www.newarc.co.uk
Newcastle Upon Tyne
Tel. 0191 295 0111
sales@newarc.co.uk

Powered by Weldability sif

Newarc R4000/5000CC/CV

Operational Manual

NA9910400
NA9910618

DECLARATION OF CONFORMITY

The Low voltage Directive 2014/35/EU
The EMC Directive 2004/108/EC, entering into force 20 July 2007
The RoHS Directive 2011/65/EU, entering into force 2 January 2013

Type of Equipment
Welding power source for MIG, TIG, MMA

Brand name or trade mark
Newarc

Type designation etc.
R4000/5000CC/CV

Manufacturer or his authorised representative established within the EEA
Name, address, telephone no

Newarc
Newcastle upon Tyne
Phone: +44 (0)191 295 0111

The product has been designed to comply with the following harmonised standards:
IEC 60974-1 - Arc welding Equipment Arc striking and stabilizing devices
EN 60974-10 - Arc Welding Equipment Electromagnetic compatibility

Additional information: restrictive use, Class A equipment, intended for use in locations other than residential

We declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with applicable essential requirements of the directives.

Place and Date
Newcastle upon Tyne, UK
14/06/2016

WEEE Directive & Product Disposal

At the end of its serviceable life, this product should not be treated as household or general waste. It should be handed over to the applicable collection point for the recycling of electrical and electronic equipment, or returned to the supplier for disposal.

Safety Guidelines

These general safety guides 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 absorbency 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.

The following signs and explanations are to remind the user of the potential risks involved and the dangers of misuse or mistreatment of the welding machine.

RUNNING PARTS MAY BE DANGEROUS!
Keep away from running components, including the fan.

ELECTRIC SHOCKS CAN KILL!
Never touch electrical parts. Keep the equipment in good condition, replace damaged parts, undertake regular maintenance according to the instructions.

BE AWARE OF SPARKS AND SPATTER
Wear protective clothing, such as leather gloves, Flame retardant overalls, boots and eyewear.

DO NOT TOUCH THERMAL COMPONENTS!
Thermal components may cause severe burns when in contact with unprotected skin.

NEWARC

Contents

1. Preface

1.1 General

Congratulations on choosing your Newarc R4000/5000CC/CV
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 your Newarc 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 Newarc products, contact an authorised Newarc dealer, or visit the Newarc website at www.newarc.co.uk. 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 minimise damage and personal harm are indicated with the **'NOTE!'** notation. Read these sections carefully and follow the 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. Do not copy, record, reproduce or transmit the contents of this guide without prior permission.

1.2 Introduction

The R4000 and R5000 are advanced inverter power sources with outputs of 400 amps and 500 amps respectively. The CC/CV versions are suitable for MMA, TIG and MIG/MAG welding.

These inverter power sources are versatile, lightweight and portable. The advanced inverter design provides a more stable and precise arc characteristic than conventional machines ensuring high quality welding performance.

Due to the high efficiency and power factor these units provide energy and cost saving solutions. Fabricated in a robust external casing this power source is extremely reliable in the most extreme conditions

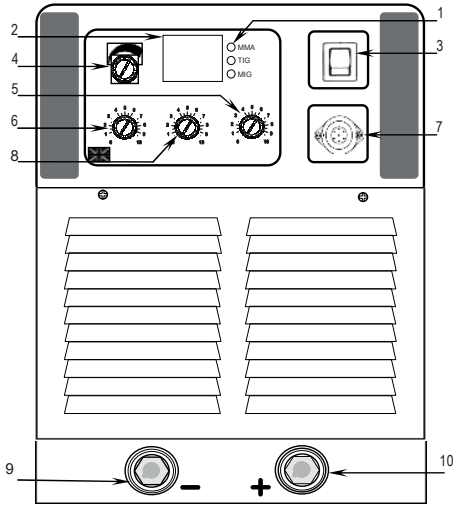
Features

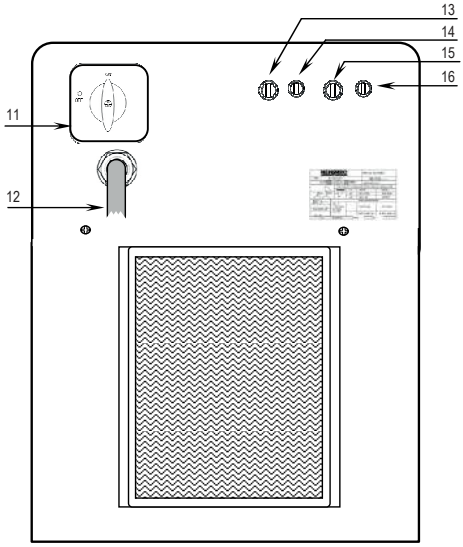
- Inverter configuration provides a more stable and faster response in CC and CV control resulting in more stable welding conditions
- Fabricated in robust external casing to withstand the most extreme environments
- Cooling on demand system minimizes power consumption and dust ingress
- The construction technique ensures minimal contamination of internal electronic systems
- Large overhead of voltage available for use with long interconnection cables.

1.3 Technical Specifications

Newarc	R4000	R5000
Power voltage (V)	380-480 Volts 3	380-480 Volts 3
	Phase 50/60Hz	Phase 50/60Hz
Input Current at Max Output	24 amps	33 amps
Power Factor	0.95	0.95
Max Output Current	400 amps	500 amps
Open Circuit Voltage	80V CC Mode	80V CC Mode
Weight (kg)	Infinitely	Infinitely
	Variable	Variable
Current Control	Infinitely	Infinitely
	Variable	Variable
Duty Cycle at 40ºC	70%	70%
Degree of Protection	IP23	IP23
Dimensions (L x W x H) (mm)	500 x 235 x 455	500 x 235 x 455
Voltage Control	30	33

1.4 Overview of Machine





Front View

Panel layout

1. Mode Indication
2. Digital display
3. Off/On switch
4. Rotary encoder
5. Slope control
6. Arc force control
7. Remote control socket
8. Inductance control
9. -ve weld terminal
10. +ve weld termina

Rear View

Panel layout

11. Main 3P Isolation switch
12. Mains Input
13. Auxiliary transformer supply fuse
14. Remote supply fuse
15. Main supply fuse to the cooling uni
16. Auxiliary Cooling unit supply fuse

1. Mode Indication

LEDs to display welding mode.

2. Digital Display

Indicates welding current in Amps, welding voltage in Volts. The display also gives an indication when the machine is over temperature (- OT -) , or the optional cooling unit is turned off (-CU-).

3. Off/On switch

Switches the machine on and off when the main 3 Phase isolation switched is in the on position. Upon switching on, the display will show the software version and the machines output will be inhibited, after 4 seconds display will clear and the machine is ready to use.

4. Rotary encoder

Adjusts the machines functional parameters and user settings, as well as output current in CC mode or Voltage in CV mode (when not controlled remotely).

5. Slope control
Operates in MIG mode only. This control alters the output voltage(V) to output current(I) relationship. This control is sometimes know as 'Arc Control' or 'Arc Pinch Control' as it regulates the pinch effect of the welding arc.

6. Arc force control - Operates in MMA mode only. This control alters the welding dynamics of the machine to facilitate welding with different types of welding electrodes (e.g. general purpose, celulosic, low hydrogen and iron powder). Turning towards maximum will increase penetration at the expense of increased welding splatter, turning towards minimum will reduce penetration but the arc will be smoother and less fierce.

7 Remote control socket
For connection of external remote control, external TIG control unit or wire feed unit. There is no switch for remote operation, plugging an external unit into the socket automatically selects remote operation and disables the internal control (4).

8. Inductance control
Operates in MIG mode only. This control alters the response time of the power source and is generally used in short circuit dip transfer welding. Too little inductance will result in excessive spatter and too much inductance will not allow the welding current to rise fast enough causing the electrode to stub into the base metal.

9. -ve weld terminal
Main welding power output connector, negative polarity.

10. +ve weld terminal
Main welding power output connector, positive polarity.

11. Main 3P Isolation switch
Switches the machine on and off.

12. Mains Input
Three phase mains cable.

13. Auxiliary transformer supply fuse
Fuse 3.15A slow blow, 32 x 6.3mm ceramic body.

14. Remote supply fuse
Protects the auxiliary supply from the remote control socket. Fuse type is 20 x 5mm glass body, 6.3A 'slow blow' rating

15. Main supply fuse to the cooling unit (Only fitted to cooling unit version)
Fuse 3.15A slow blow, 32 x 6.3mm ceramic body.

16. Auxiliary Cooling unit supply fuse (only fitted to cooling unit version)
Protects the auxiliary supply to the cooling unit. Fuse type is 20 x 5mm glass body, 2A 'slow blow' rating.

2. Installation

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; fsuch as a suitable carriage unit.

Notes for positioning the machine
• Make sure there is at least 20cm clearance at the front, rear and sides of the machine to allow good circulation of the cooling air.
•Ensure that the machine is positi8ned in such a way that particles created by grinding and cutting operations do not enter the machine.

NOTE! Damage caused by metal particles and water entering the machine will not be covered under warranty.

WARNING! All electric shocks are potentially fatal, a competent electrician should under-take the fitting of the mains plug.

Connecting to mains supply
• Make sure that the mains supply is of the correct voltage and current capability for the machine.
• Make sure that any extension cables used are of sufficient current carrying capacity.
• Make sure that the mains plug and socket (if fitted) are in good condition and are of the correct current carrying capacity. If the machine is wired directly to the mains supply then an isolator switch must be fitted.
NOTE! See technical specifications page for correct supply information

Primary cable length
Long extension cable lengths may reduce the performance of the machine, the welding arc may become unstable especially at higher currents. Ensure the mains cable is not coiled up when you are welding as this will reduce the input voltage to the machine and may cause overheating and degradation of the cable.

Setting supply voltage tapping
WARNING! All electric shocks are potentially fatal, a competent electrician should carry out any supply voltage tapping adjustments required.
• To enable the setting of the supply voltage tapping, the front panel display cover of the R4000/R5000 has to be removed.
• The photograph above shows the voltage tapping set to 415V, with the red wire from the fuse holder connected to the 415 terminal.
• This connector can be moved to the required voltage terminal to select the desired input voltage.

3. Operation

Front panel operation
This design is based on microprocessor technology and allows to implement set of functions previously not available in Newarc inverters:
- Encoder based function control - digital settings
- Hot start control
- Operation time control
- Welding duration (resettable user counter available as an optional extra)
- Error identification and counter
- Mode changing
- Cooling unit control
- Improved remote control

Configuration
Front Panel is factory calibrated and in most cases doesn't need additional adjusting. If any problem occurs please contact service for advice. To check set maximum parameters and mode access use function "Settings Check" (Start-up Display)

Software
By default display shows **SET** function when no welding. When current flow, panel shows actual current and voltage on display. To change current (or voltage in MIG) settings during welding (actual current and voltage on display), turn encoder anti- or clockwise. Program will automatically jump to set function. Every other function is accessible by short pressing encoder down and turning encoder anti- or clockwise for correct value.

Once correct parameter is set, program will automatically return to default function after short period of time. After finish welding (longer than 5s), average values are prepared and shown on display by short period of time. That values are accessible after as the last functions and reachable by pressing encoder button

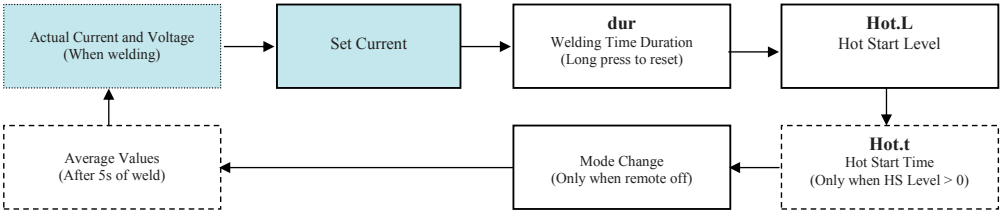
3.1 Start up Display

1	PS9 1.00	Program no. and version display	Only during display start
2	LS-1 500	Settings Check Maximum current set for MMA mode	Function accessible when encoder button press long during start-up. This is info only, no changes are possible. LED4 (bottom) is flashing when mode is available (mode availability is specified by software version) Restart is necessary to stop display
3	LS-2 300	Settings Check Maximum current set for MIG mode	
4	LS-3 400	Settings Check Maximum current set for TIG mode	

3.2 Standard Display Functions

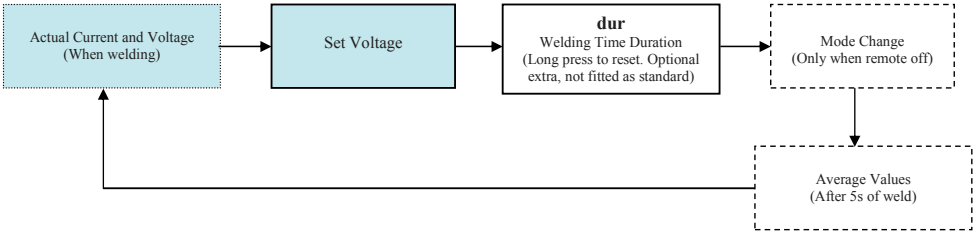
5	8.8.8.8. 8.8.8.8.	Top, right decimal point constantly ON	Remote control detected
6	8.8.8.8. 8.8.8.8.	Top, right decimal point flashing	Output voltage detected (when output voltage >5V and no remote connected)
7	8.8.8.8. 8.8.8.8.	Bottom, right decimal point flashing	Current flow detected (when current flow >5A)
8	___U 33A.	Dashes on the bottom of the voltage display and current flow diode flashing	Current flow and output voltage too low (<5V)
9	~~~U 33A.	Dashes on the top of the voltage display and current flow diode flashing	Current flow and output voltage too high (>50V)
10	10.0U. 33A.	Voltage and current display with U and A characters	Actual current and voltage readings
11	10.0U 33A	Voltage and current display with flashing U and A characters	Average welding conditions from the last job. That function is automatically displayed after stop current flow but is also accessible as a menu function. Minimum current flow time to activate function is 5s
12	---- ----	Change mode	Mode is selected by turning encoder. Currently selected mode is indicated by one of the LED diodes
13	DUR8. 8.11.3	Welding time duration	Personal time counter in minutes. Every decimal point = 6min Maximum value 999.9min Long press to reset value
14	DUR.8. CLR8.		After long press counter is resetting and message "dur.clr" displayed for short time

3.3 Standard Display Functions MMA



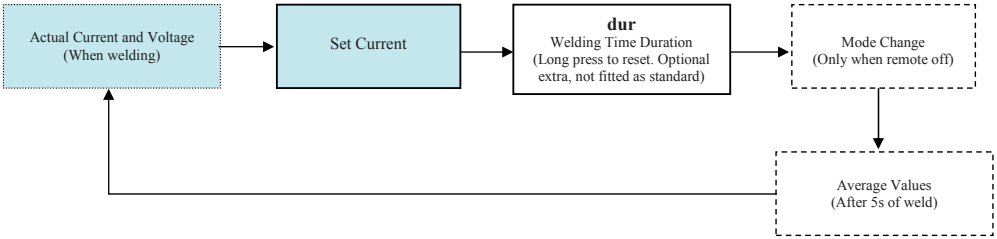
MMA		
100A	Set Current	
HOTL 5	Hot Start Level [%]	When 0, hot start is not active Level of additional current during first arc ignition. Range 0..50
HOTT 1.0	Hot Start Time [s]	Function active only when Hot Start Level > 0 Determine how long hot start function is active after begin of current flow Range 0..2s

3.4 Standard Display Functions MIG



MIG		
10.0 U 8.8.8.8.	Set Voltage	

3.5 Standard Display Functions TIG

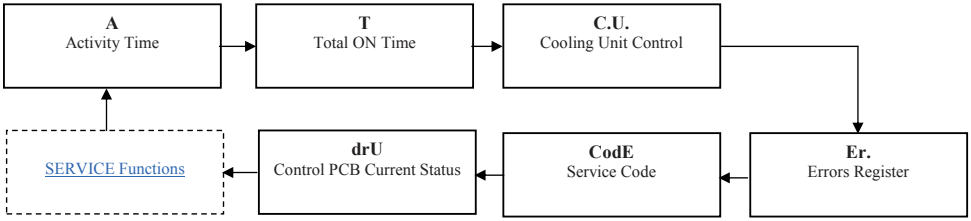


TIG		
8.8.8.8. 100A	Set Current	

3.6 Standard Display Functions

User Configuration Menu

Reachable after long encoder button press (~3s) and indicated by flashing 3 LED diodes
To save changes, press long encoder button (~3s)



USER		
A 8.8.8. 8.10'.	Activity time (hours)	Shows time how long current flow was detected
A 8.8.8. 8.24''.	Activity time (minutes)	
T 8.8.8. 8.10'.	Total ON time (hours)	Shows time how long device was ON
T 8.8.8. 8.26''.	Total ON time (minutes)	
CU 8.8. 8OFF.	Cooling Unit Error Register	Cooling unit disconnected or not active. Signal from cooling unit is ignored.
CU 8.8. 8.8ON.		Cooling unit is connected. Stand-by function **not active**.
CU 8.8. 860N.		Cooling unit is connected. Stand-by function **active** **Active only in communication mode** Set time range 2..30min
ER 8.2. 8.8.8.4.	Error Register	Display counter for each type of error (during service mode long press will reset all counters and display text ErCL)
CODE. ----.	Service Code Enter	Function available only once correct start-up sequence conducted (2). Enter correct service code by turning encoder and press button to access service functions

3.7 Standard Display Functions

Errors

Front Panel Errors			
ER 0 -OT-	**ERROR 0** **-OT-**	Over temperature fault	Internal temperature too high
ER 1 8.8.8.8.	**ERROR 1**	Error 1 Microprocessor fault	Microprocessor internal reference voltage low - probably there is negative (<-0.25V) or positive (>5.5V) voltage connected to one of the microprocessor pins
ER 2 -CU-	**ERROR 2** **-CU-**	Error 2 Cooling unit problem	Error signalled by Cooling Unit. Check if water flow is correct
ER 3 CONT	**ERROR 3** **CONT**	Error 3 Wrong mode	Wrong mode demand from display panel - check display panel available modes
ER 4 CURR	**ERROR 4** **CURR**	Error 4 Inverter was switched off during current flow	Error is displayed during start-up for 5s Output current flow was noticed and machine was switched off.
	ERROR 5	Microprocessors restarts	This is an errors counter visible during configuration mode in Errors Register
ER 6 -CU-	**ERROR 6** **-CU-**	Error 6 Cooling unit communication problem	There is missing OK signal from cooling unit. Check cooling unit for any possible connection faults or disconnect it in configuration
ER 7 8.8.8.8.	**ERROR 7**	Error 7 Control PCB communication problem	Communication with Control PCB is down (no data received from Control PCB by at least 20sec)

TIPS

• during turning encoder fast, acceleration function is activated and for that time counter is increased with x10 steps

• A or V letters are dimmed on display for better recognising read value of voltage and current

MMA Welding

• For straight polarity welding, connect the electrode holder to the positive weld terminal and the earth return lead to the negative weld terminal. For reverse polarity welding, reverse these connections.
• Turn the mains switch to the on position, the digital will light and after a 4 second delay the machine is ready to weld.
• Adjust the current control to the recommended setting for the size and type of welding electrode to be used.
• Adjust the Arc Force control to your personal preference for the size and type of welding electrode to be used.
• The R4000/R5000 is suitable for welding all types of electrodes within the current rating of the machine (see Technical Data)

MMA Welding with remote control

• Select welding polarity.
• Plug the control cable supplied with the remote control into the remote control socket on the front of the R4000/R5000
• Plug the remote control onto the other end of the control cable.
• Adjust the current control on the remote to the recommended setting for the type and size of welding electrode being used. (The standard Newarc RC300 remote does not have current settings but is marked 1 to 10, for the R4000 allow 40A per division and for the R5000 allow 50A per division).
• Turn the mains switch to the on position, the machine is ready to weld.

TIG Welding with TIG unit

• Connect the TIG unit to the R4000/R5000 and the shielding gas supply as per the diagrams in the TIG unit manual.
• Select welding mode and current by adjusting the controls on the TIG unit with reference to the TIG unit manual.
• Turn the mains switch on the R4000/R5000 to the on position, the digital displays on the R4000/R5000 and the TIG unit will light up, you are now ready to weld.

MIG Welding with Wire Feed unit

• Connect the WFU to the R4000/R5000 and the shielding gas supply as per the diagrams in the WFU unit manual.
• Select welding mode and current by adjusting the controls on the WFU with reference to the WFU manual.
• Turn the mains switch on the R4000/R5000 to the on position and select MIG on the mode switch, (this will be automatic if a remote connection is being used). The digital displays on the R4000/R5000 and the WFU will now light up, you are now ready to weld.

4. Fault finding

Machine Operation Problems
Most problems with the R4000/R5000 can be overcome by following the procedures below.

No Digital Display on switch on
• Check that the machine is attached to a working mains supply that it is correctly plugged in and any isolator switches are closed.
• Check the condition of the 2A fuse on the rear panel of the machine and replace if necessary.
Note! Make sure the fuse is replaced with one of the correct type and rating. It should be a 32 x 6.3mm (1¼" x ¼") ceramic bodied type with a rating of 2A 'slow blow'
• Have a competent electrician check that there are no mains fuses or overload devices interrupted, that the mains plug is fitted correctly and that there are no loose wires or connections, check that there are no breaks in the mains cable.

Digital display lit but no output
• Make sure that the display is not reading 'OT', if it is, it means that the R4000/R5000 has overheated, normally by exceeding its 'Duty Cycle', and the power stages of the machine have been shut down. In this case, leave the machine switched on until it has cooled down, if you turn the machine off, the cooling fans will be turned off also and the cooling down period will be lengthened considerably.
Note! If the R4000/R5000 is overheating on a regular basis or at current settings below the maximum, this would usually indicate that the inside of the machine is choked with dust and therefore not being cooled correctly. For information about cleaning the dust out of the R4000/R5000 please refer to the three monthly service schedule.

TIG unit is not working
• Check the condition of the 6.3A fuse on the rear panel of the machine and replace if necessary.
• Check interconnection cables are correctly fitted. (Positive to positive, negative to negative).

MIG Unit is not working
• Check the condition of the 6.3A fuse on the rear panel of the machine and replace if necessary.
Note! Make sure the fuse is replaced with one of the correct type and rating. It should be a 20 x 5mm glass bodied type with a rating of 6.3A 'slow blow'. Any welding problems not covered above must be brought to the attention of a qualified Welding Engineer, if the problem still persists have the R4000/R5000 checked by a trained Newarc service engineer.

4.1 Welding problems

MMA

If problems with the R4000/R5000's operation while welding are experienced, first refer to the information in paragraph in the installation section and paragraphs in the operating section and the fault finding procedure earlier in this section.

• Most problems with MMA welding are the result of not setting the correct welding parameters for the welding rod being used. All welding rod packets have information on them in symbolic format, giving suitable current range, polarity and type of weld (normally called 'position'). If you are in doubt about what these symbols mean, ask your welding rod supplier to explain them. Choose an initial current setting towards the middle of the quoted range and if necessary practice on a piece of scrap the same thickness as the job to be welded.

TIG

• If problems are experienced whilst TIG welding, please consult the fault finding and maintenance section in the TIG unit instruction manual.

• Any welding problems not covered above must be brought to the attention of a qualified Welding Engineer, if the problem still persists have the R4000/R5000 checked by a trained Newarc service engineer.

MIG

If problems are experienced whilst MIG welding, please consult the fault finding and maintenance section of the WFU instruction manual.

Any welding problems not covered above must be brought to the attention of a qualified Welding Engineer, if the problem still persists have the R4000/R5000 checked by a trained Newarc service engineer.

5. Maintenance

Note!
All Electric shocks are potentially fatal, switch off the machine and unplug from the mains supply before carrying out any maintenance work.

It is very important that the Wire feed unit is regularly maintained. The amount of use and the working environment must be taken into account when scheduling the maintenance periods. Careful use and regular preventative maintenance will prolong the life of the machine and ensure trouble free operation.

Weekly

• Clean the exterior of the machine and remove any dirt and pieces of MIG wire that may have collected inside the wire spool compartment.
• Remove any build up of dirt from the wire feed rollers.
• The wire tension adjuster should be set so that when the wire is restricted at the welding torch the drive rollers slip. Remember if the pressure is set too high the wire may pile up behind the front wire guide and undue strain will be put on the wire feed system leading to a reduced duty cycle and lifespan.
• If necessary, adjust the brake tension on the spool holder so that the wire spool stops at the same time as the feed rollers.
• Inspect the machines exterior for obvious signs of damage.
• Check the condition of the welding cable, earth clamp and welding connectors for damage and any sign of over-heating.
• Check the gas hose and regulator for leaks, remember that air leaks can result in weld porosity.
• Check the condition of the MIG welding gun, check for cuts in the cable sheath, condition of the liner and condition of the contact tip. Remove any build up of spatter from inside the gas nozzle.

6. Warranty

Guarantee

Newarc Ltd warrants that its goods and services are guaranteed to meet the specific performance under the stated conditions of use. Newarc cannot be held responsible for general wear and tear or for failure occurring due to misuse or abuse arising out of circumstances outside the stated condi-tions of use. The stated conditions of use are that considered normal industrial practice and are not exhaustive. Each machine is identified with a unique serial number and accompanied with the guarantee. Newarc reserve the right to a) Repair. b)Replace. c)Authorise the reasonable cost of repair or replacement at an approved Newarc service agent. d)Credit for any purchased equip-ment (less reasonable depreciation for actual use and condition) at its entire discretion. This in no way affects your rights as a consumer. The guarantee is enclosed with each machine.

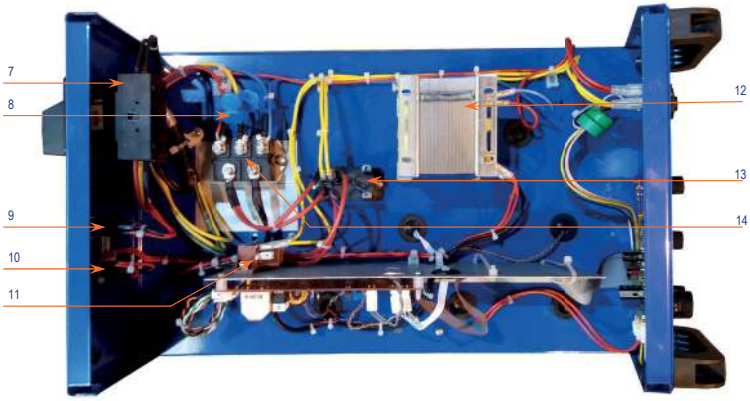
PLEASE NOTE

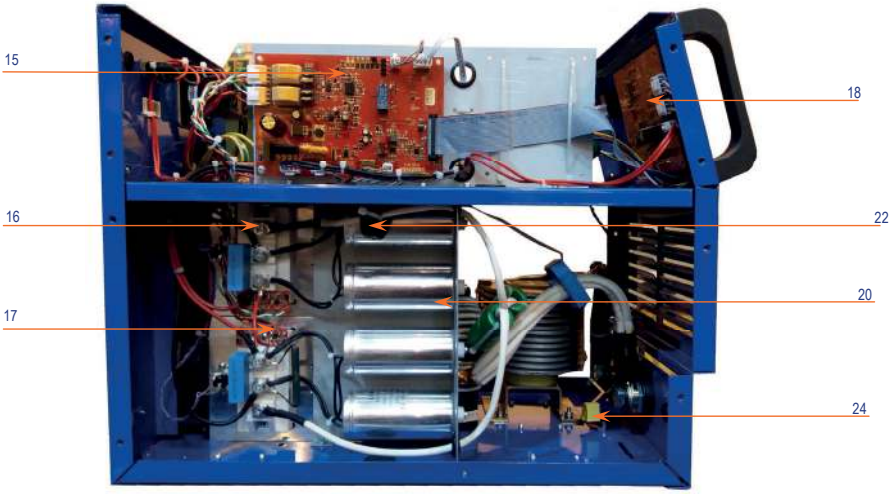
The manufacturer reserves the right to change and alter the equipment without prior notice. This includes but is not limited to: operating procedures, technical specifications, technical schematics and manuals

CAUTION

- There are no user serviceable parts/modules inside this equipment.
- Removing lids or covers will/may expose hazardous voltages
- Removal of lids or covers WILL invalidate the warranty on this equipment.

7. Parts

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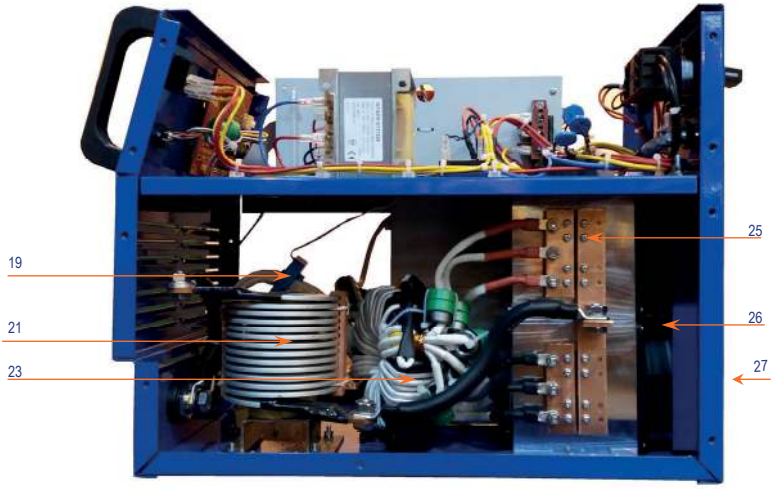
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Ordering information

Item	Description	Part number
1	Front bridge handles (2 per machine)	**NAM01393**
	Lid Bridge handle (2 per machine)	**NAM01084**
2	28mm diameter knob	**NAM01609**
3	21mm diameter knob (3 per machine)	**NAM01610**
4	On/Off switch	**NAM70069A**
5	Remote socket assembly	**NAM90762**
6	70/90 panel mount Dix socket (2 per machine)	**EW7095PSW**
7	Mains Switch — 3 phase power	**NAM70071**
8	Filter Diac assembly	**NAM91123**
9	Fuse holder	**NAM01088**
	Fuse 3.15A slow blow, 32 x 6.3mm ceramic body	**NAM00020A**
10	Fuse holder	**NAM00273**
	Roller 1.0 - 1.2mm Fuse 6.3A slow blow, 20 x 5mm glass body	**NAM00379**
11	Soft start resistor assembly	**NAM90765**
12	Auxiliary transformer	**NAM01408**
13	Soft start relay	**NAM70026**
14	Diode bridge	**NAM60057**
15	Control PCB R4000CC/CV	**NAM90744-R17-R4000CC/CV**
	Control PCB R5000CC/CV	**NAM90744-R17-R5000CC/CV**
16	IGBT (2 per machine) R4000CC/CV	**NAM60229**
	IGBT (2 per machine) R5000CC/CV	**NAM60229B**
17	IGBT gate drive assembly (1 per machine)	**NAM90843**
18	Display PCB R4000CC/CV	**NAM90796-R4000CC/CV**
	Display PCB R5000CC/CV	**NAM90796-R5000CC/CV**
19	Current transducer	**NAM60112**
20	Capacitor Assembly	**NAM90456**
21	Main inductor R4000CC/CV	**NAM10105**
	Main inductor R5000CC/CV	**NAM10106**
22	Current transformer	**NAM01083**
23	Main transformer R4000CC/CV	**NAM10102**
	Main transformer R5000CC/CV	**NAM10103**
24	De-coupling capacitor	**NAM90818**
25	Diode module (4 per machine)	**NAM60121**
26	Cooling fan (2 per machine)	**NAM00354**
27	Rear filter grill assembly	**NAM91157**

When ordering spare components please quote the serial number of the unit.

Notes

NEWARC

Unit 1, Whitehouse Industrial Estate, Whitehouse Road
Newcastle upon Tyne NE15 6LN
Tel: +44 (0)191 295 0111| Email: sales@newarc.co.uk | www.newarc.co.uk