter should be rated based on the I eff value of current shown in the technical specifications, for applications running MMA at high power the I eff value will be a little higher, consider increasing cable diameter by one size.
Where input cables or extensions exceed 20M we recommend increasing input cable by one size.

Do not connect this machine to any voltage other than what is stated on the spec plate and marked on the rear of the machine.

- **230V single phase models**

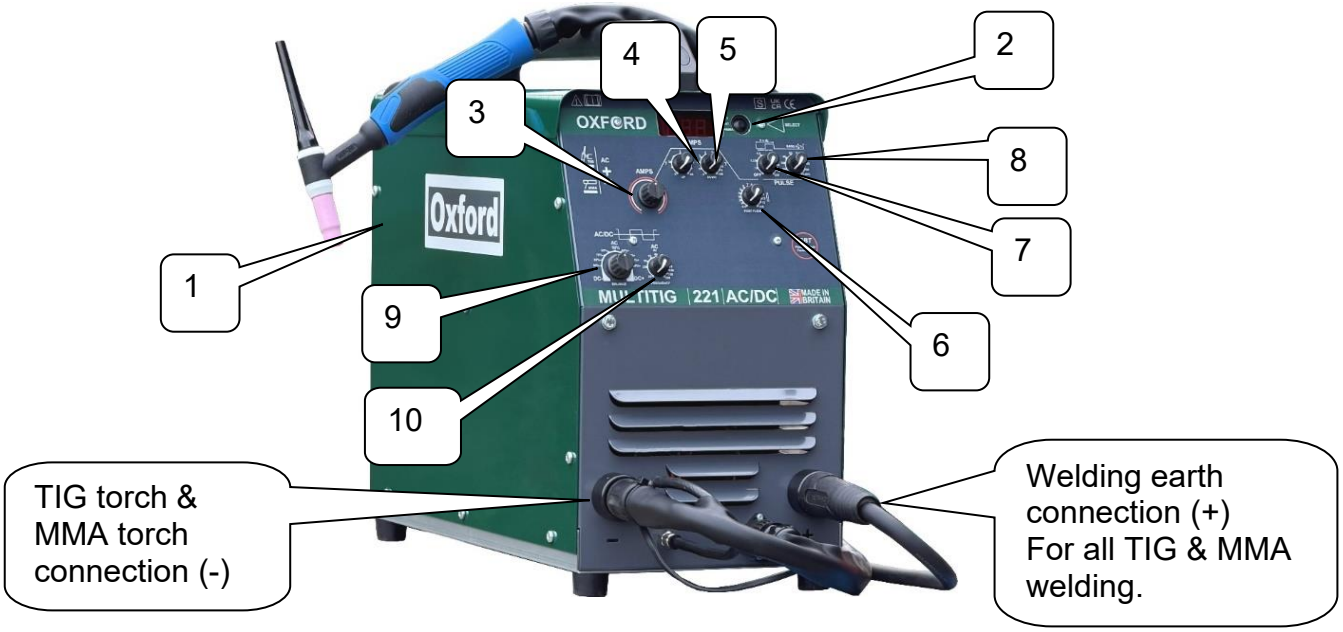
Make sure your supply voltage matches the voltage model of the Machine. Ensure the green/yellow wire is connected to the earth terminal in the mains plug, the other two wires are normally blue and brown wires which must be connected to the appropriate voltage, the blue is neutral and the brown is live, in some instances the colours of the live & Neutral may be both black, in which case it is not important which way around they are connected but the green/yellow wire must always be connected to the earth terminal in the plug.

- **400V three phase models**

Make sure your supply voltage matches the voltage model of the Machine. Ensure the green/yellow wire is connected to the earth terminal in the mains plug.
The other three wires are normally coloured or can be all black, these connect to R, S, T or L1, L2, L3 in the plug in any order. If the plug is a 5 pin type, do not connect the N or neutral to anything. These machines do not need a neutral supply.

If in doubt consult a qualified electrician.

Description of panel controls & fittings



1. On/off switch – locater at the rear - isolates all internal circuits.
2. Process selector switch – Always starts up in 2T, (normal TIG trigger action). Press once to select 4T (torch trigger latching function, ideal for long periods of TIG welding). Press again to select MMA electrode welding. The output power is then energised on & ready to arc up. The chosen functions are always displayed in the LED window.
3. AMPS control – Set the exact amperage needed for your application, TIG or MMA. The set value is shown in the LED window prior to welding. When welding starts the LED displays the precise value. The AMPS value can be changed at any time including whilst welding. If using this machine with a remote device such as a foot pedal or TIG torch remote, the AMPS control is used to set the range of the remote control. Set the AMPS to max & the machines full output range is available on the remote control. Turn the AMPS control lower to give maximum controllability at low power on a foot pedal or other device.
4. UP slope – Used to provide a more controlled start to TIG welding, can also be utilised in conjunction with down slope to provide operator control of the weld power via torch switch.
5. Down slope – Provides a controlled finish to TIG welding, normally used for crater filling to give perfect finishes for precision TIG welding in the most demanding industries.
6. Gas post flow – For TIG welding the gas should continue to protect the weld pool until it freezes. The TIG torch should be held in position during this period. The timer only starts from when the arc stops. Adjust the time as needed, at low welding power a few seconds is normally OK, at higher welding AMPS increase the post gas time. Furthermore, the tungsten electrode needs gas flow coverage until cool to avoid contamination.
7. Pulse On/off & frequency – Fully CCW is pulse off, rotate CW to select pulse on frequency. When pulse is running the peak current is set on the main AMPS control (No3) The base current is set using Knob No.8 as detailed below.
8. Pulse base current – Fully CCW setting is approx. 10% of main AMPS. For example if pulse welding at 200A with 10% base the minimum level will be 20A. For most pulse applications a base current from 20%-60% gives the best results. If the control is set fully CW (100%) no pulsing will occur.
9. AC-DC balance control – (only fitted on AC/DC models) – Totally unique output control changes the output from DC- (fully CCW) for normal DC TIG to AC & when fully CW DC+. Virtually any variation of AC including extreme – or + values are possible. A large - balance makes it possible to weld considerably heavier material & with just an air cooled torch. A large + balance is most useful for welding thin exotic metals where maximum cleaning effect is required,
10. AC frequency control – provides infinite adjustment of AC frequency from 20Hz to 200Hz. A low frequency results in a soft wide arc with minimal noise, ideal for thicker materials. A high frequency such as 200Hz constricts the arc to provide more focus of the weld pool, this can be beneficial for thin materials. For most AC TIG a frequency between 40-100Hz is ideal.

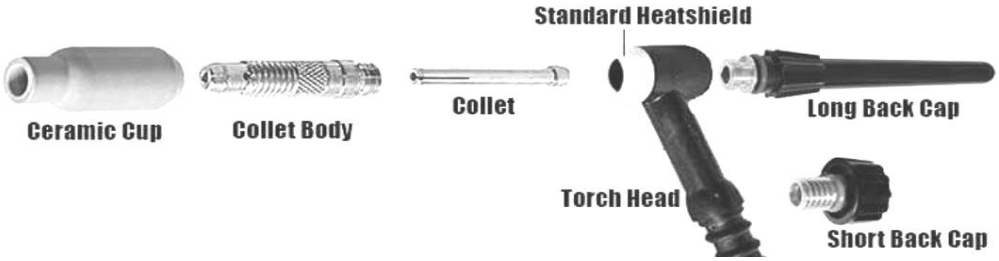
Setting up for TIG welding

This machine is designed to be used by operators who have knowledge of welding. It is strongly recommended that inexperienced operators are well trained before use.
Firstly, ensure all safety instructions are understood & the machine has been connected to the correct supply voltage & rating.
Make sure the work piece is correctly and securely connected to the work lead clamp (welding earth connection, bottom right side as shown on previous page).
Connect the TIG torch as shown on the drawing using the lower left hand side power connection & the push fit gas fitting & the 4 pin switch plug (pins 1+2 are used for the switch).
Its important that the torch consumables are assembled correctly & the correct ceramic cup size is fitted, use larger diameters for higher power.
The TIG torch electrode type & size must be selected according to the process & amperage otherwise welding performance may be poor.
Popular tungsten electrodes are 97-100% tungsten, a small % of additives are often included to improve the performance of pure tungsten.
For DC 2% Thorium added is often used, these are marked with a red end.
For AC welding tungsten electrodes with approx. 1% zirconium added are popular, these are marked with a white end. AC TIG also works OK with 100% tungsten electrodes, marked with a green end.
Ceriated (grey marking) & Lanthanated electrodes can be used for both DC & AC.
The electrode diameter is very important, too small for the amperage & it will burn away, too large & the arc may be unstable.

Tungsten electrode guide chart

Electrode Diameter		Direct Current				Alternating Current	
		Electrode negative (-)		Electrode positive (+)			
Millimeters	Inches	Pure tungsten	Tungsten with oxide additives	Pure tungsten	Tungsten with oxide additives	Pure tungsten	Tungsten with oxide additives
1.6	1/16	60 to 150	60 to 150	10 to 20	10 to 20	45 to 90	60 to 125
2.4	3/32	120 to 220	150 to 250	15 to 30	15 to 30	80 to 140	120 to 210
3.2	1/8	160 to 310	225 to 330	20 to 35	20 to 35	150 to 190	150 to 250
4	5/32	275 to 450	350 to 480	35 to 50	35 to 50	180 to 260	240 to 350

Typical TIG torch set up (WP17, WP26 & WP18)



The TIG torch front end should be assembled as above. The collet body & collet must match the tungsten electrode size.
The electrode should be positioned so it extends past the end of the ceramic cup by approximately 1.5-2 times the electrode diameter.

Electrode for DC TIG the electrode should be ground to a fine point to give good arc stability, this should be easily maintained, if it becomes contaminated due to touch down or insufficient post flow gas it will need regrinding to give the best results.
Electrode for AC TIG is normally allowed to form a balled end, don't grind to a point, start with either a flat end or a slight chamfered end, After welding this should finish shiny, if its dull it indicates contamination from insufficient gas flow or lack of post flow time.

Gas for TIG welding

Most TIG welding is done using 100% pure Argon.
This works well for the majority of aluminium & allows, stainless & other steels. However, some specialist gases such as helium mixtures are available, these may give benefits for specialist applications. Consult your local gas specialist for further information.
The correct gas flow is essential, too little flow can result in a porous weak weld, too much and the arc can become unstable and harsh.
The gas flow should be set on the regulator & flow meter to suit the welding conditions; higher welding current needs a higher gas flow, the correct flow rates are between 4-15 litres per min. Start with a very low flow rate, as a guide you should be able to only just here the gas flowing from the ceramic when pulling the torch switch.

TIG welding with this machine

First ensure you are familiar with all risks & have correct PPE.

Ensure you are familiar with all functions on page 6.

Simple DC TIG welding set up.

- Set the welding amperage using the main AMPS control, the value is shown on the digital display.
- Set the gas flow time to 5 seconds initially.
- Set upslope and down slope to zero initially.
- Set pulse to off
- Set balance control fully CCW (DC -) (AC/DC models only)

Simple AC TIG welding set up.

- Set the welding amperage using the main AMPS control, the value is shown on the digital display.
- Set the gas flow time to 5 seconds initially.
- Set upslope and down slope to zero initially.
- Set pulse to off
- Set balance control to middle position (50%)
- Set AC frequency to 60Hz

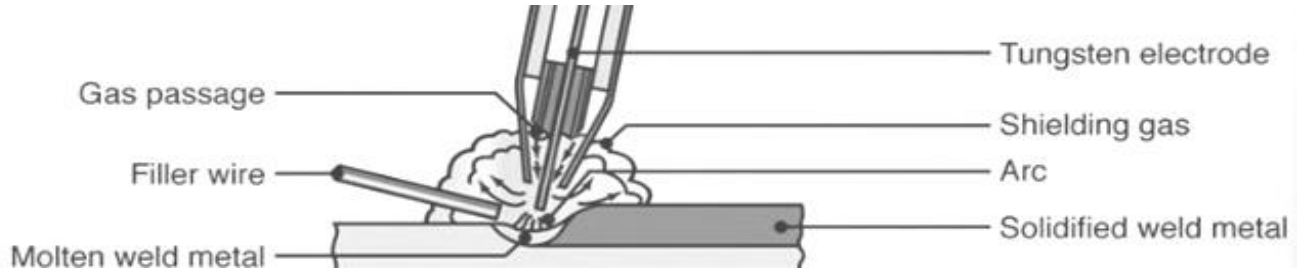
Set the gas flow by pressing the torch switch and adjusting the regulator. For best results also use a gas flow meter. 4-15 L/min range is needed. In practice 5-8L/min covers most applications.

With the TIG torch angled at about 45 degrees and the ceramic cup rested on the work piece the tungsten electrode should be 2-4 mm away from the job. Press the torch trigger. An arc should establish almost instantly (after preflow gas time – factory set at 0.5 sec standard).
As a weld pool is formed lift the torch a little, & angle to around 70%, add filler wire by dabbing into the leading edge of the weld pool, retract the filler wire only a little after each dab, the end of the filler wire should always remain within the gas flow area. This is trickly at first but can be easily mastered with a little practice.

Things to consider

- TIG torch angle can be varied to suit application, normally 65-90 degrees is ideal.
- Filler wire position can be changed from leading edge to side positions as needed.
- Adjust AMPS as needed to suit material.
- Set slope up to give a controlled ramp up of welding power.
- Set slope down to provide time to fill crater at end of weld.
- Adjust gas post flow to suit the welding power, increase if gas stops before the weld pool freezes.
- Change gas pre flow if needed – see page 12.
- Consider using pulse for some applications – see page 6
- Adjust AC balance & frequency if needed – see page 6
- For TIG bench work consider using our foot pedal to achieve even better performance.

Picture below shows a typical TIG welding set up.



Important notes;

- MULTI-TIG AC-DC models always start in DC – electrode. Therefore the no load volts are always DC. If the balance control is set to an AC output the arc changes to AC as soon as it establishes. If the balance control is set fully CW (DC+) the polarity flips to this as the arc establishes.
- Gas pre flow is set to 0.5 seconds to ensure gas coverage at the start of every weld. If gas is still flowing from previous gas post flow period, there is no pre flow delay & the arc will start instantly. The pre flow period can be reduced or increased by an internal adjuster pot if needed.
- TIG HF automatically stops as the arc establishes on both DC & AC. A special pulse circuit maintains the arc during AC welding.
- AC output is an advanced square wave & is the result of 1000's of hours of design & development. Our technology softens the leading & falling edges of the waveform, reducing AC arc noise considerably whilst keeping the arc perfectly stable. The result is exceptional AC TIG performance right through the range.
- AC output also benefits from our unique extended range balance control, start at around 50% then turn more – (CCW) to increase heat into material & reduce heat input to torch. Quite remarkable results are possible on thick aluminium using just an air cooled TIG torch with a high - bias. Although oxide cleaning reduces with a high – balance, the cleaning power is often more than sufficient at up to 90% -. Adjusting the AC balance to a more + output provides an increase in oxide cleaning to give a bright shiny finish. This can bring benefits on thinner gauge alloys & magnesium.
- When welding on AC at higher power levels if the frequency is set high there may be some power loss noticeable. We recommend using 20-80Hz for above 60% power.
- If the TIG output is energised without welding for 20 seconds the gas flow & output will automatically lock out to avoid gas wastage & to ensure best safety.
- Foot pedal control or other remote device – The main AMPS dial on the front panel sets the output max range, so for full range on the pedal turn to max AMP on the front panel dial.
- Water cooling can be added at any time – contact your supplier or OXFORD Welders.

MMA arc welding with this machine

MULTI-TIG models provide super smooth MMA ARC welding, built in hot start ensures rods light up effortlessly.
Plug the electrode cable into the - torch connection as shown on page 6 (bottom left side) & the work lead into the opposite polarity.
Most MMA applications today use DC with + electrode, for AC DC models set the balance control CW (+).
DC MMA provides the smoothest arc with minimal spatter.
AC MMA can be useful for applications, particularly if arc blow is a problem. AC may be specified for some special materials & electrodes.
For AC adjust the balance setting to a more central position. A varied AC balance can be a useful tool for MMA welding, set a more – balance for greater heat input to work, or a more + balance to increase deposition of electrode.

To weld simply set the amperage to the desired level, fit a suitable size electrode into the holder & select MMA welding on mode switch (No. 2 page 6) scratch the electrode on the workpiece, you will notice how easy the arc starts.
The correct arc length should be maintained during welding to achieve a consistent weld bead. The arc length required depends on the welding current & rod diameter. Higher current & larger rods run at slightly longer arc lengths.

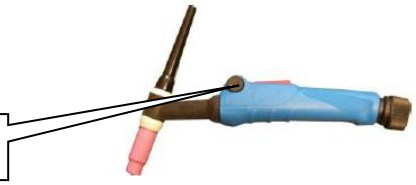
Below is a table with the different size electrodes available showing typical welding current ranges
For welding in flat position the current can be towards the upper end of the scale below, for welding vertical the current should be towards the lower end of the scale & for overhead welding even lower current should be used.

DC MMA electrode Diameter mm	Min Current	Max current
1.6mm	20A	45A
2.0mm	35A	65A
2.4/2.5mm	50A	100A
3.2mm	70A	150A
4.0mm	110A	200A
4.8/5.0mm	150A	270A

Important notes:

- AC/DC models - always connect the work to RHS lower output & electrode lead to LHS output socket. The output polarity & type is set on the balance control.
- MULTI-TIG AC-DC models always start in DC – electrode. The no load volts is always DC. If the balance control is set at an AC output the arc changes to AC as soon as it establishes. If the balance control is set fully CW (DC+) the polarity flips to this as the arc establishes.
- For DC models the welding polarity is changed by switching the work & electrode leads to the appropriate socket to suit the electrode, i.e. + electrode or – electrode.

Popular accessories

Product & description		Part No
Foot pedal *Updated design* 	Precision control of the welding power & arc on/off. Low profile design is easier on the foot, probably the smoothest you have ever tried. c/w 4M cable & plug	FSTEC0401
Standard TIG torches - *Complete with adaptor, gas fitting & switch plug.* For flexi head version of any torch add F after torch model number i.e. WP17F-4MT 		
WP17 4M, air cooled, 150A@60%, 200A short term, most popular TIG torch		WP17-4MT
WP17 8M, air cooled, 150A@60%, 200A short term, as above but 8M length		WP17-8MT
WP26 4M, air cooled, 200A@60%, 250A short term, heavier duty of the above, popular torch		WP26-4MT
WP26 8M, air cooled, 200A@60%, 250A short term, as above but 8M		WP26-8MT
WP9 4M, air cooled, 125A@60%, 150A short term, compact torch best for intricate work		WP9-4MT
WP9 8M, air cooled, 125A@60%, 150A short term, as above but 8M		WP9-8MT
WP20 4M, water cooled, 250A@60%, (280A max) light & compact good all rounder		WP20-4MT
WP20 8M, water cooled, 250A@60%, (280A max) light & compact good all rounder		WP20-8MT
WP18 4M, water cooled, 350A@60%, (400A max) very popular heavy duty WC TIG torch		WP18-4MT
WP18 8M, water cooled, 350A@60%, as above but 8M		WP18-8MT
All above torches also available with remote amperage control knob. For remote amps control add suffix RM to torch part number Adjust amps here 		
Water cooler & trolley options ***New ultra compact cooler also available***  		
Cold wire feeder & automation options   		
Electrode holder & cable for MMA welding **Any length cable up to 100M – contact our office.** 		

Trouble shooting guide

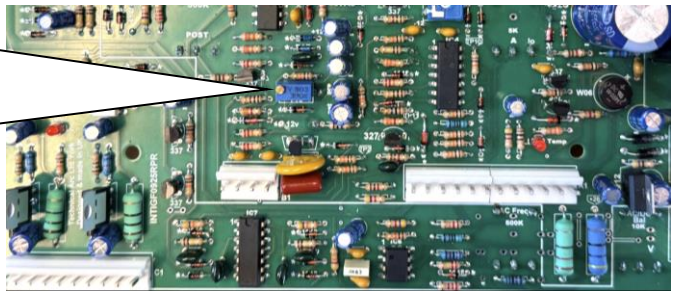
Problem	Possible cause	Solution & checks
Poor arc starting on TIG.	Electrode, torch or gas fault.	Check torch plugged into correct socket (LHS) Check electrode size, type & end condition. Check gas all OK.
Electrode melts away during welding.	Power too high for electrode or polarity problem.	Increase electrode diameter. Reduce output power a little. Check AC balance, turn CCW to increase electrode capacity.
Porus or contaminated black welds.	Gas flow / torch fault.	Check gas flow sufficient. Check TIG torch & gas hose/fittings for leaks. Change TIG torch consumables – see page 7 for correct set up.
TIG arc sounds harsh	Excessive gas or torch consumable problem.	Reduce gas flow & check torch consumables are in good condition & assembled correctly.
TIG HF not starting arc but will attempt to start if electrode scratched on job.	TIG torch plugged into wrong socket. TIG torch fault.	Check torch connected to LHS lower socket. TIG torch insulation failed, change torch.
TIG HF present at torch but no start, & no power if electrode touched down.	TIG torch power cable failure or earth cable not connected.	Check earth lead & clamp connected correctly. Check TIG torch continuity or replace.
TIG torch switching not consistent on 2T or 4T	Worn torch switch or damaged cable.	Replace torch switch or complete torch.
Machine trips circuit breaker during welding.	Incorrect circuit breaker used.	Check size against specifications. Check type – it should be a 'D' rated (slow) type.
Fan not running when machine powered up.	No fault.	The fan only runs when needed & should start after a minute or so of welding.
Machine stops welding after a use on higher settings. The display shows "E".	Possible overheated internal components - duty cycle exceeded	Reduce output power or welding time to prevent re-occurrence. Constantly overloading will cause excessive wear. Leave machine switched on for 5-10 minutes & retry.
Water cooled machine stops welding after 5-10 seconds of use. The display shows "E".	Water flow Fault	Check fluid is flowing back to tank when torch trigger pressed. Check fluid level & quality. Check for damaged hoses.
Machine display shows "E" constantly or randomly	Over voltage or under voltage supply.	Switch off immediately & check correct supply connected. If using with a generator check generator voltage or consult an experienced Engineer.

Adjusting preflow gas time on front PCB

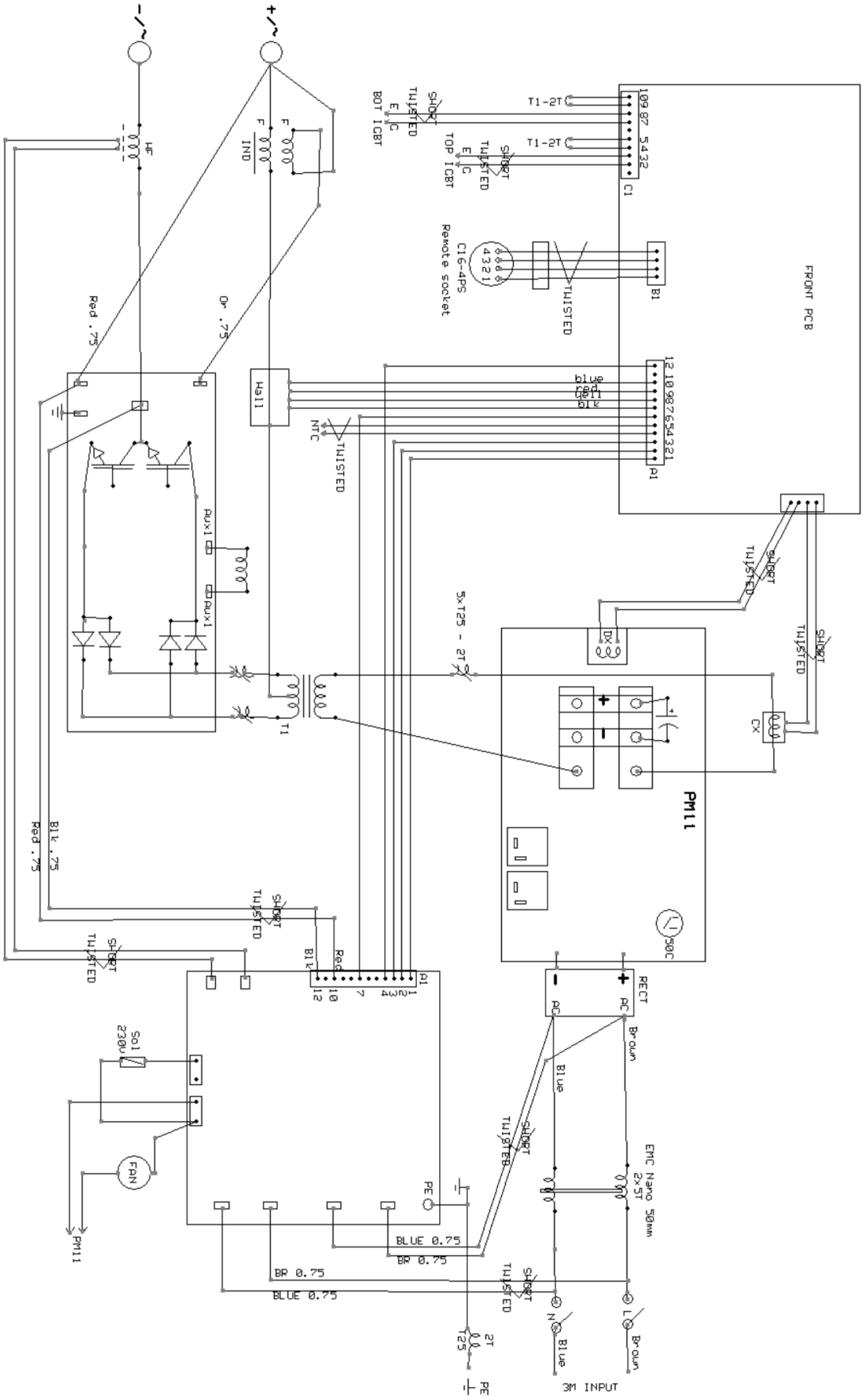
Isolate incoming power supply first, wait 2 minutes for internal circuits to discharge then remove top cover.

Lower section of front panel PCB

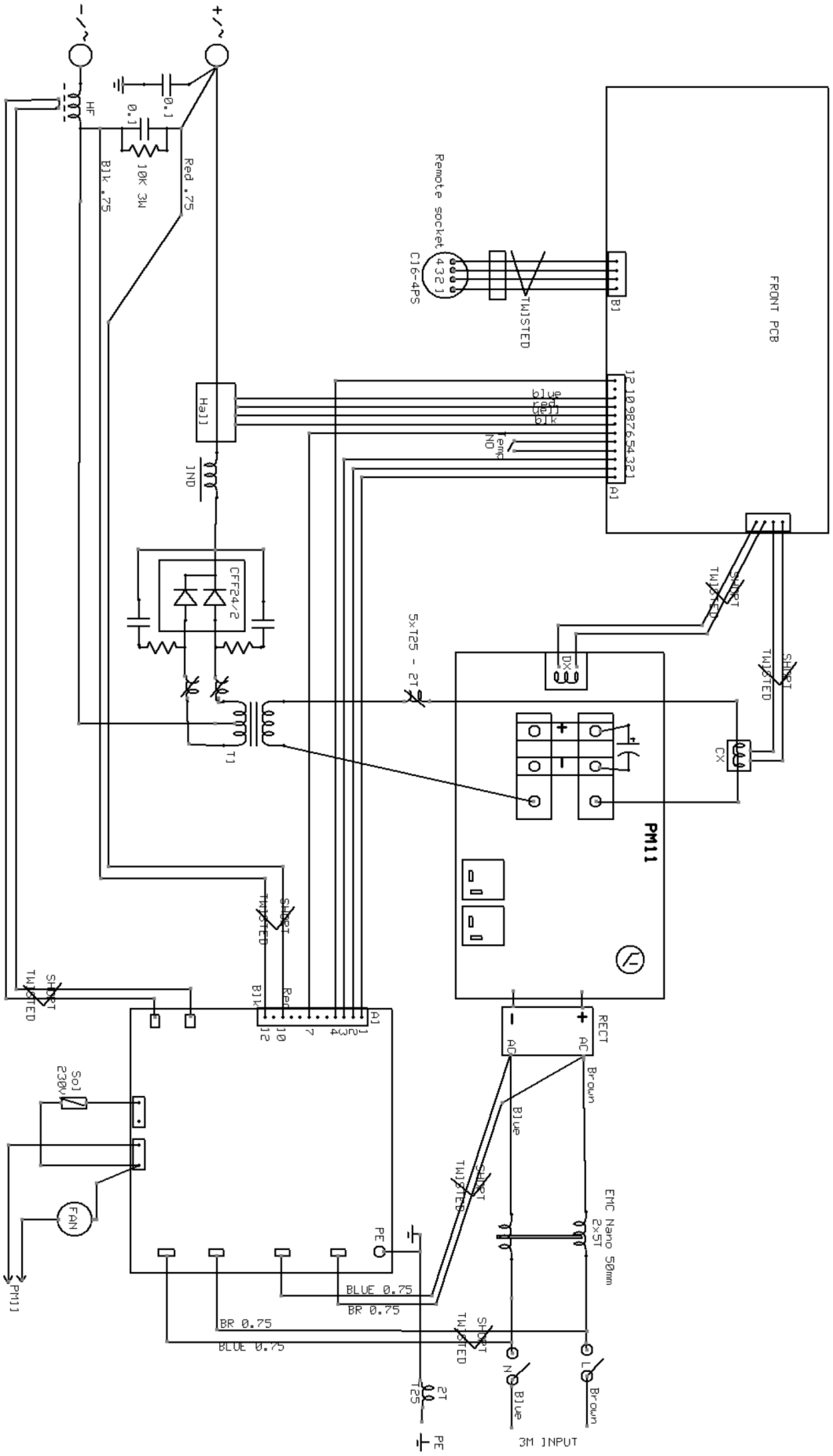
Adjustable 20 turn preset located just above 4 way remote connector & marked pre. Using a miniature flat screwdriver turn CCW to reduce time, CW to increase.
(5 complete 360° CCW turns reduces time from 0.5sec to zero, 5 turns CW increases time to 1 sec),
Do not adjust or touch anything else



Schematic wiring diagram AC DC



Schematic wiring diagram DC



Maintenance

General

These models are designed to be easy to maintain with little to go wrong however sensible basic maintenance should be carried out to maintain reliable operation.
Firstly, cables can easily become damaged in an industrial environment, the operator should carry out daily checks of all cables, welding cables and connections, check for signs of overheating/burning or damage. Any faults must be reported to a competent person and the machine taken out of service until repaired. Particular attention should be paid to the mains input cable to ensure it is kept safely away from anything which may damage it. In the event of any crush damage, insulation damage or other damage, isolate the machines supply at the wall immediately.

Internal & engineer maintenance

A comprehensive service inspection and test should be carried out at regular intervals by a competent person and documented; this should also include an electrical safety test to BS EN IEC60974-4
The frequency of this service depends mainly on machine usage & conditions. For fabrication & general production work this should be every 12 – 24 months or sooner in high production or harsh operating conditions. However, if the machine is used for occasional work & used in clean dry conditions its perfectly acceptable to consider a 3-5 year service interval.

Do not attempt any electrical repairs without first isolating any incoming mains power supply. Internal capacitors can store high voltage for extensive periods, take great care around high voltage PCB's & parts.
Do not attempt any electrical repairs unless fully competent.
Do not attempt any maintenance or inspection of any feed mechanisms, fans or other moving parts without switching machine to off or there is a risk of injury.
The outer covers from the power source should be removed & any dust cleaned out in the lower fan cooled section, with particular attention made to excess dust build up on or around the main components. All internal connections & wiring should be inspected for any signs of overheating or failure. Particular attention should be paid to the main welding circuit power connections & output socket connectors.
The upper section of the MULTI-TIG is not in the cooling air flow & should remain relatively clean, however dust or debris should be removed carefully if needed.

We aim to offer the very best long term support for your OXFORD machine. We stock all parts in York & will provide service & support to keep it working for you for a minimum of 25 years from purchase.
Your OXFORD supplier should be able to organize all service, testing & supply of spares for this machine & should be contacted in the first instance.
Alternatively, please contact us directly at sales@oxfordwelders.co.uk.
Or telephone 01904 410041 (overseas +44 1904 410041)

Spare parts not shown in this manual

All spare parts are readily available from your OXFORD supplier or direct from OXFORD Welders.

Manufactured in Great Britain by;

Oxford Welders / Technical Arc Ltd
York
YO19 5UP
UK
Tel: 01904 410041 (International +44 1904 410041)