



Manual Guide

205 LCD

1 PH MIG - STICK - TIG





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Safety Info

SAFETY INFO AND TIPS

WARNING

PROTECT YOURSELF AND OTHERS FROM POSSIBLE SERIOUS INJURY OR DEATH .KEEP CHILDREN AWAY. IF WEARING A PACEMAKER KEEP AWAY UNTIL CONSULTING YOUR DOCTOR. DO NOT LOSE THESE INSTRUCTIONS. READ OPERATING/INSTRUCTION MANUAL BEFORE INSTALLING, OPERATING OR SERVICING THIS EQUIPMENT.

Welding products and welding processes can cause serious injury or death, damage to other equipment or property, if the operator does not observe all safety rules and take precautionary measures.

Safe practices are developed from past experience in the use of welding and cutting equipment. These practices must be learnt through study and training before using this equipment. Some of these practices apply to equipment connected to mains power; others apply to engine driven equipment. Anyone not having extensive training in the safe and proper usage of welding and cutting equipment, should not attempt to use this equipment without proper supervision.

Safe practices are outlined in the Australian Standard AS1674.2-2007 entitled; Safety in Welding and Allied processes Part 2: Electrical This publication and other guides to what you should learn before operating this equipment are listed at the end of these safety precautions. HAVE ALL INSTALLATION, OPERATION, MAINTENANCE AND REPAIR WORK PERFORMED ONLY BY QUALIFIED PEOPLE.

ARC WELDING HAZARDS

Touching live electrical parts or components can potentially cause fatal shocks or severe burns.The electrode and work circuit is a live electrical circuit when the output is connected and machine turned on.The input power circuit and machine internals are also live when power is connected and turned on.

In semi-automatic or automatic wire welding (eg MIG), 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 potential hazard.

1. Do not touch live electrical parts.
2. Wear dry, hole free insulating gloves and body protection.
3. Insulate yourself from work and ground using dry insulating mats or covers,
4. Disconnect input power or stop engine before installing or servicing this equipment. Lock input power disconnect switch open or remove line fuses so power cannot be turned on accidentally.
5. Properly install and ground this equipment according to its Owners Manual and national, state and local codes.
6. Turn off all equipment when not in use. Disconnect power to equipment if it will be left unattended or out of service.
7. Use fully insulated electrode holders. Never dip the holder in water or any other liquid, to cool it or lay it down on the ground or on the work surface. Do not touch the holders connected to multiple welding machines at the same time or touch other people with the holder or electrode.
8. Do not use worn, damaged , undersized or poorly spliced cables.
9. Do not wrap cables around your body.
10. Ground the workpiece to a good electrical (Earth) ground.
11. Do not touch electrode while in contact with the work (Ground) circuit.
12. Use only well maintained equipment. Repair or replace damaged parts at once.
13. In confined spaces or damp locations, do not use a welder with an AC output unless it is equipped with a voltage reduction device. Use equipment with a DC output.
14. Wear a safety harness to prevent falling if working above floor level.
15. Keep all panels and covers securely in place.

*PLEASE NOTE THAT ANY MODIFICATION TO THE OPERATION OF THE MACHINE IN ANY PART SMALL OR LARGE MAY INCREASE THE RISK OF HARM OR SAFE OPERATION AND VOID WARRANTY.

SAFETY PRECAUTIONS

FOLLOW THE BELOW PRECAUTIONS CAREFULLY. IMPROPER USE OF ANY WELDER MAY RESULT IN SERIOUS INJURY OR DEATH.

1. **ONLY CONNECT WELDER TO A POWER SOURCE FOR WHICH IT IS DESIGNED.**
The specification plate on the welder lists this information. When welding outdoors, only use an extension cord which is designed for outdoor use.
2. **ONLY OPERATE WELDER IN DRY LOCATIONS AND ON A STABLE WORK SURFACE (IE: CONCRETE OR MASONRY FLOOR)**
Keep the area clean and uncluttered.
3. **KEEP ALL COMBUSTIBLES AWAY FROM THE WORK AREA.**
4. **DO NOT WEAR CLOTHING THAT HAS BEEN CONTAMINATED WITH GREASE, OIL OR FLAMMABLE LIQUIDS.**
5. **KEEP CABLES DRY AND FREE FROM OIL AND GREASE AND NEVER COIL AROUND SHOULDERS.**
6. **SECURE WORK WITH CLAMPS OR OTHER MEANS. Do not over-reach when working.**
7. **NEVER STRIKE AN ARC ON A COMPRESSED GAS CYLINDER.**
8. **DON'T LET THE INSULATED PORTION OF THE ELECTRODE HOLDER/TORCH TOUCH THE WELDING GROUND WHILST CURRENT IS FLOWING.**
9. **SHUT OFF POWER AND UNPLUG MACHINE WHEN REPAIRING OR ADJUSTING. Inspect before every use. Only use an appropriate part provided by an authorized Service agent/Distributor.**
10. **FOLLOW ALL MANUFACTURERS RULES ON OPERATING SWITCHES AND MAKING ADJUSTMENTS.**
11. **ALWAYS WEAR PROTECTIVE CLOTHING WHEN WELDING/GRINDING. This includes: Long sleeved shirt (leather sleeves), a protective apron with no pockets, long protective pants and suitable footwear (ie: steel toe boots) When handling hot materials, wear suitably insulated gloves.**
12. **ALWAYS WEAR A WELDING HELMET WITH PROTECTIVE LENSES WHEN WELDING. Arc rays may cause blindness. Wear a protective cap beneath the helmet.**
13. **WHEN WELDING OVERHEAD, BEWARE OF HOT METAL DROPPINGS. Always protect the head, hands, feet and body.**
14. **KEEP A FIRE EXTINGUISHER CLOSE BY AT ALL TIMES.**
15. **DO NOT EXCEED THE DUTY CYCLE OF THE MACHINE. The rated duty cycle of the machine is the percentage of a ten minute period that the machine can be safely operated at a given output (amps) setting.**
16. **KEEP CHILDREN AWAY FROM WORK AREA. Ensure that when not in use, equipment is out of reach of children.**
17. **GUARD AGAINST ELECTRIC SHOCK. Do not work or operate when tired or under the influence of drugs and or alcohol. Do not let the body come into contact with grounded surfaces.**

***PLEASE NOTE THAT ANY MODIFICATION TO THE OPERATION OF THE MACHINE IN ANY PART SMALL OR LARGE MAY INCREASE THE RISK OF HARM OR SAFE OPERATION AND VOID WARRANTY.**

ARC RAYS

ARC RAYS can burn eyes and skin; NOISE can damage hearing. ARC RAYS from the welding process produce an intense heat and strong ultraviolet rays that can burn eyes and skin. Noise from some processes can damage hearing.

1. Use a Welding Helmet or Welding Face Shield fitted with proper shade or filter for the application, to protect your face and eyes when welding or watching someone else weld.
2. Wear approved safety glasses. Side shields recommended.
3. Use protective screens and/or barriers, to protect others from flash and glare and warn others not to watch the arc.
4. Wear protective clothing made from durable, flame resistant material (eg: wool and leather) and appropriate foot protection.
5. Use approved ear plugs or ear muffs if the noise level is high.
6. Never wear contact lenses while welding.

FUMES AND GASES

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

1. Keep your head out of the path of fumes as best you can. Do not breathe the fumes if it can be avoided.
2. If inside, ventilate the area and/or use exhaust at or as close to the arc as possible to remove the welding fumes/gases.
3. If ventilation is poor, use an approved air supplied or filtered respirator.
4. Read the Material Safety Data Sheets (MSDS's) and the manufacturer's instruction for metals, consumables, coatings and cleaners.
5. Work in confined space only if it is well ventilated, or while wearing an air supplied or filtered respirator. Shielding gases used for welding can displace air causing injury or death. Be sure the breathing air is safe.
6. Do not weld in locations near flammable liquids (eg. degreaser, paint, aerosol storage or cleaning chemicals), as the heat and rays of the arc could react with vapours to form highly toxic and irritating or flammable gases.
7. 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 if necessary, while wearing an air supplied or filtered respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.
8. Protect yourself and others from flying sparks and hot metal.
9. Do not weld where flying sparks can strike flammable material.
10. Remove all flammables within a 35ft (10.7m) of the welding arc. If this is not possible, tightly cover them with an approved containment method.

FIRE & EXPLOSIONS

The WELDING operation can potentially cause fire or an explosion as Sparks and spatter are emitted from the welding arc. The flying sparks and hot metal, weld spatter, hot workpiece and hot equipment have potential to cause fires and burns. Accidental contact of the wire or electrode to grounded metal objects may cause sparks, overheating or fire.

1. Protect yourself and others from flying sparks and hot metal.
2. Do not weld where flying sparks can strike flammable material.
3. Remove all flammables within 35ft (10.7m) of the welding arc. If this is not possible, tightly cover them with an approved containment method.
4. Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
5. Watch for fire, and keep a fire extinguisher nearby.
6. Be aware that welding on a ceiling, floor, bulk-head or partition can cause a fire on the hidden side.
7. Do not weld on closed containers such as tanks or drums.
8. Connect the work cable to the workpiece as close to the welding area as practical, to prevent welding current from traveling long, possibly unknown paths and causing electric shock and fire hazards.
9. Do not use a welder to thaw frozen pipes.

SPARKS AND HOT METAL

Chipping and grinding can cause flying metal. As welds cool, they can throw off slag.

1. Wear an approved face shield, safety goggles. Side shields recommended.
2. Wear proper body protection to protect skin.

CYLINDERS

Cylinders can explode if damaged. Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully

1. Protect compressed gas cylinders from excessive heat, mechanical shocks, and arcs.
2. Install and secure cylinders in an upright position by securing them to a stationary support or equipment cylinder rack to prevent falling or tipping.
3. Keep cylinders away from any welding or other electrical circuits.
4. Never allow a welding electrode to touch any cylinder.
5. Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application; maintain them and associated parts in good condition.
6. Turn face away from valve outlet when opening cylinder valve.
7. Keep the protective cap in place over the valve except when the cylinder is in use or connected for use.

PROLOGUE

THANKYOU FOR CHOOSING A TOPGUN WELDING AUSTRALIA PRODUCT

PLEASE READ AND UNDERSTAND THIS MANUAL BEFORE OPERATING THE WELDING PLANT.

PLEASE ONLY USE AUTHORIZED ACCESSORIES AND CHECK FOR CORRECT FITMENT BEFORE USE.

PLEASE DO NOT MODIFY MACHINE IN ANY MANNER AS THIS MAY VOID WARRANTY AND INCREASE CHANCES OF SERIOUS INJURY OR DEATH.

Specifications

MACHINE SPECS

This information can be found on top of the machine.

	200 LCD
Input Voltage (V)	240 A/C
Frequency (Hz)	50 Hz
Output Current Range (A)	30-180A
Rated Duty Cycle (%)	40% @ 200A
Wire Sizes	0.6 -1.2mm
Machine Weight	15.5 kg
Machine Dimensions (mm)	480x310x430
Warranty	3 Years

INVERTER DC MIG WELDER					
200 LCD PFC					
PART NO.	TGVMIG200LCD	STANDARD	EN60974-1:2012		
					U₁=240V
	25A/15.3V-200A/24V				U₀=67V
	X	40%	60%	100%	I_{1max}=28A
	I ₂	200A	165A	130A	I_{1eff}=17.7A
U ₂	24V	22.3V	20.5V		
	10A/10.4V-200A/18V				U₀=14V
	X	40%	60%	100%	I_{1max}=22A
	I ₂	200A	165A	130A	I_{1eff}=13.9A
U ₂	18V	16.6V	15.2V		
	10A/20.4V-200A/28V				U₀=14V
	X	40%	60%	100%	I_{1max}=32A
	I ₂	200A	165A	130A	I_{1eff}=20.2A
U ₂	28V	26.6V	25.2V		
		1~50-60Hz	IP23	H	AF 15.5kg

MIG/MAG Welding Technique

For those who have not yet done any welding, the simplest way to commence is to run beads on a piece of scrap plate. Use a mild steel plate, around 6mm thick.

Clean any paint, loose scale or other contaminants from the plate, and set it firmly on the workbench so that welding can be carried out in the downhand position.

Make sure that the work clamp is making good electrical contact with the work piece, either directly or through the work table.

For light gauge material, always clamp the work lead directly to the job, otherwise a poor circuit may result.

The Welder

Place yourself in a comfortable position before beginning to weld. Get a seat of suitable height and do as much work as possible sitting down comfortably.

Relax and you will find that the job becomes much easier. You can add much to your peace of mind by wearing a leather apron and gauntlets. You won't be worrying then about being burnt or sparks setting your clothes alight.

Place the work so that the direction of welding is across, rather than to or from your body. The handpiece lead should be clear of any obstructions so that you can move your arm freely along as the wire burns down. If the lead is slung over your shoulder, it allows greater freedom of movement and takes a lot of weight off your hand.

Be sure the insulation on your cable and hand piece is not faulty, otherwise you are risking an electric shock.

Getting Started

WELDING 101

Striking An Arc

Practice this on a piece of scrap plate before going on to more exacting work. The easiest welding procedure for the beginner to experiment with MIG welding is in the flat position. The equipment is capable of flat, vertical and overhead positions.

Two different welding processes are covered in this section (GMAW and FCAW), with the intention of providing the very basic concepts in using the Mig mode of welding, where a welding gun is hand held, and the electrode (welding wire) is fed into a weld puddle, and the arc is shielded by an inert welding grade shielding gas or inert welding grade shielding gas mixture.

GAS METAL ARC WELDING (GMAW): This process, also known as MIG welding, CO2 welding, Micro Wire Welding, short arc welding, dip transfer welding, wire welding etc., is an electric arc welding process which fuses together the parts to be welded by heating them with an arc between a solid continuous, consumable electrode and the work. Shielding is obtained from an externally supplied welding grade shielding gas or welding grade shielding gas mixture.

The process is normally applied semi-automatically; however the process may be operated automatically and can be machine operated. The process can be used to weld thin and fairly thick steels, and some non-ferrous metals in all positions

Arc Length

The securing of an arc length necessary to produce a neat weld, soon becomes almost automatic.

You will find that a long arc produces more heat. A very long arc produces a crackling or spluttering noise and the weld metal comes across in large, irregular blobs. The weld bead is flattened and spatter will increase.

A short arc is essential if a high quality weld is to be obtained although if it is too short, there is the danger of it being blanketed by slag and the electrode tip being solidified in.

If this should happen, give the electrode a quick twist back over the weld to detach it. Contact or "touch-weld" electrodes do not stick in this way, and make welding much easier.

Rate of Travel

After the arc is struck, your next concern is to maintain it, and this requires moving the electrode tip towards the molten pool at the same rate as it is melting away. At the same time, the electrode has to move along the plate to form a bead. The electrode is directed at the pool at about 20° from the vertical plane.

The rate of travel has to be adjusted so that a well-formed bead is produced. If the travel is too fast, the bead will be narrow and strung out and may even be broken up into individual globules. If the travel is too slow, the weld metal piles up and the bead will be too large.

Installation

AND OPERATION

Make sure that the supply voltage matches the voltage requirements indicated. (15% deviation is allowed)

If you increase the length of the leads, be aware that possible damage may occur with excessively long leads.

-Ground the unit with a minimum of 6mm²(10 gauge) wire to the earth ground as the drawing.

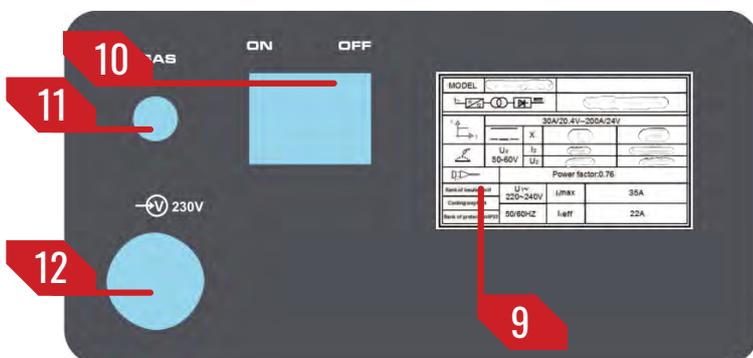
-Connect the earth lead connector to the negative (-) quick-connection terminal, and turn clockwise to tighten.

-Connect the electrode clamp holder to the positive (+) quick-connection terminal and turn clockwise to tighten.

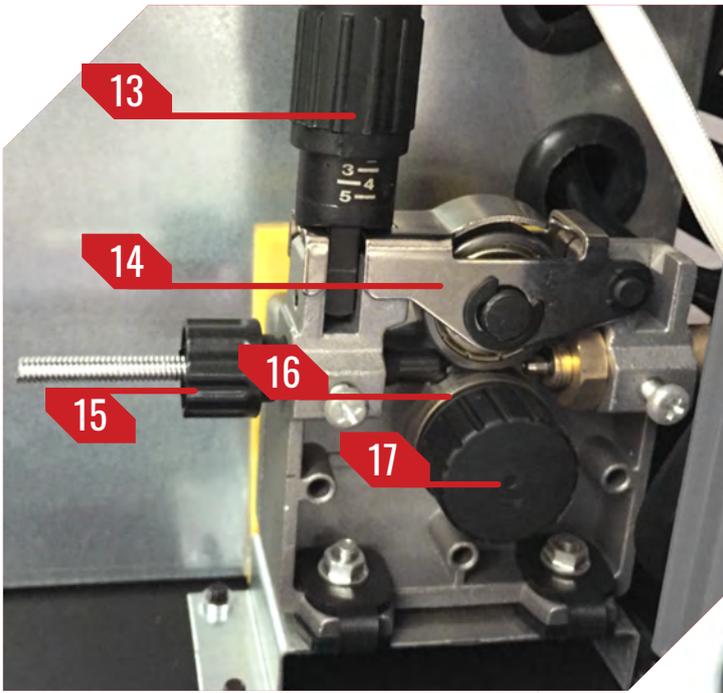
CAUTION: Make sure the above connection for direct polarity welding; for inverse/reverse polarity, invert the connection: earth lead CONNECTOR to the quick-connection positive (+) terminal and the electrode holder clamp connector to the negative (-) terminal.



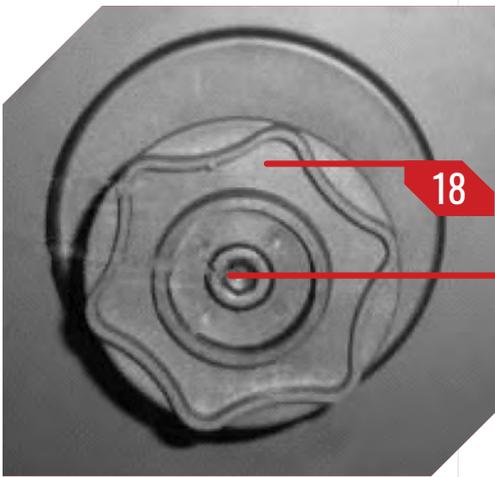
- 1 Left Knob/Welding Mode Selection Knob
- 2 Left Button/Home Button
- 3 Right Knob/ Parameter Adjust Knob
- 4 Right Button/Parameter Adjust Button
Wire Speed/Diameter/Inductance/2T/4T/HOT START/ARC FORCE
- 5 MIG Torch "Euro Style" Connection Socket
- 6 Positive (+) Welding Output Terminal
- 7 Negative (-) Welding Output Terminal
- 8 Polar Conversion Line



- 9 Rating Label
- 10 Power Switch
- 11 Welding Gas Inlet
- 12 Power Cable



- 13 Wire Tension Adjustment
- 14 Wire Tension Arm & Support
- 15 Wire Input Roller
- 16 Wire Roller Retainer
- 17 Wire Spool Retainer
- 18 Spool Brake Adjustment
- 19 Welding Gas Inlet



- 20 Torch Trigger Switch
- 21 Torch "Euro" Connector
- 22 Workpiece Earth Clamp
- 23 Earth Lead Quick Connector
- 24 Conical Gas Nozzle/Shroud
- 25 Welding Tip
- 26 Tip Adaptor
- 27 Gas Diffuser

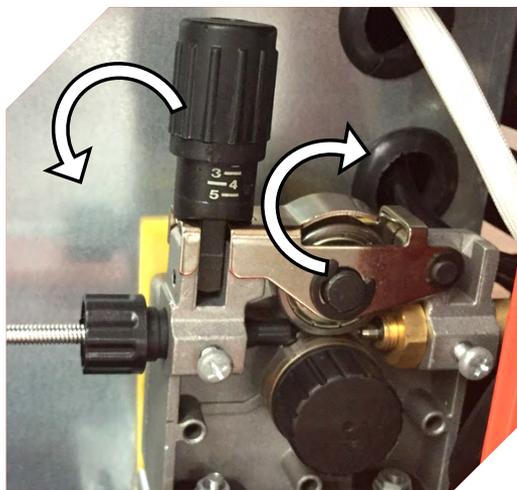
MIG Welding Set Up & Operation

Fitting the spool

1. open the cover door for the wire feed compartment. Remove the wire spool retainer (18) by threading off anti clockwise.
2. fit the 200mm diameter wire spool to the spool holder, ensuring the end of the wires exits towards the wire feeder from the bottom of the spool. Refit the wire spool retainer (18) and tighten finger tight.
3. set the spool brake tension by rotating the adjustment screw (19) using an Allen wrench. Clockwise to increase brake tension, anti-clockwise to decrease brake tension. The spool brake tension should be set so that the spool can rotate freely, but does not continue to rotate once the wire feed stops. This may need to be adjusted as the wire is used up and the spool weight decreases.

Loading wire feeder

1. release the wire feeder tension arm (14) by pivoting the wire feed tension adjuster (13) as pictured below



2. Check the wire drive roller (16) groove matches the selected MIG wire type and size. The drive roller will have two different sized grooves, the size of the groove in use is stamped on the side of the drive roller. For flux cored 'soft' wire ,such as that used in gasless MIG welding, the drive roller groove has a serrated profit. For solid 'hard' MIG wire, the roller groove has a 'v' shaped profile.
3. The drive roller(16) is removed by threading the drive roller retainer(17) off in the anti-clockwise direction. Once the correct drive roller profile is selected, re-fit the drive roller.
4. Thread the MIG wire from the spool through the input guide tube(15), through the roller groove and into the outlet guide tube.
5. Replace the tension arm (14) and the tension adjustment (13). Double check the wire has located correctly in the drive roller groove.
6. Adjusting wire feed tension: this is accomplished by winding the knob on the wire tension adjustment arm (14). Clockwise will increase tension, anti-clockwise will decrease tension. There is a numbered scale on the tensioner to indicate the position. Ideal tension should be as little as possible, while maintaining a consistent wire feed with no drive roller slippage. Check all other possible causes of slippage, such as; incorrect/ worn drive roller, worn/ damaged torch consumables, blocked/ damaged torch feed liner, before increasing feed tension.



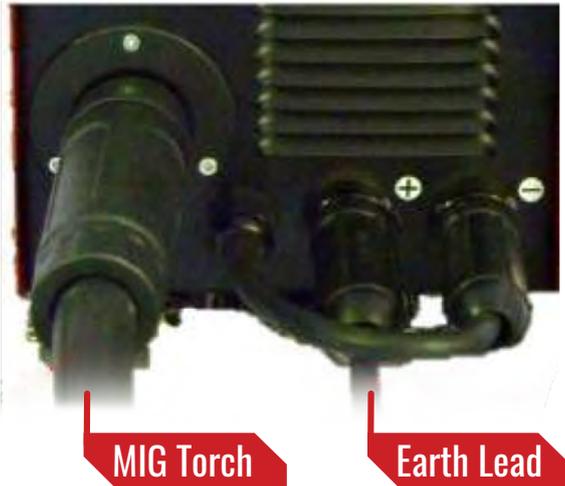
WARNING! - Before changing the feed roller or wire spool, ensure that the mains power is switched off



WARNING! - The use of excessive feed tension will cause rapid and premature wear of the drive roller, the support bearing and the drive motor.

Setup for Gasless MIG welding operation

1. Connect the MIG Torch Euro Connector (21) to the torch socket on the front of the welder (5). Secure by firmly hand tightening the threaded collar on the MIG Torch Euro Connector clockwise.
2. Check that the correct flux cored, gasless wire, matching drive roller (16) and welding tip (25) are fitted
3. Connect Torch Connection Power Lead (8) to the negative (-) welding output terminal (7).
4. Connect Earth Lead Quick Connector (23) to the positive (+) output welding terminal (6). See picture below.

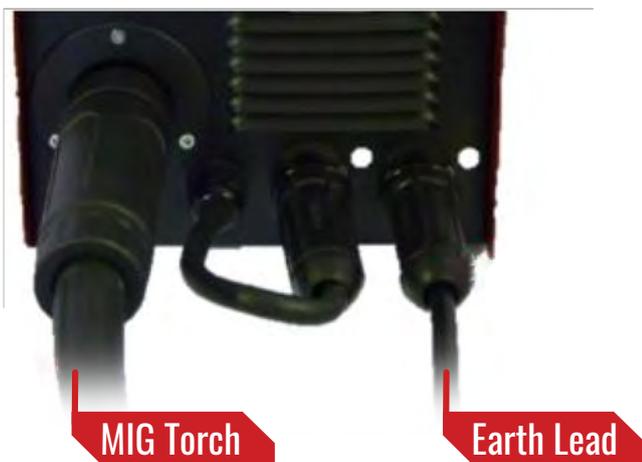


5. Connect Earth Clamp (22) to the work piece. Contact with workpiece must be strong contact with clean, bare metal, with no corrosion, paint or scale at the contact point.

Setup for Gas Shielded MIG welding operation

Note - Gas shielded MIG welding requires a shielding gas supply, gas regulator and gas shielded MIG wire. These accessories are not supplied standard with the 205 LCD

1. Connect the MIG Torch Euro Connector (21) to the torch socket on the front of the welder (5). Secure by firmly hand tightening the threaded collar on the MIG Torch Euro Connector clockwise.
2. Check that the correct gas shielded wire, matching drive roller (16) and welding tip (25) are fitted
3. Connect Torch Connection Power Lead (8) to the positive (+) welding output terminal (6)
4. Connect Earth Lead Quick Connector (23) to the negative (-) output welding terminal (7). See picture below



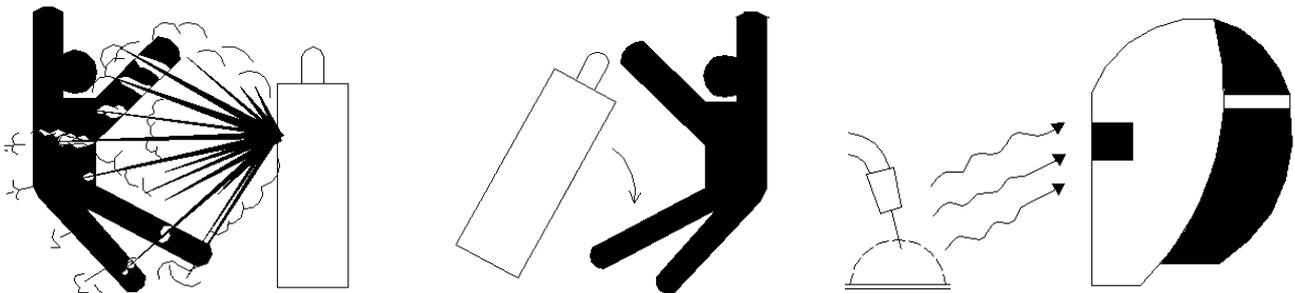
5. Connect Earth Clamp (22) to the work piece. Contact with workpiece must be strong contact with clean, bare metal, with no corrosion, paint or scale at the contact point.
6. Connect the gas regulator (optional) and gas line to the inlet on the rear panel (11). If the regulator is equipped with a flow gauge, the flow should be set between 8 – 15 L/minute depending on application. If gas regulator is not equipped with a flow gauge, adjust pressure so gas can just be heard coming out of the torch conical nozzle (24). It is recommended that gas flow is checked again, just prior to starting weld This can be done by triggering the MIG torch with the unit powered up.

Connection of Shield Gas

Connect the CO₂ hose, which come from the wire feeder to the copper nozzle of gas bottle. The gas supply system includes the gas bottle, the air regulator and the gas hose, the heater cable should be inserted into the socket of machine's back, and use the hose clamp to tighten it to prevent leaking or air-in, so that the welding spot is protected.

Please note:

1. Leakage of shielding gas affects the performance of arc welding.
2. Avoid the sun shine on the gas cylinder to eliminate the possible explosion of gas cylinder due to the increasing pressure of gas resulted from the heat.
3. Ensure no person is up against the regulator, before the gas release or shut the gas output.
4. The gas output volume meter should be installed vertically to ensure the precisely measuring.
5. Before the installation of gas regulator, release and shut the gas for several time in order to remove the possible dust on the sieve to avail the gas output.



User Interface

Controls for MIG welding

1. Switch the machine on using the mains power switch (10). Wait 5 seconds for the digital control program to load up. Press the Left button (2) to mode selection, and select the mode by Left knob (1), and press the Left knob (1) to confirm the selection.



2. The multi-function digital display will show two numbers. On the left is the preset welding voltage, on the right is the preset wire feeding speed. These values are adjusted by rotating the Right knob (3). Because of the synergic digital programming, both the voltage and the wire speed will adjust together.



3. To adjust the voltage independently, Rotate Left Knob (1) to adjust the welding voltage. This will change and give the display screen as below.

3. To adjust the voltage independently, Rotate Left Knob (1) to adjust the welding voltage. This will change and give the display screen as below.



Then use the Left knob (1) to adjust the welding voltage -5~+5V from the standard synergic setting. This will not change the wire speed. It is recommended for ease of use that the wire feed target speed is adjusted first and then the voltage setting fine-tuned if necessary.

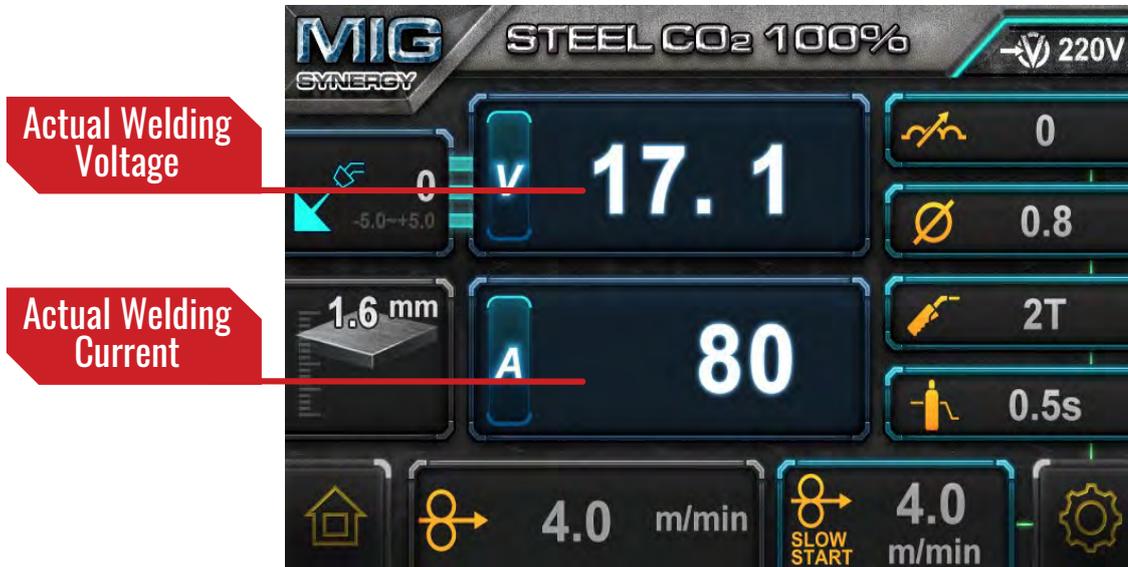
4. Press the Right button (4) again to adjust the inductance of the welding arc. Use the Right Knob (3) to adjust the inductance from -10 (less inductance) to +10 (more inductance).



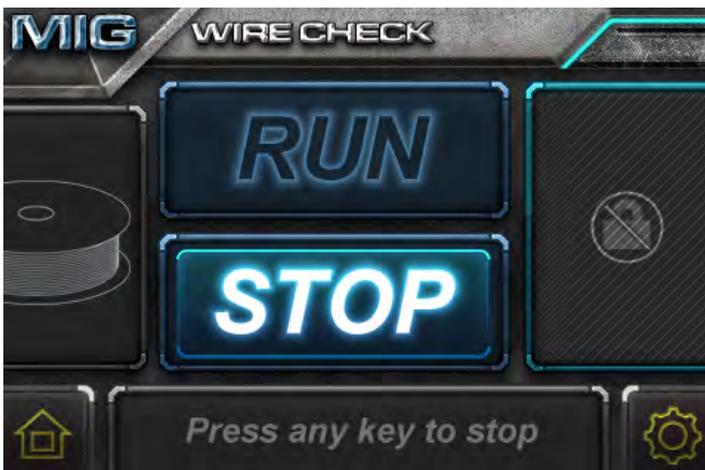
A quick note regarding inductance – this effectively adjusts the intensity of the welding arc. Inductance makes the arc 'softer', with less weld spatter. Higher inductance gives a stronger driving arc which can increase penetration. Optimum inductance settings are affected by many welding variables such as: material type, shielding gas joint type, welding amperage, wire size.

The default value of inductance is 10, it is recommended to keep this value unless the operator is an experienced welder.

5. Press the Right Button (4) again to return to the main wire speed/voltage adjustment screen. If the control panel is not adjusted after 5 seconds it will also return to the primary MIG adjustment mode. Or press the Left/Right (1)/(3) to return to the primary MIG adjustment mode directly.
6. During welding the screen display will change to show the actual welding voltage and welding current as pictured below



7. 2T/4T function: press the Right Button (4) ,2T/4T Selection Switch to move between 2T and 4T modes. 4T operation means the trigger is pulled once to start welding and pulled again to stop. This is useful for long weld joints. 2T mode, the trigger must be depressed and held during welding.
8. Wire check function: press the Right Button (4) again to enter to the wire check mode, rotate Right knob (3) to select ON/OFF



Feeding the wire

1. Remove the conical nozzle (24) and the welding tip (25) from the torch. The conical nozzle is removed by turning clockwise and pulling off simultaneously. The welding tip threads out of the tip adapter.
2. With the wire feed cover door still open pull the torch trigger (20) and check that the wire is feeding smoothly through the feed roller and into the torch
3. Now stretch the torch lead and handle out as straight as possible from the machine and select the wire check function. This will start the feed motor running at full speed to feed the wire through the torch liner.

- Once the wire comes out past the end of the torch neck, pull the torch trigger or press any button on the display to stop the automatic wire feed.
- Close the wire feed cover door
- Replace the welding tip (25) and conical nozzle (24) back onto the torch neck and trim off any excess wire
You are now ready to weld!

MMA/STICK mode operation

Note - MMA/Stick Welding requires an MMA lead set.

- Connect Earth Lead Quick Connector (23) to the negative (-) output welding terminal (7).
- Connect Earth Clamp (22) to the work piece. Contact with workpiece must be strong contact with clean, bare metal, with no corrosion, paint or scale at the contact point
- Connect the ARC/electrode holder lead (optional) to the positive (+) welding output terminal
Note – some welding electrode types utilize different connection polarity. If in doubt, contact the electrode manufacturer
- Turn the machine on at the Mains Power Switch (10).
- Press the Left button (2) to mode selection, and select the mode by Left knob (1), and press the Left knob (1) to confirm the MMA selection.



The screen will show the preset MMA welding current. This can be adjusted by rotating the Welding Parameter Adjustment Knob (3).

- When welding the display will change to show actual welding volts and amperage.
- VRD: VRD stands for Voltage Reduction Device. The open circuit voltage at the output terminals of an MMA welding power source is high enough to potentially cause an electric shock to a person if they come into contact with the live terminals. VRD is a safety system that reduces this open circuit voltage to a level where the risk of electric shock is minimized. It does, however, make striking of the arc more difficult.

Lift TIG operation

Note - TIG operation requires an argon gas supply, TIG torch, consumables and gas regulator. These accessories are not included standard with the MIG-GS/GD; contact your supplier for further details.

- Connect Earth Lead Quick Connector (23) to the positive (+) output welding terminal (6).

2. Connect Earth Clamp (22) to the work piece. Contact with workpiece must be strong contact with clean, bare metal, with no corrosion, paint or scale at the contact point.
3. Connect the TIG torch power lead to the negative (-) welding output terminal (7).
4. Connect the gas supply to the TIG torch.
5. Turn the machine on at the Mains Power Switch (10).
6. Press the Left button (2) to mode selection, and select the mode by Left knob (1), and press the Left knob (1) to confirm the LIFT TIG selection.



The screen will show the preset LIFT TIG welding current. This can be adjusted by rotating the Right Knob (3)

7. When welding the display will change to show actual welding volts and amperage.

RPWMIG1400i Welding Settings Quick Reference Chart

Welding Parameter		Material Thickness								
Welding Material	Wire Type	Polarity	Wire Size	Shielding Gas	1.0mm	2.0mm	3.0mm	4.0mm	5.0mm	6.0mm
Mild Steel	Self Shielded Flux Core	Torch Negative (-)	0.8mm	N/A	-	14.0/2.7	16.2/3.0	18.5/6.1	24.5/9.0	-
Mild Steel	Self Shielded Flux Core	Torch Negative (-)	0.9mm	N/A	-	16.3/2.0	18.8/3.6	20.2/4.1	21.0/7.5	21.6/9.0
Mild Steel	Solid Wire ER70S-6	Torch Positive (+)	0.6mm	75% Argon + 25% CO2	15.9/3.4	19.5/7.8	-	-	-	-
Mild Steel	Solid Wire ER70S-6	Torch Positive (+)	0.8mm	75% Argon + 25% CO2	12.8/2.0	14.1/3.3	17.5/6.6	20.0/8.2	21.0/9.0	21.0/9.0
Mild Steel	Solid Wire ER70S-6	Torch Positive (+)	0.6mm	100% CO2	14.2/2.1	19.8/8.1	-	-	-	-
Mild Steel	Solid Wire ER70S-6	Torch Positive (+)	0.8mm	100% CO2	13.6/2.3	14.4/3.6	18.4/4.2	21.1/8.5	22.6/9.0	-

Use this chart as a guide only, as optimal settings will vary with joint type and operator technique. Cells left blank are not a recommended configuration.

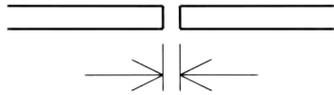
Joint Preparation

In many cases, It will be possible to weld steel sections without any special preparation. For heavier sections and for repair work on castings, etc, it will be necessary to cut or grind an angle between the pieces being joined to ensure proper penetration of the weld metal and to produce structurally sound joints.

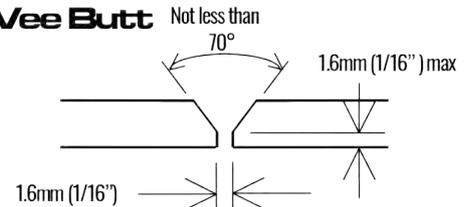
In general, surfaces being welded should be clean and free of rust, scale, dirt, grease, etc. Slag should be removed from oxy-cut surfaces. Typical joint designs are shown in Below

Open Square Butt Joint

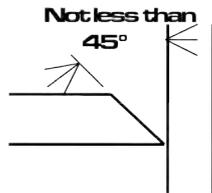
Gap varies from 1.6mm (1/16") to 4.8mm (3/16") depending on plate thickness



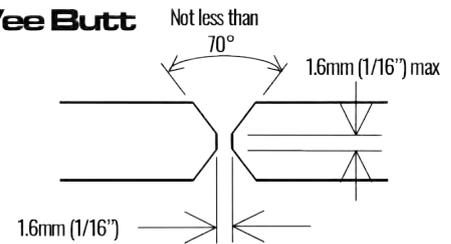
Single Vee Butt Joint



Single Vee Butt Joint



Double Vee Butt Joint



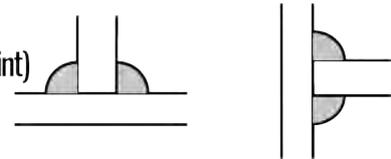
Lap Joint



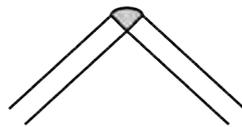
Fillet Joint



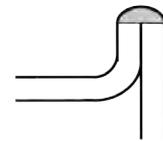
Tee Joints (Fillet both sides of the joint)



Corner Weld



Edge Joint



Plug Weld



Plug Weld



Welding Position

The electrodes dealt with in this publication can be used in most positions, i.e. they are suitable for welding in flat, horizontal, vertical and overhead positions. Numerous applications call for welds to be made in positions intermediate between these.

Arc Welding Practice

The techniques used for arc welding are almost identical regardless of what types of metals are being joined. Naturally enough, different types of electrodes would be used for different metals as described in the preceding section.

Accessories and Consumables

PARTS AND SPARES

HAND PIECE

Earth Clamps	300 Amp 400 Amp 500 Amp	ACCLP300 ACCLP400 ACCLP500
Magnetic Earth Clamps	300 Amp 800 Amp	MAWEC300 MAWEC800
Electrode Holders -Twist Lock	200 Amp 300 Amp 400 Amp	ACEHTL200 ACEHTL300 ACEHTL400
Electrode Holders -Tong Type	200 Amp 300 Amp 400 Amp 500 Amp	ACEHTT200 ACEHTT300 ACEHTT400 ACEHTT500

ELECTRODES

6013 General Purpose	2.5mm 0.5kg pack 3.2mm 0.5kg pack	CETG6013GP0525 CETG6013GP0532
316L-16 Stainless Steel	2.5mm 0.5kg pack 3.2mm 0.5kg pack	CETG316L160525 CETG316L160532
312-16 Dissimilar Metals	2.5mm 0.5kg pack 3.2mm 0.5kg pack	CETG312160525 CETG312160532
7016 Low Hydrogen	2.5mm 0.5kg pack 3.2mm 0.5kg pack	CETG70160525 CETG70160532
Hard Facing	3.2mm 0.5kg pack	CETGHF0532
Cast Iron	Combo pack Contains: 5 x 2.4MM 5 x 3.2mm 10 x 4.0mm	CETGNIFECOMBO

ACCESSORIES

Chipping Hammer	Rubber Handle Spring Handle	ACMCH1 ACMCH2
Welding Pliers	8" Welding Pliers	TGACPLIER
Wire Brush	3 Row Steel 4 Row Steel 3 Row Stainless 4 Row Stainless	ACB3 ACB4 ACB421 ACB420

HELMETS



Model	Part No.
Topgun Warrior Series Auto Darkening Welding Helmet	Gloss Black -TGHWARGBLK Blue Inferno -TGHWARBLUINF Red Inferno -TGHWARINFERNO Carbon Fibre -TGHWARCFIBRE
Warrior Helmet Harness	TGTHH
Warrior Helmet Inner Lens Pk5	TGHLWI
Warrior Helmet Outer Lens Pk5	TGHLWO



Model	Part No.
Topgun TITAN Series Auto Darkening Welding Helmet	Shadow -TGHTSHAD Cold Carbon -TGHTCCARB Bionix -TGHTBION Envious -TGHTENVI Robot -TGHTROBO Rich Smoke -TGHTRICH
TITAN Helmet Harness	TGTHH
TITAN Helmet Inner Lens Pk5	TGHLTI
TITAN Helmet Outer Lens Pk5	TGHLTO

APPAREL

Welding Jackets	Hi-Vis Welding Jacket	TGACWJHVL TGACWJHVXL TGACWJHVXXL TGACWJHVXXXL
	Professional Leather Welding Jacket	TGACWJRBL TGACWJRBXL TGACWJRBXXL TGACWJRBXXXL
Gloves	Blue/Yellow Welding Gloves	TGACGBY
	Gold/Red Welding Gloves	TGACGRG
	Premium Black/White	TGACGBWP
	Premium Black/Red	TGACGBRP
	Alumized	TGACGAL
Welding Sleeves		TGACSL1
Welding Apron		TGACAP1
Welding Spats		TGACSP1
Welding Hoods	Leather	TGACLHOOD
	Fire retardant cotton	TGACPBHOOD

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