FLARING FC650DL PLUS

FLARING Plasma Cutter Instruction Manual

Model: FC650DL PLUS
Brand: FLARING

1. Introduction and Overview

The FLARING FC650DL PLUS is a 7th generation 65A non-touch pilot arc plasma cutter designed for efficient and clean metal cutting. It features an IGBT inverter, dual voltage compatibility (120V/240V), and advanced functions like Post Air and 2T/4T control for optimal cutting performance. This manual provides essential information for the safe and effective operation and maintenance of your plasma cutter.

Figure 1: The FLARING FC650DL PLUS Plasma Cutter and included accessories.

2. Safety Information

Operating a plasma cutter involves inherent risks. Always adhere to the following safety guidelines to prevent injury or damage:

- **Electrical Safety:** Ensure the machine is properly grounded. Do not operate in wet conditions. Verify correct voltage selection (120V or 240V) before connecting to power.
- **Eye and Face Protection:** Always wear a welding helmet with appropriate shade settings and safety glasses underneath to protect against intense light and sparks.
- **Body Protection:** Wear flame-resistant clothing, heavy-duty gloves, and closed-toe shoes to protect against sparks, molten metal, and electrical shock.
- **Fume Ventilation:** Plasma cutting produces fumes and gases that can be hazardous. Ensure adequate ventilation or use a fume extractor to remove these from the work area.
- **Fire Prevention:** Remove all flammable materials from the work area. Have a fire extinguisher readily available. Sparks and hot metal can travel significant distances.
- **Work Area:** Keep the work area clean, dry, and free of clutter. Ensure stable footing.

- **Children and Bystanders:** Keep children and unauthorized personnel away from the cutting area.

3. Package Contents

Upon opening the package, verify that all the following items are included:

- FC650DL PLUS Plasma Cutter Unit
- Plasma Cutting Torch (AG60)
- Ground Clamp
- Air Filter Regulator
- Air Hose
- Instruction Manual (this document)
- Additional 10pcs of Consumables (nozzles, electrodes)

Figure 2: All components included in the FC650DL PLUS package.

4. Setup

Follow these steps to set up your plasma cutter:

1. **Unpacking:** Carefully remove all components from the packaging. Inspect for any shipping damage.
2. **Air Filter Regulator Installation:** Attach the air filter regulator to the designated air inlet port on the back of the plasma cutter. Ensure a tight seal.
3. **Air Hose Connection:** Connect one end of the air hose to the air filter regulator and the other end to your air compressor. Ensure your air compressor can provide the recommended gas pressure (0.21-0.42Mpa or 30-60 PSI depending on voltage and cutting requirements).
4. **Torch Connection:** Connect the plasma cutting torch to the front panel of the machine. Ensure the connections are secure.
5. **Ground Clamp Connection:** Connect the ground clamp cable to the appropriate terminal on the front panel. Attach the ground clamp securely to the workpiece or a clean, bare metal surface near the cutting area. A good ground connection is crucial for proper operation and safety.
6. **Power Connection:** Verify the input voltage setting on the machine matches your power supply (120V or 240V). Connect the power cord to a suitable electrical outlet. Ensure the circuit breaker can handle the required amperage (50A for 120V, 30A for 240V).

Figure 3: Overview of the FC650DL PLUS unit and its key features.

5. Operating Instructions

Familiarize yourself with the control panel and operating modes before beginning any cutting tasks.

5.1 Control Panel Introduction

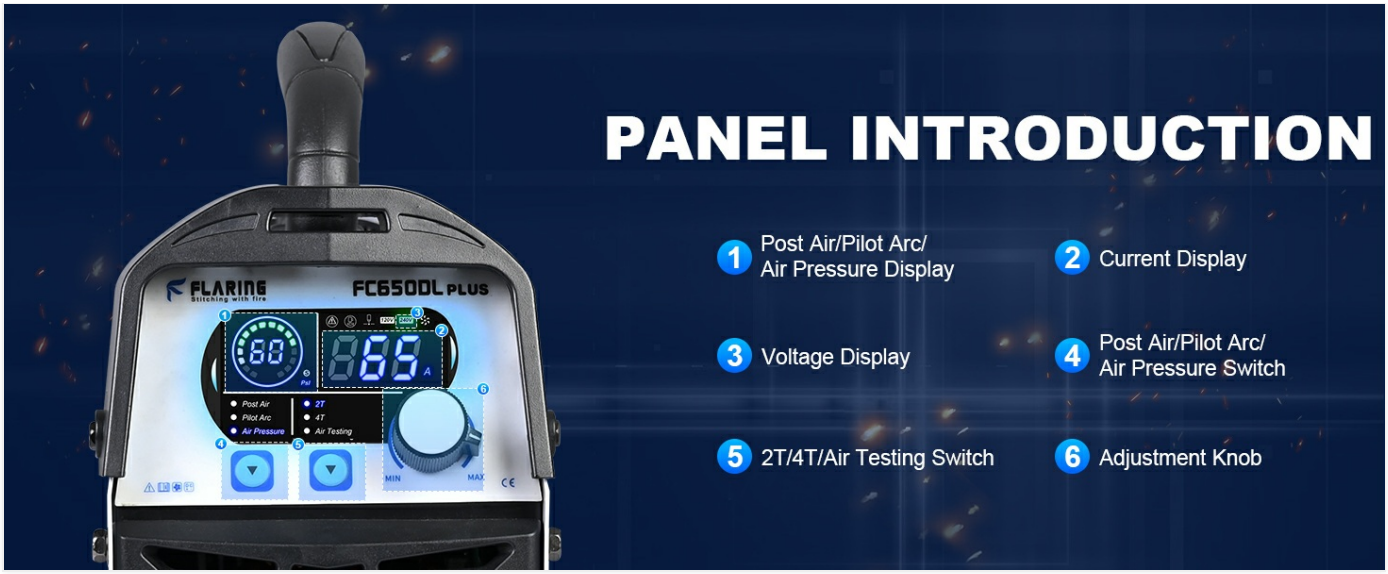

Figure 4: Detailed view of the control panel.

- **1. Post Air/Pilot Arc/Air Pressure Display:** Shows the selected mode and corresponding values.
- **2. Current Display:** Digital display showing the cutting amperage.
- **3. Voltage Display:** Digital display showing the input voltage.
- **4. Post Air/Pilot Arc/Air Pressure Switch:** Toggles between display modes and settings.
- **5. 2T/4T/Air Testing Switch:** Selects between 2T (semi-automatic), 4T (automatic), and Air Testing modes.
- **6. Adjustment Knob:** Used to adjust cutting current and other parameters.

5.2 Basic Operation Steps

1. **Power On:** Turn on the main power switch located on the back of the unit. The digital display will illuminate.
2. **Set Air Pressure:** Use the Adjustment Knob (6) and the Air Pressure Switch (4) to set the appropriate air pressure. Recommended pressure is 50 PSI for 120V operation and 60 PSI for 240V operation.
3. **Select Mode (2T/4T):** Use the 2T/4T/Air Testing Switch (5) to select your desired cutting mode.
    - **2T (Two-Touch):** Press and hold the torch trigger to start the arc; release to stop. Suitable for short cuts.
    - **4T (Four-Touch):** Press and release the torch trigger to start the arc; press and release again to stop. Ideal for long cuts, reducing hand fatigue.
4. **Set Cutting Current:** Use the Adjustment Knob (6) to set the desired cutting amperage. Refer to the cutting performance chart in Section 8 for guidance.
5. **Perform Test Cut:** Before cutting your actual workpiece, perform a test cut on a scrap piece of similar material to verify settings and technique.
6. **Cutting:** Position the torch nozzle close to the workpiece (non-touch pilot arc allows for a small standoff). Press the torch trigger to initiate the arc and begin cutting. Maintain a steady travel speed for a clean cut.
7. **Post Air Function:** The machine features an adjustable Post Air function (3-15 seconds) to cool the torch head after cutting, which helps prolong consumable life.

Figure 5: Examples of clean cut and severance cut performance.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your plasma cutter.

- **Air Filter Regulator:** Regularly check and drain any accumulated moisture from the air filter regulator. Replace the filter element if it appears dirty or clogged.
- **Consumables:** Inspect the torch consumables (nozzle, electrode, swirl ring, shield cup) before each use. Replace them when they show signs of wear, such as a widened orifice, pitting, or discoloration, to maintain cut quality.
- **Torch and Cables:** Inspect the torch body, cables, and ground clamp for any damage, cuts, or loose connections. Repair or replace as necessary.
- **Cleaning:** Keep the machine's exterior clean and free of dust and debris. Ensure cooling vents are unobstructed. Do not use solvents that could damage plastic components.
- **Storage:** Store the plasma cutter in a dry, clean environment when not in use.

7. Troubleshooting

This section addresses common issues you might encounter. For problems not listed here, contact customer support.

Problem	Possible Cause	Solution
No arc initiation	No power, poor ground connection, low air pressure, worn consumables, torch trigger issue.	Check power supply, ensure ground clamp is secure, verify air pressure, replace consumables, check torch connection.
Poor cut quality (rough, dross)	Incorrect cutting speed, wrong amperage, worn consumables, insufficient air pressure, incorrect standoff distance.	Adjust cutting speed, increase/decrease amperage, replace consumables, check air pressure, maintain proper standoff.
Machine shuts off during operation	Overheating (thermal overload), input voltage fluctuation, internal fault.	Allow machine to cool down, check power supply stability, contact customer support if problem persists.
Air leaks	Loose hose connections, damaged O-rings in regulator or torch.	Tighten all air connections, inspect and replace O-rings if damaged.

8. Specifications

Feature	Detail
Model Number	FC650DL PLUS
Input Voltage	120V/240V Dual Voltage
Rated Output Current (120V)	15-35A
Rated Output Current (240V)	35-65A
Clean Cut Thickness (120V, 35A, 50PSI)	5/8 inch (15.9mm)
Severance Cut Thickness (240V, 60A, 60PSI)	4/5 inch (20mm)
Frequency	50/60Hz
Technology	IGBT Inverter
Arc Starting Mode	Non-Touch Pilot Arc
Weight	Approximately 14.97 pounds
Dimensions (L x W x H)	15.5 x 10.75 x 8.75 inches (Package Dimensions)
Consumable Model	AG60

Figure 6: Cutting thickness specifications for 120V and 240V operation.

9. Warranty and Support

For warranty information, technical support, or to purchase replacement parts and consumables, please refer to the official FLARING website or contact their customer service department. Keep your purchase receipt as proof of purchase for warranty claims.

You can also visit the official FLARING store on Amazon for more products and support:FLARING Amazon Store

Related Documents - FC650DL PLUS

	[Laser Flaring Tool Kit 2943: Instructions and Usage Guide] Comprehensive guide to using the Laser Flaring Tool Kit (Model 2943) for creating single and double flares on copper, brass, and aluminum tubing. Includes kit contents, preparation, and step-by-step instructions.
	[ATD-5478 Master Flaring and Tubing Tool Set - Owner's Manual & Instructions] Comprehensive owner's manual and instructions for the ATD-5478 Master Flaring and Tubing Tool Set, detailing features, included components, and procedures for double and ISO bubble flares, tubing bending, and warranty information.
	[PARKSIDE Tube Flaring Tool: Instructions and Warranty] A comprehensive guide to using the PARKSIDE tube flaring tool for creating single and double flares. This document provides step-by-step instructions, details on preparation, operation, and warranty information, ensuring proper use and maintenance of the tool.
	[NAVAC NEF6LM BreakFree® Power Flaring Tool User Manual] User manual for the NAVAC NEF6LM BreakFree® Power Flaring Tool, providing instructions, technical specifications, troubleshooting, and safety guidelines for HVACR and soft copper tubing.
	[Sealey AK5063 Pipe Flaring Kit User Manual and Instructions] Comprehensive instructions for using the Sealey AK5063 Pipe Flaring Kit, detailing safety precautions, specifications, and operation for creating single and double flares on copper, brass, and aluminum tubing.
	[NAVAC NEF6LM BreakFree Power Flaring Tool User Manual] User manual for the NAVAC NEF6LM BreakFree Power Flaring Tool, detailing its structure, technical parameters, operation instructions, troubleshooting, and parts list.