

LINC FEED 37 & 38

OPERATOR'S MANUAL



ENGLISH



Lincoln Electric Bester Sp. z o.o.
ul. Jana III Sobieskiego 19A, 58-263 Bielawa, Poland
www.lincolnelectric.eu

Declaration of conformity



Lincoln Electric Bester Sp. z o.o.

Declares that the welding machine:

K10406

LINC FEED 37

K10407

LINC FEED 38

conforms to the following directives:

2014/35/EU, 2014/30/EU

and has been designed in compliance with the
following standards:

EN 60974-5:2013, EN 60974-10:2014



20.04.2016

Piotr Spytek
Operations Director

Lincoln Electric Bester Sp. z o.o., ul. Jana III Sobieskiego 19A, 58-263 Bielawa, Poland

12/05



12/05

THANKS! For having chosen the QUALITY of the Lincoln Electric products.

- Please Examine Package and Equipment for Damage. Claims for material damaged in shipment must be notified immediately to the dealer.
- For future reference record in the table below your equipment identification information. Model Name, Code & Serial Number can be found on the machine rating plate.

Model Name:	
.....	
Code & Serial number:	
.....
Date & Where Purchased:	
.....













ENGLISH INDEX

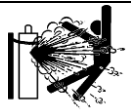
Safety	1
Installation and Operator Instructions.....	2
Electromagnetic Compatibility (EMC).....	12
Technical Specifications.....	12
WEEE	13
Spare Parts	13
Electrical Schematic.....	13
Accessories.....	13



WARNING

This equipment must be used by qualified personnel. Be sure that all installation, operation, maintenance and repair procedures are performed only by qualified person. Read and understand this manual before operating this equipment. Failure to follow the instructions in this manual could cause serious personal injury, loss of life, or damage to this equipment. Read and understand the following explanations of the warning symbols. Lincoln Electric is not responsible for damages caused by improper installation, improper care or abnormal operation.

	WARNING: This symbol indicates that instructions must be followed to avoid serious personal injury, loss of life, or damage to this equipment. Protect yourself and others from possible serious injury or death.
	READ AND UNDERSTAND INSTRUCTIONS: Read and understand this manual before operating this equipment. Arc welding can be hazardous. Failure to follow the instructions in this manual could cause serious personal injury, loss of life, or damage to this equipment.
	ELECTRIC SHOCK CAN KILL: Welding equipment generates high voltages. Do not touch the electrode, work clamp, or connected work pieces when this equipment is on. Insulate yourself from the electrode, work clamp, and connected work pieces.
	ELECTRICALLY POWERED EQUIPMENT: Turn off input power using the disconnect switch at the fuse box before working on this equipment. Ground this equipment in accordance with local electrical regulations.
	ELECTRICALLY POWERED EQUIPMENT: Regularly inspect the input, electrode, and work clamp cables. If any insulation damage exists replace the cable immediately. Do not place the electrode holder directly on the welding table or any other surface in contact with the work clamp to avoid the risk of accidental arc ignition.
	ELECTRIC AND MAGNETIC FIELDS MAY BE DANGEROUS: Electric current flowing through any conductor creates electric and magnetic fields (EMF). EMF fields may interfere with some pacemakers, and welders having a pacemaker shall consult their physician before operating this equipment.
	CE COMPLIANCE: This equipment complies with the European Community Directives.
	FUMES AND GASES CAN BE DANGEROUS: Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. To avoid these dangers the operator must use enough ventilation or exhaust to keep fumes and gases away from the breathing zone.
	ARC RAYS CAN BURN: Use a shield with the proper filter and cover plates to protect your eyes from sparks and the rays of the arc when welding or observing. Use suitable clothing made from durable flame-resistant material to protect you skin and that of your helpers. Protect other nearby personnel with suitable, non-flammable screening and warn them not to watch the arc nor expose themselves to the arc.
	WELDING SPARKS CAN CAUSE FIRE OR EXPLOSION: Remove fire hazards from the welding area and have a fire extinguisher readily available. Welding sparks and hot materials from the welding process can easily go through small cracks and openings to adjacent areas. Do not weld on any tanks, drums, containers, or material until the proper steps have been taken to insure that no flammable or toxic vapors will be present. Never operate this equipment when flammable gases, vapors or liquid combustibles are present.
	WELDED MATERIALS CAN BURN: Welding generates a large amount of heat. Hot surfaces and materials in work area can cause serious burns. Use gloves and pliers when touching or moving materials in the work area.
	SAFETY MARK: This equipment is suitable for welding operations carried out in an environment with increased hazard of electric shock.



CYLINDER MAY EXPLODE IF DAMAGED: Use only compressed gas cylinders containing the correct shielding gas for the process used and properly operating regulators designed for the gas and pressure used. Always keep cylinders in an upright position securely chained to a fixed support. Do not move or transport gas cylinders with the protection cap removed. Do not allow the electrode, electrode holder, work clamp or any other electrically live part to touch a gas cylinder. Gas cylinders must be located away from areas where they may be subjected to physical damage or the welding process including sparks and heat sources.

Installation and Operator Instructions

Read this entire section before installation or operation of the machine.

Location and Environment

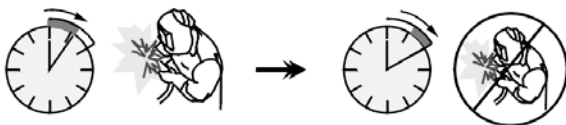
This machine will operate in harsh environments. However, it is important that simple preventative measures are followed to assure long life and reliable operation.

- Do not place or operate this machine on a surface with an incline greater than 15° from horizontal.
- Do not use this machine for pipe thawing.
- This machine must be located where there is free circulation of clean air without restrictions for air movement to and from the air vents. Do not cover the machine with paper, cloth or rags when switched on.
- Dirt and dust that can be drawn into the machine should be kept to a minimum.
- This machine has a protection rating of IP23. Keep it dry when possible and do not place it on wet ground or in puddles.
- Locate the machine away from radio controlled machinery. Normal operation may adversely affect the operation of nearby radio controlled machinery, which may result in injury or equipment damage. Read the section on electromagnetic compatibility in this manual.
- Do not operate in areas with an ambient temperature greater than 40°C.

Duty cycle

The duty cycle of a welding machine is the percentage of time in a 10 minute cycle at which the welder can operate the machine at rated welding current.

Example: 60% duty cycle:



Welding for 6 minutes.

Break for 4 minutes.

Refer to the Technical Specification section for more information about the machine rated duty cycles.

Input Supply Connection

Check the input voltage, phase, and frequency of the power source that will be connected to this wire feeder. The allowable input voltage of the power source is indicated on the rating plate of the wire feeder. Verify the connection of grounding wires from the power source to the input source.

Gas Connection

A gas cylinder must be installed with a proper flow

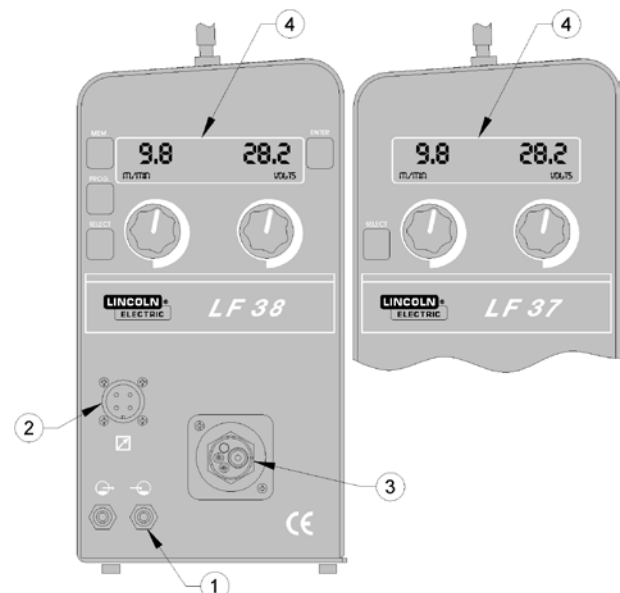
regulator. Once a gas cylinder with a flow regulator has been securely installed, connect the gas hose from the regulator to the machine gas inlet connector. Refer to point 8 of the images below. The wire feeder supports all suitable shielding gases including carbon dioxide, argon and helium at a maximum pressure of 5,0 bar.

The Linc Feed also includes an internal gas flow regulator, showed at point 11 of the images below.

Output Connections

Refer to item 3 of the images below.

Controls and Operational Features



1. **Water Connectors:** Connections for water cooled torches.

Warm water from torch.



Cool water to torch.

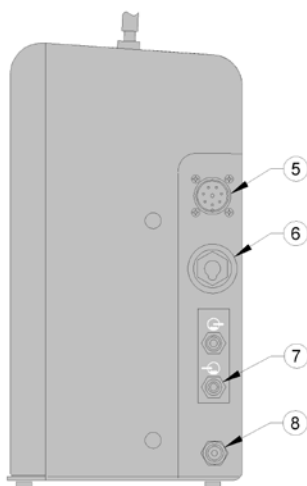


2. **Remote Control Receptacle:** If a remote control is used, it will be connected to the remote receptacle.

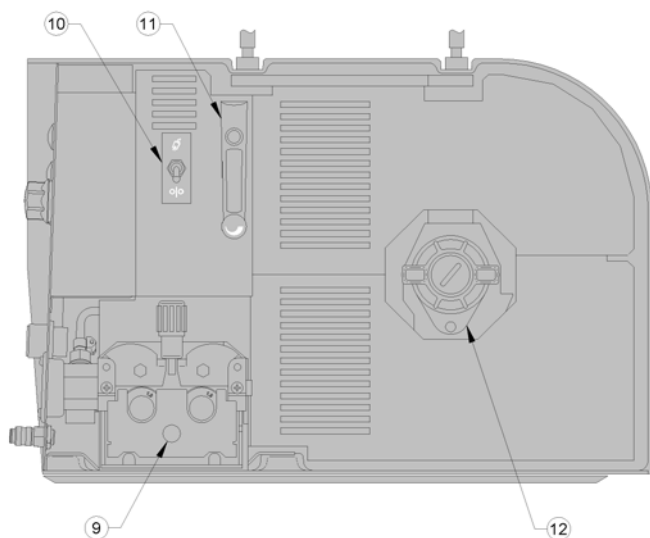


3. **Euroconnector:** Connect welding torches.

4. **Digital Display Interface:** Control of welding parameters including Wire Feed Speed, Voltage, and Memory Recall. See sections A-G for further details.



5. **Amphenol Connection:** 8-Pin connection to power source.
6. **Fast-Mate Adapter:** Input power connection.
7. **Water Connectors:** If water cooled torches are used, connect water lines from water cooler here. Refer to torch and water cooler guidelines for recommended cooling liquid and flow rates.
8. **Gas Connector:** Connection for gas line.



9. **Wire Drive:** 4-Roll wire drive compatible with 37mm drive rolls.
10. **Cold Inch / Gas Purge Control:** This switch allows gas flow or wire feeding without turning on output voltage.

11. **Gas Flow Regulator:** Regulate flow between 0-25 LPM (liter/min.).
12. **Wire Spool Support:** Maximum 15kg spools. Accepts plastic, steel and fiber spools onto 51mm spindle. Also accepts Readi-Reel® type spools onto included spindle adapter.

⚠ WARNING

The Linc Feed wire feeders must be used with the door completely closed during welding.

Maintenance

⚠ WARNING

For any maintenance or repair operations it is recommended to contact the nearest Technical Service Center or Lincoln Electric. Maintenance or repairs performed by unauthorized service centers or personnel will null and void the manufacturer's warranty.

The frequency of the maintenance operations may vary in accordance with the working environment where the machine is placed.

Any noticeable damage should be reported immediately.

Routine maintenance

- Check condition of insulation and connections of the work cables and input power supply cable.
- Remove the spatters from the welding gun nozzle. Spatters could interfere with the shielding gas flow to the arc.
- Check the welding gun condition: replace it, if necessary.
- Check condition and operation of the cooling fan. Keep clean its airflow slots.

Periodic maintenance

Perform the routine maintenance and, in addition:

- Keep the machine clean. Using a dry (and low pressure) airflow, remove the dust from the external case and from the cabinet inside.
- Check condition of all connections and change if necessary.
- Check and tighten all screws.

⚠ WARNING

Mains supply network must be disconnected from the machine before each maintenance and service. After each repair, perform proper tests to ensure safety.

A. Non Synergic Welding Mode (CV Mode)

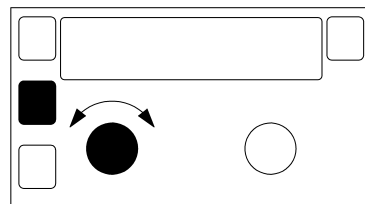
Description:

During Non Synergic (CV Mode) welding, the pre-setting of the welding parameters (Wire Feed Speed and Voltage) are independent from one another.

Set-Up:

LF 37: This machine is always in Non-Synergic Welding Mode

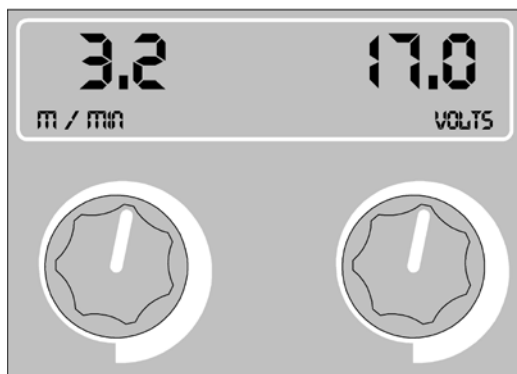
LF 38: While pressing the **Prog** button, rotate the left knob until **"NON SYNERGIC"** appears on the display.



Before Welding (Pre-Set):

Pre-Set Wire Feed Speed
(Meters/Minute)

Adjust with left knob.



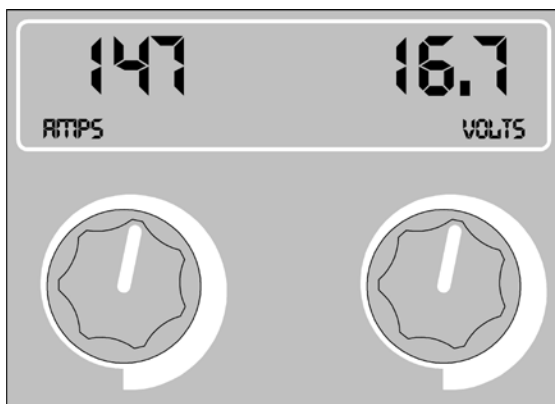
Pre-Set Welding Voltage
(V)

Adjust with right knob.

During Welding (Actual):

These actual values are displayed for **5 seconds** after the weld has stopped. Press **ENTER (LF 38 Only)** to recall these values.

Actual Welding Current
(A)



Actual Welding Voltage
(V)

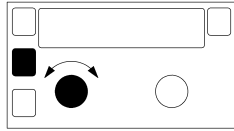
B. Synergic Welding Mode (LF 38 only)

Description:

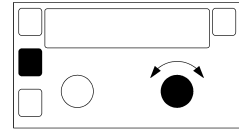
During Synergic welding, the wire feeder determines the optimal voltage characteristics based upon the selected wire type and diameter. Only the wire feed speed needs to be regulated by the user. The user can then adjust the height of the arc using the right knob. Once the arc height has been established, it will remain at the same level regardless of any variation in the wire feed speed.

Set-Up:

While pressing the **Prog** button, rotate the **Left** knob and select from the following:



While pressing the **Prog** button, rotate the **Right** knob and select the appropriate wire diameter:

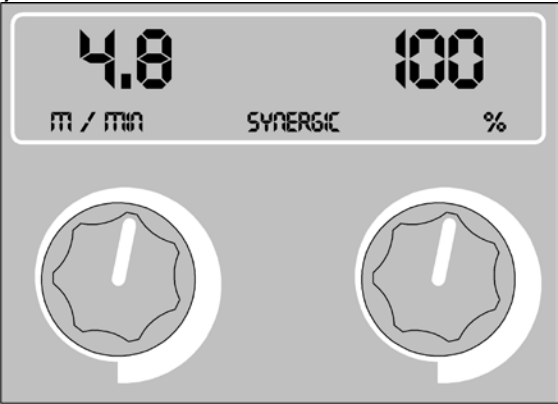


Steel 80/20	→	0.8, 1.0, 1.2 mm
Stainless 98/2	→	0.8, 1.0, 1.2 mm
Metal Cored 98/2	→	1.2, 1.6 mm
Flux Cored 80/20	→	1.2, 1.6 mm
Flux Cored CO2	→	1.2, 1.6 mm
AlMg 100% Arg	→	1.2, 1.6 mm
AlSi 100% Arg	→	1.2, 1.6 mm
Innershield NR-211MP	→	1.7, 2.0 mm
Innershield NR-232	→	1.8, 2.0 mm
Innershield NR-400	→	2.0 mm
Innershield NS-3M	→	2.0 mm

- Before welding (Pre-Set):

Pre-Set Wire Feed Speed
(Meters/Minute)

Adjust with left knob.



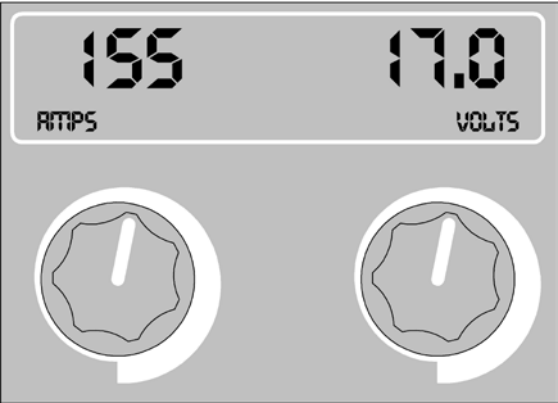
Pre-Set Relative Arc Height

100% is the baseline. This value is often referred to as **Trim**. Adjust with the **Right** knob to increase/decrease arc height.

- During welding (Actual):

These actual values are displayed for **5 seconds** after the weld has stopped. Press **ENTER (LF 38 Only)** to recall these values.

Actual Welding Current
(A)

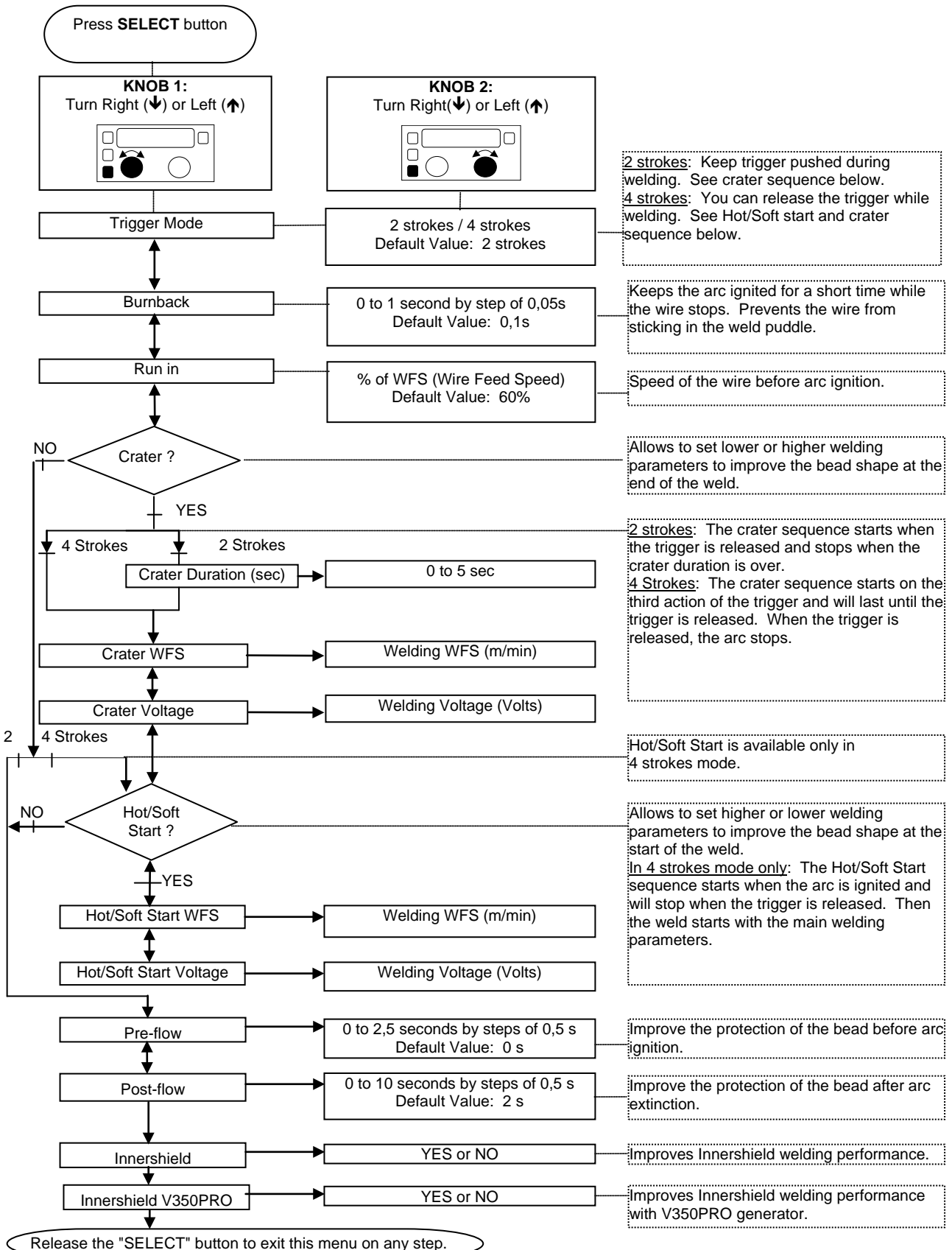


Actual Welding Voltage
(V)

C. Selecting Welding Parameter

Description:

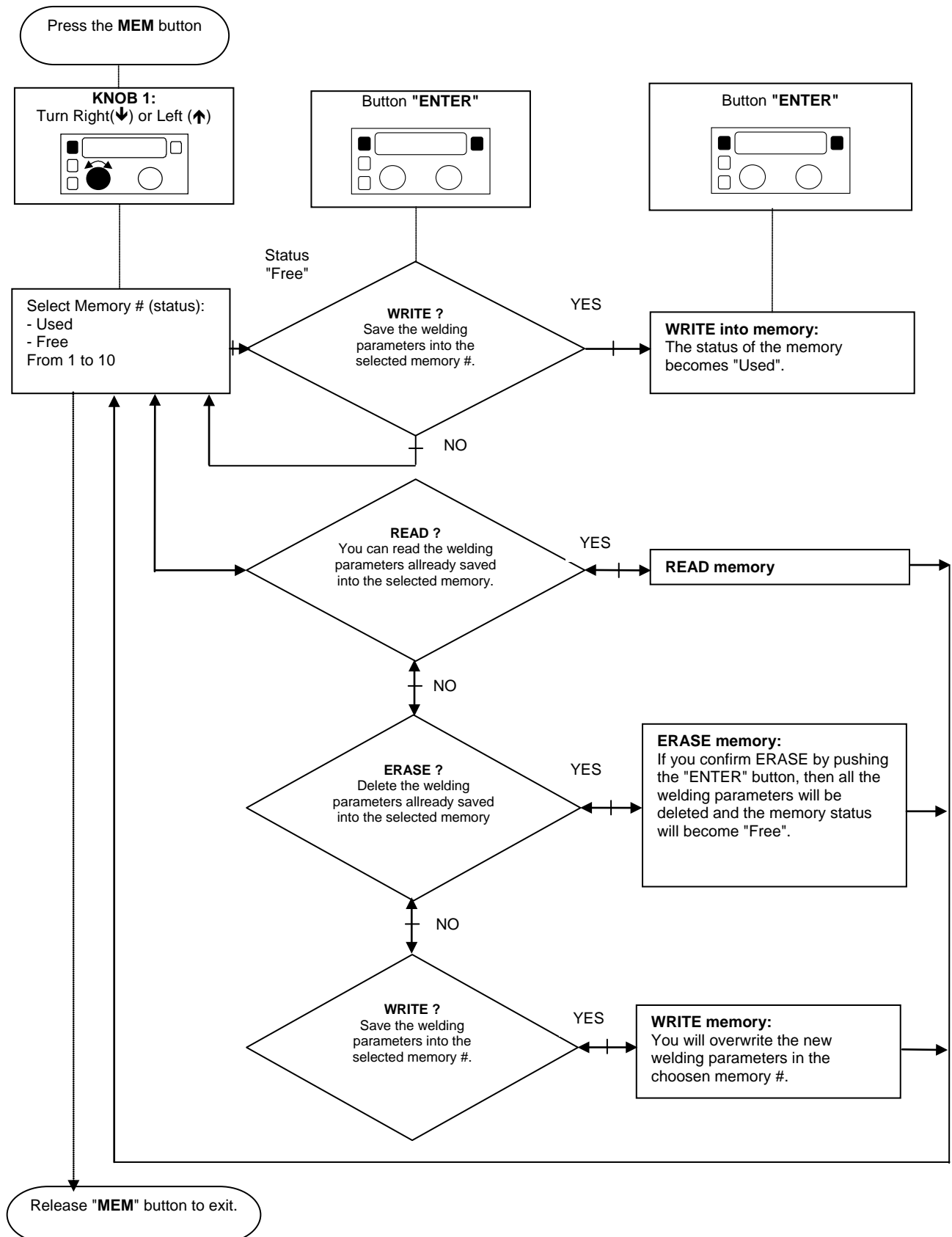
The following options can be regulated using the **Select** button and the procedure below: 2/4 Step Trigger, Burnback, Run-In, Crater, Hot/Soft Start, Pre-Flow and Post-Flow.



D. Memory Function - Saving, Reading and Erasing (LF 38 Only)

Description:

The Memory function can be used to recall up to 10 specific sets of welding parameters defined by the user. Once the welding parameters have been defined, the following steps can be taken to write these parameters to memory.



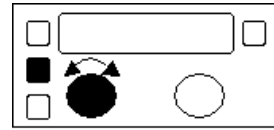
E. Memory Function - Recalling Memory (LF 38 Only)

Description:

The saved Memory configurations can be recalled.

Set-Up:

While pressing the **Prog** button, rotate the left knob until “**RECALL MEMORY**” appears on the display.



Selection:

Release the **Prog** button, then rotate the left knob to scroll through the saved memory configurations. Only the memory locations that have been used will be available. Once selected, begin welding.



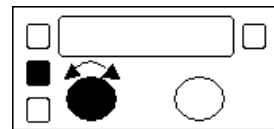
Welding:

While welding in Memory Mode, the **Non-Synergic Voltage** or the **Synergic Trim** values can be varied approximately 5% using the right knob. This allows for fine adjustment of the welding characteristics.

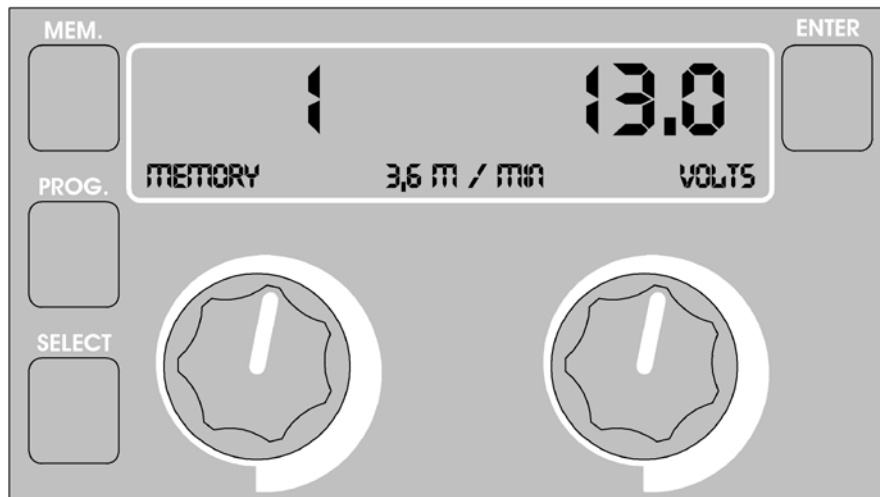


To Exit:

To return to Non-Synergic or Synergic welding, press the **Prog** button and rotate the left knob until the proper parameter appears. See sections A and B for further details.

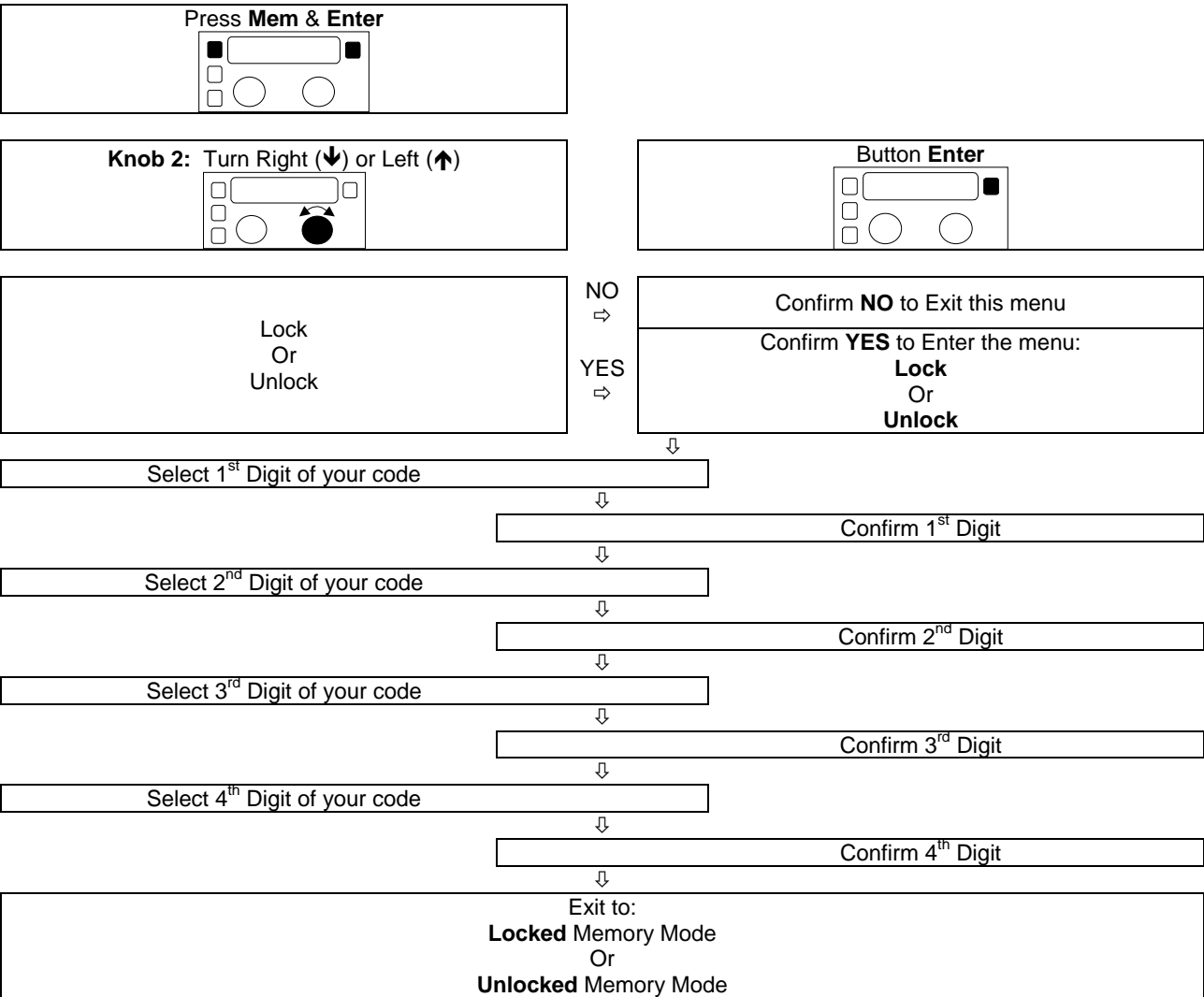


Memory Screen Example:



F. Memory Function - Locking / Unlocking Memory (LF 38 Only)

Description:
The Memory values can be locked / unlocked with a 4-digit code.

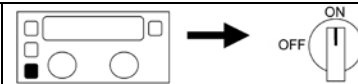




G. Configuration Menu

Description:

This hidden menu allows you to change the Machine Configuration.

To enter the set-up menu, press the **Select** pushbutton and at the same time **Switch ON** the machine.



Knob 1: Turn right or left 		Knob 2: Turn right or left 		
Choice of the configuration		Choice		Function
<ul style="list-style-type: none"> LANGUAGE 		English	Spanish	Select the language you want to use.
		Italian	French	
		German	Norwegian	
			Polish	
<ul style="list-style-type: none"> ACCELERATION 		From 1 to 3 Standard value: 2		Value used to determine the acceleration of the wire between the "Cold inch WFS" and the "Welding WFS".
<ul style="list-style-type: none"> PRODUCT TYPE 		Not used		Shows Product Type LF 37 or LF 38.
<ul style="list-style-type: none"> SN 		Not used		Shows Product Serial Number.
<ul style="list-style-type: none"> MAINTENANCE 		YES / NO		Answer NO or contact Lincoln representative.
<ul style="list-style-type: none"> CALIBRATION 		YES / NO		Answer NO.
<ul style="list-style-type: none"> PROGRAM LEVEL 		Not used		Shows Program level of the Wire Feeder.
<ul style="list-style-type: none"> RESET 		YES / NO		If YES, you will: <ul style="list-style-type: none"> Erase all the memories and their status will become "empty". Unlock the Recall memory mode if it was locked. Restore all the parameters to their "DEFAULT" values.
<ul style="list-style-type: none"> EXIT 		YES / NO		If YES, Press Select to Exit and save the changes above.

Error messages:

Message	Description	Misadjustment(s)	Corrective Action
Unstable Welding Voltage	<p>The generator is unable to deliver the pre-set value (voltage) requested by the wire feeder.</p> <p>It can appears:</p> <p>1. During welding:</p>	<ul style="list-style-type: none"> Check that welding pre-set parameters (WFS and Voltage) matches the application (wire diameter, thickness, gas...). Check the polarity switch position of the generator correspond to the polarity of the wire feeder connection. Check the remote control switch of the generator set on "Remote" position. Check if pre-set parameters are not above the specified limit of the generator. 	<ul style="list-style-type: none"> Adjust parameters. Correct polarity switch position and wire feeder polarity connection. Select "remote" position. Reduce the parameters or use an higher rating generator.
Wire Feed Jam	Motor is at maximum power and is not able to maintain the pre-set WFS value.	<ul style="list-style-type: none"> Verify wire can move freely in cable. Verify spool brake is not set too high. 	<ul style="list-style-type: none"> Clean or replace the liner. Adjust spool brake.
Water Flow Too Low	<p>The wire feeder has detected:</p> <ul style="list-style-type: none"> No water flow. Too low water flow (less than 0.7 liter/min). 	<ul style="list-style-type: none"> Check if the water cooler is on and filled up with coolant. Check the water circuit including water cooled torch connection. 	<ul style="list-style-type: none"> Fill up and switch on water cooler. Remove blockage in water circuit.
Water Flow Detected	The wire feeder has detected water flow while the setting in select menu is water cooler "no".	<ul style="list-style-type: none"> The setting of water cooler is wrong in the select menu. <p>Note: In this case, flow meter protection is not used.</p>	<ul style="list-style-type: none"> Select the correct setting of the water cooler in select menu.

Electromagnetic Compatibility (EMC)

11/04

This machine has been designed in accordance with all relevant directives and standards. However, it may still generate electromagnetic disturbances that can affect other systems like telecommunications (telephone, radio, and television) or other safety systems. These disturbances can cause safety problems in the affected systems. Read and understand this section to eliminate or reduce the amount of electromagnetic disturbance generated by this machine.



This machine has been designed to operate in an industrial area. To operate in a domestic area it is necessary to observe particular precautions to eliminate possible electromagnetic disturbances. The operator must install and operate this equipment as described in this manual. If any electromagnetic disturbances are detected the operator must put in place corrective actions to eliminate these disturbances with, if necessary, assistance from Lincoln Electric.

Before installing the machine, the operator must check the work area for any devices that may malfunction because of electromagnetic disturbances. Consider the following.

- Input and output cables, control cables, and telephone cables that are in or adjacent to the work area and the machine.
- Radio and/or television transmitters and receivers. Computers or computer controlled equipment.
- Safety and control equipment for industrial processes. Equipment for calibration and measurement.
- Personal medical devices like pacemakers and hearing aids.
- Check the electromagnetic immunity for equipment operating in or near the work area. The operator must be sure that all equipment in the area is compatible. This may require additional protection measures.
- The dimensions of the work area to consider will depend on the construction of the area and other activities that are taking place.

Consider the following guidelines to reduce electromagnetic emissions from the machine.

- Connect the machine to the input supply according to this manual. If disturbances occur it may be necessary to take additional precautions such as filtering the input supply.
- The output cables should be kept as short as possible and should be positioned together. If possible connect the work piece to ground in order to reduce the electromagnetic emissions. The operator must check that connecting the work piece to ground does not cause problems or unsafe operating conditions for personnel and equipment.
- Shielding of cables in the work area can reduce electromagnetic emissions. This may be necessary for special applications.

WARNING

The Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low-voltage supply system. There can be potential difficulties in ensuring electromagnetic compatibility in those locations, due to conducted as well as radio-frequency disturbances.



Technical Specifications

LINC FEED 37 & LF 38:

INPUT VOLTAGE		WIRE FEED SPEED	
42 Vac		1.5-20 m/min	
RATED OUTPUT AT 40°C			
Duty Cycle (based on a 10 min. period)		Output Current	
100%		320 A	
60%		400 A	
OUTPUT RANGE			
Welding Current Range 5-500 A		Maximum Open Circuit Voltage 113 Vdc or Vac peak	
WIRE SIZES (mm)			
Solid wires 0.6 to 1.6	Cored wires 1.0 to 2.0	Aluminium wires 1.0 to 1.6	
PHYSICAL DIMENSIONS			
Height 356 mm	Width 188 mm	Length 534 mm	Weight 16 Kg
Operating Temperature -10°C to +40°C		Storage Temperature -25°C to +55°C	

WEEE

07/06

English



Do not dispose of electrical equipment together with normal waste!

In observance of European Directive 2012/19/EC on Waste Electrical and Electronic Equipment (WEEE) and its implementation in accordance with national law, electrical equipment that has reached the end of its life must be collected separately and returned to an environmentally compatible recycling facility. As the owner of the equipment, you should get information on approved collection systems from our local representative.

By applying this European Directive you will protect the environment and human health!

Spare Parts

12/05

Part List reading instructions

- Do not use this part list for a machine if its code number is not listed. Contact the Lincoln Electric Service Department for any code number not listed.
- Use the illustration of assembly page and the table below to determine where the part is located for your particular code machine.
- Use only the parts marked "X" in the column under the heading number called for in the assembly page (# indicate a change in this printing).

First, read the Part List reading instructions above, then refer to the "Spare Part" manual supplied with the machine, that contains a picture-descriptive part number cross-reference.

Electrical Schematic

Refer to the "Spare Part" manual supplied with the machine.

Accessories

K10347-PG-xxM	Source/wire feeder cable (gas). Available in 5, 10, 15m (CV AIR power source, INVERTEC V350-PRO power source only).
K10347-PGW-xxM	Source/wire feeder cable (gas and water). Available in 5, 10 or 15m.
K10370-PG-xxM	Source/wire feeder cable (gas). Available in 5, 10, 15m (INVERTER STT II power source only).
K10158	Plastic adaptor for 15-kg coils.
K10343	Innershield torch adaptor
K10353-1	Remote control box for LF30/31/37/38 with cable.

LF 37 & 38: Drive rolls and guide tubes 4 driven rolls

KP14017-0.8	Solid wires: 0,6 ÷ 0,8mm
KP14017-1.0	0,8 ÷ 1,0mm
KP14017-1.2	1,0 ÷ 1,2mm
KP14017-1.6	1,2 ÷ 1,6mm
KP14017-1.2A	Aluminum wires: 1.0 ÷ 1.2mm
KP14017-1.6A	1.2 ÷ 1.6mm
KP14017-1.1R	Cored wires: 0.9 ÷ 1.1mm
KP14017-1.6R	1.2 ÷ 1.6mm