INVERTER ARC WELDER

80 Amp
INSTRUCTION MANUAL

SPECIFICATIONS
Input Voltage: 230-240V ~ 50Hz
Welding Current: 10 - 80A
Arc Electrode Size: 1.6 - 2.5mm
Duty Cycle: 12%@80A (23.2V) DC
Cord & Plug: 2.0m/10A
Weight: 5.0kg
The input supply is protected by a 16A fuse.

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3 YEAR REPLACEMENT WARRANTY

IWA-100
### SETUP & PREPARATION

#### 1. ASSEMBLY

**WARNING:** ENSURE THE TOOL IS SWITCHED OFF AND DISCONNECTED FROM THE POWER SUPPLY BEFORE PERFORMING ANY OF THE FOLLOWING STEPS.

Before starting you will require a suitable Electrode according to the specific material type and thickness.

1. Attach Arc Electrode Holder lead to the POSITIVE (+) output terminal. Insert & rotate until connection is firm.

2. Attach Earth Clamp lead to the NEGATIVE (-) output terminal. Insert & rotate until connection is firm.

**NOTE:** FULLY INSULATED LOCK-TYPE CONNECTORS SHOULD BE USED WITH THE INVERTER WELDERS OUTPUT TERMINALS.

3. Install thin (uncoated) end of Electrode into the arc electrode holder.

**WARNING:** DO NOT TOUCH THE ELECTRODE WHILE THE WELDER IS ON.

4. Attach the Earth Clamp to the work piece ensuring area is free from paint or dirt so that there is a good electrical connection.

5. Connect the Inverter Welder power cord into a power outlet.

**NOTE:** AVOID THE USE OF EXTENSION CORDS.
2. CONTROLS

**WARNING** THE POWER SUPPLY FOR THIS PRODUCT SHOULD BE PROTECTED BY A RESIDUAL CURRENT DEVICE (RATED AT 30mA OR LESS). A RESIDUAL CURRENT DEVICE REDUCES THE RISK OF ELECTRIC SHOCK.

Welding Current Control

The welding current can be increased or decreased by turning the welding current control knob. The welding current should be set according to the specific application and material.

1. To increase the welding current turn the current control knob in a clockwise direction.

2. To decrease the welding current turn the current control knob in an anti-clockwise direction.

**Power ON LED**

The Power ON Indicator illuminates when the power cord is connected to a live mains outlet.

**Note:** The cooling fan will operate when on.

**Thermal Overload LED**

When illuminated, wait for the LED to extinguish before resuming welding.

**Note:** This can occur in heavy use and does not indicate a fault.

3. ARC WELDING

**Preparation**

Before welding ensure that:

- You have read and understand the safety section of this manual.
- There is sufficient ventilation, particularly at the front and rear of the unit.
- You have an adequate fire-fighting devices on hand.

**WARNING:** ENSURE ALL OIL, PETROL AND FLAMMABLE CONTAINERS HAVE BEEN REMOVED FROM WELDING AREA.

**Electrodes & Welding Current**

The welding current must be regulated in accordance with the diameter of the electrode and the thickness of the steel being used. This will vary with the type of electrodes and material you are using. Below is a guide suggesting suitable currents & thickness for welding steel.

<table>
<thead>
<tr>
<th>Electrode Diameter</th>
<th>Welding Current (Amps)</th>
<th>Thickness of Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø1.6mm</td>
<td>40 - 50</td>
<td>2mm</td>
</tr>
<tr>
<td>Ø2.0mm</td>
<td>50 - 65</td>
<td>3mm</td>
</tr>
<tr>
<td>Ø2.5mm</td>
<td>65 - 80</td>
<td>4mm</td>
</tr>
</tbody>
</table>

**Striking the Arc**

**WARNING:** ENSURE APPROVED PROTECTIVE CLOTHING AND WELDING HELMET/MASK IS WORN AT ALL TIMES TO PROTECT YOUR FACE AND EYES FROM ARC UV RADIATION AND SPARKS.

Lower the electrode slowly and proceed to strike the electrode tip against the desired join area on the work piece as if you are striking a match. As soon as you have the arc, try to maintain a distance from the work piece equal to the diameter of the electrode being used, eg 2.0mm electrode, 2.0mm gap.

**Slag**

Slag is refuse left around the weld after welding, this should only be removed after the weld has cooled down and is no longer glowing. Face shield must be worn during removal of slag.
5. WELDING PROPERTIES

Arc Length
To strike the arc, the electrode should be gently scraped on the work until the arc is established. A simple rule for the proper arc length; it should be the shortest arc that gives a good surface to the weld. A very long arc produces a crackling noise and the weld metal comes across in large, irregular blobs and gives a rough surface finish to the weld. A short arc is essential if a high quality weld is to be obtained but a excessively short arc will cause sticking of the electrode and result in poor quality welds.

Electrode Angle
The angle that the electrode makes with the work is important to ensure a smooth, even transfer of metal. When welding in down hand, fillet, horizontal or overhead the angle of the electrode is generally between 5 and 15 degrees towards the direction of travel. When vertical upward welding the angle of the electrode should be between 70 and 80 degrees to the work piece.

Travel Speed
The electrode should be moved along in the direction of the joint being welded at a speed that will give the size of run required. At the same time, the electrode is fed downwards to keep the correct arc length at all times. Excessive travel speeds lead to poor fusion and lack of penetration. While too slow a rate of travel will frequently lead to arc instability, slag inclusions and poor mechanical properties.

Electricity
The electricity flows through the electrode cable to the attached electrode. The electricity will not leave the electrode unless it touches an earthed object. Electricity always finds the fastest path to the earth. When the earth cable clamp is connected to the metal work piece a direct earth connection is created back to the welder. When the electrode makes contact with the earthed work piece an arc is created. The electricity flows through the electrode, the metal work piece and then through the earth cable straight back to the welder.

Earth Clamp
Prior to connecting the earth clamp it may be necessary to clean the surface of the work piece using the metal brush. Attach the earth clamp firmly to the work piece ensuring there is good metal to metal contact. Clamp it where it will not be in the way. This clamp provides an earth connection back to the welder. Always ensure the welder is disconnected from the power supply before attaching electrodes into the holder.

Electrodes
Always store the electrodes in a dry place protecting them from moisture. Should electrodes become damp or moist, bake them in an oven at 200 - 250°C for 2 hours. Unless the electrodes are vacuum packed, basic coated electrodes will always require such baking prior to use.

Metal arc welding electrodes consist of a core wire surrounded by a flux coating. The flux coating is applied to the core wire by an extrusion process. The coating on arc welding electrodes has a number of purposes:

- To provide a gaseous shield for the weld metal, and preserve it from contamination by the atmosphere whilst in a molten state.
- To give a steady arc by having 'arc stabilisers' present, which provide a bridge for current to flow across.
- To remove oxygen from the weld metal with ‘deoxidised’.
- To provide a cleansing action on the work piece and a protective slag cover over the weld metal to prevent the formation of oxides while the metal is solidifying. The slag also helps to produce a bead of the desired contour.
- To introduce alloys into the weld deposits in special type electrodes.
### Description of Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>Volts</td>
</tr>
<tr>
<td>~</td>
<td>Alternating current</td>
</tr>
<tr>
<td>Ø</td>
<td>Diameter</td>
</tr>
<tr>
<td>U1</td>
<td>Rated AV input voltage (with tolerance ±10%)</td>
</tr>
<tr>
<td>U2</td>
<td>On-load voltage</td>
</tr>
<tr>
<td>I1max</td>
<td>Rated maximum input current</td>
</tr>
<tr>
<td>U0</td>
<td>Non-load voltage</td>
</tr>
<tr>
<td>I2</td>
<td>Current rating</td>
</tr>
<tr>
<td>t_W</td>
<td>Load time</td>
</tr>
<tr>
<td>t_r</td>
<td>Rest time</td>
</tr>
<tr>
<td>Vmax</td>
<td>Max. wire feeding speed</td>
</tr>
<tr>
<td>X</td>
<td>Load duration rate</td>
</tr>
<tr>
<td>A/V</td>
<td>Electric current adjustment range, and the relevant on-load voltage</td>
</tr>
<tr>
<td>IP</td>
<td>Protection class</td>
</tr>
<tr>
<td>Earth</td>
<td>ARC electrode lead terminal</td>
</tr>
<tr>
<td>I_E 1</td>
<td>Symbol of single-phase AV power and rated frequency</td>
</tr>
</tbody>
</table>

### Troubleshooting

#### Thermal Overload

**If your welder overheats and the thermal overload protection engages do not turn your welder off as the fan will assist in reducing the cooling time.**

All Welders have a feature called a duty cycle.

Duty cycle on a welder refers to the time in which the welder operates during normal welding.

A welder can only weld for a certain continuous period of time before it requires to cool down.

If the internal components of the welder should become hot the welder could overheat. If the welder overheats the Thermal Overload Protection feature will automatically shut down the welder.

**This can occur in heavy use and does not indicate a fault.**

The Welder will cease to weld and the Thermal Overload LED light will turn on. This LED indication light is just to inform you that your welder is becoming too hot and requires to cool down to protect the internal components of the welder. Do Not turn your welder off as the welder has an internal cooling fan and this will assist your welder to cool down quicker. Reducing the cooling time will enable you to get back to your welding job quicker.

Depending on how many Amps or how heavy the welding you are doing the cooling time may take up to 10 minutes for your welder to cool down so you can return to your welding job.

#### General Operation

**Problem**

- **No Power**
  - **Cause**
    - Power supply
  - **Remedy**
    - Test supply with another product, avoid using extension leads.

- **Circuit breaker tripped**
  - **Cause**
    - Check the rating of the circuit breaker on the supply and other appliances connected to the circuit.
  - **Remedy**
    - This is a high-power device and it is recommended that it be the only appliance on the circuit to ensure it has enough power to operate.

- **Difficulty starting arc**
  - **Cause**
    - Incorrect cable connection
  - **Remedy**
    - Check cable connections to welder are secure, rotate clockwise until firm.

- **Earth clamp connection not adequate**
  - **Cause**
    - Check earth clamp has good connection to material being welded. Surface for clamp connection needs to be bare metal, remove rust or paint.
  - **Remedy**
    - Hold electrode at correct angle, practice on scrap material.

- **Welder cuts out**
  - **Cause**
    - Thermal overload active
  - **Remedy**
    - The thermal overload light on the front panel will be on and the welder will not operate until cooled down and the light goes out. This is normal in heavy welding, allow the welder to cool down.

#### Arc Welding

- **Poor welding**
  - **Cause**
    - Incorrect or wet welding electrodes
  - **Remedy**
    - Select electrode type to suit material, electrodes need to be dry.

- **Sticking welding electrode**
  - **Cause**
    - Settings
  - **Remedy**
    - Increase current to recommended.

- **Material**
  - **Cause**
    - Clean area being welded to bare metal.
  - **Remedy**
    - Check the electrode type and size is appropriate for the material being used.

- **Electrode damage**
  - **Cause**
    - Electrode size to small for material
  - **Remedy**
    - Change to larger electrode.

#### EARTH

**Regulator compliance mark**

**Direct Current (DC)**

**Do not operate in the rain**

**Earth clamp lead terminal**

**Symbol of single-phase AV power and rated frequency**

### Carving for the Environment

Power tools that are no longer usable should not be disposed of with household waste but in an environmentally friendly way. Please recycle where facilities exist. Check with your local council authority for recycling advice.

Recycling packaging reduces the need for landfill and raw materials. Reuse of recycled material decreases pollution in the environment. Please recycle packaging where facilities exist. Check with your local council authority for recycling advice.

### Spare Parts

Spare parts can be ordered from the Special Orders Desk at your local Bunnings Warehouse.

For further information, or any parts not listed here, visit www.ozito.com.au or contact Ozito Customer Service:

Australia 1800 069 486
New Zealand 0508 069 486
E-mail: enquires@ozito.com.au
**INVERTER WELDER SAFETY WARNINGS**

- Under no circumstances should the housing of the welder be opened.
- Always protect your eyes and face with a welding mask.
- Wear appropriate protective clothing such as a welding apron and sleeved gloves etc.
- Avoid exposing skin as UV rays are produced by the arc.
- Screen off the work place to protect others working nearby from UV rays.
- Welding materials with contaminated surfaces may generate toxic fumes. Ensure the surface is clean before welding. Avoid operating on materials cleaned with chlorinated solvents or near such solvents.
- Do not weld metal equipment that holds/contains flammable materials, gases or liquid combustibles.
- Zinc-plated or galvanized material should not be welded as the fumes created are highly toxic.
- Do not use the welder in damp or wet conditions.
- Do not use cables with worn insulation or loose connections.
- Disconnect from the power supply before replacing electrodes.
- Avoid direct contact with the welding circuit.
- Do not use the welder to defrost piping.
- Ensure the welder is placed on a level surface to prevent overturning.
- Provide adequate ventilation or a means for removal of the welding fumes produced (forced circulation using a blower or fan).

**Glares**

The electric arc generated by the arc process gives direct heat and ultraviolet radiation. It is essential that the eyes of the operator and bystanders are protected from the glare during welding.

**ALWAYS USE A FACESHIELD OR WELDING HELMET FITTED WITH THE CORRECT GLASS FILTER.**

**Heat**

It is desirable that welding gloves are worn whilst welding. They will protect the hands from ultra-violet radiation and direct heat of the arc.

**Dress**

In addition to face shield, welding gloves and overalls, other types of protective clothing should be worn when welding. Additional protective clothing such as a leather apron, sock protectors and a hat will all assist in reducing any injuries due to heat, sparks and slag produced during welding.

**OVERALLS should also be worn. They should be of type designed to be buttoned at the wrists and the neck.**

**Fumes**

Toxic gases are given off during the ARC welding process, which may collect in the welding area if the ventilation is poor. Be alert at all times to the possibility of fume build-up. In small or confined areas use a fume extractor.
IN ORDER TO MAKE A CLAIM UNDER THIS WARRANTY YOU MUST RETURN THE PRODUCT TO YOUR NEAREST BUNNINGS WAREHOUSE WITH YOUR BUNNINGS REGISTER RECEIPT. PRIOR TO RETURNING YOUR PRODUCT FOR WARRANTY PLEASE TELEPHONE OUR CUSTOMER SERVICE HELPLINE:

Australia 1800 069 486  
New Zealand 0508 069 486

TO ENSURE A SPEEDY RESPONSE PLEASE HAVE THE MODEL NUMBER AND DATE OF PURCHASE AVAILABLE. A CUSTOMER SERVICE REPRESENTATIVE WILL TAKE YOUR CALL AND ANSWER ANY QUESTIONS YOU MAY HAVE RELATING TO THE WARRANTY POLICY OR PROCEDURE.

The benefits provided under this warranty are in addition to other rights and remedies which are available to you at law. Our goods come with guarantees that cannot be excluded at 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.

Generally you will be responsible for all costs associated with a claim under this warranty, however, where you have suffered any additional direct loss as a result of a defective product you may be able to claim such expenses by contacting our customer service helpline above.

3 YEAR REPLACEMENT WARRANTY

Your product is guaranteed for a period of 36 months from the original date of purchase. If a product is defective it will be replaced in accordance with the terms of this warranty. Warranty excludes consumable parts, for example: welding masks and combination wire brush and chipping hammers.

WARNING

The following actions will result in the warranty being void.

- If the tool has been operated on a supply voltage other than that specified on the tool.
- If the tool shows signs of damage or defects caused by or resulting from abuse, accidents or alterations.
- Failure to perform maintenance as set out within the instruction manual.
- If the tool is disassembled or tampered with in any way.
- Professional, industrial or high frequency use.