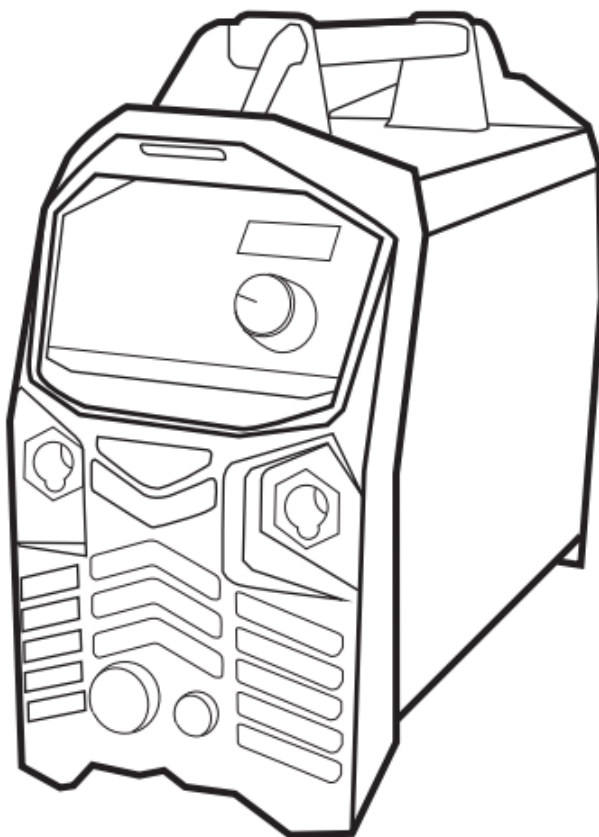


TitanTig 200P AC/DC

Operating Manual



Operating manual EN

Brugsanvisning DA

Gebrauchsanweisung DE

Manual de instrucciones ES

Käyttöohje FI

Manuel d'utilisation FR

Manuale d'uso IT

Gebruiksaanwijzing NL

Bruksanvisning NO

Instrukcja obsługi PL

Manual de utilização PT

Инструкции по эксплуатации RU

Bruksanvisning SV

操作手册 CN

English

TitanTig 200P AC/DC TIG/Stick Welder
Model No. TTIG200PACDC Issue. A 05/16

Welcome:

Thank you for your purchase of your new Weldtronic product. The Weldtronic product range provides you with quality and reliability.

This product is supported by our extensive service network. In the unlikely event of a problem occurring please call your local distributor.

Please record below the details from your product as these will be required for warranty purposes and to ensure you get the correct information should you require assistance or spare parts.

Date purchased: _____

From where: _____

Serial No: _____

(The serial number will be located on the equipment data plate underneath or on the rear panel)

This Operating manual has been designed to instruct you on the correct use and operation of your Weldtronic product. Information is a guide and we assume no liability for its use.

Please take the time to read the entire manual paying particular attention to the Safety Precautions. They will help you to avoid potential hazards that may exist when working with this product.

2 Year Warranty Statement.

- This product is covered by a 2 Year Warranty Parts & Labour Warranty.
- This warranty does not cover freight or goods that have been interfered with.
- All goods in question must be repaired by an authorized repair agent as appointed by Weldtronic.
- Warranty does not cover abuse, misuse, accident, theft or general wear & tear.
- New product will not be supplied unless Weldtronic International P/L has inspected product returned for warranty and agrees to replace the product.
- Product will only be replaced if repair is not possible.
- Warranty will be considered void if the 15 Amp primary power Input Plug is modified or replaced to fit a domestic 10A primary power input Plug.
- Warranty will be considered void if the equipment is powered from an unsuitable engine driven generator.
- Warranty will be considered void if no proof of purchase can be provided.
- Warranty will be considered void if this product has been altered, tampered or used in any manner contrary to customary usage or application.
- Full warranty details and conditions supplied with this product are shown in the back of this manual.

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SAFETY PRECAUTIONS – READ BEFORE USING

These general safety norms cover both arc welding machines and plasma cutting machines unless otherwise noted.

The equipment must only be used for the purpose it was designed for. Using it in any other way could result in damage or injury and in breach of the safety rules. Only suitably trained and competent persons should use the equipment. Operators should respect the safety of other persons.

Prevention against electric shock

- The equipment should be installed by a qualified person and in accordance with current standards in operation. It is the user's responsibility to ensure that the equipment is connected to a suitable power supply. Consult with your utility supplier if required.
- If earth grounding of the work piece is required, ground it directly with a separate cable.
- Do not use the equipment with the covers removed.
- Do not touch live electrical parts or parts which are electrically charged.
- Turn off all equipment when not in use.
- Cables (both primary supply and welding) should be regularly checked for damage and overheating. Do not use worn, damaged, under sized or poorly jointed cables.
- Ensure that you wear the correct protective clothing, gloves, head and eye protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work ground.
- Never touch the electrode if you are in contact with the work ground, or another electrode from a different machine.
- Do not wrap cables over your body.
- Ensure that you take additional safety precautions when you are welding in electrically hazardous conditions such as damp environments, wearing wet clothing, and metal structures. Try to avoid welding in cramped or restricted positions.
- Ensure that the equipment is well maintained. Repair or replace damaged or defective parts immediately. Carry out any regular maintenance in accordance with the manufacturer's instructions.

Safety against fumes and welding gases

- Locate the equipment in a well-ventilated position.
- Keep your head out of the fumes. Do not breathe the fumes.
- Ensure the welding zone is in a well-ventilated area. If this is not possible provision should be made for suitable fume extraction.
- If ventilation is poor, wear an approved respirator. Read and understand the Material Safety Data Sheets (MSDS's) and the manufacturer's instructions for metals, consumable, coatings, cleaners, and de-greasers.
- Do not weld in locations near any de-greasing, cleaning, or spraying operations. Be aware that heat and rays of the arc can react with vapours to form highly toxic and irritating gases.
- Do not weld on coated metals, unless the coating is removed from the weld area, the area is well ventilated, and while wearing an air-supplied respirator. The coatings on many metals can give off toxic fumes if welded.

Prevention against burns and radiation

- Arc rays from the welding process produce intense, visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin.
- Wear an approved welding helmet fitted with a proper shade of filter lens to protect your face and eyes when welding or watching
- Wear approved safety glasses with side shields under your helmet.
- Never use broken or faulty welding helmets.
- Always ensure there are adequate protective screens or barriers to protect others from flash, glare and sparks from the welding area. Ensure that there are adequate warnings that welding or cutting is taking place.
- Wear suitable protective flame resistant clothing. The sparks and spatter from welding, hot work pieces, and hot equipment can cause fires and burns
- Welding on closed containers, such as tanks, drums, or pipes, can cause them to explode.
- Accidental contact of electrode to metal objects can cause arcs, explosion, overheating, or fire.
- Check and be sure the area is safe and clear of inflammable material before carrying out any welding.

Protection against noise

- Some welding and cutting operations may produce noise.
- Wear safety ear protection to protect your hearing.

Protection from moving parts

- When the machine is in operation, keep away from moving parts such as motors and fans. Moving parts, such as the fan, may cut fingers and hands and snag garments.
- Protections and coverings may be removed for maintenance and controls only by qualified personnel, after first disconnecting the power supply cable.
- Replace the coverings and protections and close all doors when the intervention is finished, and before starting the equipment.
- Take care to avoid getting fingers trapped when loading and feeding wire during set up and operation.
- When feeding wire be careful to avoid pointing it at other people or toward your body.
- Always ensure machine covers and protective devices are in operation.

Precautions against fire and explosion

- Avoid causing fires due to sparks and hot waste or molten metal
- Ensure that appropriate fire safety devices are available near the cutting / welding area.
- Remove all flammable and combustible materials from the cutting / welding zone and surrounding areas
- Do not cut/weld fuel and lubricant containers, even if empty. These must be carefully cleaned before they can be cut/welded.
- Always allow the cut/welded material to cool before touching it or placing it in contact with combustible or flammable material.
- Do not work in atmospheres with high concentrations of combustible fumes, flammable gases and dust.
- Always check the work area half an hour after cutting to make sure that no fires have begun

Risks due to magnetic fields

- The magnetic fields created by high currents may affect the operation of pacemakers or electronically controlled medical equipment.
- Wearers of vital electronic equipment should consult their physician before beginning any arc welding, cutting, gouging or spot welding operations.
- Do not go near welding equipment with any sensitive electronic equipment as the magnetic fields may cause damage.

RF Declaration

Equipment that complies with directive 2004/108/EC concerning electromagnetic compatibility (EMC) and the technical requirements of EN60974-10 is designed for use in industrial buildings and not those for domestic use where electricity is provided via the low voltage public distribution system. Difficulties may arise in assuring class A electromagnetic compatibility for systems installed in domestic locations due to conducted and radiated emissions.

In the case of electromagnetic problems, it is the responsibility of the user to resolve the situation. It may be necessary to shield the equipment and fit suitable filters on the mains supply.

LF Declaration

Consult the data plate on the equipment for the power supply requirements.

Due to the elevated absorbance of the primary current from the power supply network, high power systems affect the quality of power provided by the network. Consequently, connection restrictions or maximum impedance requirements permitted by the network at the public network connection point must be applied to these systems.

In this case the installer or the user is responsible for ensuring the equipment can be connected, consulting the electricity provider if necessary.

Materials and their disposal

The equipment is manufactured with materials, which do not contain any toxic or poisonous materials dangerous to the operator.

When the equipment is scrapped, it should be dismantled separating components according to the type of materials.

Do not dispose of the equipment with normal waste. The European Directive 2002/96/EC on Waste Electrical and Electronic Equipment states the electrical equipment that has reached its end of life must be collected separately and returned to an environmentally compatible recycling facility.

Handling of Compressed gas cylinders and regulators

All cylinders and pressure regulators used in welding operations should be handled with care.

Never allow the electrode, electrode holder or any other electrically "hot" parts to touch a cylinder.

Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.

Always secure the cylinder safely.

Never deface or alter any cylinder

EMF Information

Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields Welding current, as it flows through welding cables, will cause electro-magnetic fields. There has been and still is some concern about such fields, However, after examining more than 500 studies spanning 17 years of research, a special blue ribbon committee of the National Research Council concluded that: "The body of evidence, in the committees judgment, has not demonstrated that exposure to power-frequency electric and magnetic fields is a human-health hazard." However studies are still going forth and evidence continues to be examined. Until the final conclusions of the research are reached, you may wish to minimize your exposure to electromagnetic fields when welding or cutting.

To reduce magnetic fields in the workplace, use the following procedures:

- Keep cables close together by twisting or taping them.
- Arrange cables to one side and away from the operator.
- Do not coil or drape cables around your body.
- Keep welding power source and cables as far away from operator as practical.
- Connect work clamp to work piece as close to the weld as possible.

Limitations of warranty declaration regarding machine use

- ▲ ***The welding machine(s) described in this manual are designed exclusively for electrical arc welding with shielding gases Argon, CO₂ or Ar + CO₂ mixture(s) employing TIG technology. Using this machine for other purposes is not allowed. Using this machine in opposition with instructions can put the welder in danger. Damage can occur to the welding machine if not operated according to this manual. Failures and accidents due to such actions are not covered by warranty, nor can the producer be held responsible***

Symbol usage



Means Warning! Watch Out! There are possible hazards with this procedure! The possible hazards are shown in the adjoining symbols.

▲ Marks a special safety message.



*This group of symbols means Warning! Watch Out! Possible **ELECTRIC SHOCK**, **MOVING PARTS**, and **HOT PARTS** hazards.*

Consult symbols and related instructions below for

Arc Welding Hazards

- ▲ The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Safety Standards. Read and follow all Safety Standards.
- ▲ Only qualified persons should install, operate, maintain, and repair this unit.
- ▲ During operation, keep everybody, especially children, away.

ELECTRIC SHOCK can kill.



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

- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not use AC output in damp areas, if movement is confined, or if there is a danger of falling.
- Use AC output ONLY if required for the welding process.
- If AC output is required, use remote output control if present on unit.
- Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tagout input power according to Safety Standards.
- Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.

- Always verify the supply ground — check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
 - When making input connections attach proper grounding conductor first - double-check connections.
 - Frequently inspect input power cord for damage or bare wiring replace cord immediately if damaged — bare wiring can kill.
 - Turn off all equipment when not in use.
 - Do not use worn, damaged, undersized, or poorly spliced cables.
 - Do not drape cables over your body.
 - If earth grounding of the work piece is required, ground it directly with a separate cable.
 - Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
 - Use only Well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
 - Wear a safety harness if working above floor level.
 - Keep all panels and covers securely in place.
 - Clamp work cable with good metal-to-metal contact to work piece or worktable as near the weld as practical.
 - Insulate work clamp when not connected to work piece to prevent contact with any metal object.
 - Do not connect more than one electrode or work cable to any single weld output terminal.
- ▲ SIGNIFICANT DC VOLTAGE exists after removal of input power on inverters.**
- Turn off inverter, disconnect input power, and discharge input capacitors according to instructions in Maintenance Section before touching any parts.

FUMES AND GASES can be hazardous.



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

- Keep your head out of the fumes. Do not breathe the fumes.
- If inside, ventilate the area and/or use exhaust at the arc to remove welding fumes and gases.
- If ventilation is poor use an approved air-supplied respirator.
- Read the Material Safety Data Sheets (MSDSs) and the manufacturers' instructions for metals, consumables, coatings, cleaners, and degreasers.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watch-person nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapours to form highly toxic and irritating gases.

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

ARC RAYS can burn eyes and skin.



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

- Wear a welding helmet fitted with a proper shade of filter to protect your face and eyes when welding or watching (see Safety Standards).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc.
- Wear protective clothing made from durable, flame-resistant material (leather and wool) and foot protection.

WELDING can cause fire or explosion.

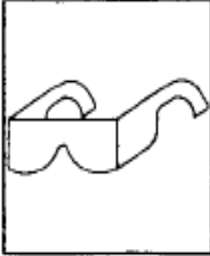


Welding on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot work piece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or lure. Check and be sure the area is safe before doing any welding.

- Protect yourself and others from flying sparks and hot metal.
- Do not weld where flying sparks can strike flammable material.
- Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
- Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
- Watch for fire, and keep a fire extinguisher nearby.
- Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
- Do not weld on closed containers such as tanks, drums, or pipes, unless they are properly prepared according to Safety Standards.
- Connect work cable to the work as close to the welding area as practical to prevent welding current from travelling long, possibly unknown paths and causing electric shock and fire hazards.
- Do not use welder to thaw frozen pipes.
- Remove stick electrode from holder or cut off welding wire at contact tip when not in use.

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

FLYING METAL can injure eyes.



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

BUILDUP OF GAS can injure or kill.



- Shut off shielding gas supply when not in use.
- Always ventilate confined spaces or use approved air-supplied respirator.

HOT PARTS can cause severe burns.



- Do not touch hot parts bare handed.
- Allow cooling period before working on gun or torch.

MAGNETIC FIELDS can affect pacemakers.



- Pacemaker wearers keep away.
- Wearers should consult their doctor before going near arc welding, gouging, or spot welding operations.

NOISE can damage hearing.



Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.

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.

- Protect compressed gas cylinders from excessive heat, mechanical shocks, slag, open flames, sparks, and arcs.
- Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.
- Keep cylinders away from any welding or other electrical circuits.
- Never drape a welding torch over a gas cylinder.
- Never allow a welding electrode to touch any cylinder.
- Never weld on a pressurized cylinder - explosion will result.
- Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application: maintain them and associated parts in good condition.
- Turn face away from valve outlet when opening cylinder valve.
- Keep protective cap in place over valve except when cylinder is in use or connected for use

FIRE OR EXPLOSION hazard.



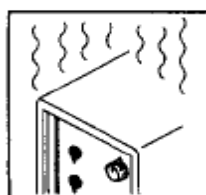
- Do not install or place unit on, over, or near combustible surfaces.
- Do not install unit near flammables.
- Do not overload building wiring — be sure power supply system is properly sized, rated, and protected to handle this unit.

FALLING UNIT can cause injury.



- Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
- Use equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit

OVERUSE can cause OVERHEATING



- Allow cooling period; follow rated duty cycle
- Reduce current or reduce duty cycle before starting to weld again.
- Do not block or filter airflow to unit.

STATIC (ESD) can damage PC boards.



- Put on grounded wrist strap BEFORE handling boards or parts.
- Use proper static-proof bags and boxes to store, move, or ship PC boards.

MOVING PARTS can cause injury.



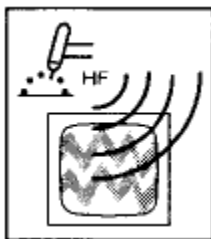
- Keep away from moving parts.
- Keep away from pinch points such as drive rolls.

WELDING WIRE can cause injury.



- Do not press gun trigger until instructed to do so.
- Do not point gun toward any part or the body, other people, or any metal when threading welding wire.

H.F. RADIATION can cause interference.



- High frequency (HF,) can interfere with radio, navigation, safety services, computers, and communications equipment.
- Have only qualified persons familiar with electronic equipment perform this installation.
- The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
- If notified by the FCC about interference, stop using the equipment at once.
- Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut. Keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.

ARC WELDING can cause interference.



- Electromagnetic energy can interfere with sensitive electronic equipment such as computers and computer-driven equipment such as robots.
- Be sure all equipment in the welding area is electromagnetically compatible.
- To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor.
- Locate welding operation 100 meters from any sensitive electronic equipment.
- Be sure this welding machine is installed and grounded according to this manual.
- If interference still occurs, the user must take extra measures such as moving the welding machine, using shielded cables, using line filters, or shielding the work area

1.0 Preface

1.1 General

Congratulations on choosing TitanTig 200P ACDC Welding Machines. Used correctly, our products can significantly increase the productivity of your welding, and provide years of economical service.

This operating manual contains important information on the use, maintenance and safety of our product. Please read the manual carefully before using the equipment for the first time.

For your own safety and that of your working environment, pay particular attention to the safety instructions in the manual.

For more information on our products, contact us, consult an authorized dealer, or visit our website.

The specifications presented in this manual are subject to change without prior notice.

Important notes

Items in the manual that require particular attention in order to minimize damage and personal harm are indicated with the '**NOTE!**' notation. Read these sections carefully and follow their instructions.

Disclaimer

While every effort has been made to ensure that the information contained in this guide is accurate and complete, no liability can be accepted for any errors or omissions. We reserve the right to change the specification of the product described at any time without prior notice.

1.2 Introduction

TitanTig 200P ACDC welding machine adopts the latest pulse width modulation (PWM) technology and insulated gate bipolar transistor (IGBT) power module, which can change work frequency to medium frequency so as to replace the traditional hulking work frequency transformer with the cabinet medium frequency transformer. Thus, it is characterized with portable, small size, light weight, low consumption and etc.

The parameters of TitanTig 200P ACDC on the front panel all can be adjusted continuously and steplessly, such as start current, crater arc current, welding current, base current, duty ratio, upslope time, downslope time, pre-gas, post-gas, pulse frequency, AC frequency, balance, hot start, arc force and arc length etc. When welding, it takes high frequency and high voltage for arc igniting to ensure the success ratio of igniting arc.

TitanTig 200 PACDC welding machine is suitable for all positions welding for various plates made of stainless steel, carbon steel, alloyed steel, titanium, aluminium, magnesium, cuprum, etc, which is also applied to pipe installment, mould mend, petrochemical, architecture decoration, car repair, bicycle, handicraft and common manufacture.

Product functions

- DC MMA
- DC TIG
- DC Pulse TIG
- AC MMA
- AC TIG
- AC Pulse TIG

DC MMA, polarity connection can be chosen according to different electrodes.

AC MMA, magnetic flow caused by invariable DC polarity can be avoided;

DC TIG, DCEP is used normally (workpiece connected to positive polarity, while torch connected to negative polarity). This connection has many characters, such as stable welding arc, low tungsten pole loss, more welding current, narrow and deep weld;

AC TIG (rectangle wave), arc is more stable than Sine AC TIG. At the same time, you can not only obtain the max penetration and the min tungsten pole loss, but also obtain better clearance effect.

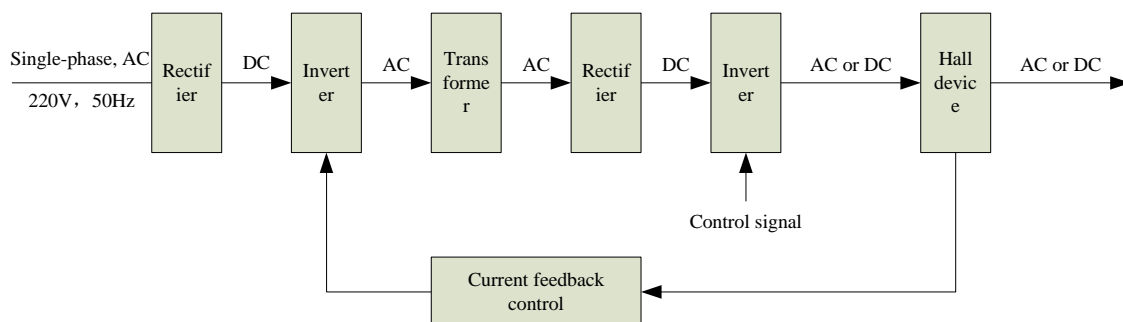
DC Pulsed TIG has the following characters: 1) Pulse heating. Metal in Molten pool has short time on high temperature status and freezes quickly, which can reduce the possibility to produce hot crack of the materials with thermal sensitivity. 2) The workpiece gets little heat. Arc energy is focused. Be suitable for thin sheet and super thin sheet welding. 3) Exactly control heat input and the size of the molten pool. The depth of penetration is even. Be suitable for welding by one side and forming by two sides and all position welding for pipe. 4) High frequency arc can make metal for microlite fabric, eliminate blowhole and improve the mechanical performance of the joint. 5) High frequency arc is suitable for high welding speed to improve the productivity.

Product performance characteristics

- Advanced IGBT inverter technology
- Industry leading control system -MCU control system, responds immediately to any changes
- Inverting frequency of 33~43 kHz greatly reduces the size and weight of the welder.
- Great reduction in magnetic and resistance loss enhances the welding efficiency and energy saving effect.
- Working frequency is beyond the audio range, which almost eliminates noise pollution.
- TIG/DC operation, If the tungsten electrode touches the workpiece when welding, the current will drop to short-circuit current to protect tungsten
- High frequency and high voltage for arc igniting to ensure the success ratio of igniting arc, the reverse polarity ignition ensures good ignition behavior in TIG-AC welding
- Pedal control the welding current
- Double purposes : AC inverter TIG/MMA and DC inverter TIG/MMA, Excellent performance on Al-alloy、carbon steel、 stainless steel、 titanium
- Intelligent protection: over-voltage, over-current, over-heat, when the problems listed before occurred, the alarm lamp on the front panel will be on and the output current will be cut off. It can self-protect and prolong the using life
- Bionic and Ergonomic industrial design.
- Front and rear panels made of high-intensity plastics suitable for working in severe conditions.
- Excellent insulating property.
- Water-resistant, antistatic and anticorrosion design.
- Avoid AC arc-break with special means, even if arc-break occurs the HF will keep the arc stable

Working Principle

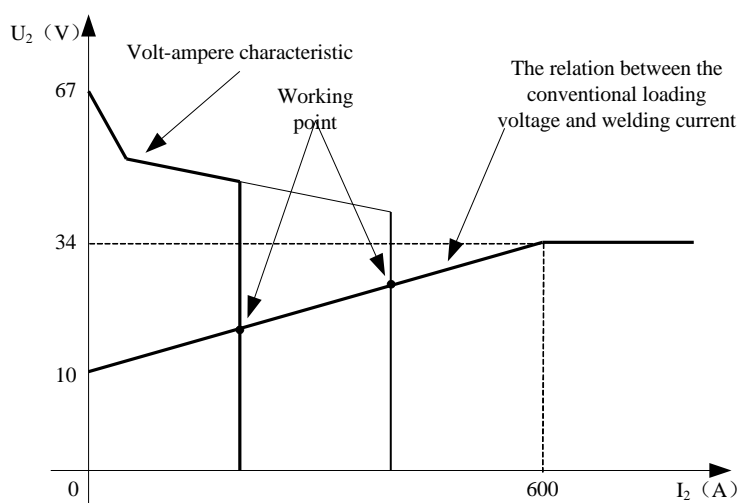
The working principle of TitanTig 200P ACDC welding machines is shown as the following figure. Single-phase 220V work frequency AC is rectified into DC (about 312V), then is converted to medium frequency AC (about 40KHz) by inverter device (IGBT module), after reducing voltage by medium transformer (the main transformer) and rectifying by medium frequency rectifier (fast recovery diodes), then is outputted DC or AC by selecting IGBT module. The circuit adopts current feedback control technology to insure current output stably. Meanwhile, the welding current parameter can be adjusted continuously and steplessly to meet with the requirements of welding craft.



Volt-Ampere Characteristic

TitanTig 200P ACDC welding machine has an excellent volt-ampere characteristic, whose graph is shown as the following figure. The relation between the conventional rated loading voltage U_2 and the conventional welding current I_2 is as follows:

When $I_2 \leq 600\text{A}$, $U_2 = 10 + 0.04I_2(\text{V})$; When $I_2 > 600\text{A}$, $U_2 = 34(\text{V})$.



1.3 Technical Specifications

Models Parameters	TIG 200 AC/DC		TIG 200P AC/DC	
Input power (V)	1~220/230/240±10%		1~220/230/240±10%	
Fre. (HZ)	50/60HZ		50/60HZ	
Rated input current (A)	30.5 (AC TIG) 28.3 (DC TIG)	39.1 (AC MMA) 40.7 (DC MMA)	30.5 (AC TIG) 28.3 (DC TIG)	39.1 (AC MMA) 40.7 (DC MMA)
Rated input power (KW)	6.1 (AC TIG) 6.4 (DC TIG)	8.6 (AC MMA) 8.9 (DC MMA)	6.1 (AC TIG) 6.4 (DC TIG)	8.6 (AC MMA) 8.9 (DC MMA)
Duty cycle @40oC to AS/NZ60974	AC TIG	MMA & DC TIG	AC TIG	MMA & DC TIG
	35% 200A	40% 170A	35% 200A	40% 170A
	60% 155A	60% 140A	60% 155A	60% 140A
	100% 120A	100% 110A	100% 120A	100% 110A
No load voltage (V)	52		52	
Adjustment range of welding current (A)	10~200 (AC TIG)	10~170 (MMA & DC TIG)	10~200 (AC TIG)	10~170 (MMA & DC TIG)
Down slope (S)	0~10		0~10	
Post flow (S)	0~10		0~10	
Pulse frequency (HZ)	/		0.5~200	
AC frequency (HZ)	60		60	
Pulse width range (%)	/		5~95	
Clearance effect (%)	15~50		15~50	
Efficiency (%)	≥85		≥85	
Power factor	0.6		0.6	
Cooling	AF		AF	
Protection class	IP23		IP23	
Insulation class	H		H	
Dimensions of Machine (L×W×H) (mm)	410×146×278		410×146×278	
Weight(Kg)	7.0		7.0	

1.4 Important notes before use



- ▲ **Do not operate or install this equipment without thoroughly reading this manual and the safety precautions contained throughout.**
- Save this manual and keep it handy for reference.
- Disconnect mains of the semi-automatic welding machine after finishing work or before a long break.
- ▲ **DO NOT make any modifications to the machine. It may cause changes in the features and deterioration of technical data.**
- ▲ **Any adaptations to this machine are prohibited and may void the warranty.**
- ▲ **Warranty is void if any damage to the machine is caused by misuse.**
- Acceptable range of ambient temperature is from 10—40°C.
- Acceptable range of humidity is 20°C at 95% humidity.
- Specifications may change without previous notice.



- ▲ Fitted for commissioning



- ▲ Recommended outlet

▲ **Important Note on TitanTig 200P ACDC Input Power Supply**

This unit has been supplied with a downgraded 15 Amp primary supply plug for commissioning purposes only. You are advised to upgrade the input power plug and lead to a minimum of 32A if sustained usage at maximum amperage is desired.

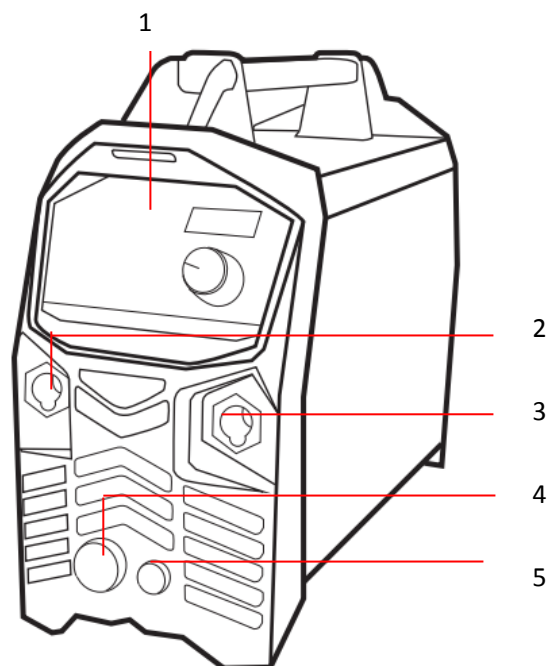
▲ **WARNING**

With the 15A plug supplied it is recommended that the operator does not exceed more than 180Amps, as use of higher amperages over this amount may lead to failure and overheating of the 15A plug and circuit, which may result in electrical supply component damage and ultimately electrical fires.

1.5 Overview of machine

Front View

1. Control Panel
2. "+" Output terminal
3. "-" Output terminal
4. Control cable connector
5. Gas outlet



2.0 Installation

Worker and working area protection

Fumes and gases produced by welding are dangerous for your health. Ventilation in workplace must be adequate to remove all harmful fumes and gases but not too strong since it could remove the shielding gas flowing over work piece. Arc welding rays are dangerous for your eyes. The welder must always use a welding helmet with a minimum protective shade glass No. 10 for MIG Welding. All personal protective including working clothes, leather apron, gloves, etc. must always be worn when welding or handling the work piece.



Unpacking

Check the packaging for any signs of damage. Carefully remove the machine and retain the packaging until the installation is complete.

Positioning of the machine

Place the machine on a firm, dry and level surface. Where possible, do not allow dust or other impurities to enter the machines cooling air flow. Preferably site the machine above floor level; for example on a suitable carriage unit.

Notes for positioning the machine

- The surface inclination should not exceed 15 degrees.
- Ensure the free circulation of the cooling air. There must be at least 20 cm of free space in front of and behind the machine for cooling air to circulate.
- Protect the machine against heavy rain and direct sunshine.

NOTE! The machine should not be operated in the rain as the protection class of the machine, IP21S, allows for outside preserving and storage only.

NOTE! Never aim metallic grinding spray/sparks towards the equipment.

Input connection

Before connecting the machine you should ensure that the correct supply is available. Details of the machine requirements can be found on the data plate of the machine or in the technical parameters shown in the manual.

The equipment should be connected by a suitably qualified competent person. Always ensure the equipment has a proper grounding.

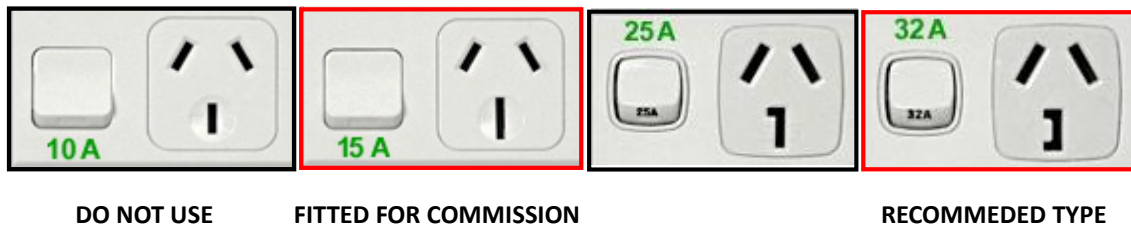
Never connect the machine to the mains supply with the panels removed.

Mains supply – TitanTig 200P ACDC



The INPUT primary cable is supplied with machine. Connect the machine to mains according to your state legislation of where machine is being used. Connection can be effected through plug or direct wiring. Supply system should be protected at all times by the fuse stated in technical data section. Direct connection to mains can be done by qualified electrical technician only.

Australian 240V Single Phase Plug variants – AS/NZS 3122



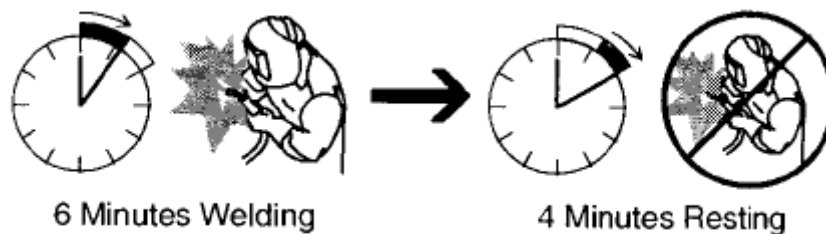
3.0 Operation

Duty cycle and overheating

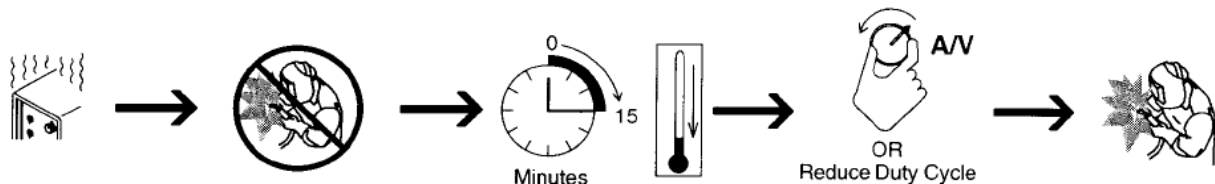


Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating. If unit overheats, thermostat(s) opens, output stops, and cooling fan runs. Wait fifteen minutes for unit to cool. Reduce amperage or duty cycle before welding.

60% Duty Cycle at 180A.



Overheating



- ▲ Welding machine must be used according to technical data from this manual. If the machine is overloaded, failures may occur that are not be covered by warranty.

Overload control



Thermal protection is built in the machine's main transformer and Inverter Bridge. If the machine overheats, thermal fuse will prevent further use and control lamp on the front panel will light up. In this case the welder must wait until the machine's temperature drops to normal. Note the machine must be left switched on for the fan to keep running.

3.1 MMAW (Stick/MMA) Welding

Location

- The machine should be located in a suitable position and environment. Care should be taken to avoid moisture, dust, steam, oil or corrosive gases
- Place on a secure level surface and ensure that there is adequate clearance around the machine to ensure natural airflow.

Input connection

- Before connecting the machine you should ensure that the correct supply is available. Details of the machine requirements can be found on the data plate of the machine or in the technical parameters shown in the manual.
- The equipment should be connected by a suitably qualified competent person. Always ensure the equipment has a proper grounding.
- Never connect the machine to the mains supply with the panels removed.

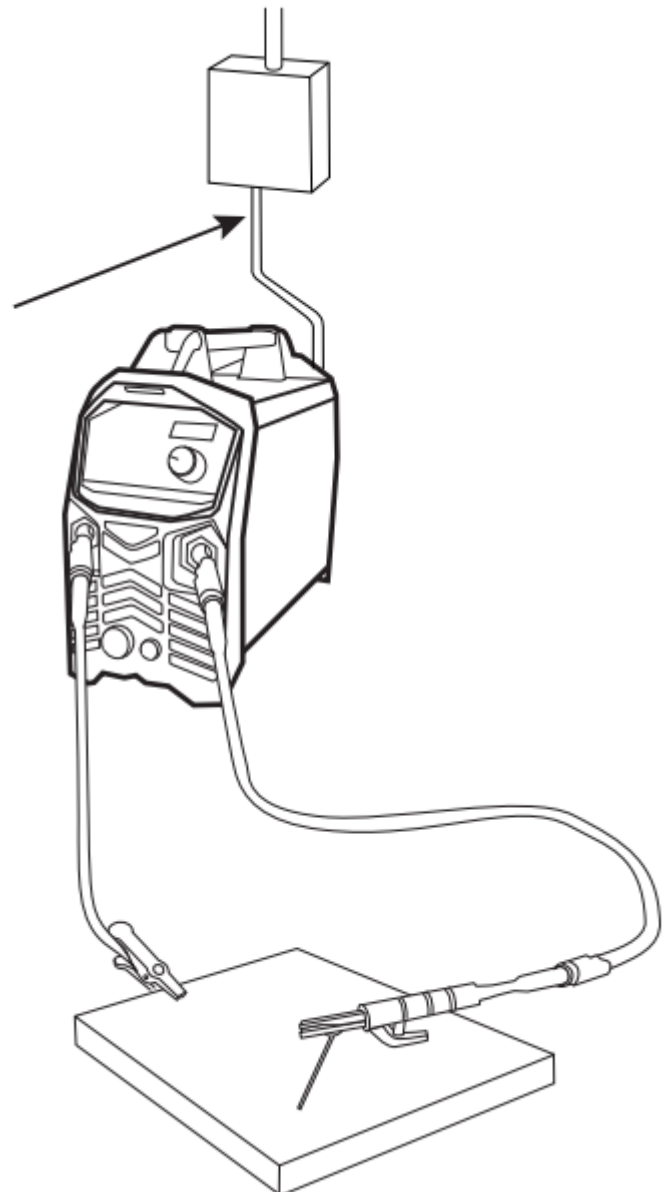
Output connections

Electrode polarity

- In general when using manual arc welding electrodes the electrode holder is connected the positive (+) terminal and the work return to the negative terminal. Always consult the electrode manufacturer's data sheet if you have any doubts.
- When using the machine for TIG welding the TIG torch should be connected to the negative terminal and the work return to the positive terminal

MMA Welding

- Insert the cable plug with electrode holder into the "+" socket on the front panel of the welding machine, and tighten it clockwise.
- Insert the cable plug of the work return lead into the "-" socket on the front panel of the welding machine, and tighten it clockwise
- After connecting the welding leads as detailed you will need to switch the power switch on the back panel to "ON"



- Select MMA by switching to the MMA welding mode. There is voltage output at both output terminals.
- Set the amperage on the machine suitable for the electrode being used. Ensure you check that you have the electrode polarity correct.

Please see below a guide to amperages required.

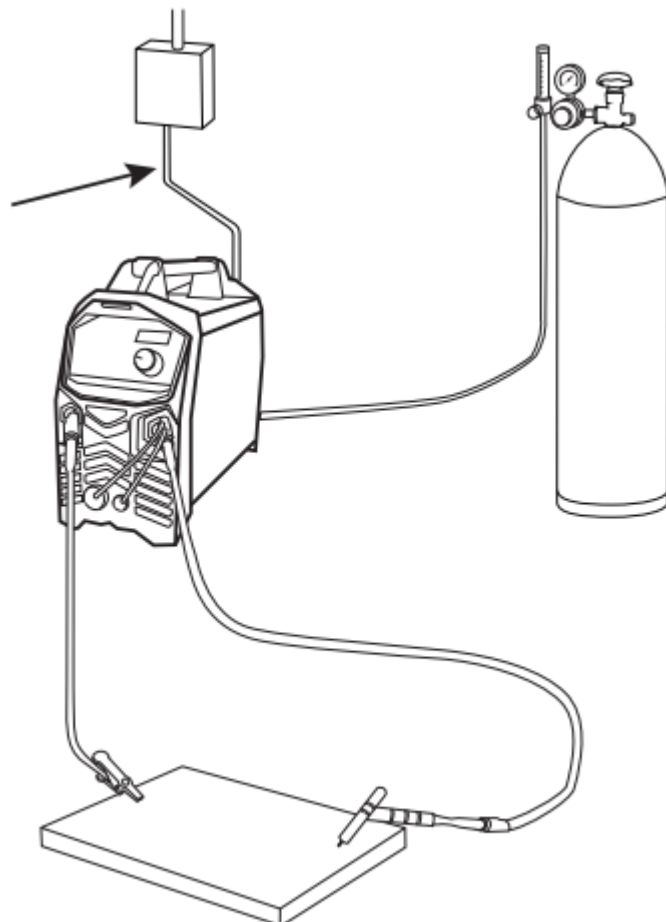
Electrode Diameter(mm)	Welding Current(A)	Electrode Diameter(mm)	Welding Current(A)
2.0	40-60	4.0	130-180
2.5	60-95	5.0	180-220
3.2	95-130	6.0	220-260

Average Thickness of Material (mm)	Suggested Electrode Diameter (mm)	Average Thickness of Material (mm)	Suggested Electrode Diameter (mm)
1.0-2.0	2.5	5.0-8.0	4.0
2.0-5.0	3.2	8.0 >	5.0

3.2 GTAW (TIG) Welding

TIG Welding

- Insert the cable plug with the work clamp into the “+” socket on the front panel of the welding machine, and tighten it clockwise.
- Insert the cables plug of the TIG torch into the “-” socket on the front panel of the machine and tighten clockwise.
- Connect the gas hose to the regulator / flow meter located on the shield gas cylinder and connect the other end to the machine.
- Open the valve on the TIG torch and “scratch” the electrode on the work piece to start the arc.
- The control cable of torch switch consists of 2 wires, pedal control of 3 wires and the aero socket has 14 leads.



- When TitanTig 200 PAC/DC welding machines are operated in HF ignition method, the ignition spark can cause interferences in equipment near the welding machine. Be sure to take specially safety precautions or shielding measures
- Connect the TIG torch leads as detailed above. Ensure that a suitable inert gas supply is connected.
- Switch the power switch on the back panel to “ON”
- Select the TIG welding mode using the selector switch.
- There is voltage output at both output terminals.
- After the parameters are set appropriately, open the gas valve of the cylinder, the gas valve on the torch and adjust the gas regulator to obtain the desired flow rate.
- The arc will start when the tungsten electrode touches the work piece and is lifted off after touching by between 2-4mm
- The arc will cease when the electrode (torch) is moved away from the work area

TIG guides

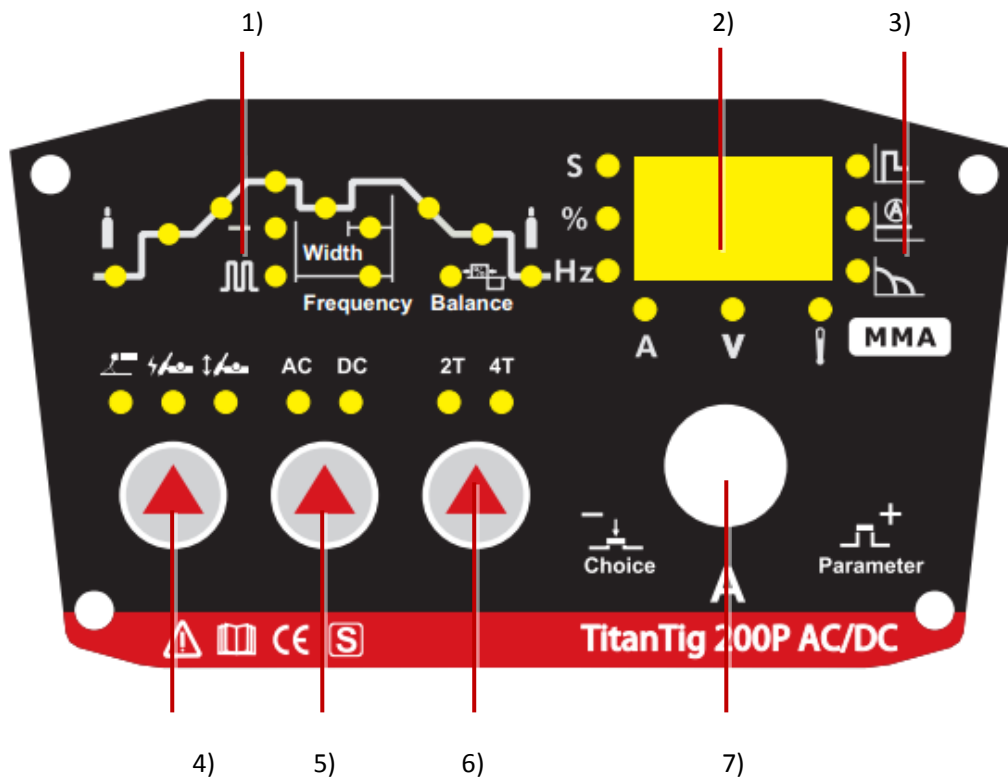
The recommended size of tungsten/nozzle to be used can be selected from the table below

Electrode Diameter(mm)	Welding Current(A)	Gas Nozzle Diameter (mm)	Electrode Diameter(mm)	Welding Current(A)	Gas Nozzle Diameter(mm)
1.0	15-80	8.0	2.4	150-250	9.5
1.6	70-150	9.5	3.2	250-400	11.0

Electrode type

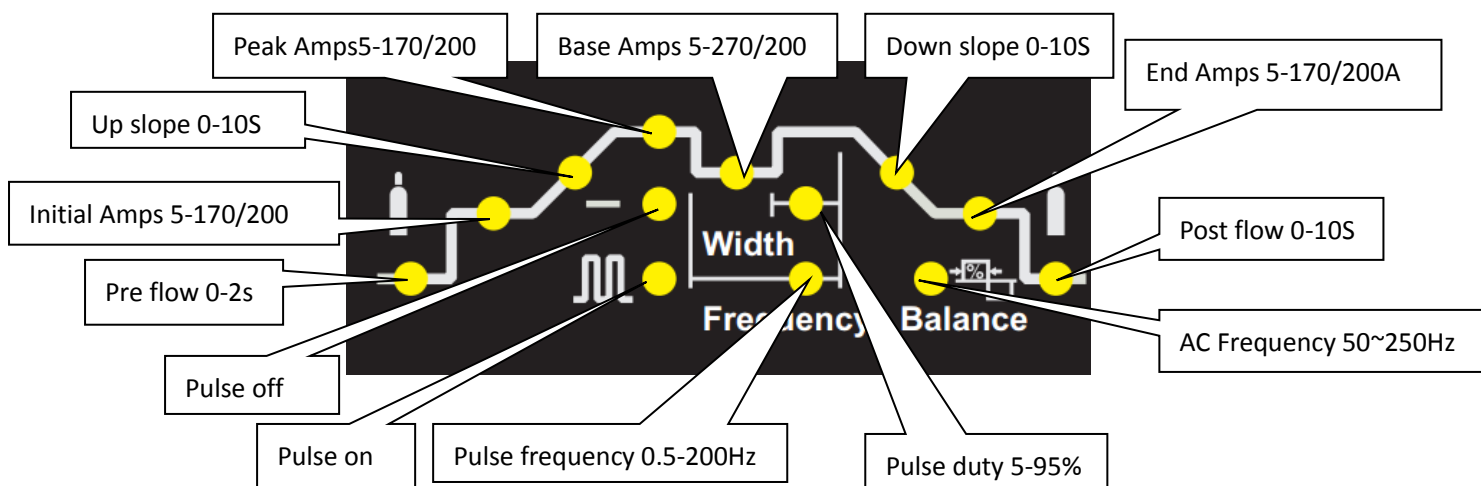
Type	Mode	Color
Thoriated 2%	DC welding of steel, stainless steel and copper	Red
Ceriated	DC welding of steel, stainless steel and copper	Grey
Lanthanated 1.5%	DC welding of steel, stainless steel and copper	Gold
Zirconated 1%	AV Welding of Aluminum	White

3.3 Panel Layout & Functions



- 1) Tig parameter select
- 2) Voltage/ Current display
- 3) MMA hotstart/Amps/Arc force select
- 4) MMA/HF Tig/Lift-Tig
- 5) AC/DC select Wave select
- 6) Tig 2T/4T
- 7) Adjusting dial

Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any persons within the area.

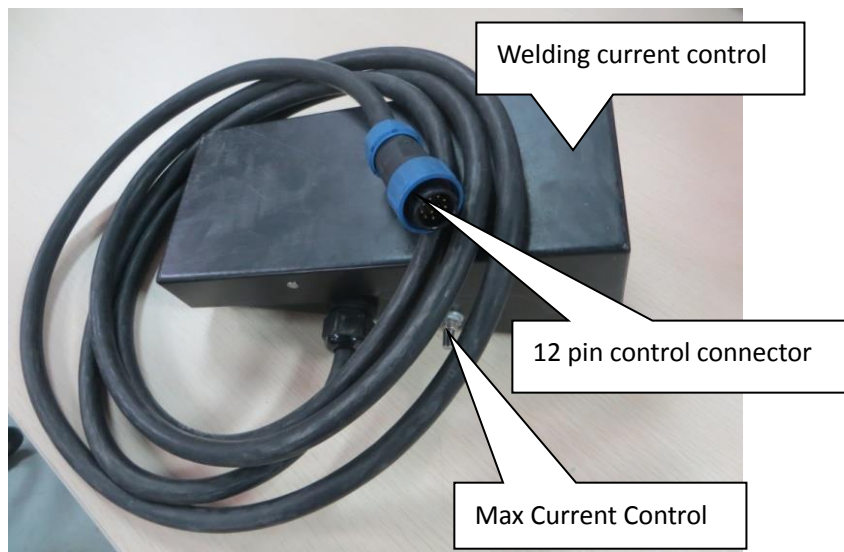


Foot Pedal (Option)

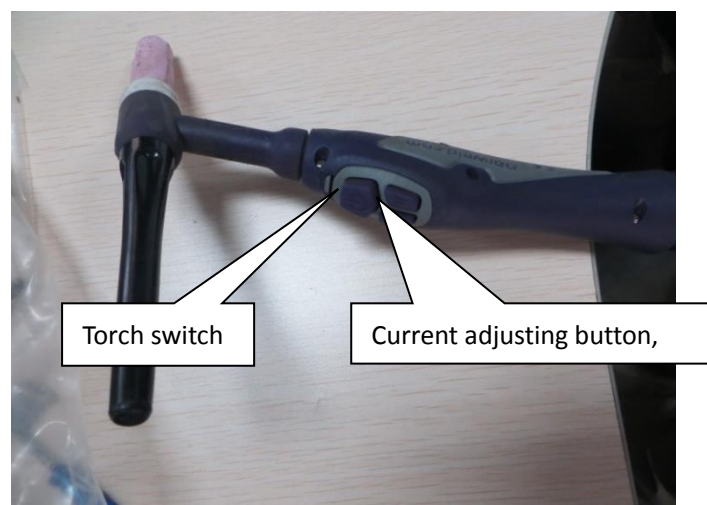
When plug the fourteen-lead aero-socket of pedal switch in it. Welder will identify the pedal switch, the welding current knob on the front panel will can't use, and only 2T can be selected.

When use the adjustment knob of max-welding current beside the pedal ,can set the max-current you want.

The eighth and ninth of the fourteen-lead aero-socket is gun switch; The first and second of the fourteen-lead aero-socket is short circuit; The third、fourth and fifth of the fourteen-lead aero-socket is pedal adjustable resistance.



Gun switch control current (Option)



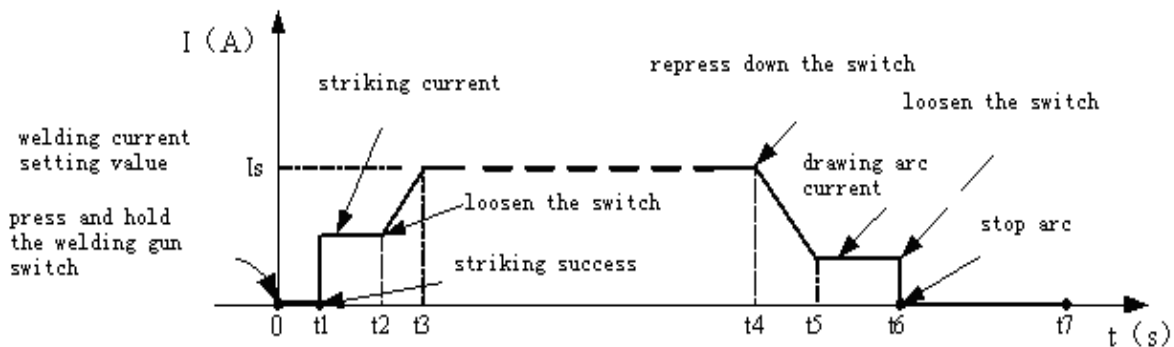
(Example shown only. Actual Torch may vary from above)

TIG mode

- Connect the TIG torch leads as detailed above. Ensure that a suitable inert gas supply is connected.
- Switch the power switch on the back panel to "ON"
- Select the TIG welding mode using the selector switch.
- There is voltage output at both output terminals.
- After the parameters are set appropriately, open the gas valve of the cylinder, the gas valve on the torch and adjust the gas regulator to obtain the desired flow rate.
- The arc will start when the tungsten electrode touches the work piece and is lifted off after touching by between 2-4mm
- The arc will cease when the electrode (torch) is moved away from the work area

TIG welding (4T operation)

The start current and crater current can be pre-set. This function can compensate the possible crater that appears at the beginning and end of the welding. Thus, 4T is suitable for the welding of medium thickness plates.



Introduction :

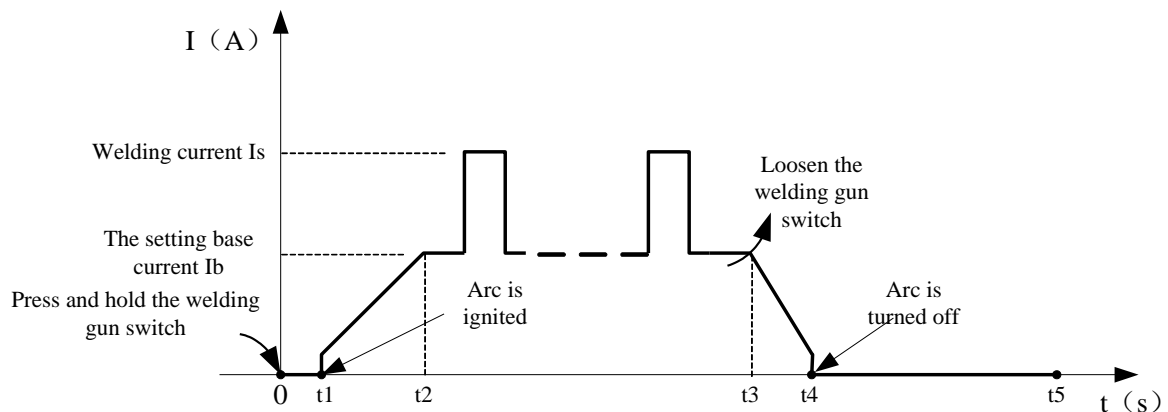
- 0: Press and hold the gun switch, Electromagnetic gas valve is turned on. The shielding gas starts to flow;
- 0~t1: Pre-gas time (0~2S);
- t1~t2: Arc is ignited at t1 and then output the setting value of start current;
- t2: Loosen the gun switch, the output current slopes up from the start current;
- t2~t3: The output current rises to the setting value (I_w or I_b), the upslope time can be adjusted;
- t3~t4: Welding process. During this period, the gun switch is loosen;

Note: Select the pulsed output, the base current and welding current will be outputted alternately; otherwise, output the setting value of welding current;

- t4: Press the torch switch again, the welding current will drop in accordance with the selected down-slope time.
- t4~t5: The output current slopes down to the crater current. The downslope time can be adjusted;
- t5~t6: The crater current time;
- t6: Loosen the gun switch, stop arc and keep on argon flowing;
- t6~t7: Post-gas time can be set by the post-gas time adjustment knob on the front panel (0~10S) ;
- t7: Electromagnetic valve is closed and stop argon flowing. Welding is finished.

TIG welding (2T operation)

This function without the adjustment of start current and crater current is suitable for the Re-tack welding, transient welding, thin plate welding and so on.



Introduction:

- 0: Press the gun switch and hold it. Electromagnetic gas valve is turned on. The shielding gas starts to flow.
- 0~ t_1 : Pre-gas time (0~2s)
- t_1 ~ t_2 : Arc is ignited and the output current rises to the setting welding current (I_w or I_b) from the min welding current.
- t_2 ~ t_3 : During the whole welding process, the gun switch is pressed and held without releasing.

Note: Select the pulsed output, the base current and welding current will be outputted alternately; otherwise, output the setting value of welding current;

- t_3 : Release the gun switch, the welding current will drop in accordance with the selected down-slope time.
- t_3 ~ t_4 : The current drops to the minimum welding current from the setting current (I_w or I_b), and then arc is turned off.
- t_4 ~ t_5 : Post-gas time, after the arc is turned off. You can adjust it (0~10s) through turning the knob on the front panel.
- t_5 : electromagnetic gas valve turned off, the shield gas stops to flow, and welding is finished.

Short circuit protect function:

① TIG /DC/LIFT: If the tungsten electrode touches the workpiece when welding, the current will drop to 20A, which can reduce the tungsten spoilage furthest, prolong the using life of the tungsten electrode, and prevent tungsten clipping.

② TIG /DC/HF: If the tungsten electrode touches the workpiece when welding, the current will drop to 0 within 1s, which can reduce the tungsten spoilage furthest, prolong the using life of the tungsten

electrode, and prevent tungsten clipping.

③MMA operation: if the electrode touches workpiece over two seconds, the welding current will drop to the 0 automatically to protect the electrode.

Prevent arc-break function: TIG operation, Avoid arc-break with special means, even if arc-break occurs the HF will keep the arc stable

④TIG: If the TIG torch is pressed quickly, the welding current will drop a half, then if the TIG torch is pressed quickly again, the welding current will get back.

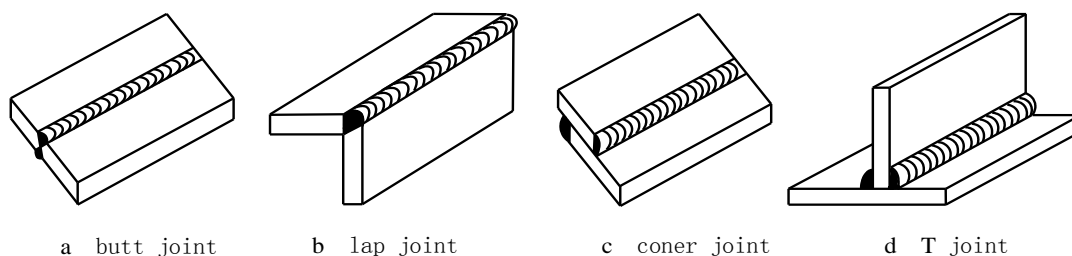
Notices:

- Check the condition of welding and connection units firstly, otherwise there will be malfunction such as ignition spark、gas leakage、out of control and so on.
- Check that whether there is enough Argon gas in the shield gas cylinder, you can test the electromagnetic gas valve through the switch on the front panel.
- Do not let the torch aim at your hand or else of your body. When you press the torch switch, the arc is ignited with a high-frequency, high-voltage spark, and the ignition spark can cause interferences in equipment.
- The flow rate is set according to the welding power used in the job. Turn the regulation screw to adjust the gas flow which is shown on the gas hose pressure meter or the gas bottle pressure meter.
- The spark ignition works better if you keep the 3mm distance from the workpiece to the tungsten electrode during the ignition.

Note: When select AC output, the current and the wave form are as same as the above, but output polarity changes alternately.

4.0 Welding Parameters

Joint forms in TIG/MMA



The explanation of welding quality

The relation of welding area color & protect effect of stainless steel

Welding area color	argent , golden	blue	red-grey	grey	black
Protect effect	best	better	good	bad	worst

The relation of welding area color & protect effect of Ti-alloy

Welding area color	bright argent	orange-yellow	blue-purple	caesious	white powder of titanium oxide
Protect effect	best	better	good	bad	worst

TIG Parameters Matching

The corresponding relationship between gas nozzle diameter and electrode diameter

Gas nozzle diameter/mm	Electrode diameter/mm
6.4	0.5
8	1.0
9.5	1.6 or 2.4
11.1	3.2
Notice: the above parameters originate from 《Welding Dictionary》 P142, Volume 1 of Edition 2.	

Gas nozzle and the shield gas flow rate

Welding current range/A	DC positive connection	
	Gas nozzle diameter/mm	Gas flow rate/L • min ⁻¹
10~100	4~9.5	4~5
101~150	4~9.5	4~7
151~200	6~13	6~8
201~300	8~13	8~9

Notice: the above parameters originate from 《Welding Dictionary》 P149, Volume 1 of Edition 2.

Tungsten electrode diameter /mm	Sharpened of the electrode diameter/mm	Angle of cone (°)	Background current/A
1.0	0.125	12	2~15
1.0	0.25	20	5~30
1.6	0.5	25	8~50
1.6	0.8	30	10~70
2.4	0.8	35	12~90
2.4	1.1	45	15~150
3.2	1.1	60	20~200

TIG of stainless steel (Single run welding)

Workpiece thickness (mm)	Joint form	tungsten electrode diameter (mm)	welding wire diameter (mm)	Argon gas flow rate/ L/min ⁻¹	welding current (DCEP)	Welding Speed/ cm/min ⁻¹
0.8	Butt joint	1.0	1.6	5	20~50	66
1.0	Butt joint	1.6	1.6	5	50~80	56
1.5	Butt joint	1.6	1.6	7	65~105	30
1.5	Corner joint	1.6	1.6	7	75~125	25
2.4	Butt joint	1.6	2.4	7	85~125	30
2.4	Corner joint	1.6	2.4	7	95~135	25
3.2	Butt joint	1.6	2.4	7	100~135	30
3.2	Corner joint	1.6	2.4	7	115~145	25
4.8	Butt joint	2.4	3.2	8	150~225	25
4.8	Corner joint	3.2	3.2	9	175~250	20

Notice: the above parameters originate from 《Welding Dictionary》 P150, Volume 1 of Edition 2.

Parameters of piping back sealing welding for mild steel (DCEP)

Piping diameter $r\Phi$ (mm)	Tungsten electrode diameter (mm)	Gas nozzle diameter (mm)	Welding wire diameter (mm)	Welding current (A)	Arc voltage (V)	Argon flow rate L. min ⁻¹	Welding rate / cm/min ⁻¹
38	2.0	8	2	75~90	11~13	6~8	4~5
42	2.0	8	2	75~95	11~13	6~8	4~5
60	2.0	8	2	75~100	11~13	7~9	4~5
76	2.5	8~10	2.5	80~105	14~16	8~10	4~5
108	2.5	8~10	2.5	90~110	14~16	9~11	5~6
133	2.5	8~10	2.5	90~115	14~16	10~12	5~6
159	2.5	8~10	2.5	95~120	14~16	11~13	5~6
219	2.5	8~10	2.5	100~120	14~16	12~14	5~6
273	2.5	8~10	2.5	110~125	14~16	12~14	5~6
325	2.5	8~10	2.5	120~140	14~16	12~14	5~6

Notice: the above parameters originate from 《Welding Dictionary》 P167, Volume 1 of Edition 2.

MMA Mode

After connecting the welding leads as detailed you will need to switch the power switch on the back panel to “ON”

Select MMA by switching to the MMA welding mode. There is voltage output at both output terminals.

Set the amperage on the machine suitable for the electrode being used. Ensure you check that you have the electrode polarity correct. Please see below a guide to amperages required.

Electrode Diameter(mm)	Welding Current(A)	Electrode Diameter(mm)	Welding Current(A)
1.0	20~60	3.2	108~148
1.6	40~84	4.0	140~180
2.0	60~100	5.0	180~220
2.5	80~120		

5.0 Trouble Shooting

5.1 MMAW (Stick) Welding Trouble Shooting

The following chart addresses some common problems during MMAW Welding.

In the event of equipment malfunction, contact an authorized service agent.

Possible Reason	Suggested Solution
No Arc	
Incomplete welding circuit	Check Earth & Work leads connected
Wrong Mode Selected	Check the MMA/Stick switch is selected
Porosity	
Arc length too long	Shorten arc length
Contaminated base metal	Remove any paint , grease, oil & dirt
Damp or Contaminated Electrodes	Dry Electrode or replace
Lack of Penetration	
Insufficient heat input	Increase amperage
Contaminated base metal	Remove any paint , grease, oil & dirt
Excessive Spatter	
Amperage set to high	Reduce Amperage
Arc length too long	Shorten arc length
Excessive penetration	
Amperage set to high	Reduce Amperage
Incorrect travel speed	Increase travel speed
Distortion	
Excessive heat input	Reduce Amperage
Poor joint preparation	Check joint design and fit up

5.2 GTAW (TIG) Welding Trouble Shooting

The following chart addresses some common problems during TIG Welding.

In the event of equipment malfunction, contact an authorized service agent

Possible Reason	Suggested Solution
Tungsten burning Quickly	
Incorrect Gas or No Gas	Check Pure Argon is in use
Insufficient Gas Flow	Check gas flow. Set to 10-15 l/min
Back Cap not fitted correctly	Check Back cap is fitted correctly and o ring in tact
Torch connected to (+) connection	Refit torch to (-) connection
Wrong Tungsten	Check Color of tungsten & change to correct type
Tungsten oxidizing after weld	Post gas insufficient. Gas flow suggested 10-15 S after end of weld cycle
Contaminated Tungsten	
Touching Tungsten into Weld Pool	Keep tungsten raised to 2-5mm of workpiece
Touching Filler wire to Tungsten	Feed filler into the leading edge of the weld pool
Tungsten Melting	Check Type & Size Tungsten being used
Porosity	
Incorrect Gas or No Gas	Check Pure Argon is in use
Insufficient Gas Flow	Check gas flow. Set to 10-15 l/min
Contaminated base metal	Remove any paint , grease, oil & dirt
Contaminated TIG Wire	Use clear dry rust free wire only.
Unstable Arc	
Torch connected to (+) connection	Refit torch to (-) connection
Contaminated base metal	Remove any paint , grease, oil & dirt
Contaminated Tungsten	Cut & re-grind Tungsten
Arc length too long	Keep torch raised to 2-5mm of workpiece
Wandering Arc	
Incorrect Gas or No Gas	Check Pure Argon is in use
Wrong Tungsten	Check Color of tungsten & change to correct type
Poorly prepared Tungsten	Ensure Tungsten is ground lengthways
Contaminated base metal	Remove any paint , grease, oil & dirt
Contaminated TIG Wire	Use clear dry rust free wire only.
Difficulty Starting Arc	
Incorrect Gas or No Gas	Check Pure Argon is in use
Contaminated Tungsten	Cut & re-grind Tungsten
Wrong Tungsten	Check Color of tungsten & change to correct type
Loose connection	Check connections
Earth Clamp not connected	Connect earth clamp to the work piece

5.3 Electrical Trouble Shooting

In the event of equipment malfunction, contact an authorized service agent

The following operation requires sufficient professional knowledge on electric aspects and comprehensive safety knowledge. Make sure the input cable of the machine is disconnected from the electricity supply and wait for 5 minutes before removing the machine covers Before taking your unit for servicing, check the list below.

	Trouble		Reason	Solution
1	Turn on the power source, and fan works, but the power pilot lamp is not on.		The power light damaged or connection is not good	Check and repair Pr7
			The transformer of power is broken	Repair or change the transformer
			Control PCB failures	Repair or change the control Pr4
2	Turn on the power source, and the power lamp is on, but fan doesn't work		There is something in the fan	Clear out
			The start capacitor of fan damaged	Change capacitor
			The fan motor damaged	Change fan
3	Turn on the power source, the power lamp is not on, and fan doesn't work		No power supply input	Check whether there is power supply
			The fuse inside the machine damaged	Change it (3A)
4	The number on the display is not intact.		The LED in the display is broken	Change the LED
5	The max and min value displayed doesn't accord with the set value.		The max value is not accordant (refer to §3.1)	Adjust potentiometer Imin on the power board.
			The min value is not accordant (refer to §3.1)	Adjust potentiometer Imaxin the current meter.
6	No no-load voltage output (MMA)		The machine is damaged	Check the main circuit and the Pr4.
7	Arc cannot be ignited (TIG)	There is spark on the HF igniting board.	The welding cable is not connected with the two output of the welder.	Connect the welding cable to the welder's output.
			The welding cable damaged.	Repair or change it.
			The earth cable connected unstably.	Check the earth cable.
			The welding cable is too long.	Use an appropriate welding cable.
			There is oil or dust on the workpiece.	Check and remove it.
			The distance between tungsten electrode and workpiece is too long.	Reduce the distance (about 3mm).
		There is not spark on the HF igniting board.	The HF igniting board does not work.	Repair or change Pr8
			The distance between the discharger is too short.	Adjust this distance (about 0.7mm).
			The malfunction of the welding gun switch.	Check the welding gun switch, control cable and aero socket.

	Trouble	Reason		Solution
8	No gas flow (TIG)	Gas cylinder is close or gas pressure is low		Open or change the gas cylinder
		Something in the valve		Remove it
		Electromagnetic valve is damaged		Change it
9	Gas always flows	The gas-test on the front panel is on		The gas-test on the front panel is off
		Something in the valve		Remove it
		Electromagnetic valve is damaged		Change it
		The adjustment knob of pre-gas time on the front panel is damaged		Repair or change it
10	The welding current cannot be adjusted	The welding current potentiometer on the front panel connection is not good or damaged		Repair or change the potentiometer
11	The welding current displayed isn't accordant with the actual value.	The min value displayed isn't accordant with the actual value. (Please refer to § 3.1)		Adjust potentiometer Imin on the power board.
		The max value displayed isn't accordant with the actual value. (Please refer to § 3.1)		Adjust potentiometer Imax on the power board.
12	The penetration of molten pool is not enough.	The welding current is adjusted too low		Increase the welding current
		The arc is too long in the welding process		Use 2T operation
13	The alarm lamp on the front panel is on	Over heat protection	Two much welding current	Reduce the welding current output
			Working time too long	Reduce the duty cycle (work intermittently)
		Over-voltage protection	Power supply fluctuates	Using the stable power supply
		Low-voltage protection	Power supply fluctuates	Using the stable power supply
			Too many machines using power supply in the same time	Reduce the machines using power supply in the same time
		Over-current protection	Unusual current in the main circuit	Check and repair the main circuit and drive Pr6

6.0 Maintenance

The utilization level of the power source and its working environment should be taken into consideration in planning the frequency of maintenance of the machine. Appropriate use and preventive maintenance guarantee the trouble-free use of the equipment. This allows you to avoid interruptions in use and increases the productivity of the machine.

6.1 Cables

Check the condition of welding and mains cables daily. Do not use damaged cables. Also make sure that all extension cables used in the mains connection are in proper condition and compliant with regulations.

NOTE! The mains cables may be repaired and installed only by electrical contractors and installers authorized to perform such operations.

6.2 Power source

Before cleaning the interior of the machine, you need to remove the case by unscrewing the mounting screws at the top and sides of the machine.

NOTE! To prevent damage, wait approximately two minutes after disconnecting the mains cable before removing the machine's case. Perform the following cleaning and maintenance at least every six months:

1. Clean the interior of the machine and the fan grill's net of any dust and stains – for Example, with a soft brush and vacuum cleaner.

- Do not use pressurized air. The stain may become compressed into the grooves of the coolers.
- Do not use a pressure-washing device.

2. Check the electrical connections of the machine. Clean any oxidized connections, and tighten the loosened ones.

- Check for the right tension before you start repairing the connections.

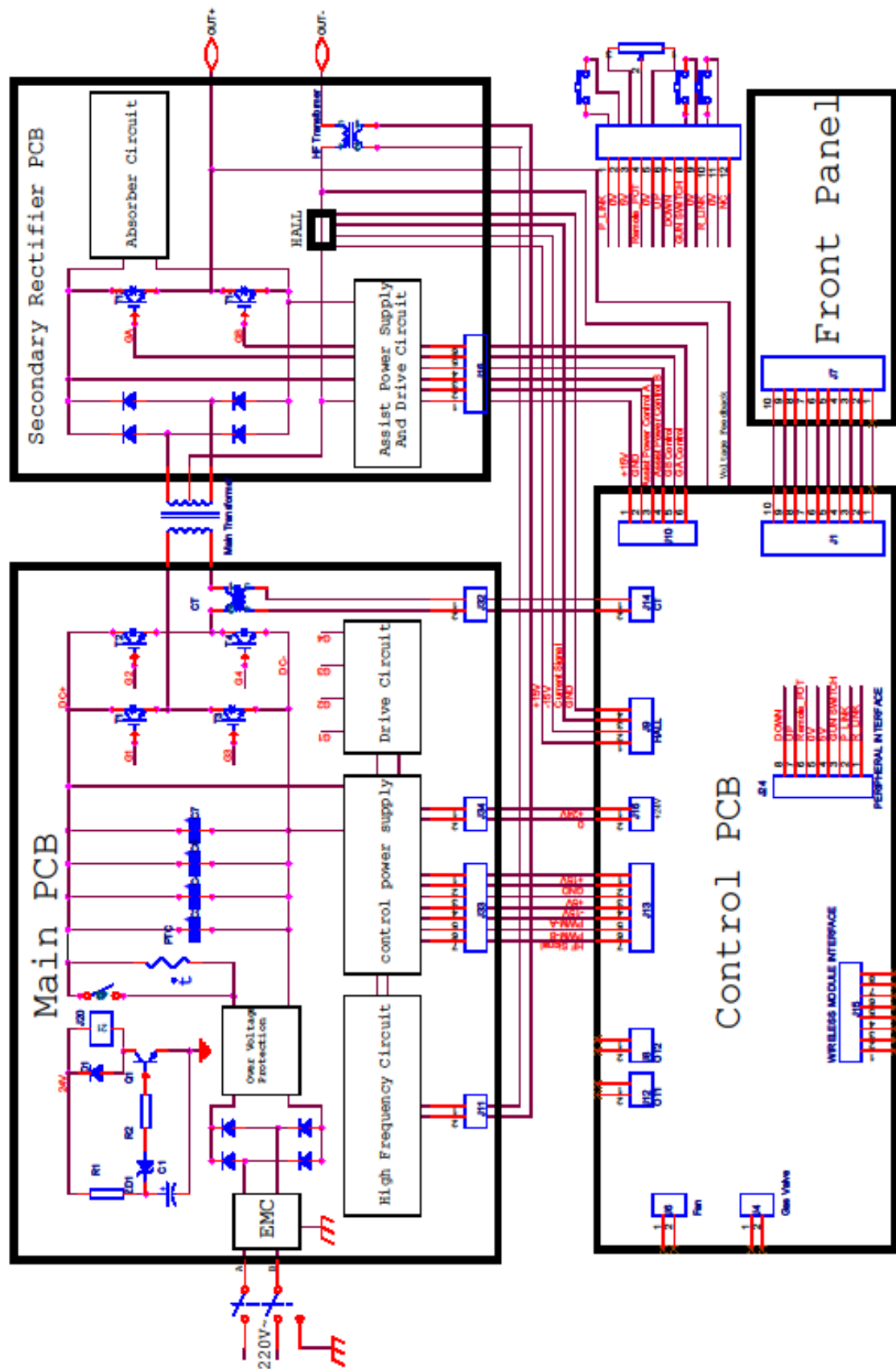
NOTE! Remember that the machine may be repaired only by an electrical contractor or installer authorized to perform such operations.

6.3 Regular maintenance

Authorized service agents perform regular maintenance by agreement. Tasks included in regular maintenance:

- Cleaning Equipment
- Inspection and maintenance of the welding gun.
- Checking of connectors, switches, and control knobs.
- Checking electrical connections.
- Checking the mains cable and plug
- Replacement of damaged or worn parts.
- Calibration testing, with adjustment of the functions and operational values of the machine, if necessary

7.0 Electrical principle diagram



8.0 Warranty Terms & Conditions

Weldtronic International P/L: ABN 99 149 754 263

Weldtronic International P/L (Weldtronic) warrants to the original retail purchaser that the products supplied by us and purchased by you from an authorized Weldtronic distributor are free of material and faulty workmanship defects except for those products listed under Warranty Exclusions.

All warranty periods are from **date of purchase** from the retailer/distributor of the product. Unless otherwise stated the warranty period includes parts and labour.

If a defect in material or workmanship becomes evident during the warranty period, Weldtronic will, at its opinion, either:

- Repair the Product (or pay for the costs of repair of the product); or
- Replace the Product if repair is not possible.

In the unlikely event of such a defect, the customer should return the product to the original place of purchase, with a proof of purchase, or contact Weldtronic on 03 9702 9366 to locate a authorized service agent.

Any handling and transportation costs (and other expenses) incurred in claiming under this warranty are not covered by this warranty and will not be borne by Weldtronic.

Weldtronic will return the replacement or repaired product, if original found to be faulty, freight free to the customer.

The obligation of Weldtronic International P/L under this warranty is limited to the circumstances set out above and is subject to:

- The customer being able to provide proof of purchase of the product and the purchase price paid for the product;
- The relevant defect in materials or workmanship;
- The product not having been altered, tampered with or otherwise dealt with by any person in a manner other than as intended in respect of the relevant product; and
- The product not having been used or applied in a manner that is contrary to customary usage or application for the relevant product or contrary to any stated instructions or specification of Weldtronic International.

Our products come with a guarantee that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of an acceptable quality and the failure does not amount to a major failure. The benefits given by this warranty are in addition to the other rights and remedies which may be available to the customer under any law in relation to goods and services to which this relates.

These terms and conditions supersede and exclude all former and other representations and arrangements relating to any warranties on these products

Warranty Periods

We offer the following Warranty Periods **from date of purchase**;

Equipment Power Sources

TitanTIG, TitanMIG, TitanARC Inverter Series (Power Source)	2 Years	(Clause 2)
TronicTig, TronicMIG, TronicPlas Inverter Series (Power Source)	2 Years	(Clause 2)
EuroMIG Transformer MIG Series (Power Source)	3 Years	(Clause 1&2)
TronicCool Water Coolers	1 Year	(Clause 2)
Electrode Ovens	1 Year	(Clause 2)
Straight Line & Pipe Cutters (Power source only)	1 Year	(Clause 2)
Positioners & Rotators (power source only)	1 Year	(Clause 2)

Gas apparatus

TronicFlame Gas & Welding Kits	3 Months	(Clause 2&4)
TronicFlame Regulators	1 Year	

Automatic Welding Helmets

Clearwelding® CWH720S Series Automatic Helmet	1 Year	(Clause 4)
Clearwelding® CWH800S / 815S / 820S Series Automatic Helmet	2 Years	(Clause 4)

Welding Accessories

MIG , TIG & Plasma Torches	3 Months
Earth & Work Leads	3 Months
Gas Hose & Interconnecting Cables	3 Months

(Clause 1) 3 Year warranty on transformer, inductor, & Rectifier. 2 Year Warranty on PCB and all other components.

(Clause 2) This only covers manufacture defaults on all accessories for the first three months after date of purchase (e.g. MIG/TIG/Plasma Torches, Earth Leads, Gas hose, etc.).

(Clause 3) Gas Hose & Flashback arrestors are subject to and covered by the manufacturer's individual warranty.

(Clause 4) 1 & 2 Year warranty on ADF Lens. 3 Month warranty on Helmet shell, harness & fittings.

Warranty, Returns & Exchanges

(1) Subject to the conditions of warranty set out in the warranty period, Weldtronic International P/L warrants that if any defect in any workmanship on any product has occurred then the conditions applicable to the warranty period are;

(a) The warranty applies on the basis of the goods being used on the equivalent of single daily eight (8) hour shift.

(2) The warranty shall not cover defect or damage which may be caused or partly caused by or arise through:

(a) Failure on the part of the buyer to properly maintain any goods.

(b) Failure on the part of the buyer to follow any instructions or guidelines provided by Weldtronic.

(c) Any use of any goods otherwise than for any application specified on a quote or order form.

(d) The continued use of any goods after any defect becomes apparent or would have become apparent to a reasonably prudent operator or user.

(e) Fair wear and tear of goods or any part thereof including but not limited to items listed in warranty exclusions.

(f) Misuse, neglect, accident, vandalism or damage in transit or natural disaster.

(3) The warranty shall cease and Weldtronic International P/L shall thereafter in no circumstances be liable under the terms of the warranty if the workmanship is repaired, altered or overhauled without Weldtronic International consent.

(4) In respect of all claims Weldtronic International P/L shall not be liable to compensate the buyer for any delay in either replacing or remedying the workmanship or in properly assessing the buyers claim.

(5) For goods not manufactured by Weldtronic International P/L, the warranty shall be the current warranty

provided by the manufacturer of the goods. Weldtronic International shall not be bound by nor be responsible for any term, condition, representation or warranty other than which is given by the manufacturer of the goods.

(6)We understand that sometimes you may need to return a product you have purchased from Weldtronic International p/l authorized dealer, to assist you , we have set out below the Weldtronic International P/L Returns Policy that you should know.

Our Returns Policy includes the rights you have under the Australian Consumer Law and other relevant laws.

Your rights under the Australian Consumer Law;

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

You shall inspect the goods on delivery and shall within seven (7) days of delivery notify Weldtronic International P/L of any alleged defect, shortage in quantity, damage or failure to comply with the description or quote.

You shall also afford Weldtronic International P/L the opportunity to inspect the goods within a reasonable time following delivery if you believe the goods are defective in any way.

If you fail to comply with these provisions the goods shall be presumed to be free from any defect or damage. For defective goods, which Weldtronic International P/L has agreed in writing that you are entitled to reject, Weldtronic International P/L liability is limited to either (at Weldtronic discretion) replacing the goods or repairing the goods except where you have acquired goods as a consumer within the meaning of the Trade Practices Act 1974 or the Fair Trading Acts of the relevant state or territories of Australia, and is therefore also entitled to, at the consumer's discretion either a refund of the purchase price of the goods, or repair of the goods, or replacement of the goods.

(7)Returns will only be accepted provided that;

(a)You have complied with the provisions outlined above, and...

(b)Where the goods are unable to be repaired, the goods are returned at your cost within thirty (30) days of the delivery date, and...

(c)Weldtronic International P/L will not be liable for goods which have not been stored or used within the proper manner, and...

(d)The goods are returned in the condition in which they were delivered and with all packaging material, brochures and instruction material in as new condition as is reasonably possible in the circumstances. Failure to comply to this point may mean that a re-stocking fee is charged to compensate Weldtronic for any lost materials and labour.

(8)Weldtronic International P/L accepts no responsibility for products lost, damaged or mislaid whilst in transit.

(9)Weldtronic International P/L (at their sole discretion) accepts the return of goods for credit but this may incur a handling fee of up to twenty percent (20%) of the value of the returned goods plus any freight costs.

(10)Where the failure does not amount to a major failure, Weldtronic International P/L is entitled to choose between providing you with a repair, replacement or other suitable remedy.

(11)Your rights under the Australian Consumer Law are not limited by a defined time. However, the Australian Consumer Law does recognize the relevant time period can vary from product to product, depending on factors such as the nature of the product and price. Weldtronic International P/L adopts the same approach. As you can appreciate, the type of remedy we can offer you may also vary depending on how long it takes you to return the product to use.

Making a Claim

(12)If you wish to make a claim under this warranty you should;

(a)Return the product to the point of purchase either in person or on a prepaid courier; or

(b)Contact us by telephone on 03 9702 9366 or mail to PO 2096 Rowville VIC 3178

(c)When returned, the product must be accompanied with the original invoice including the purchase price and disclosing the purchase date.

- (d) All costs of installation, cartage, freight, travelling expenses, hiring tools and insurance are paid by the Customer.
- (e) To the extent permitted by law, our total liability for loss or damage of every kind related to the product in any way whatsoever is limited to the amount paid to the retailer by you for the product or value of the product.

Warranty Exclusions

(13) This warranty covers material and faulty workmanship defects only. This warranty does not cover damage caused by

- (a) Normal wear and tear due to usage
- (b) Misuse or abusive use of the instructions supplied with the product
- (c) Failure to clean or improper cleaning of the product
- (d) Failure to maintain the equipment such as regular services etc.
- (e) Incorrect voltage or non-authorized electrical connections
- (f) Improper installation
- (g) Use of non-authorized/non-standard parts
- (h) Abnormal product performance caused by any ancillary equipment interference or other external factors.
- (i) Failure or breakage caused by overload, dropping or abusive treatment or use by the customer
- (j) Repair, modifications or other work carried out on the product other than by an authorized Weldtronic service dealer.

(14) This warranty does not cover the following parts:

(a) MIG , TIG & Stick (MMA) Welding Torches & Consumables such as;

Gas nozzles, Gas diffusers, contact tip holder, contact tip, swan necks, trigger, handle, liners, wire guide, drive roller, neck spring, connector block, insulator, gas nipple , cap, euro block, head assembly, gas block, trigger spring, cable support, neck insulator, lock nut, arc leas, welding cable, electrode holders & earth clamps, tungsten Electrodes, Collect, Back Cap, Collet body, Torch head, gaskets, gas lens & O-rings.

Plasma (b)Cutting Torches & Consumables such as;

Cutting tips, Air diffuser, Swirl ring, Electrode, retaining cap, nozzle spring, spaces, air & power cables, O-rings, guides, torch bodies, air filter

(c)Straight Line & Pipe Cutting consumables such as; Hoses, fittings, track, cutting nozzles, torch

(15) This warranty does not cover for products purchased:

- (a) From a non-authorized Weldtronic dealer (such as purchases from unauthorized retailers and purchases over the internet from unauthorized local/international sites such as EBay)
- (b) At an auction
- (c) From a private seller
- (d) Unless it is a manufacturing fault, this warranty does not apply for products sold to hire companies.

These conditions may only be varied with the written approval of the directors of Weldtronic International P/L.

REMEMBER TO RETAIN YOUR ORIGINAL INVOICE FOR PROOF OF PURCHASE.



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