DIY TRADE

S140

INVERTER DC MMA ARC WELDER

MANUAL

STICK

2 YEAR LIMITED WARRANTY

BOSSWELD

WELD LIKE A BOSS

Thank you for choosing a BOSSWELD S140 MMA Welder

In this manual you will find instructions on how to set up your welder along with general welding information safety information and helpful tips. We encourage you to go online to our website for more tips and troubleshooting as well as many welding resources.

The BOSSWELD S140 Is the latest in IGBT MMA Stick Electrode Welder technology, this very lightweight welding machine, is easy to use, generating a very smooth and stable output, ideal for welding jobs around the home, farm, workshop or on site.

We truly hope you enjoy using your welder!

Every effort has been made to ensure that this manual has been prepared accurately, however errors and omissions are excepted.

BOSSWELD is a trademark of Dynaweld Industrial Supplies Pty Ltd

WARRANTY

This warranty is in addition to the statutory warranty provided under Australian Consumer Law, but does not include damage resulting from transport, misuse, neglect or if the product has been tampered with.

The product must be maintained as per this manual, and installed and used according to these instructions on an appropriate power supply. The product must be used in accordance with industry standards and acceptable practice.

This warranty covers the materials used to manufacture the machine and the workmanship used to produce the item. This Warranty does not cover damage caused by:

1. Normal wear and tear due to usage
2. Misuse/ abuse or neglect of the item
3. Transport/ handling breakages
4. Lack of maintenance, care and cleaning
5. Environmental factors, such as usage in temperatures exceeding 40 degrees, above 1000 metres sea level, rain, water, excessive damp, cold or humid conditions.
6. Improper setup or installation.
7. Use on incorrect voltage or non authorised electrical connections and plugs.
8. Use of non standard parts.
9. Repair, case opening, tampering with, modifications to any part of the item by non authorised BOSSWELD repairers.

This warranty covers the machine only and does not include Torches, Leads, Earth Clamps, Electrode Holders, Plasma Torches, TIG Torches and any of the parts on those items unless there is a manufacturing fault.

1. REGISTRATION

Purchasers are encouraged to register for warranty on our website.
www.dynaweld.com.au/warranty

2. TIME PERIOD - 2 Years

A warranty claim must be made within 2 years from the date of purchase of this product. Any claim must include proof of purchase.

3. HOW TO MAKE A CLAIM- NEED SOME HELP?

- Visit our website www.dynaweld.com.au/troubleshooting for many helpful tips and guides to assist with the setup and usage of your new machine. Still stuck….?
- Call the BOSSWELD Helpdesk on 1300 460 665 for over the phone assistance.
- If the machine is not operational then return the item to the place of purchase.

DYNAWELD MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHERS, INCLUDING, BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

BOX CONTENTS:

Refer	Item
1.	BOSSWELD S140 Inverter DC MMA Arc Welder
2.	Electrode Holder Lead
3.	Welding Earth Lead
4.	Carry Strap
5.	Cable / Lead tidy
6.	Owners Manual (not shown)

WARNING

The device and packaging material are not toys! Children must not be allowed to play with the machine and its accessories. Plastic parts and packaging are choking risks for children.

- Open the packaging and remove the welder carefully.
- Check that the delivery is complete.
- If possible, store the packaging until the warranty period has expired.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

GLOVES AND PROTECTIVE CLOTHING

Use protective gloves and fire resistant protective clothing when welding. Avoid exposing skin to ultraviolet rays produced by the arc.

WELDING HELMET

Under no circumstances should the welder be operated unless the operator is wearing a welding helmet to protect the eyes and face. There is serious risk of eye damage if a helmet is not used. The sparks and metal projectiles can cause serious damage to the eyes and face. The light radiation produced by the arc can cause damage to eyesight, and burns to skin. Never remove the welding helmet whilst welding.

SAFETY GLASSES

After welding use appropriate safety glasses when brushing, chipping or grinding the slag from the weld.

OTHER PERSONS

Ensure that other persons are screened from the welding arc and are at least 15 metres away from the work piece. Always ensure that the welding arc is screened from onlookers, or people just passing by. Use screens if necessary, or non-reflecting welding curtain. Do not let children or animals have access to the welding equipment or to the work area.

SWITCHING OFF

When the operator has finished welding they must switch the welder off. DO NOT put the electrode holder down with the welder switched ON. When leaving the welder unattended, move the ON/OFF switch to the OFF position and disconnect the welder from the electrical mains supply. Do not leave hot material unattended after welding.

MACHINE CARE / SAFETY

Keep the welding cables, earth clamp and electrode holder in good condition. Failure to do this can result in poor welding quality, which could be dangerous in structural situations.

Prior to use, check for breakage of parts and any other conditions that may affect operation of the welder. Any part of the welder that is damaged should be carefully checked to determine whether it will perform its intended function whilst being safe for the operator. Any part that is damaged should be properly repaired, or replaced by an authorised service centre.

IMPROPER USE

It is hazardous to use the welding machine for any work other than that for which it was designed e.g. do not use welder for thawing pipes.

HANDLING

Ensure the handle is correctly fitted. As welding machines can be heavy, always use safe lifting practices when lifting.

POSITION AND HANDLING

To reduce risk of the machine being unstable / danger of overturning, position the welding machine on a horizontal surface that is able to support the machine weight. Operators MUST NOT BE ALLOWED to weld in raised positions unless safety platforms are used.

SAFETY INSTRUCTIONS

WARNING

The user of this welder is responsible for their own safety and the safety of others. It is important to read, understand and respect the contents of this user guide. When using this welder, basic safety precautions, including those in the following sections must be followed to reduce the risk of fire, electric shock and personal injury. Ensure that you have read and understood all of these instructions before using this welder. Persons who are not familiar with this user guide should not use this welder. Keep this booklet in a safe place for future reference.

TRAINING

The operator should be properly trained to use the welding machine safely and should be informed about the risks relating to arc welding procedures. This user guide does not attempt to cover welding technique. Training should be sought from qualified/ experienced personnel on this aspect, especially for any welds requiring a high level of integrity for safety.

SERIOUS FIRE RISK

The welding process produces sparks, droplets of fused metal, metal projectiles and fumes. This constitutes a serious fire risk. Ensure that the area in which welding will be undertaken is clear of all inflammable materials. It is also advisable to have a fire extinguisher, and a welding blanket on hand to protect work surfaces.

WORK AREA

- Ensure a clear, well lit work area with unrestricted movement for the operator.
- The work area should be well ventilated, as welding emits fumes which can be dangerous.
- Always maintain easy access to the ON/OFF switch of the welder, and the electrical mains supply.
- Do not expose the welder to rain and do not operate in damp or wet locations.

Where welding must be undertaken in environments with increased risk of electric shock, confined spaces or in the presence of flammable or explosive materials, it is important that the environment be evaluated in advance by an “expert supervisor”. It is also recommended that welding in these circumstances be carried out in the presence of persons trained to intervene in emergencies.

AVOID ELECTRICAL CONTACT

Use adequate electrical insulation with regard to the electrode, the work piece and any accessible earthed metal parts in the vicinity. Avoid direct contact with the welding circuit. The no load voltage between the earth clamp and the electrode can be dangerous under certain circumstances.

Note: For additional protection from electric shock. It is recommended that this welder be used in conjunction with a residual current device (RCD) with rated residual current of 30MA or less.

In general the use of extension leads should be avoided. If used however, ensure that the extension lead is used with the welder is of a suitable current rating and heavy duty in nature that MUST have an earth connection. If using the welder outdoors, ensure that the extension lead is suitable for outdoor use. Always keep extension leads away from the welding zone, moisture and any hot materials.

WELDING SURFACES

Do not weld containers or pipes that hold, or have held, flammable liquids or combustible gases or pressure. Do not weld on coated, painted or varnished surfaces as the coatings may ignite, or can give off dangerous fumes.

WORK PIECE

When welding, the work piece will remain at high temperature for a relatively long period. The operator must not touch the weld or the work piece unless wearing welding gloves. Always use pliers or tongs. Never touch the welded material with bare hands until it has completely cooled.

VOLTAGE BETWEEN ELECTRODE HOLDERS OR TORCHES

Working with more than one welding machine on a single work piece, or on work pieces that are connected, may generate a dangerous accumulation of no-load voltage between two different electrode holders or torches, the value of which may reach double the allowed limit.

MAINTENANCE

WARNING

Before starting any cleaning, or maintenance procedures on the welding machine, make sure that it is switched OFF and disconnected from the mains supply.

There are no user serviceable parts inside the welder. Refer to a qualified service personnel if any internal maintenance is required. After use, wipe the welder down with a clean soft dry cloth.

Regular inspection of the mains power cord is required and if damaged is suspected, it must be immediately replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard

STORAGE/ TRANSPORT

Store the welder and accessories out of children's reach in a dry place. If possible store the welder in the original packaging. The welder must unconditionally be secured against falling or rolling over during transport.

DISPOSAL

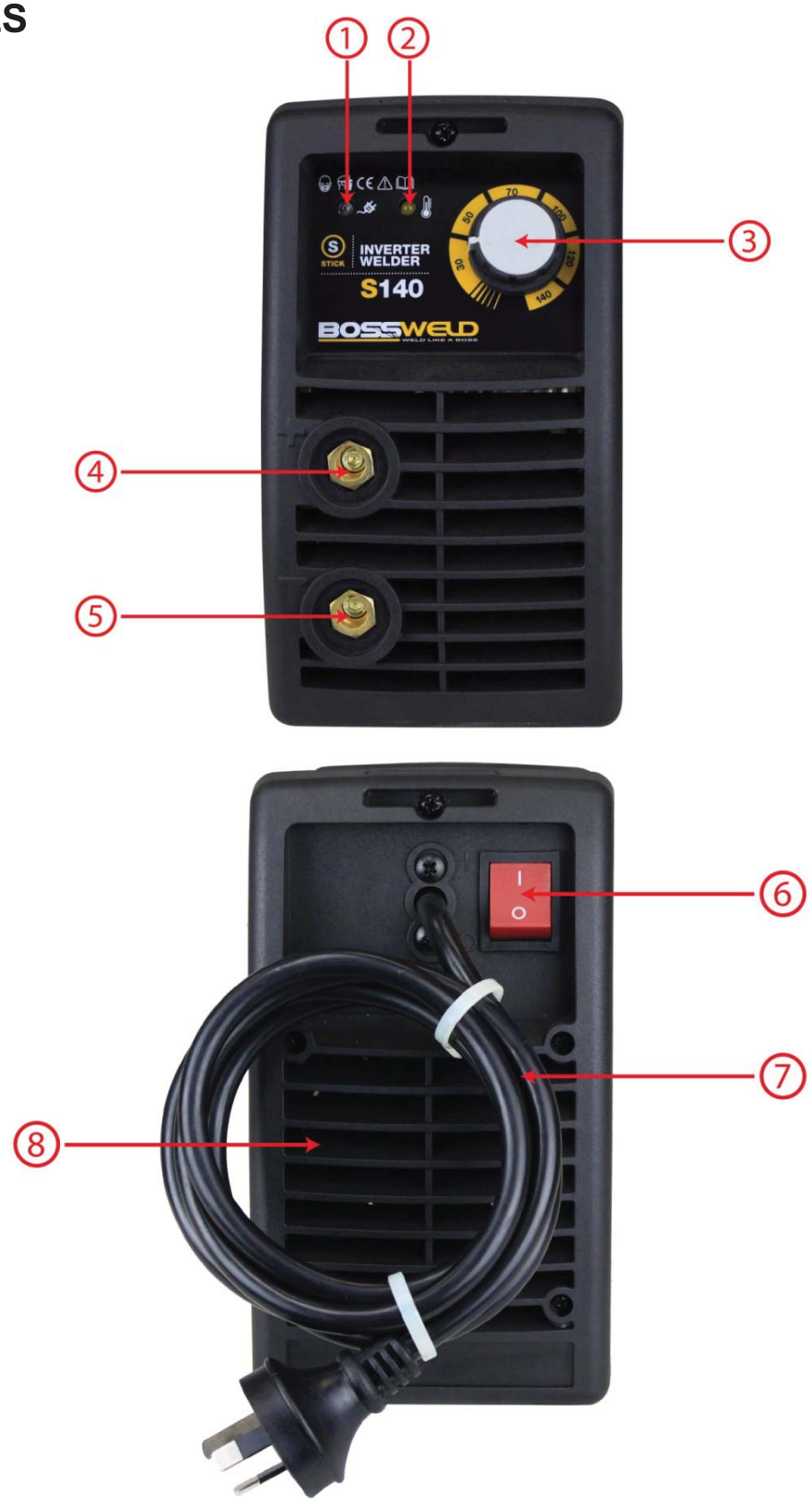
DISPOSING OF THE PACKAGING

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

DISPOSING OF THE WELDER

Welders 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.

CONTROLS



1.	Power Indicator Light	5.	Negative Output Connection Socket
2.	Overload error indicator	6.	Mains Power Switch
3.	Current Adjustment Knob	7.	240V AC Mains Power Cord
4.	Positive Output Connection Socket	8.	Cooling Fan

SET UP TO WELD ARC MMA Welding – Mild steel

1. Plug the machine input power lead into the 15 Amp wall socket. Ensure the Mains Power Switch (6) on the machine is in the OFF position.
2. Assemble arc leads in the Positive and Negative Output sockets (4, 5) depending on requirements of electrodes.
    - **DCEP/ Negative Polarity (most common application)**
        - Earth lead into the Negative Output Connection Socket (5).
        - Electrode holder into the Positive Output Connection Socket (4).

    - **DCEN/Straight Polarity**
        - Earth lead into the Positive Output Connection Socket (4).
        - Electrode holder in the Negative Output Connection Socket (5).

3. Connect earth clamp firmly to work-piece ensuring that the clamp makes good contact with bare metal. This is essential for good weld results.
4. Take electrode holder and press handle to open the tong. Insert bare metal rod end of electrode and release handle to clamp electrode.
5. Ensure the electrode/electrode holder is not near the work-piece or it can earth out. Turn the machine on using the Mains Power Switch (6). The Power Indicator Light (1) on the front of the machine will glow and the Cooling Fan (8) will start.
6. Select your required current by turning the Current Adjustment Knob (3).You may need to adjust the amperage again after commencing welding.
7. You are now ready to arc weld.
8. The machine will send starting electrical ‘pulse’ through the electrode that will ignite the welding arc.

TIPS

- Keep the welding current as low as possible for the job at hand to maintain the best duty cycle from your welding machine, prevent the flux from burning and make removal slag easier.
- To break the circuit withdraw the electrode from the work piece. Be careful with the end of the electrode, as it will be HOT. Provided the current setting is correct, the surface of the work piece will also melt by the intensity of the electric arc. A degree of “penetration” is thereby obtained, and a complete “fusion” of the work piece and the deposited electrode is met.
- If the transformer overheats, the overload cut-out protector will activate and cut off. The light will illuminate to show that the cut out has operated.
- After cooling, the protector will reconnect the supply circuit and the welder will be ready for further use.

Note: If the duty cycle of the machine is exceeded, the thermostatic protection will activate and the machine will cut out, to cool down.

MANUAL METAL ARC PROCESS (MMA WELDING)

When an arc is struck between the metal rod (electrode) and the workpiece, both the rod and workpiece surface melt to form a weld pool. Simultaneous melting of the flux coating on the rod will form gas and slag which protects the weld pool from the surrounding atmosphere. The slag will solidify and cool and must be chipped off the weld bead once the weld run is complete (or before the next weld pass is deposited).

The process allows only short lengths of weld to be produced before a new electrode needs to be inserted in the holder.

Weld penetration is low and the quality of the weld deposit is highly dependent on the skill of the welder.

TYPES OF ELECTRODES

Arc stability, depth of penetration, metal deposition rate and positional capability are greatly influenced by the chemical composition of the flux coating on the electrode. There are many types of Electrodes, and these are generally matched to the base metal. For example if welding Mild Steel then select a Mild Steel (General Purpose Electrode). Electrodes are identified by a universal numbering system (AWS Type code).

Base Metal	Electrode Type	Type
Mild Steel	Mild Steel General Purpose	6013
Stainless Steel	Stainless Steel 316L	316L
Dissimilar Metals	Dissimilar 680	312
Cast Iron	Nickel Arc 98	Ni99

Electrodes are often packed in sealed packaging to keep moisture out. However, if a pack has been opened or damaged, it is essential that the electrodes are redried according to the manufacturer's instructions.

ELECTRODE SIZE SELECTION

Electrode size selection will be determined by the thickness of the section being welded. A thicker section will need a larger diameter electrode. The table below shows the maximum size of electrodes for average thicknesses of section. (based on General Purpose 6013 Electrode)

Electrode Size Selection	
Average Metal Thickness	Electrode Size
1.0 - 2.0mm	2.0mm
2.0 - 5.0mm	2.6mm
5.0 - 8mm	3.2mm
8.0mm +	4.0mm

POWER SOURCE

Electrodes can be operated with AC and DC power supplies. Not all DC electrodes can be operated on AC power sources; however AC electrodes may be used on either AC or DC.

WELDING CURRENT

Welding current level is determined by the size of electrode - the normal operating range and current are recommended by manufacturers. Typical operating ranges for a selection of electrode sizes are illustrated in the table. As a rule of thumb when selecting a suitable current level, an electrode will require about 40 Amps per millimetre (diameter). Therefore, the preferred current level for a 4mm diameter electrode would be 160 Amps, but the acceptable operating range is 140 to 180 Amps.

It is important to match the machine to the job

Amperage Selection Guide	
Rod Size/ Gauge	Welding Current
1.6mm	40-50 Amps
2.0mm	50-75 Amps
2.5mm	75-105 Amps
3.2mm	105-140 Amps
4.0mm	140-160 Amps

Welding information is of a general nature and is courtesy of The Welding Institute. For more welding information go to http://www.twi-global.com/technical-knowledge/job-knowledge/

S140 INVERTER DC MMA WELDER

PRODUCT SPECIFICATION

BOSSWELD WELD LIKE A BOSS				
INVERTER DC MMA WELDER **BOSSWELD S140**		**PART NO.**	610010	
1~ f_1/f_2 ⎓		STANDARD	IEC 60974	
	U_0=55V	10A/20.4V-140A/25V		
		X	10%	60%	100%
		I_2	140A	72A	40A
		U_2	25V	22.2V	21.6V
1~50-60Hz	U_1=240V	I_{1max}=33 A		I_{1eff}=10A
H	IP21	3.5Kg		AF

Note: This unit is suitable for connection to standard Domestic 10 Amp power outlet.

TROUBLESHOOTING

Problem	What to Do
Power indicator is not lit, fan does not work and no output current	1. Check that the welder is plugged into the 240V mains outlet and is switched on. 2. Check that the mains fuse or breaker has not operated. 3. Check that the main switch on the rear of the unit is in the on position.
Power indicator is lit, fan works, no output current	1. Check the welding cables are connected correctly. 2. Check the output connectors are not disconnected or damaged. 3. Check that the earth clamp is connected securely to the work piece and that the contact point is clean of paint or rust.
Over temperature indicator is on, no output current	1. Duty cycle of the unit has been exceeded. Allow the unit to cool for 20 minutes.
Output current is not stable.	1. Check mains voltage is constant. 2. Check the welding cable connectors are tight in the sockets. 3. Check the earth clamp connection to the work piece. 4. Check the welding leads are not reversed.
Hot Welding Clamp	1. Welding clamp rated current is too small, replace with larger size welding clamp.
Excessive Spatter	1. Output polarity is incorrect, reverse output connector.

OPERATIONAL ENVIRONMENT

- Height above sea level ≤1000m
- Operation temperature range -10～+40°C
- Air relative humidity is below 90%(20°C)
- Preferably site the machine above floor level, ensure the maximum angle does not exceed 15 degrees.
- Protect the machine against heavy rain and against direct sunshine.
- The content of dust, acid, corrosive gas in the surrounding air or substance must not exceed normal standard.
- Take care that there is sufficient ventilation during welding. There must be at least 30cm free distance between the machine and wall.

For other tips and troubleshooting refer to our website www.dynaweld.com.au/troubleshooting

NOTES

OTHER PRODUCTS IN OUR RANGE

- ELECTRODES
- TIG RODS
- WELDING HELMETS
- WELDING MACHINES
- TORCH SPARE PARTS
- WELDING ACCESSORIES
- MIG WIRE
- GAS EQUIPMENT
- WELDING SAFETY
- MIG TORCHES
- TIG TORCHES
- WELDING CABLE