NEWARC

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Newarc WFU12A-RV

Operational Manual

NA9910617

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
Wire feeder

Brand name or trade mark
Newarc

Type designation etc.
WFU12A-RV

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.

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Contents

1. Preface

1.1 General

Congratulations on choosing your Newarc WFU 12A-RV wire feeder.
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 Newarc WFU12A-RV wire feeders have been designed with increased environmental protection. They are built into a strong, durable plastic case using Zinc coated chassis components to give both great strength and protection when used in damp conditions.

The wire feed unit is designed to work in conjunction with the Newarc range of inverter based power sources.

Features

- Powerful 4 roll wire drive system with electronic feed-back to provide accurate and stable wire feed
- Digital display of wire feed speed and voltage, wire speed may be set in either inches or meters per minute
- Adjustable burn back time.
- Adjustable slow start time.
- Adjustable initial start voltage.
- Adjustable pre-gas and post-gas time.
- 2T or 4T gun switch latching.
- Wire inch and gas purge buttons.
- Display activity (displays how many hours the wire feeder has been in use).

1.3 Technical Specifications

Newarc WFU12A-RV	
Current Rating	450 amps @ 60%
	350 amps @ 100%
Wire Diameter	0.8mm - 2.0mm
Max Wire Spool Size	30cm / 12"
Wire Speed Range	0 - 23m/min
Input Voltage	24V AC
Voltage Control	Yes
Digital Display (With MF34 or MF37 Option)	Yes
Dimensions (L x W x H) (mm)	525 x 215 x 430
Weight (kg)	12
Degree of protection	IP53

1.4 Overview of Panel MF34

Front View

Panel layout

1. Adjustment Control
2. Wire inch button
3. Gas Test Button
4. Torch Latch Button

1. Adjustment knob

On initial power up the display will display if the optional Voltage reference PCB is fitted **(Activ UI)**

a. Press the control knob once to alternate between Voltage **(U)** and Wire speed **(WS)**. Turn the knob to adjust the parameter.

Double press the control knob to access the additional parameters. Then a single press to select the options below. Turn the knob to adjust the parameter.

1:1 Program Mode **(Prg)** *
1:2 Burn Back **(Bur)**
1:3 Start Voltage **(SV)**
1:4 Slow Start **(Slo)**
1:5 Pre Gas **(Pre)**
1:6 Post Gas **(Pos)**
1:7 Crater Fill **(CrF)***

c. Once these settings have been adjusted, wait for 3
seconds and a beep will indicate that they have been saved.

d. Any settings which have been adjusted during the welding process will automatically be saved after welding has finished and the 3 seconds has elapsed.

e. Press and hold the control knob to access the advanced menu.
2:1 Wire feed scale **(WS scale)**
2.2 Auto arc voltage correction **(AutoDem) ****
2:3 Version **(Version)**
2:4 Overload Level **(OvrldLvl)**
2:5 Overload delay **(OvrldDel)**
2:6 Activity Counter (**ActivCnt)**
2:7 Programs locked **(PrgLock) ***
To exit the menu select exit or press and hold adjustment knob (1)

2. Wire Inch button - Initiates wire-feed without having to press the MIG torch switch, Used when feeding the wire through the torch when changing wire spools.

3. Gas test button - Press to test gas flow.

4. Torch latch burtton - Changes the mode of operation of the MIG torch switch between 2T, 4T & 4D. In 2T, the MIG torch switch is pressed to start welding and released to stop. In 4T, the torch switch is pressed and released to start welding and pressed and released again to stop welding. 4D is similar to 4T but with a delay time of 1 seconds before it latches on, this allows for a quick tack weld feature in latch mode.

Operational Controls for MF34 Front Panel

1. Program mode (Prg)

Program save

- Set the wire feed unit up ensuring all required settings have been adjusted.
- Double press the control knob(1) to enter program mode (Prg).
- Turn the adjustment knob(1) to select a program number to save too.
- Press and hold the control knob until SAVED is displayed.

Note: A total of 9 programs can been saved.

Program Load & Program Exit

The program that is currently loaded is displayed on the far right of the display. 0 indicated no program is currently loaded.

- Double press the control knob(1) to select the additional parameters menu, select program mode (Prg).
- Turn the knob(1) to select the desired program.
- Press the control knob(1)once to load a program.
- To exit a program, enter program mode, select program dash(-) and press and hold the adjustment knob (1) for 3 seconds, END will be displayed.

2. Burn-back (Bur)

This determines how much of the wire is left sticking out of the contact tip when welding is stopped. Too much wire and there is a chance of it 'freezing' in the weld pool as it cools, too little and there is a chance that the wire will burn back into the contact tip, necessitating changing of the tip.

3. Start Voltage (SV)

Allows an increase in the start voltage for 1 second at the start of welding. It is adjustable between 0 to 10 volts.

4. Slow-Start (Slo)

The length of time up to 1 second for the wire speed to be at 50% of the set wire speed value at the start of welding.

5. Pre Gas (Pre)

The time in seconds after the torch switch is pressed that the gas flows before welding starts .

6. Post Gas (Pos)

The time in seconds that the gas remains on after welding has stopped**.**

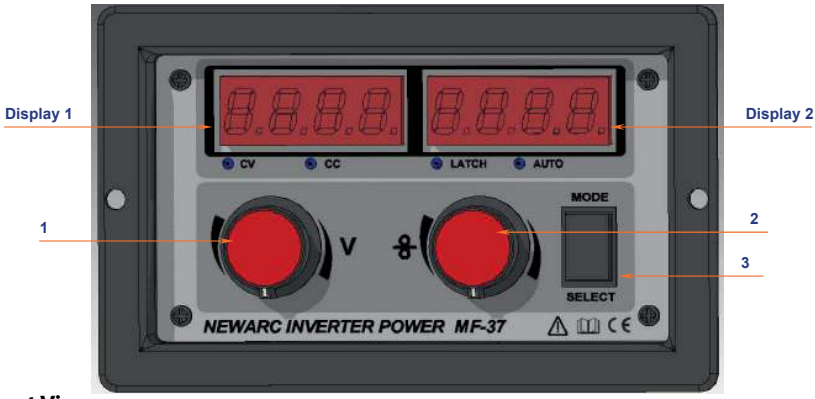
Note: During welding the MF34 displays the voltage (U) (If the optional voltage ref PCB is fitted) and the current (A) of the welding arc (if the optional Current transducer LEM circuit is fitted).

7 Crater Fill (CrF)
This option allows you to setup one of the programs as a selectable program to be recalled at the end of a 4T latch operation for crater filling.
• Program one of the programs 1-9 with the parameters to be used for the crater fill operation. (See program mode on how to save a program (1:1))
• Select crater fill (CrF) option then select the correct program (1-9) the number selected is the program parameters to be used as crater fill.
• Select 4T mode. Press-release the torch switch to start welding. To crater fill at the end of a weld press and hold the torch switch button. Release the button to stop the crater fill process. An addition crater fill option is available with the 4D latch mode of operation. Repeat the first two steps above but select 4D mode.
• Press (hold for 1 second) then release latches on the standard welding settings.
• Press (hold for 1 second) then relesase latches on the crater fill program.
• Press (Hold for 1 second) then release latches on the standard program again. This cycle can be repeated as much as required.
• Press (Quick press) then release ends the cycle.

Operational Controls for MF34 Front Panel

1 Wire feed scale (WS scale)
Selectable between Meters/Inches.
2 Auto arc voltage correction (AutoDem)
Auto corrects the arc voltage to be the same as the set voltage. Options o**f (AV ON)** Auto correction turned on or **(AV OFF)** Auto correction disabled.
3 Version (Version)
Indicates the computer program version.
4 Overload Level (OvrldLvl)
Dictates the sensitivity of the overload function.
5 Overload delay (OvrldDel)
Dictates the length of time it takes before displaying a fault condition when the motor is being overloaded.
6 Activity Counter (ActivCnt)
This is a log, in hours, of how long the unit has been in operation. Turn the knob to view the total hours..
7 Programs locked (PrgLock)
Allows programs set in program mode to be locked **(PLck ON)** therefore wire speed is a locked value and it only allowing the voltage **(U)** to be adjusted by +-1V.
Or **(PLck OFF)** allows programs to be fully adjustable once loaded.

1.5 Overview of Panel MF37



Front View

Panel layout

1. Adjustment Control for left display
2. Adjustment Control for right display
3. Mode select push button

On initial power up the display will give the option to select Welding arc voltage correction **(Auto)** (if the optional Voltage reference PCB is fitted). Turn the left hand knob**(1)** to select **YES** or **NO.** The Auto led on the front panel will light when auto mode is selected.

After initial power up the following options are shown and can be adjusted with the corresponding knob:

Display1/knob1
Voltage (U)

Display2/knob2
Wire-speed (o)

Pressing the mode button **(3)** allows other options to be displayed on the two displays. These options are adjusted using the knob below the corresponding display.

Display1/knob1
1. Program Mode **(Pr)**
2. Burn-back **(B)**
3. Slow-Start **(S)**
4. Crater Fill **(C)NO/1-9**

Display2/knob2
Latch **(L)**
Post Gas **(P)**
Demand Offset **(D)**

Last welding results display: voltage **(U)** and current **(A)** (if available)
The last digit of the display indicates a letter to show the option mode selected.
Note: Any settings that are changed are saved after a 3 second period.

Program Mode (Pr)

Programme save

- Set the wire feed unit up ensuring all required settings have been adjusted.
- Press the mode select button once to enter program mode (PR).
- Turn Knob 1 to select a program number.
- Press and hold the mode select button until SAVE is displayed.

Note: A total of 9 programs can been saved.

Programme Load and Programme Exit

The program that is currently loaded is displayed on display2's right most digit. 0 indicated no program is currently loaded.

- Press the mode select button once to enter program mode.
- Turn knob 1 to select the desired program.
- Press the mode select button once to load.
- To exit a program select **PR** , select program dash (-) and press and hold the mode button (3) for 3 seconds, **END** will be displayed.

Note: In a loaded program: Wire speed(o), Demand offset **(D)** are non adjustable, voltage **(U)** only has a +- 1V adjustment available.,

Operational Controls for MF37 Front Panel

Burn-back (B)

This determines how much of the wire is left sticking out of the contact tip when welding is stopped. Too much wire and there is a chance of it 'freezing' in the weld pool as it cools, too little and there is a chance that the wire will burn back into the contact tip, necessitating changing of the tip.

Latch (L)

2T, 4T & 4D. In 2T, the MIG torch switch is pressed to start welding and released to stop. In 4T, the torch switch is pressed and released to start welding and pressed and released again to stop welding. 4d is similar to 4T but with a delay time of 1 seconds before it latches on allowing a quick tack weld feature in latch mode.

Slow-Start (S)

The length of time up to 1 second for the wire speed to be at 50% of the set wire speed value at the start of welding.

Post Gas (P)

The time in seconds that the gas remains on after welding has stopped.

Crater Fill (C)

This option allows you to setup one of the programs as a selectable program to be recalled at the end of a 4T or 4D latch operation for crater filling.

• Program one of the programs 1-9 with the parameters to be used for the crater fill operation.
• Select crater fill (C) option then select the correct program (1-9) the number selected is the program parameters to be used as crater fill.
• Select 4Tor 4D mode. Press-release the torch switch to start welding. To crater fill at the end of a weld press and hold the torch switch button. Release the button to stop the crater fill and welding process.

Demand offset (D)

This option can be used when the Auto function is not available. This allows a small voltage compensation to help compensate for voltage drop of long welding cables.

Note:

1: If the MF37 is left idling for more than 4 minutes the panel goes into standby made. This is indicated by a small red LED in display2 pulsing on and off. To reactivate the panel press or turn anything on the MF37 panel or press the MIG torch switch.
2: During welding the MF37 displays the voltage (U) (If the optional voltage ref PCB is fitted) and the current (A) of the welding arc (if the optional Current transducer LEM circuit is fitted).

1.6 Overview of Panel MF33

Front View

Panel layout

1. Burn back adjustment
2. Wire speed control
3. Voltage control
4. Latch

1. Burn back adjustment This determines how much of the wire is left sticking out of the contact tip when welding is stopped. Too much wire and there is a chance of it 'freezing' in the weld pool as it cools, too little and there is a chance that the wire will burn back into the contact tip, necessitating changing of the tip. Adjusting the control anti-clockwise increases the amount of wire sticking out of the tip and adjusting it clockwise reduces it.

2. Wire speed control Adjusts the speed of the wire feed system up to a maximum of 23m/min.

3. Voltage control Controls the welding voltage when used in conjunction with a Newarc R4/5000 multi-process or constant voltage power source.

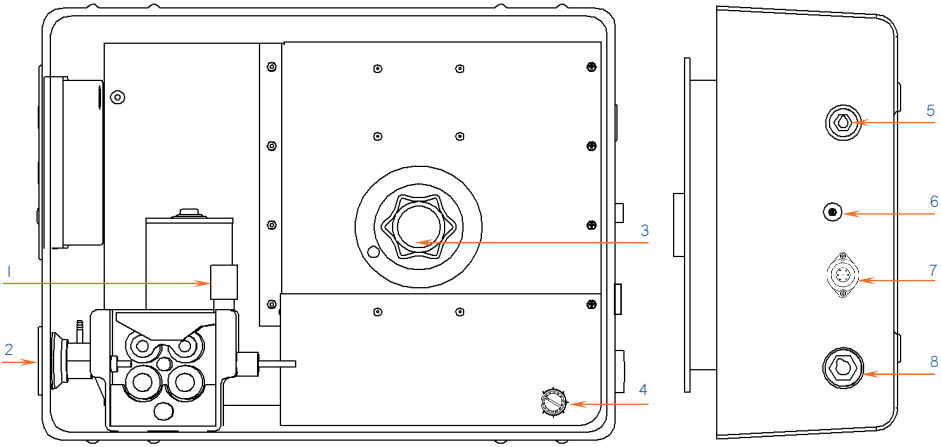
4. Latch Changes the mode of operation of the MIG torch switch between 2T and 4T. In 2T, the MIG torch switch is pressed to start welding and released to stop. In 4T, the torch switch is pressed and released to start welding and pressed and released again to stop welding.

MIG Welding

- It is assumed that the wire and welding torch have been fitted as per the installation part of this manual.
- Set the Voltage control and wire speed controls proportional to the thickness of metal to be welded.
- Select the welding torch mode required.
- Ensure the gas cylinder is turned on and the flow-meter or regulator is set to give approximately 15 to 20 Litres per minute. (30 to 40 cubic feet per hour).
- Until you are familiar with the machine it is preferable to start welding on a piece of waste material the same type and thickness as the work-piece, adjust the voltage control (if fitted), wire feed and gas flow until the required welding condition is achieved.

When used with the Newarc power sources all the controls can be adjusted whilst welding without damaging the machine.

1.7 Overview of Machine



1. Wire tension screw
Adjusts the pressure on the wire feed rollers.

2. MIG torch Euro connector

3. Spool holder retaining nut
Remove to replace wire spool and to adjust brake adjustment screws.

4. Remote control adjustment knob

5. Earth signal return socket
Connected to work-piece using signal lead supplied with machine. Supplies operating voltage and earth reference to the feed unit.

6. Gas inlet
A 1/4 BSP threaded inlet for connecting the shielding gas.

7. Remote control socket
7 pin socket for connecting the remote control adjust feature to the inverter.

8. Welding power in connector
To provide welding power and voltage to the feed unit

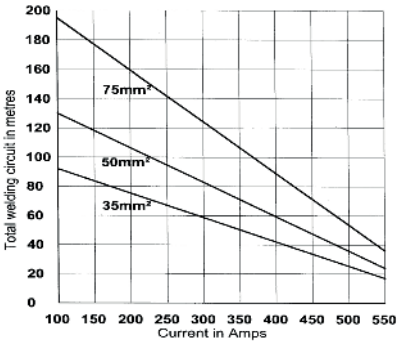
MIG Welding

• It is assumed that the wire and welding torch have been fitted as per the installation part of this manual.
• Set the Voltage control and wire speed controls proportional to the thickness of metal to be welded.
• Select the welding torch mode required.
• Ensure the gas cylinder is turned on and the flow-meter or regulator is set to give approximately 15 to 20 Litres per minute. (30 to 40 cubic feet per hour).
• Until you are familiar with the machine it is preferable to start welding on a piece of waste material the same type and thickness as the work-piece, adjust the voltage control (if fitted), wire feed and gas flow until the required welding condition is achieved.

When used with the Newarc power sources all the controls can be adjusted whilst welding without damaging the machine.

2. Installation

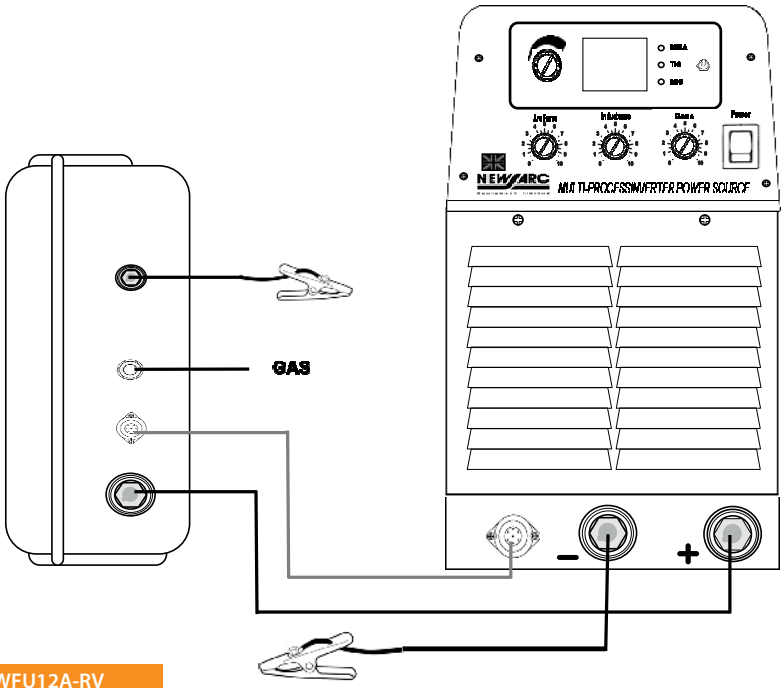
Connection to Power Source



Only use copper welding cables with a cross sectional area of 35mm^2 or more. Use the graph below to calculate the cable size suitable for the required welding distance.

NOTE! The figures on the graph are for a duty cycle rating of 60%. The total welding circuit includes the power and the earth leads.

- For straight polarity welding, connect the power in connector on the rear of the wire-feeder to the +ve connector on the power source.
- Connect the welding earth lead to the -ve connector onthe power source and attach the earth clamp to the workpiece.



Fitting wire spool

The feed rollers must always be selected to match the size of the electrode wire being used. The feed rollers fitted to the wire-feeders normally have two different sized grooves.

• Make sure that the outlet wire guide located inside the torch adapter is of the correct size for the wire being used.

• Open the pressure lever on the wire drive assembly.

• Remove the retaining nut on the spool holder and fit wire spool so that the locating pin on the spool holder fits into corresponding hole in the wire reel.

• Replace the retaining nut on the spool holder.

• Release the end of the wire from the spool and cut off the bent length, take care that the wire does not spill off the spool

• Insert the wire through the rear wire guide, over the drive rollers and through the outlet wire guide so that approximately 5cm of wire is protruding from the torch adapter.

• Close the pressure roller ensuring that the wire lays in the drive roll groove.

Adjusting Brake Tension

• Remove the spool-retaining nut.

• The head of the brake adjusting screw is now visible in the centre of the spool holder.

• Turn the screw clockwise to tighten the brake and anti-clockwise to slacken it.

• It is advisable to check the tension every time a new spool of wire is fitted as it is the extra weight of a full spool that generally causes problems with the spool over-running and wire spilling off the spool.

Connecting the Welding Torch

• Make sure that the liner and contact tip fitted to the torch are of the correct size for the wire being used.

• Attach the welding torch to the torch adapter on the wire feed, making sure that the torch liner retaining nut goes over the wire protruding from the torch adapter.

• Line all the connections on the torch up with their relevant sockets in the torch adapter and screw the torch onto the wire feeder. Note the torch should screw easily onto the wire feeder, if any resistance is felt - do not force the torch onto the wire feeder.

3.5 Feeding the Wire through the torch

• Set the wire feed speed control to about half way.

• Keeping the welding torch as straight as possible press the wire inch button until the wire is fed through the torch and out through the contact tip.

• The wire pressure lever adjuster should be set so that when the wire is restricted at the welding torch the drive rollers will slip. Setting the tension too high may cause the wire to build up inside the wire drive assembly as well as cause excessive loading of the motor which will result in a reduced duty cycle.

Connecting the Gas Hose

A Gas hose suitable for use with Argon or CO2 up to a pressure of 10 bar (150 psi) should be connected between the pressure regulator on the gas cylinder and the gas connection on the rear of the wire feed unit. Do not over-tighten this connection.

Note! The pressure regulator should be set between approximately 3 and 5 bar for normal use.

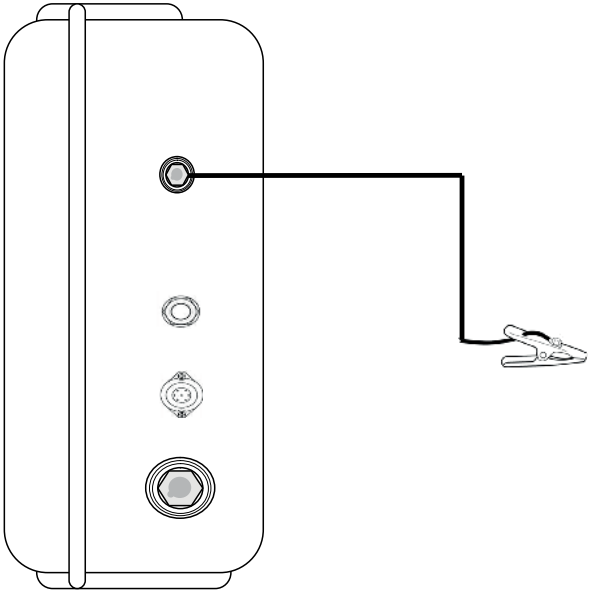
3. Operation

MIG Welding

• It is assumed that the wire and welding torch have been fitted as per the installation part of this manual.
• Set the Voltage control and wire speed controls proportional to the thickness of metal to be welded.
• Select the welding torch mode required.
• Ensure the gas cylinder is turned on and the flow-meter or regulator is set to give approximately 15 to 20 Litres per minute. (30 to 40 cubic feet per hour).
• Until you are familiar with the machine it is preferable to start welding on a piece of waste material the same type and thickness as the work-piece, adjust the voltage control (if fitted), wire feed and gas flow until the required welding condition is achieved.

When used with Newarc power sources all the controls can be adjusted whilst welding without damaging the machine.

3.1 Voltage Reference (option)



When welding in MIG mode there is always a voltage drop associated with the losses in the welding cables and the operator must always set the power source output higher than the required arc voltage to overcome this loss.

The WFU12 wire feeders has an optional automatic voltage control system that automatically adjusts the power source output to compensate for voltage drop caused by the welding cable losses.

The operator may set the voltage and wire feed speed on the front panel of the wire feeder before welding with the knowledge that any losses in the interconnection cables and earth lead will be automatically compensated for. It is possible to increase or decrease the welding interconnection length without any change to the wire feeder settings and still maintain the set arc voltage.

The automatic voltage control system is ideal for welding applications where the point of welding is some way from where the power source is sited.

For the automatic voltage control to work correctly the voltage reference lead must be connected directly to the welding work and must remain connected in order to ensure an accurate reading of arc voltage.

4. Fault finding

MIG Welding Problems

Porosity (holes) in weld - Has two common causes:-

1. Lack of shielding gas caused by the flow-meter not being set correctly, damage to any of the gas hoses or MIG torch, a build up of spatter inside the MIG torch nozzle or dispersal of the gas shield by the wind or fume extraction system.
2. Poor surface condition of the weld metal caused by inadequate surface preparation or contamination by oil, grease or paint.

Wire burns back to contact tip

Caused by voltage being too high for wire feed speed, wire feed restricted by blocked tip or liner, insufficient tension on pressure roller or excessive brake tension on spool holder.

Cold arc with excessive spatter and weld bead too high (convex)

Caused by the voltage being too low for the wire feed speed or metal thickness, inductance control on power source set too high, the power cables between the power source and wire-feed are either too long or of inadequate cross section and are causing a volt drop or the MIG torch or earth lead are damaged.

Hot arc with large irregular spatter and weld bead too flat, or even concave

Wire feed too slow or voltage set too high.

Wire glows red hot and reluctant to arc

Power source set to MMA (constant current), either change power source to MIG (constant voltage) or set wire-feeder to constant current setting. When using the Wire-feeder in constant current mode, especially with flux-cored wires, it improves the welding characteristic if reverse polarity is used (torch -ve).

4.1 MF34 Fault codes

Text on Display Panel	Description	Corrective Action
No display	Beeps every second	LCD fault. Call service
Torch	Torch is pressed during startup	Release button, Reset machine
		Short on torch switch socket
OverTemp	Motor Driver over temperature	Check wire tension
Error 1	Motor driver fault.	Call service
Overload	Motor overloaded.	Check wire tension and gearbox.
		Check Overload setting value.
MotorJAM	Motor jammed.	Check wire tension and gearbox.
Error 4	Temperature sensor fault.	Call sevice
Error 5	Motor drive main supply error.	Call service
Error 6	Motor drive aux supply error.	Call service
Error 7	Motor unit not detected.	Check wiring to motor.
Error 8	Motor unit not working.	Call service
Error 9	Temperature sensor supply.	Call service

4.2 MF37 Fault codes

Text on Display Panel	Description	Corrective Action
No display	Beeps every second	Display Fault. Call service
Torch	Torch is pressed during startup	Release button, reset machine.
	Short on torch switch socket	Short on torch switch socket.
Hot	Motor Driver over temperature	Check wire tension
DRUerr	Motor driver fault	Call service
Err 3	Motor overloaded	Check wire tension and gearbox
		Check overload setting value
Err 4	Motor jammed	Check wire tension and gearbox
Err 5	Temperature sensor fault	Call service
Err 6	Motor drive main supply error	Call service
Err 7	Motor drive aux supply error	Call service
Err 8	Motor unit not detected	Check wiring to motor
Err 9	Motor unit not working	Check wiring to motor
Err 10	Temperature sensor supply	Call service

4.3 MF33 Fault codes

Text on Display Panel	Description	Corrective Action
Continuous flashing	Torch is pressed during startup	Release button, reset machine.
		Short on torch switch socket.
2	Motor Driver over temperature	Check wire tension
3	Motor jammed	Call service
4	Motor overloaded	Check wire tension and gearbox
5	Motor drive fault	Check wire tension and gearbox
6	Temperature sensor fault	Call service
7	Motor drive main supply error	Call service
8	Motor drive aux supply error	Call service
9	Motor unit not detected	Check wiring to motor
10	Motor unit not working	Call service

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.

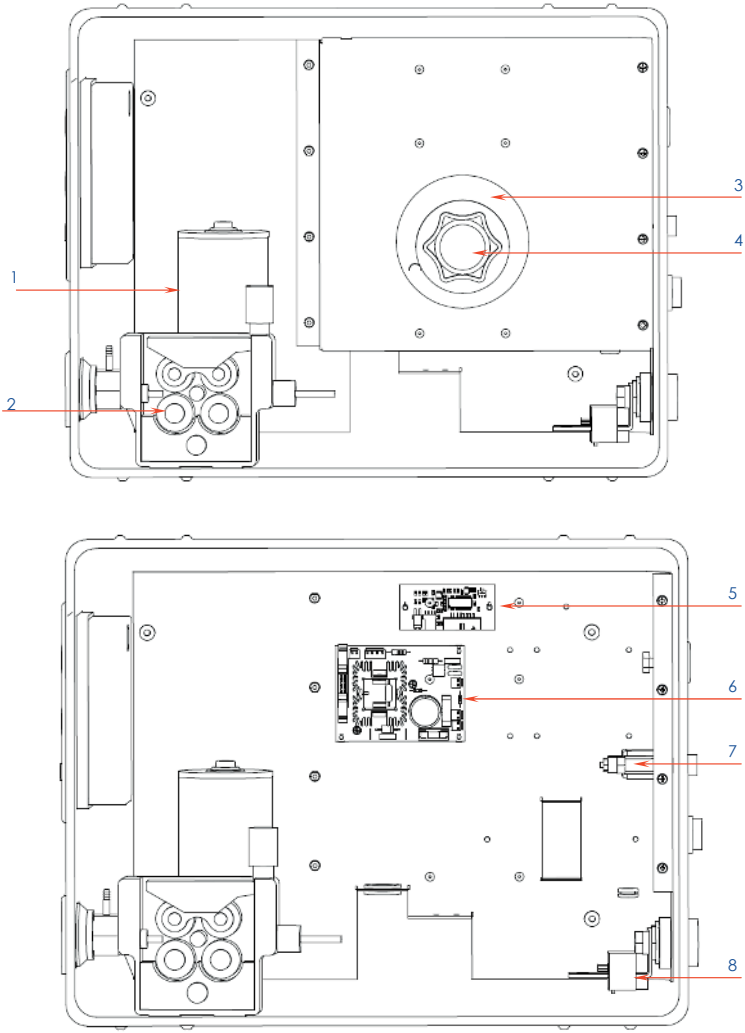
PLEASE NOTE

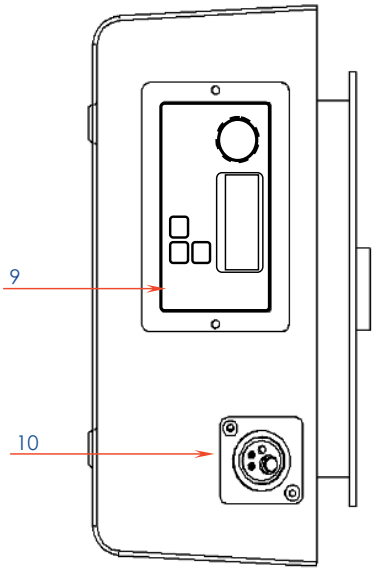
The manufacturer reserves the right to change and alter the equipment without prior notice. This includes but is not limited to: operating procedures, technical specifications, technical schematics and manuals

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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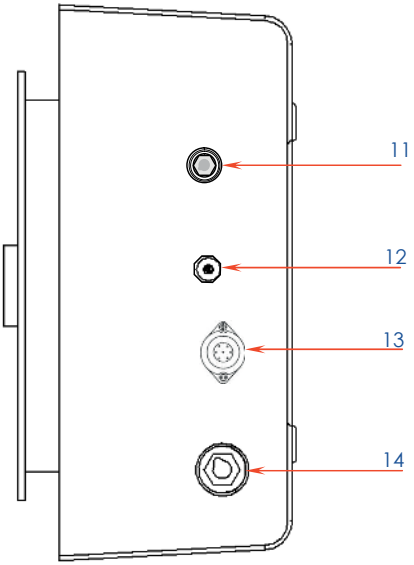
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Ordering information

Item	Description	Part number
1	Wire feed motor	**NAM83001**
2	Feed rollers	
	0.6 - 0.8 V'	**NAM00381N**
	0.8 - 1.0 'V'	**NAM00380N**
	1.0 - 1.2 'V'	**NAM00382N**
	1.2 - 1.6 'V'	**NAM00391N**
	0.6 - 0.8 knurled	**NAM00924**
	1.0 - 1.2 knurled	**NAM00382NK**
	1.2 - 1.6 knurled	**NAM00392**
	1.6 - 2.0 knurled	**NAM00877**
	0.8 - 1.0 Aluminium	**NAM00427N**
	1.0 - 1.2 Aluminium	**NAM00393N**
3	Spool Holder	**NAM00369**
4	Spool holder cap	**NAM01724**
5	Voltage measurement interface PCB	**NAM90873**
6	Motor Drive PCB	**NAM90864**
7	Gas solenoid	**NAM00024**
8	LEM 5V LEM Current transducer	**NAM60249**
9	MF33 Front Panel Assembly	**NAM90872**
	MF37 Front Panel Assembly	**NAM91142**
	MF34 Front Panel Assembly	**NAM90866**
10	Torch Adaptor	**NAM01404**
11	Panel mounted dix socket 10-25mm	**EW1625PSW**
12	Gas inlet stem	**NAM00022A**
13	Control harness assembly	**M90867**
14	Panel mounted dix plug	**EW3550PPW**
	Ribbon Cable Assembly RV	**NAM90226**
	Ribbon Cable Assembly RV with Voltage ref. PCB	**NAM91152**
	Voltage Reference lead	**NAM90741**

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