



Manual Guide

MIG 182

1 PH MIG - STICK - TIG







SAFETY INFORMATION

PAGE 1

MACHINE SPECIFICATIONS

PAGE 6

ARC WELDING TECHNIQUES

PAGE 7

INSTALLATION AND OPERATION

PAGE 8

FIXES AND FAULTS

PAGE 11

JOINT TYPES - BASIC THEORY

PAGE 13

ACCESSORIES AND CONSUMABLES

PAGE 14

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.

ELECTRICAL 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 TO 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.

	Mig 182
Input Voltage (V)	240 A/C
Frequency (Hz)	50 Hz
Output Current Range (A)	30-180 A
Rated Duty Cycle (%)	10% @ 180A
	100% @ 57A
Wire Sizes	0.6 - 1.2mm
Machine Weight	13 Kg
Machine Dimensions (mm)	345x245x155
Warranty	3 Years

INVERTER DC MIG WELDER				
MIG 182				
PART NO.				
STANDARD	EN60974-1:2012			
	40A/16V-180A/23V			
	X	10%	60%	100%
	I ₂	180A	73A	57A
	U ₂	23V	17.7V	16.8V
U ₀ =69V	U ₁ =240V	I _{1max} =31.4A	I _{1ref} =10A	
	10A/10.4V-180A/17.2V			
	X	15%	60%	100%
	I ₂	180A	85A	70A
	U ₂	17.2V	13.2V	12.8V
U ₀ =13V	U ₁ =240V	I _{1max} =26A	I _{1ref} =10A	
	10A/20.4V-180A/27.2V			
	X	8%	60%	100%
	I ₂	180A	65A	50A
	U ₂	27.2V	22.6V	22V
U ₀ =69V	U ₁ =240V	I _{1max} =35.5A	I _{1ref} =10A	
1~50-60Hz IP23 H AF 11Kg				

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. Don't hold your body tense. A taut attitude of mind and a tense body will soon make you feel tired.

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

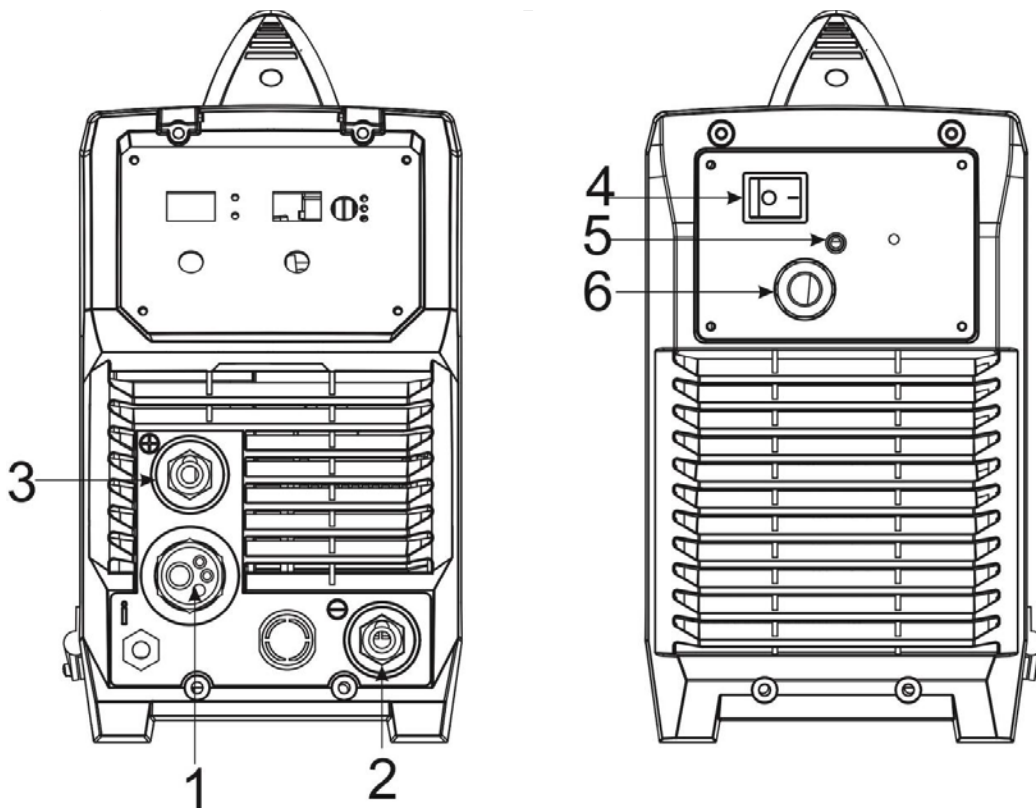
AND OPERATION

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.

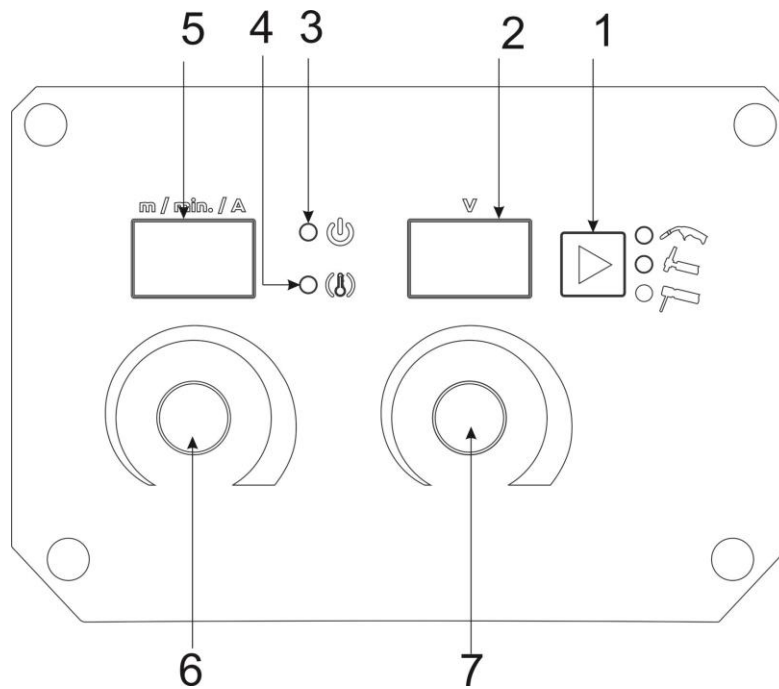
- Ground the unit with a minimum of 6mm² (10 gauge) wire to the earth ground as the drawing.
- Connect the earth lead connector to the negative (-) quick-connection terminal, and turn clockwise to tighten.
- Connect the electrode clamp holder to the positive (+) quick-connection terminal and turn clockwise 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. MIG GUN Connect.
2. Output cathode: When MIG mode, this polarity must connect to the work piece.
3. Output anode: When MMA mode, this polarity connects the welding clamp to the work piece
4. On/off switch: Control the power supply on and off.
5. Shield gas input joint: For connection to gas cylinder
6. Power source input: To connect power source.

Operation



1. Choose welding method key: Pressing this key can choose three kinds material, MIG/MMA/LIFT TIG
2. Voltage display: Welding voltage display when machine is working, Set voltage display when MIG mode before welding.
3. Power Led: Power led is lighted when open the machine.
4. Alarm Led: When the welder is over voltage, under voltage, over current or over heated, the alarm pilot lamp will be on.
5. Current display: Welding Current display when machine is working, Set current display (Amps) before welding.
6. Welding current knob: Set the welding current.
7. Welding voltage knob: Set the welding voltage.

MIG Mode Operation

1. Shielding Gas choice
 - 1) When the wire material is Fe, the shielding gas is 80%Ar + 20%CO₂
 - 2) When the wire material is Ss, the shielding gas is 98%Ar + 2%O₂
 - 3) When the wire material is Al, the shielding gas is 100%Ar.
2. Welding state choice
 - 1) Press the welding method key, choose MIG manner and the MIG LED light will display
 - 2) Adjust the burnback value by burnback knob
 - 3) Press the welding mode key, choose 2T or 4T
3. Adjust Welding parameter
 - 1) The minimum welding current will differ with the different diameters of wire being used.
 - 2) Adjust the current knob, the corresponding welding voltage will be changed automatically
 - 3) When the programmable welding voltage isn't perfect for the operator, the voltage can be changed incrementally by adjusting the knob
 - 4) You can use current setting knob to set the wire speed when the wire speed LED is on.
 - 5) If the operator adjusts the wave control knob, the arc characteristics can be controlled

MMA Mode Operation

1. Press the welding method key, select MMA option and the MMA LED will display.
2. Adjust the current knob to control the welding current.
3. Adjust the welding voltage knob to control the arc force current.

Note. The current display is preset current before welding and is welding current when welding. The voltage display is real voltage.

Operation Environment

- Height above sea level ≤ 1000 M
- Operation temperature range $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$.
- Air relative humidity is below 90% (20°C).
- Ensure the maximum angle of the surface the machine is seated does not exceed 15° .
- Protect the machine against heavy rain and/or excessive heat.
- The content of dust, acid, or corrosive gases in the surrounding air or substance can not exceed normal standard.
- Take care that there is sufficient ventilation during welding. There is at least 30cm free distance between the machine and wall.

Operation Notices

- Read all directions carefully before attempting to use this equipment.
- Ensure that the input is single-phase 50/60Hz, $220\text{V} \pm 10\%$
- Before operation, no concerned people should be left. Do not watch the arc in unprotected eyes.
- Ensure good ventilation of the machine to improve duty ratio.
- Turn off the machine when the operation is completed to economize energy sources.
- When power switch shuts off protectively because of failure, Don't restart it until problem is resolved. This can further damage internal components and circuitry.
- In case of problems, contact your local dealer or authorized maintenance man.

Fixes and Faults

TROUBLESHOOTING

Fault	Resolution
<p>Power indicator lit Fan not running and no Welding input</p>	<p>A. Ensure power is turned off. B. Ensure power is connected properly. C. Heat sensor resistance incorrect or faulty. (24V relay has a fault) D. Power source board (Board has problem, no DC537V output voltage.) i. Silicon bridge circuit faulty or cable is loose. ii. Part of the circuit board burnt. iii. Check cable between switch and power source board. Power board between MOS board. iv. Sub power source on control board faulty. Contact distributor or manufacturer.</p>
<p>Fan running and Fault indicator lit. No output power.</p>	<p>A. Check all components are correctly connected. B. Check if the output terminal has a broken circuit and poor connection. C. Inverter circuit faulty; 1. If Fault indicator lit: MOS board faulty, check and replace. 2. If Fault indicator not lit: i. Transformer on Middle Board faulty, measure primary inductance volume and Q volume of main transformer by inductance bridge. Primary volume of parallel circuit, L=1.2-2.0MH, Q>40 if inductance volume and Q volume is low, replace it. ii. Check the secondary rectifier tube on the transformer. If faulty replace. iii. Feedback circuit in fault.</p>
<p>Power indicator not lit, fan not running and no welding output.</p>	<p>A.) Make sure the power switch is turned off. B.) Make sure power supply and all cables are securely connected and power supply is working.</p>
<p>Power indicator lit, fan not running and no weld- ing output.</p>	<p>A. Connected to incorrect power source has enabled machine protection circuit, connect to correct power supply and check machine for operation. B. Input power not stable (input cable too small) or input cable incorrectly connected to power supply has caused protective circuit to be enabled. Check connections and turn off the machine for 5-10minutes. Turn the machine on and check for operation. C. Turning the machine power switch ON and OFF too quickly has enabled the protection circuit. Turn the machine off for 5-10 minutes. Turn on and check for operation. D. Power supply cables/plugs are loose. Turn Machine off and Check for proper connection of all power supply cables/plugs and check for operation.</p>

Fault	Resolution
<p>Fan running, welding current not stable or out of control, current varying between high and low amperage.</p>	<p>A. 1K potentiometer is faulty, replace B. Output terminal is faulty or poorly connected.</p>
<p>Fan is running and Fault indicator is lit but there is no welding current.</p>	<p>A. Check if components have poor contact. B. Check connection of output terminal and check for broken circuit or poor connection. C. Check voltage between PCB and MOS boards(VH-07) (approx 380V DC) D. If the green indicator light is not lit on MOS board, return to the distributor or agent. E. If the Control circuit faulty, please contact the distributor or agent.</p>
<p>Fan running and Fault indicator is lit but no output current.</p>	<p>A. Over current protection circuit enabled. Turn off the machine and wait 5-10 minutes. Once the Fault indicator is not lit, Inspect machine internally. B. Overheat protection circuit is enabled. Wait 2-3 minutes. C. Inverter circuit in fault. 1.) If the fault indicator is still lit, MOS damaged, check and replace. 2.) If Fault indicator not lit: i. Middle board transformer potentially faulty. Measure primary inductance volume and Q volume of main transformer by inductance bridge. ii. Primary volume is parallel circuit, L=1.2-2.0Mh. Q>40 if inductance and Q volume is low, Replace it. iii. Secondary rectifier tube of the transformer is faulty. Check for faults and replace the rectifier tube. D. Feedback circuit is faulty.</p>

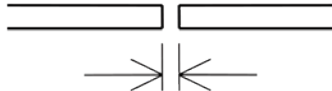
Joint Preparation

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 Figure 6-10.

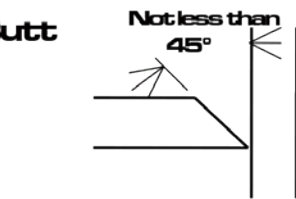
Open Square Butt Joint

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

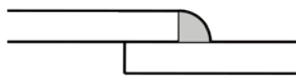


Single Vee Butt Joint

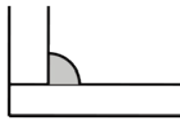
Not less than 45°



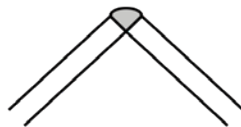
Lap Joint



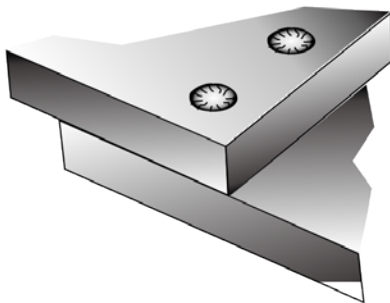
Fillet Joint



Corner Weld

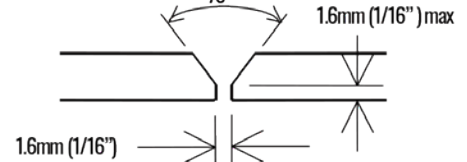


Plug Weld



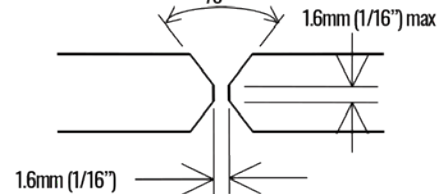
Single Vee Butt Joint

Not less than 70°



Double Vee Butt Joint

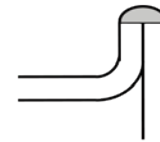
Not less than 70°



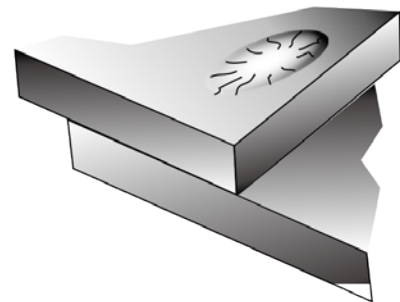
Tee Joints (Fillet both sides of the joint)



Edge Joint



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

Hanpieces		
Binzel Style MB15 Mig Torch	3 Metre 4 Metre	TGTMB1503 TGTMB1504
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

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

