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Lincoln Electric K3461-1

Lincoln Electric LE31MP Multi-Process Welder Instruction Manual

Model: K3461-1

1. INTRODUCTION

This manual provides essential information for the safe and effective operation, setup, and maintenance of your Lincoln Electric LE31MP Multi-Process Welder. The LE31MP is a lightweight, portable welding machine designed for versatility, supporting MIG, Flux-Cored, Stick, and TIG welding applications. It operates on standard 120V power.

Please read this manual thoroughly before operating the welder to ensure proper use and to prevent injury or damage.

2. SAFETY INFORMATION

Welding can be hazardous. It is crucial to follow all safety precautions to prevent electric shock, burns, fire, and exposure to fumes and gases. Always wear appropriate personal protective equipment (PPE), including welding helmet, gloves, and protective clothing.

- **Electric Shock Can Kill:** Do not touch live electrical parts. Insulate yourself from work and ground.
- **Fumes and Gases Can Be Hazardous:** Keep your head out of the fumes. Use ventilation or exhaust to remove fumes from the breathing zone.
- **Arc Rays Can Burn Eyes and Skin:** Wear a welding helmet with a proper shade of filter lens to protect your eyes and face. Wear protective clothing to protect your skin.
- **Fire and Explosion Hazard:** Remove all flammables from the welding area. Have a fire extinguisher nearby.
- **Hot Parts Can Cause Severe Burns:** Allow equipment to cool before touching.
- **California Proposition 65 Warning:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

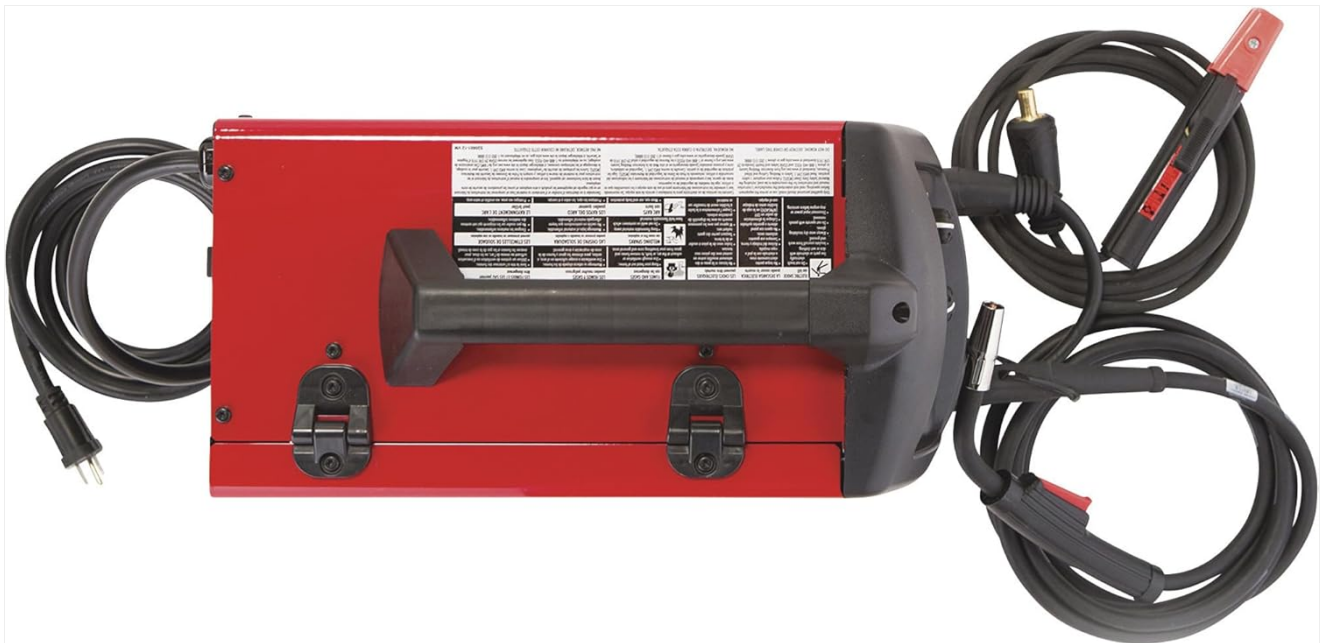


Figure 2.1: Rear view of the LE31MP welder, highlighting safety labels and the power input connection. Always review all warning labels on the machine before operation.

3. PACKAGE CONTENTS

Upon unpacking, verify that all components are present and undamaged. If any items are missing or damaged, contact Lincoln Electric customer support immediately.

- Lincoln Electric LE31MP Multi-Process Welder Unit
- Magnum PRO 100L MIG Gun
- Ground Clamp with Cable
- Electrode Holder with Cable (for Stick welding)
- Gas Regulator with Hose (for MIG welding)
- Sample Spools of MIG Wire
- Sample Spools of Flux-Cored Wire
- Contact Tips (various sizes)
- Instruction Manual (this document)



Figure 3.1: The LE31MP welder and its standard included accessories. Ensure all items are present.

What's Included

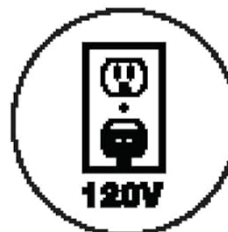


Figure 3.2: Visual representation of key features and included items, such as the convenient carrying handle and simple process controls.

4. SETUP

4.1 Power Connection

The LE31MP operates on a standard 120V AC power supply. Ensure the power outlet is properly grounded and capable of providing sufficient amperage for welding operations. Always connect the welder to a dedicated circuit if possible.

4.2 Connecting Welding Accessories

- **Ground Clamp:** Connect the ground clamp cable to the appropriate terminal on the front panel of the welder. Securely attach the ground clamp to the workpiece or welding table, ensuring good electrical contact.
- **MIG Gun:** Insert the MIG gun connector into the corresponding receptacle on the front panel. Ensure it is fully seated and secured.
- **Electrode Holder (for Stick):** For Stick welding, connect the electrode holder cable to the positive (+) terminal and the ground clamp to the negative (-) terminal.



Figure 4.1: The LE31MP with the MIG gun and ground clamp properly connected to the front panel.

4.3 Wire Installation (MIG/Flux-Cored)

1. Open the side panel of the welder to access the wire spool compartment.
2. Mount the wire spool onto the spindle, ensuring it rotates freely.
3. Feed the wire through the drive rolls and into the gun liner. Ensure the drive rolls are set to the correct tension for the wire diameter.
4. Close the side panel.



Figure 5.1: Detailed view of the LE31MP control panel. The left knob adjusts voltage/amperage, the right knob adjusts wire feed speed, and the switch selects the welding process.

- **Process Selector Switch:** Choose between WIRE (MIG/Flux-Cored), TIG, and STICK welding modes.
- **Voltage/Amperage Control Knob (V/A):** Adjusts the welding output. For MIG/Flux-Cored, this controls voltage. For Stick/TIG, it controls amperage.
- **Wire Feed Speed Control Knob (o/o):** For MIG/Flux-Cored, this knob controls the speed at which the welding wire is fed.

5.2 Welding Processes

5.2.1 MIG Welding (GMAW)

MIG welding uses a continuously fed wire electrode and a shielding gas to protect the weld puddle from atmospheric contamination. This process is ideal for thin to medium-thick materials and offers high productivity.

- Set the Process Selector to "WIRE".
- Connect the gas regulator and ensure gas flow.
- Adjust Voltage (V/A knob) and Wire Feed Speed (o/o knob) according to the material thickness and wire type. Refer to the welding process chart inside the welder's lid (Figure 4.2) for recommended settings.

- Ensure proper stick-out and gun angle.

5.2.2 Flux-Cored Welding (FCAW)

Flux-cored welding uses a tubular wire filled with flux, which produces its own shielding gas and slag. This process is excellent for outdoor use and on dirty or rusty materials, as it does not require external shielding gas.

- Set the Process Selector to "WIRE".
- No external shielding gas is required.
- Adjust Voltage (V/A knob) and Wire Feed Speed (o/o knob) based on the flux-cored wire specifications and material thickness.
- Ensure proper stick-out and gun angle.

5.2.3 Stick Welding (SMAW)

Stick welding uses a consumable electrode coated with flux. It is versatile and suitable for a wide range of materials and conditions, often used for heavy fabrication and outdoor repairs.

- Set the Process Selector to "STICK".
- Connect the electrode holder and ground clamp with correct polarity.
- Adjust Amperage (V/A knob) according to the electrode type and diameter.
- Strike an arc and maintain a consistent arc length.

5.2.4 TIG Welding (GTAW)

TIG welding uses a non-consumable tungsten electrode and an inert shielding gas. It produces high-quality, precise welds, especially on thin materials and exotic metals. (Note: TIG torch and gas are sold separately for this unit).

- Set the Process Selector to "TIG".
- Connect a TIG torch (not included) and appropriate shielding gas (e.g., Argon).
- Adjust Amperage (V/A knob) based on material thickness and tungsten electrode size.
- Ensure proper gas flow and torch technique.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your welder.

- **Cleaning:** Periodically clean the welder's exterior with a dry cloth. Use compressed air to blow out dust and debris from inside the machine, especially around cooling vents. Ensure the power is disconnected before cleaning.
- **Wire Drive Rolls:** Inspect the wire drive rolls for wear and cleanliness. Clean any wire shavings or debris that may accumulate. Ensure the correct drive rolls are installed for your wire type and size.
- **MIG Gun Liner:** If wire feeding issues occur, the MIG gun liner may be clogged or worn. Replace the liner as needed.
- **Contact Tips:** Replace worn or spattered contact tips regularly to ensure good electrical contact and consistent wire feeding.
- **Cables and Connections:** Inspect all cables (power, ground, gun) for cuts, fraying, or damage. Ensure all connections are tight and secure.

7. TROUBLESHOOTING

This section provides solutions to common issues you might encounter. For problems not listed here, contact Lincoln Electric customer support.

Problem	Possible Cause	Solution
No power to welder	Power switch off, circuit breaker tripped, faulty power cord/outlet	Turn power switch on. Reset circuit breaker. Check power cord and outlet.
No arc when welding	Poor ground connection, incorrect process selected, wrong settings, worn contact tip	Ensure ground clamp has good contact. Verify process selector. Adjust V/A and WFS settings. Replace contact tip.
Wire not feeding	Wire tangled, drive rolls not engaged/tensioned correctly, clogged liner, worn contact tip	Untangle wire. Adjust drive roll tension. Clean/replace liner. Replace contact tip.
Poor weld quality (porosity, spatter)	Incorrect settings, insufficient shielding gas (MIG), dirty workpiece, wrong wire/electrode	Adjust settings. Check gas flow/supply. Clean workpiece. Use correct consumables.

8. SPECIFICATIONS

Key technical specifications for the Lincoln Electric LE31MP Multi-Process Welder:

Model Number	K3461-1
Manufacturer	Lincoln Electric
Input Power	120V AC
Output Amperage	30-140 Amps DC
Welding Processes	MIG, Flux-Cored, Stick, TIG
Item Weight	46 pounds
Unit Dimensions (L x W x H)	18.1 x 8.9 x 13.6 inches
Product Dimensions (Shipping)	20 x 15 x 16 inches
Date First Available	February 22, 2018

LE31MP[®] Multi-Process Welder



Figure 8.1: Physical dimensions of the LE31MP welder unit.



Figure 8.2: Electrical specifications and compliance information from the welder's rear panel label.

9. WARRANTY AND SUPPORT

9.1 Warranty Information

The Lincoln Electric LE31MP Multi-Process Welder comes with a **3-year warranty** on material and workmanship. Please

retain your proof of purchase for warranty claims. For detailed warranty terms and conditions, refer to the official Lincoln Electric warranty statement or contact customer support.

LE31MP[®] Multi-Process Welder



Figure 9.1: The LE31MP is Spool Gun Ready and includes a 3-year warranty.

9.2 Customer Support

For technical assistance, troubleshooting, parts, or warranty service, please contact Lincoln Electric customer support. You can find contact information on the official Lincoln Electric website or through your product's documentation.

Visit the official Lincoln Electric website for additional product information and support resources: www.lincolnelectric.com