

WIA

WELDARC 135

WELDARC 145

WELDARC 185

Stick/TIG Welders

OPERATORS MANUAL | MC110-0 / MC111-0 / MC112-0



From serial numbers M1102A*, M1112A*, M1122A*

WELD WITH THE BEST.

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READ FIRST

The information contained in this manual is set out to enable you to properly maintain your new equipment and ensure that you obtain maximum operating efficiency.

Please ensure that this information is kept in a safe place for ready reference when required at any future time.

When ordering spare parts, please quote the model and serial number of the power source and part number of the item required. All relevant numbers are shown in lists contained in this manual. Failure to supply this information may result in unnecessary delays in supplying the correct parts.

SAFETY

Before this equipment is put into operation, please read the Safe Practices section of this manual. This will help to avoid possible injury due to misuse or improper welding applications.

HANDLES ON POWER SOURCE

Please note that the handle fitted to the Weldarc welder is intended for carrying the equipment by hand only.

DO NOT use this handle for suspending or mounting the Weldarc in any other manner.

SAFE PRACTICES WHEN USING WELDING EQUIPMENT

These notes are provided in the interests of improving operator safety. They should be considered only as a basic guide to Safe Working Habits. A full list of Standards pertaining to industry is available from the Standards Association of Australia, also various State Electricity Authorities, Departments of Labour and Industry or Mines Department and other Local Health or Safety Inspection Authorities may have additional requirements. Australian Standard AS1674.2 provides a comprehensive guide to safe practices in welding.

Eye protection

NEVER LOOK AT AN ARC WITHOUT PROTECTION. Wear a helmet with safety goggles or glasses with side shields underneath, with appropriate filter lenses protected by clear cover lens. This is a **MUST** for welding, cutting, and chipping to protect the eyes from radiant energy and flying metal. Replace the cover lens when broken, pitted, or spattered.

Recommended Shade Filter Lens

Amps	TIG	MMAW	MIG	Pulsed MIG
0-100	10	9	10	12-13
100-150	11	10	10	12-13
150-200	12	10-11	11-12	12-13
200-300	13	11	12-13	12-13
300-400	14	12	13	14
400-500	–	13	14	14
500 +	–	–	14	14

Burn protection

The welding arc is intense and visibly bright. Its radiation can damage eyes, penetrate light-weight clothing, reflect from light-coloured surfaces, and burn the skin and eyes. Burns resulting from gas-shielded arcs resemble acute sunburn, but can be more severe and painful.

Wear protective clothing – leather or heat resistant gloves, hat, and safety-toed boots. Button shirt collar and pocket flaps, and wear cuffless trousers to avoid entry of sparks and slag.

Avoid oily or greasy clothing. A spark may ignite them. Hot metal such as electrode stubs and work pieces should never be handled without gloves.

Ear plugs should be worn when welding in overhead positions or in a confined space. A hard hat should be worn when others are working overhead.

Flammable hair preparations should not be used by persons intending to weld or cut.

Toxic Fumes

Adequate ventilation with air is essential. Severe discomfort, illness or death can result from fumes, vapours, heat, or oxygen depletion that welding or cutting may produce. **NEVER** ventilate with oxygen.

Lead, cadmium, zinc, mercury, and beryllium bearing and similar materials when welded or cut may produce harmful concentrations of toxic fumes. Adequate local exhaust ventilation must be used, or each person in the area as well as the operator must wear an air-supplied respirator. For beryllium, both must be used.

Metals coated with or containing materials that emit fumes should not be heated unless coating is removed from the work surface, the area is well ventilated, or the operator wears an air-supplied respirator.

Work in a confined space only while it is being ventilated and, if necessary, while wearing an air-supplied respirator.

Vapours from chlorinated solvents can be decomposed by the heat of the arc (or flame) to form phosgene, a highly toxic gas, and lung and eye irritating products. The ultra-violet (radiant) energy of the arc can also decompose trichlorethylene and perchloroethylene vapours to form phosgene. Do not weld or cut where solvent vapours can be drawn into the welding or cutting atmosphere or where the radiant energy can penetrate to atmospheres containing even minute amounts of trichlorethylene or perchloroethylene.

Fire and Explosion Prevention

Be aware that flying sparks or falling slag can pass through cracks, along pipes, through windows or doors, and through wall or floor openings, out of sight of the operator. Sparks and slag can travel up to 10 metres from the arc.

Keep equipment clean and operable, free of oil, grease, and (in electrical parts) of metallic particles that can cause short circuits.

If combustibles are present in the work area, do NOT weld or cut. Move the work if practicable, to an area free of combustibles. Avoid paint spray rooms, dip tanks, storage areas, ventilators. If the work can not be moved, move combustibles at least 10 metres away out of reach of sparks and heat; or protect against ignition with suitable and snug-fitting fire-resistant covers or shields.

Walls touching combustibles on opposite sides should not be welded on or cut. Walls, ceilings, and floor near work should be protected by heat-resistant covers or shields.

A person acting as Fire Watcher must be standing by with suitable fire extinguishing equipment during and for some time after welding or cutting if;

- Combustibles (including building construction) are within 10 metres.
- Combustibles are further than 10 metres but can be ignited by sparks.
- Openings (concealed or visible) in floors or walls within 10 metres may expose combustibles to sparks.
- Combustibles adjacent to walls, ceilings, roofs, or metal partitions can be ignited by radiant or conducted heat.

After work is done, check that area is free of sparks, glowing embers, and flames.

A tank or drum which has contained combustibles can produce flammable vapours when heated. Such a container must never be welded on or cut, unless it has first been cleaned as described in AS.1674.2. This includes a thorough steam or caustic cleaning (or a solvent or water washing, depending on the combustible's solubility), followed by purging and inerting with nitrogen or carbon dioxide, and using protective equipment as recommended in AS.1674.2. Water-filling just below working level may substitute for inerting.

Hollow castings or containers must be vented before welding or cutting. They can explode. Never weld or cut where the air may contain flammable dust, gas, or liquid vapours.

Shock Prevention

Exposed conductors or other bare metal in the welding circuit, or ungrounded electrically alive equipment can fatally shock a person whose body becomes a conductor. Ensure that the equipment is correctly connected and earthed. If unsure have the equipment installed by a qualified electrician. On mobile or portable equipment, regularly inspect condition of trailing power leads and connecting plugs. Repair or replace damaged leads.

Fully insulated electrode holders should be used. Do not use holders with protruding screws. Fully insulated lock-type connectors should be used to join welding cable lengths.

Terminals and other exposed parts of electrical units should have insulated knobs or covers secured before operation.

1 INTRODUCTION

MMAW (Stick Welding)

Manual Metal Arc Welding (MMAW) is a process where an arc is struck between a flux-coated consumable electrode and the work piece. The arc and the weld pool are both shielded by gases generated by the flux coating of the electrode.

The Weldarc 135, 145 and 185 has been designed to be used with 2.0mm, 2.5mm, 3.2mm diameter electrodes, and the 185 can also be used with 4.0mm diameter electrodes. The smaller electrodes are used when welding at lower currents, such as sheet metal applications. Increasing the electrode diameter permits higher welding currents to be selected.

WIA supplies a wide range of mild steel and special purpose electrodes which cater for home workshop, rural, and industrial requirements. Some popular AUSTARC electrodes are listed below. The correctly selected AUSTARC electrode will influence the quality of the weld, and the stability of the arc.

Austarc 12P, Classification E4313-A

A popular general purpose electrode used with ease in all positions, vertical up or down. The smooth forceful arc makes it an ideal electrode for all general mild steel applications.

Austarc 13S, Classification E4313-A

A smooth running electrode with a soft arc, particularly suited to light sheetmetal and smooth mitre fillet welds.

Austarc 16TC, Classification E4916-A

A low hydrogen electrode with good arc stability and out-of-position welding characteristics. This electrode is ideal for medium carbon steels, or steels of unknown analysis.

Unicord 312, Classification ES312-16

A high tensile, chromium nickel electrode specially formulated for joining all alloy steels and irons, and for tool and die maintenance.

Staincord 316L-016, Classification E316L-16

For quality all position stainless steel welding. Extra smooth running, high arc stability, easy re-strike, excellent slag removal and bead appearance.

Staincord 309Mo-16, Classification E309LMO-16

For high quality all position stainless steel welding. This extra low carbon alloy is specifically indicated for AISI 309Mo type alloys, but is also ideal for joining mild/low alloy steel to a range of 300 and 400 series stainless steels. Features extra smooth running, high arc stability, easy re-strike, excellent slag removal and bead appearance.

GTAW (TIG Welding)

For Weldarc 145 & 185 only.

Gas Tungsten Arc Welding (GTAW) is a welding process where the arc is struck between a non-consumable tungsten electrode and the work piece. A ceramic nozzle surrounds the tungsten electrode and directs a flow of inert gas, usually Argon, over the electrode and the weld zone. If filler metal is required, it is hand fed into the welding arc. The DC current output of the Weldarc inverter is suitable for welding most ferrous and non-ferrous metals, but is not suitable for welding Aluminium for which an AC machine is required.

2 RECEIVING

Check the equipment received against the shipping invoice to make sure the shipment is complete and undamaged. If any damage has occurred in transit, please immediately notify your supplier.

If the supply cable is damaged it must be replaced by the manufacturer, their service agent or a similarly qualified person.

The Weldarc inverter package contains;

- Weldarc Inverter Power Source
- Twist-lock Electrode Holder & Cable
- Work Clamp & Cable
- (This) Operating Manual

Optionally available

- TIG Torch with Gas Valve TIG001 for Weldarc 145
- TIG Torch with Gas Valve TIG002 for Weldarc 185
- Argon flow gauge regulator REG003

IMPORTANT NOTICE: Warranty may be voided if equipment is powered from an unsuitable engine driven generator.

Generators should have continuous rating and incorporate output voltage regulation. Refer to Specifications for minimum generator capacity.

Generators without voltage regulation must have a minimum capacity of 10 kW.

3 SPECIFICATIONS

Manufactured to Australian Standard - AS60974.1

VRD Complies with - AS1674.2 Category C.

	WELDARC 135	WELDARC 145	WELDARC 185
Primary Voltage	220-240 Vac, 50/60 Hz	220-240 Vac, 50/60 Hz	220-240 Vac, 50/60 Hz
Rated Primary Current (I_{eff})	9.9 Amps	8.5 Amps	12.5 Amps
Maximum Primary Current (I_{max})	22.2 Amps	19 Amps	25 Amps
Rated Output @ 40°C	Stick 135 Amps, 25.4 V, 20% duty 78 Amps, 23.1 V, 60% duty	Stick 145 Amps, 25.8 V, 20% duty 56 Amps, 22.2 V, 100% duty TIG 145 Amps, 15.8 V, 20% duty 56 Amps, 12.2 V, 100% duty	Stick 185 Amps, 27.4 V, 25% duty 92 Amps, 23.7 V, 100% duty TIG 185 Amps, 17.4 V, 25% duty 92 Amps, 13.7 V, 100% duty
Duty cycle based on 10 minute cycle time	60 Amps, 22.4 V, 100% duty		

	WELDARC 135	WELDARC 145	WELDARC 185
Continuous Rated Output@ 40°C	60 Amp	56 Amp	92 Amp
Welding Current	20 - 135 Amps	25 - 145 Amps	25 - 185 Amps
Open Circuit Voltage VRD Enabled	U _o = 10V	U _o = 23 V	U _o = 13 - 17 V
VRD Disabled	U _o = 82V	U _o = 78 V	U _o = 78 V
Shipping Weight	8.0kg - Includes leads	11kg - Includes leads	11kg - Includes leads
Shipping Dimensions	400mm W x 200mm D x 310mm H	530mm W x 185mm D x 415mm H	530mm W x 185mm D x 415mm H
Power Source Weight	4.0kg	7.0kg	8.0kg
Main Circuit Breaker Rating	20 Amps	20 Amps	25 Amps
Supply Plug	10 Amp	10 Amp	15 Amp
Fitted Supply Cable	1.5 mm ² Three Core, Heavy Duty PVC	1.5 mm ² Three Core, Heavy Duty PVC	2.5 mm ² Three Core, Heavy Duty PVC
Power Supply Outlet (240 V) & Extension Lead Rating	10 Amp	10 Amp	15 Amp
Cooling	Fan Cooled. Continuous	Fan cooled. Operates on temperature demand	Fan cooled. Operates on temperature demand
IP Rating	IP21S	IP23S	IP23S
Generator Power	7 kVA Peak	4.6 kVA Peak	6 kVA Peak

4 FEATURES

4.1 VRD Function (Voltage Reduction Device)

The VRD function is a safety feature, to provide reduced open circuit voltage, when not welding.

The VRD reduces the likelihood of electrocution due to electrode handling, while physically connected to work piece.

The VRD on the Weldarc 135, 145 and 185 complies with the requirements of AS 1674.2 for use in 'Category C' environments.

The machine will be supplied with VRD enabled or disabled, depending on the end market.

VRD Disabled

The open circuit output voltage is maximum Volts DC.

The 'VRD SAFE' indicator on the front panel will only light up momentarily during power up.

Machine is supplied with an orange tag on the supply lead advising VRD is disabled.

VRD Enabled

When not welding the 'VRD SAFE' indicator on the front panel will come on and the output voltage will be reduced to the VRD voltage level, which is below the required safe level of 35V DC.

Change VRD Function

If the VRD function does not suit the application, the VRD can be enabled or disabled by an authorised WIA service agent.

Electrode Striking and Restriking - VRD Enabled

When the electrode is struck on the work piece the machine will detect a start condition and increase the output voltage to start welding. The 'VRD SAFE' indicator will turn off.

To restrike a used electrode it may be necessary to remove excess flux from electrode tip.

The most effective strike action is a touch - twist - lift.

4.2 Fan on Demand

Weldarc 145 & 185 has Fan on Demand feature which operates the cooling fan only when the internal temperature reaches a preset level. Once the internal temperature has dropped the fan will turn off.

When the machine is first turned on the fan will operate momentarily, when the machine is turned off the fan will also operate momentarily while the internal power supply decays.

4.3 Shoulder Strap

To attach the shoulder strap to the Weldarc, feed the strap through the slot underneath the handle at front and rear of machine.



Attaching the Weldarc Shoulder Strap

4.4 Hot Start

Hot start is a boost current which is applied at arc start. The extra current at start helps get arc established, particularly on cold material.

For Weldarc 145 & 185 this can be adjusted in **setup mode**.

4.5 Arc Force

Arc force is a voltage boost. The extra voltage is used when arc voltage drops due to arc shorts.

For Weldarc 145 & 185 this can be adjusted in **setup mode**.

4.6 Power Factor Correction (PFC)

For Weldarc 145 & 185 only.

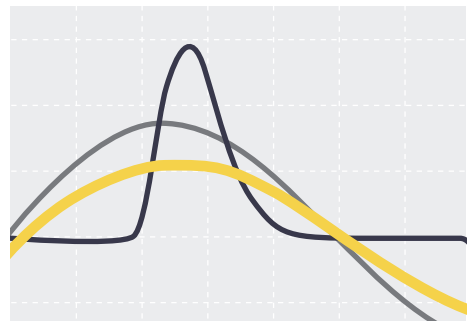
PFC provides a input power conditioner system to smooth the input current.

On a conventional inverter machine the input current presents in short high current pulses every half mains cycle. These pulses, cause input voltage drop, on extension leads and generators.

The PFC spreads the current pulse over the whole mains cycle.

The overall effect is PFC provides stable operation, on challenging power supplies, particularly on long supply leads and generators.

Power Factor Correction



— INPUT VOLTAGE — INPUT CURRENT WITH PFC — INPUT CURRENT WITHOUT PFC

5 CONTROLS 145 & 185 POWER SOURCE

Power Switch Located on the rear panel



Note: Control panel diagram instructions are also suited for Weldarc 145

1 VRD Safe Mode Indicator

If VRD is enabled, this light is on when the voltage across the output terminals is reduced to a safe level.

If VRD is disabled, this light will always be off.

2 Power On Indicator

3 Over Temperature Indicator

This light is on if any internal thermal protection devices have operated. Allow the machine to cool down.

4 Weld Mode Selection Switch (145 & 185 only)

Use this switch to select between modes. There are two weld modes available:

4.1 TIG Welding (GTAW):

Lift arc start, using TIG welding torch with separate gas supply.

4.2 Stick Electrode Welding (MMAW).

This mode is used for all MMAW stick electrode process.

4.3 Setup Mode (145 & 185 only)

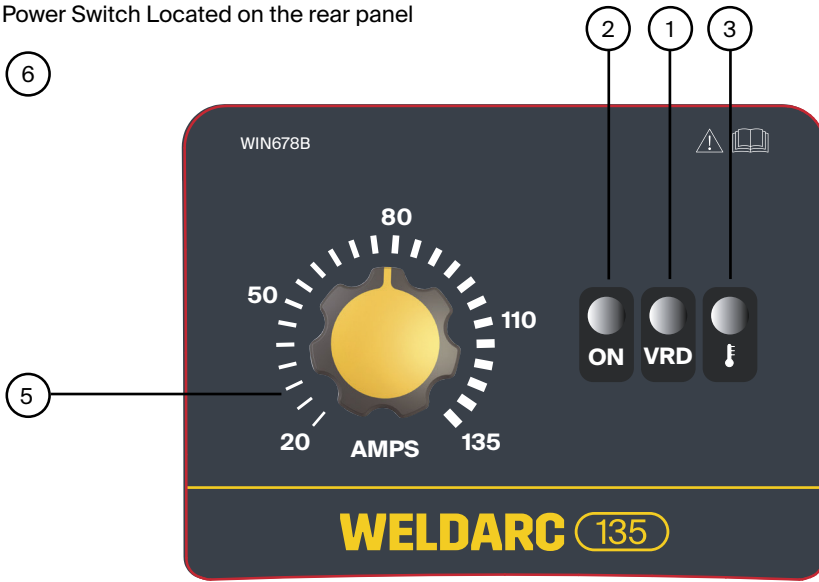
In Setup Mode the amount of **Hot Start** and **Arc Force** can be adjusted.

Press and hold MODE button for 4 seconds, until Digital Display will show "HS". The **Hot Start** current can be increased or decreased, by adjusting the **Weld Control Knob**. Adjust -10% to +10% of factory setting.

Press MODE button, the digital display will show "AF". The **Arc Force** Voltage can be increased or decreased, by adjusting the **Weld Control Knob**. Adjust -10% to +10% of factory setting. Press MODE button again to return to normal operation

5.1 CONTROLS 135 POWER SOURCE

Power Switch Located on the rear panel



5 Weld Current Control

This control sets the output current level of the power source within the available range. Rotate the knob clockwise to increase the output current.

6 Power On/Off Switch

In the OFF position, this switch isolates the power source from the mains power supply. The switch is located on the rear panel.

6 INSTALLATION

Do Not Touch Live Electrical Parts

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 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. **ELECTRIC SHOCK can kill.** 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.

Connection to Electrical Mains Power Supply

The Weldarc 135 & 145 is fitted with a 10 Amp supply cable and plug.

The Weldarc 185 is fitted with a 15 Amp supply cable and plug recognisable by a wide earth pin. Power supply authorities require that equipment fitted with a 15 Amp plug shall **ONLY** be connected to a 240 Volt, 15 Amp power point. **DO NOT** modify the plug.

The minimum capacity of the main power supply wiring and power outlet supplying a welder is selected according to the Effective Primary Current of the equipment. Refer to Section 3.

The minimum recommended main power supply circuit breaker ratings for Weldarc inverters are listed in Section 3.

If it becomes necessary to replace the mains flexible supply cable, use only cable with correct current rating. See Section 3.

If it is necessary to use an extension power supply cable, ensure that it is rated as per Section 3. Voltage drop which will occur over long lengths of cable will reduce the quality of welds and the maximum welding current available from the equipment.

As noted previously, it is not recommended that the Weldarc inverter be powered from small engine-driven generator sets unless they have adequate voltage regulation. Poor regulation results in peaks of supply voltage which can occur with some equipment of this type. Excessive voltage peaks can damage the circuits of the welder. Machines with PFC will be tolerant of poor generator voltage regulation.

7 BASIC WELDING INFORMATION

Stick Welding (MMAW)

Connection for Stick Welding

It is important to select the electrode polarity in accordance with the manufacturer's recommendations for that electrode. Most common electrodes, including cellulose types, are operated with the electrode at positive polarity, as illustrated in Figure 3.

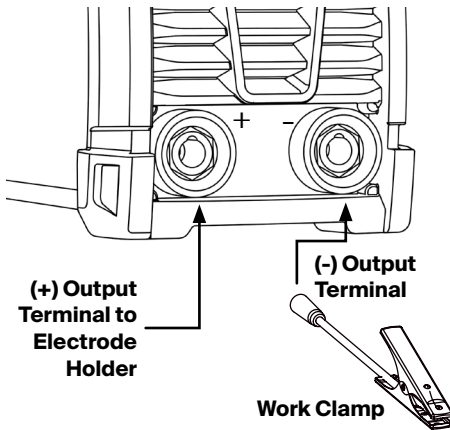


Fig 3 Connections for Stick Welding (MMAW), Electrode Positive

Stick Welding

Be certain that you are wearing suitable protective clothing, gloves etc and that you are working in a non-hazardous area. If necessary, refer again to **Section 1 - Safe Practices** in this manual.

Connect the work clamp to the work piece. Place the desired electrode in the electrode holder.

Turn on the power switch located on the rear panel. Wait approximately 5 seconds as the unit goes through its initiation sequence.

For Weldarc 145 & 185 only, use the Weld Mode Selection Switch to select Stick Mode.

Select an appropriate welding current for the electrode diameter by setting the knob on the machine front panel. WIA Austarc electrodes will give the best results.

To Strike the Arc:

With VRD enabled, touch-twist-lift.

With VRD disabled, drag the end of the electrode along the work piece as if striking a match.

As the arc initiates, lift the electrode slightly away, aiming to establish an arc length of approximately 3mm.

As the electrode end is consumed, feed the electrode into the arc in order to maintain arc length. As a general rule, the arc should be held as short as possible while still giving stable burn off and good weld appearance. An arc which is too long may cause an unwieldy flow of metal with a rough weld appearance and reduced penetration. An arc too short leads to a narrow weld deposit and "stuttery" arc characteristics, and the electrode is liable to freeze onto the work piece.

As the solidified weld deposit forms, move the end of the electrode slowly along the weld path, aiming to maintain a pool of molten weld metal behind the arc. Decreasing this rate of travel will result in a wider weld deposit, and similarly increasing it will narrow the weld deposit.

Always fill the crater which tends to form at the end of a weld deposit, by pausing momentarily before withdrawing the electrode to break the arc. Unfilled craters are a point of weakness, and can lead to weld cracking.

Current Range for General Purpose Electrodes

Diameter (mm)	Current (Amps)
2.0	40 - 60
2.5	60 - 85
3.2	90 - 130
4.0	130 - 180

TIG Welding (GTAW)

Connection for TIG Welding (145 & 185 only)

For TIG Welding, the torch is connected negative terminal. Figure 4 illustrates the correct connection of the welding torch. The machine does not have an internal gas valve, therefore, the gas supply needs to be controlled externally with a torch that incorporates a manual valve in the hand piece. Welding grade Argon is the shielding gas most commonly used for DC GTAW welding.

Before first use of the welding torch, allow gas to purge the torch and hoses for 30 seconds at approximately 10 litres/min. For welding purposes, the gas flow rate should be set in the range 2-5 litres/min.

Tungsten electrodes for DC GTAW should be 1-2% Thoriated. This type will provide the best arc initiation, arc stability and tip shape retention characteristics. Thoriated electrodes can be recognised by a red coded end. The tungsten electrode is ground to a point, with the grinding marks pointing towards the tip. For welding currents less than 20 amps, the included angle of the point should be 30°, for currents greater than 20 amps, the recommended angle is 60°. When set in the torch, the tungsten should protrude 6mm from the ceramic gas nozzle.

TIG Welding Operation

Connect the Work Clamp to the work piece.

Turn on the power switch located on the rear panel. Wait approximately 5 seconds as the unit goes through its initiation sequence.

Use the Weld Mode Selection Switch to select TIG Mode.

Select an appropriate welding current for the job by setting the knob on the machine front panel.

To initiate the arc, lightly touch the tungsten electrode onto the work piece, then smoothly lift it away to establish an arc length slightly longer than the diameter of the electrode.

Use of a copper striking plate can be used to avoid electrode contamination. The electrode can also be contaminated by contact with the filler rod. A contaminated electrode produces an unstable arc. If this occurs regrind the electrode tip.

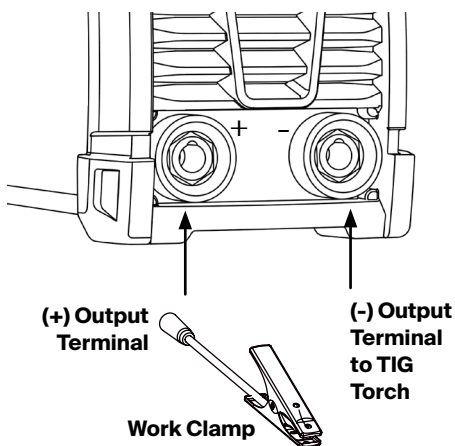


Fig 4 Cable Connections for TIG welding

8 GENERAL MAINTENANCE

Before removing the equipment cover, ENSURE that the equipment is disconnected from the mains power supply. When the equipment is energised LETHAL VOLTAGES are present on the electrical components enclosed.

Dust

Care should be taken to prevent excessive build-up of dust and dirt within the welding power source. It is recommended that at regular intervals, according to the prevailing conditions, the equipment covers be removed and any accumulated dust be removed by the use of a dry, low pressure compressed air, or a vacuum cleaner. The machine should be blown out with compressed air at least every 12 months as grinding dust can settle on PCB componentry causing failure. Failure to maintain machines may void warranty.

9 EXTERNAL TROUBLE SHOOTING

If you are in Australia and the following checks do not identify the fault condition, the equipment should be returned to a WIA Service agent. Phone 1300 300 884 for details of your nearest service agent.

If you are in New Zealand and the following checks do not identify the fault condition, the equipment should be returned to the original place of purchase with proof of purchase, or contact Weldwell on 06 8341 600.

10 TROUBLE SHOOTING CHART

Problem	Likely Reason	Outcome
All Inverter Multi-Process Models		
No welding current, no display.	The machine is not turned on at both the mains supply and the machine power switch.	If confirmed that the machine is switched on correctly, test the same outlet using a known serviceable appliance.
Mains circuit breaker nuisance tripping during welding.	Mains circuit breaker inadequately rated, or duty cycle exceeded.	The circuit breaker may be rated for leff (effective current). If Weld output is greater than the 100% rating the machine will require mains current higher than leff. The duty cycle should be observed and understood.
Machine continually cuts out on thermal overload	The machine duty cycle has been exceeded.	Leave the machine energized, with the fan running until the machine has cooled sufficiently. The duty cycle should be observed and understood.
No welding current, display on.	The weld connections may not be made securely.	Ensure all connections are in position and securely made.
Machine gives poor quality weld.	The polarity of the electrode/return cables is incorrect.	Polarity should be confirmed for the process/wire type in use.
	The return lead contacts, or workbench surface requires cleaning.	The return lead contacts and connections should be inspected and cleaned, and the workbench cleared of waste materials.
Machine works fine on mains power but does not work when connected to a generator.	Generator cannot provide high peak cycle currents for inverter.	Use larger kVA generator or sometimes a different band generator will work..
Machine works fine on mains power but does not work when connected with extension lead.	Extension leads creating additional resistance, and voltage drop	Use larger cable size, and keep extension lead as short as possible.

Problem	Likely Reason	Outcome
MMA/STICK Models		
In MMAW (Stick), the arc is difficult to strike.	The technique required for VRD enabled welding machines is not the same as earlier stick welding units.	The technique to strike should be reviewed, not as a 'strike' but more as 'touch, twist, lift' motion. If VRD is not a site requirement, VRD can be disabled by service agent .
GTAW/TIG Models		
Tungsten burns up on arc start.	The polarity of the electrode/ return cables is incorrect.	Polarity should be confirmed for the process/wire type in use
	Gas not turned on Gas flow too low Not enough Pregas time	Review gas set up.
The weld has small black 'lumps' or 'dots' appearing in the pool. Cleaning is poor.	Old or dirty filler rods can often be the cause of 'dirty' TIG welding operations.	Switching filler rods to another type or batch may solve this issue.
Weld is contaminated with small bubbles (presence of porosity).	The gas hose is not securely connected at the machine or at the regulator.	Ensure the gas connections from regulator through to the torch connection are sufficiently tightened.
Presence of porosity at weld start.	The torch gas hose has not been purged sufficiently.	Purge the system and confirm sufficient gas flow through the regulator.

11 SERVICE INFORMATION

The electrical components of the equipment are shown in the circuit diagrams on pages 20-22.

The Weldarc inverter is an inverter type design, where the mains supply is first rectified, filtered then chopped to a high frequency before being applied to the welding transformer. The output of this transformer is rectified to form the welding output of the machine.

CAUTION: The following information is intended for use by qualified service personnel. When the unit is energised LETHAL VOLTAGES are present on the electrical and electronic components. It is not intended that persons without suitable training and knowledge attempt to perform service tasks on the components of this welder.

Before removing the equipment cover, ENSURE that the equipment is disconnected from the mains power supply. When the equipment is energised LETHAL VOLTAGES are present on the electrical components enclosed.

If the welding machine requires service or repair, take the machine to an authorised service agent. Australian service agents can be located on the welding.com.au website. Alternatively call customer service; Australian 1300 300 884 New Zealand 0800 9353 9355. When contacting a service agent please have an accurate description of the fault, and the machine serial number located on the base on the machine.

**M1102A.....
M1112A.....
M1122A.....**

12 CIRCUIT DIAGRAMS – 135 POWER SOURCE

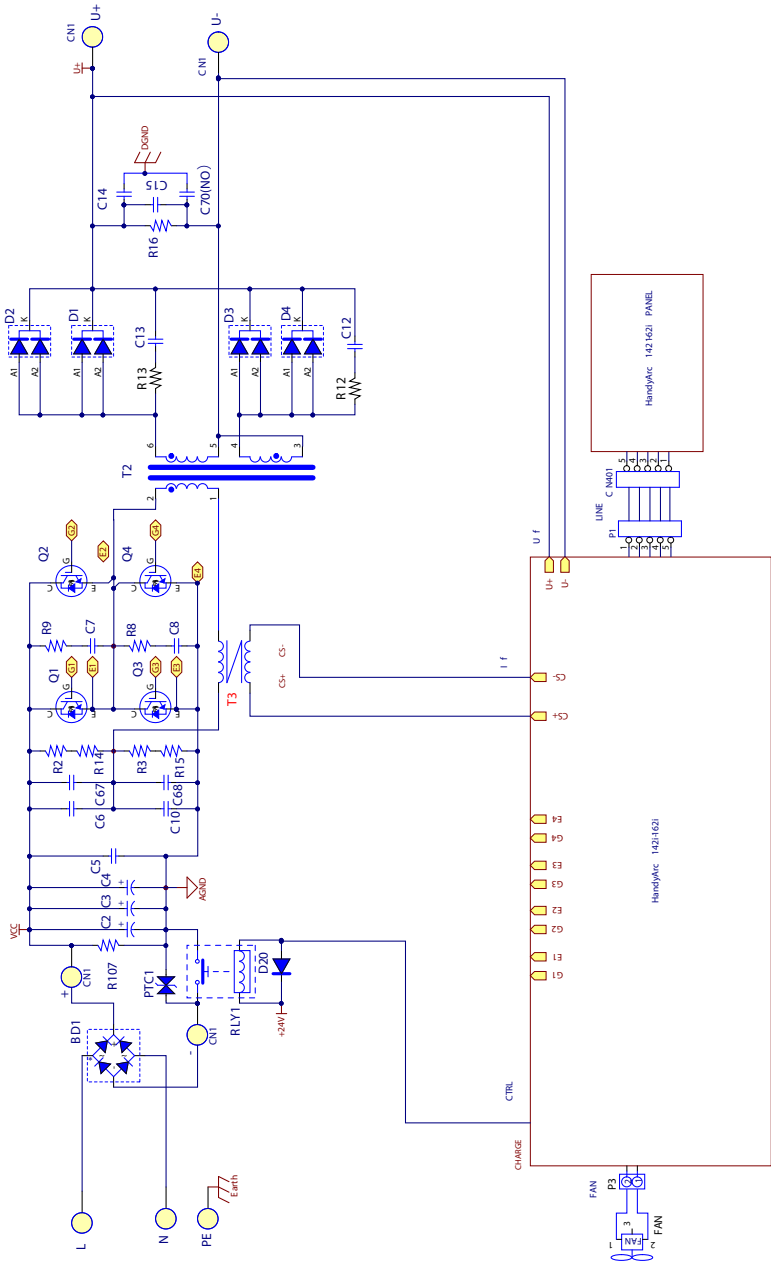


Fig 5 Weldarc 135 Circuit Diagram

12.2 CIRCUIT DIAGRAMS – 185 POWER SOURCE

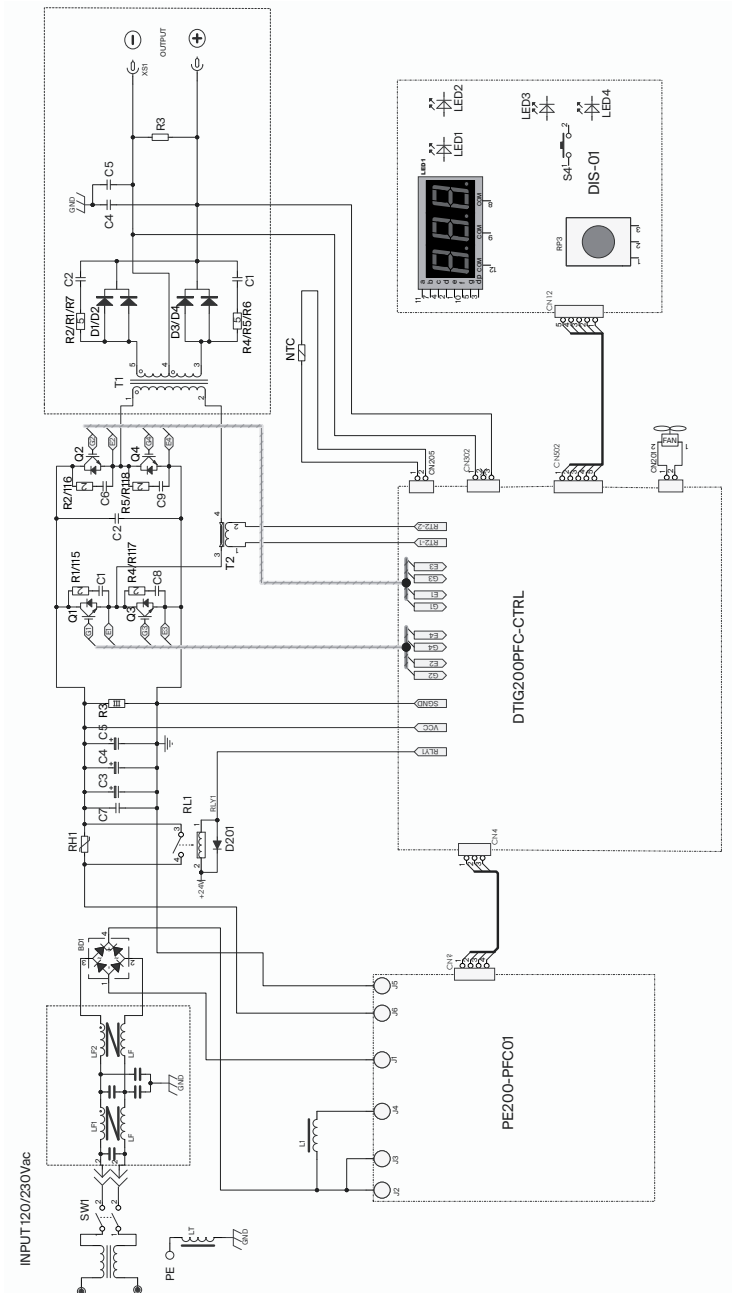


Fig 7 Weldarc 185 Circuit Diagram

13 ASSEMBLY AND PARTS LIST - WELDARC 135 POWER SOURCE

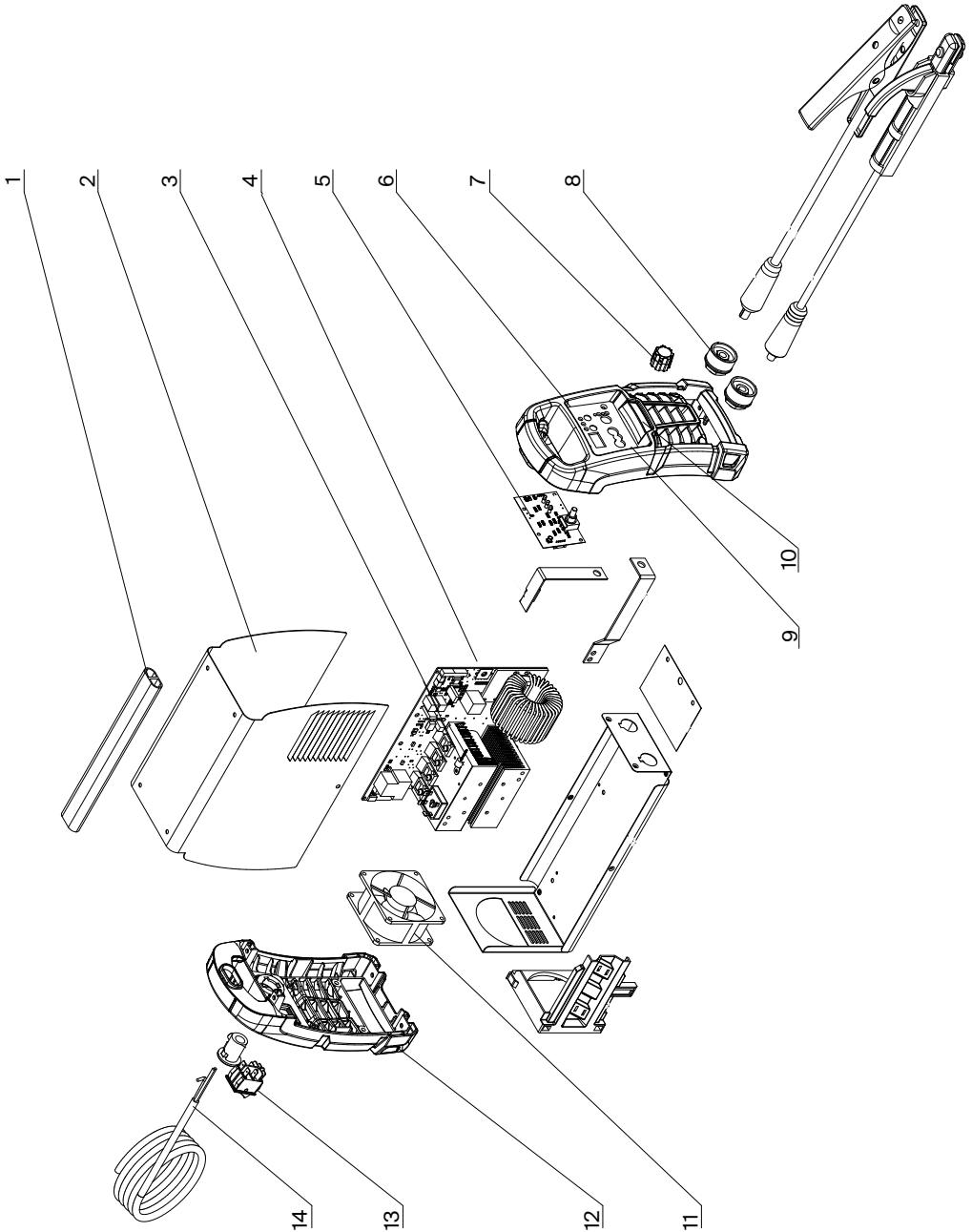
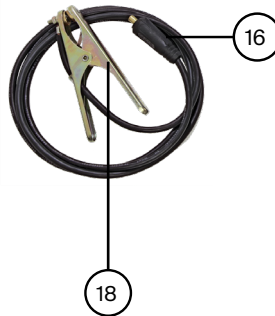
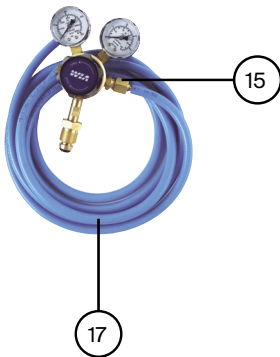


Fig 8 Weldarc 135 Power Source Assembly

13 ASSEMBLY AND PARTS LIST - WELDARC 135 POWER SOURCE

Item #	Part #	Description	Qty
1	M0109	Handle	1
2	PAN175	Outer Cover	1
3	R0032	Thermistor	1
4	PWA062	PCB Main Control 135	1
5	PWA063	PCB Front Panel 135	1
6	M0106	Front Panel Plastic	1
7	M0104	Knob	1
8	SA 140-0/2	135 Output Socket	1
9	WIN671	LOGO Sticker 135	1
10	WIN678	Front Sticker	2
11	FAN022	Fan	1
12	M0107	Rear Panel Plastic	1
13	E0078	Main Switch	1
14		Supply Cable 1.5mm ² 10A Plug	1
15	REG003	Argon Regulator	1
16	SA32-0/1	Dinse Plug	1
17	62513	Gas Hose 5mm	1
18	CLA002	Work Clamp	1
Not shown	M112-40	Operating Manual	1



14 ASSEMBLY AND PARTS LIST - WELDARC 145 POWER SOURCE

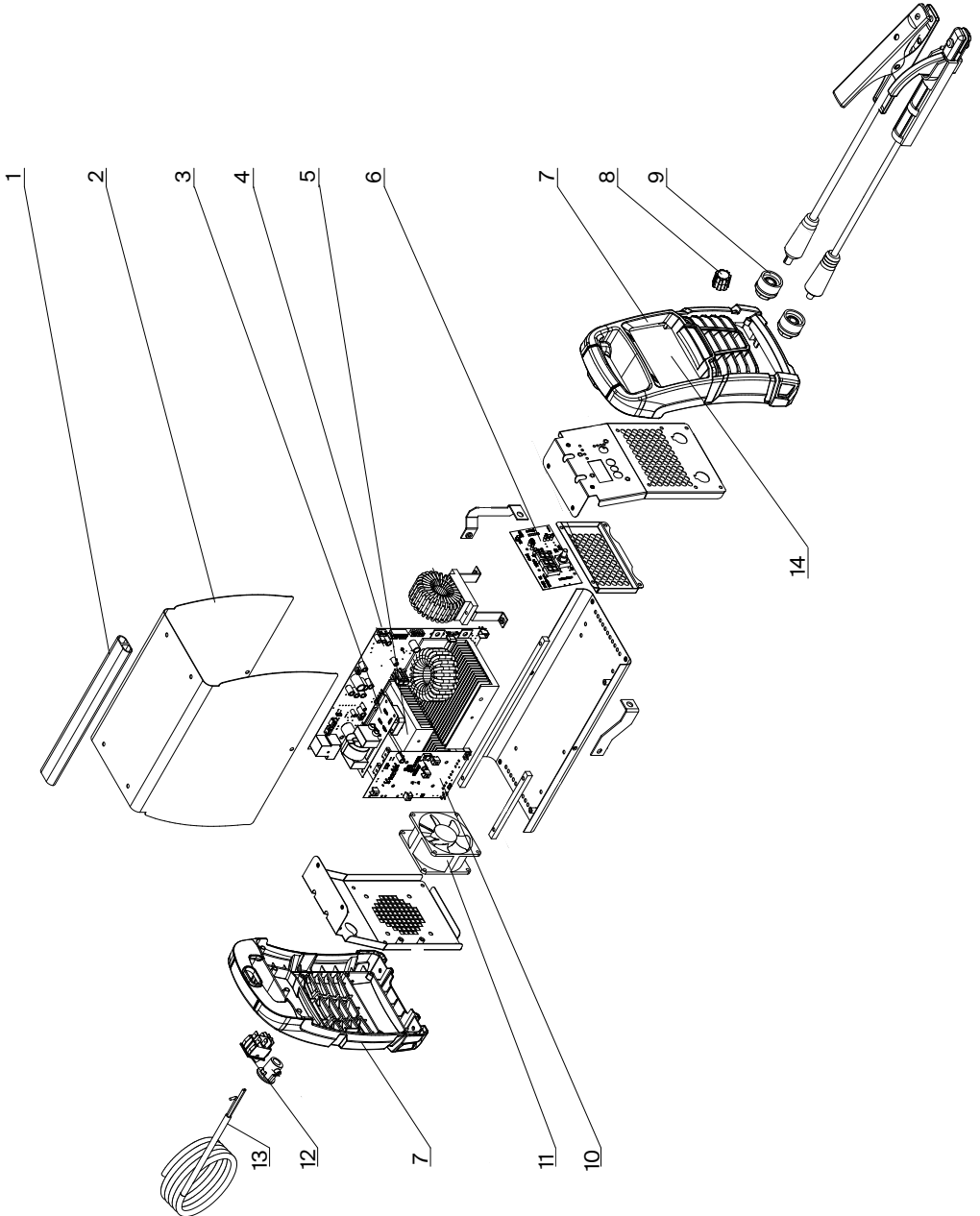
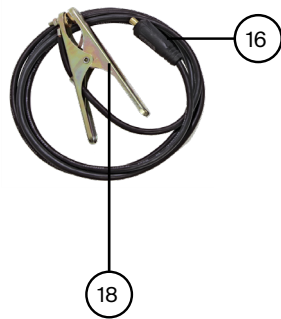
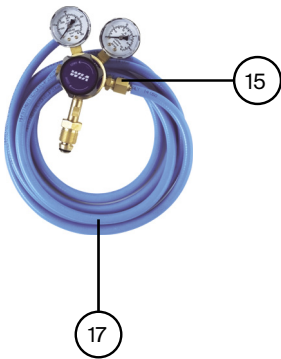


Fig 9 Weldarc 145 Power Source Assembly

14 ASSEMBLY AND PARTS LIST - WELDARC 145 POWER SOURCE

Item #	Part #	Description	Qty
1	M0109	Handle	1
2	PAN176	Outer Cover	1
3	PWA107	PCB Main Control 145	1
4			
5	R0032	Thermister	1
6	PWA064	PCB Front Panel 145	1
7	M0108	Panel Plastic	2
8	M0104	Knob	1
9	SA 140-0/2	Output Socket	2
10	PWA106	PCB PFC	1
11	FAN023	Fan	1
12	E0078	Main Switch	1
13		Supply Cable 1.5mm ² 10 A Plug	1
14	WIN625	Front Sticker 145	1
15	REG003	Argon Regulator	1
16	SA32-0/1	Dinse Plug	1
17	62513	Gas Hose 5mm	1
18	CLA002	Work Clamp	1
Not shown	MC112-40	Operating Manual	1



15 ASSEMBLY AND PARTS LIST - WELDARC 185 POWER SOURCE

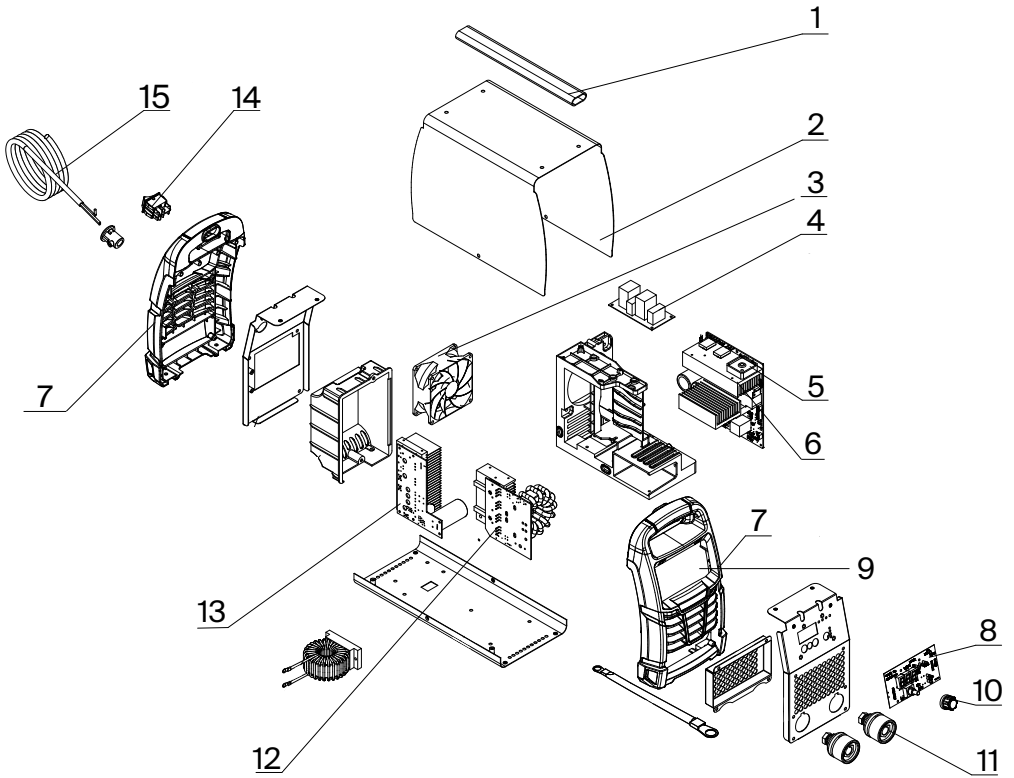
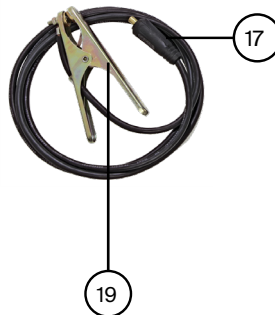
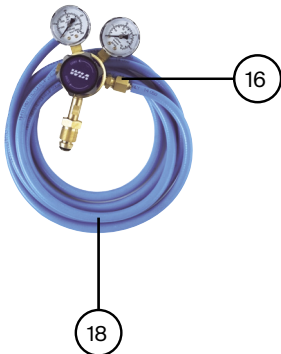


Fig 10 Weldarc 185 Power Source Assembly

15 ASSEMBLY AND PARTS LIST - WELDARC 185 POWER SOURCE

Item #	Part #	Description	Qty
1	M0109	Handle	1
2	PAN182	Outer Cover	1
3	FAN021	Fan	1
4	PWA108	PCB Filter	1
5	PWA109	PCB Main Control 185	1
6	R0032	Thermister	1
7	M0108	Panel Plastic	1
8	PWA110	PCB Front Panel 185	2
9	WIN628	Front Panel Control Sticker 185	1
10	M0104	Knob	1
11	CX58	Output Socket	2
12	PWA111	PCB Rectifier	1
13	PWA061	PCB PFC	1
14	E0078	Main Switch	1
15		Supply Cable 2.5mm ² 15 A Plug	
16	REG003	Argon Regulator	1
17	CX22	Dinse Plug	1
18	62513	Gas Hose 5mm	1
19	CLA002	Work Clamp	1
Not shown	MC112-40	Operating Manual	1



16 AUSTRALIAN WARRANTY INFORMATION



WIA Weldmatic MIG & Weldarc MMA Equipment

3 Year Gold Shield Warranty Statement

Effective 1st January 2022

Welding Industries of Australia (WIA) warrants to the original retail purchaser that the Weldarc welding machine purchased (Product) will be free from defects in materials and workmanship for a period of 3 years from the date of purchase of the Product by the customer. If a defect in material or workmanship becomes evident during that period, Welding Industries of Australia will, at its option, either:

- Repair the Product (or pay for the costs of repair of the Product); or
- Replace the Product.

In the event of such a defect, the customer should return the Product to the original place of purchase, with proof of purchase, or contact Welding Industries of Australia on 1300 300 884 to locate an authorised service agent.

Products presented for repair may be replaced by refurbished products of the same type rather than being repaired. Refurbished parts may be used to repair the product. Replacement of the product or any part does not extend or restart the Warranty Term. The repair of your products may result in the loss of any user-generated data. Please ensure that you have made a copy of any data saved on your product.

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 Welding Industries of Australia. Welding Industries of Australia will return the replacement product, if original found to be faulty, freight free to the customer.

This warranty covers the Weldarc power source only, and does not extend to the regulator, gun assembly or accessories included in the original purchase package.

The obligation of Welding Industries of Australia 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 Welding Industries of Australia.

For products purchased in Australia

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 other 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. The benefits given by this warranty are in addition to other rights and remedies which may be available to the customer under any law in relation to goods and services to which this warranty relates.

Warranty provided by:**Welding Industries of Australia**

(ABN 63 004 235 063)

A Division of ITW Australia Pty Ltd

5 Allan Street, Melrose Park
South Australia 5039

Ph: 1300 300 884

Email: info@welding.com.au

Web: www.welding.com.au

17 NEW ZEALAND WARRANTY INFORMATION



WIA Weldmatic MIG & Weldarc MMA Equipment

3 Year Gold Shield Warranty Statement

Effective 1st January 2022

In the event of defects listed in the Australian warranty conditions, the customer should return the Product to the original place of purchase, with proof of purchase, or contact Customer Service on 0800 9353 9355.

The warranty shall not apply to parts that fail due to normal wear.

For customers located in New Zealand, you can contact:

Weldwell New Zealand

Division of ITW New Zealand

59 Thames Street
Napier 4110
New Zealand

Ph: 0800 9353 9355

Email: info@weldwell.co.nz

Web: www.weldwell.co.nz

NOTES:

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WIA

WELDING INDUSTRIES AUSTRALIA

A Division of ITW Australia Pty Ltd
ABN: 63 004 235 063

1300 300 884

Email: info@welding.com.au
welding.com.au

MC112-40 RevC

WELDWELL NEW ZEALAND

A Division of ITW New Zealand
NZBN: 9 429 039 833 129
GST NO: 080177186

0800 9353 9355

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