AIXZGLOBAL AIC45

AIXZ AIC45 45A Plasma Cutter Instruction Manual

Model: AIC45 | Brand: AIXZGLOBAL

1. Introduction

This manual provides essential information for the safe and effective operation, setup, and maintenance of your AIXZ AIC45 45A Plasma Cutter. Please read this manual thoroughly before using the equipment to ensure proper function and to prevent injury or damage.

The AIXZ AIC45 is a robust 45A plasma cutting machine designed for precise and efficient metal cutting. It incorporates advanced IGBT inverter technology and a non-HF pilot arc for reliable performance across various metal types.

Image 1.1: AIXZ AIC45 Plasma Cutter in operation.

2. Safety Information

WARNING: Plasma cutting can be dangerous. Always follow safety precautions to prevent serious injury or death.

- **Electrical Safety:** Ensure the machine is properly grounded. Do not operate in wet conditions. Always disconnect power before performing maintenance or changing consumables.
- **Eye and Face Protection:** Always wear a welding helmet with appropriate shade settings to protect your eyes and face from intense light and sparks.
- **Body Protection:** Wear flame-resistant clothing, heavy-duty gloves, and protective footwear. Avoid loose clothing.
- **Ventilation:** Operate in a well-ventilated area to avoid inhaling fumes and gases produced during cutting.
- **Fire Hazards:** Keep flammable materials away from the cutting area. Have a fire extinguisher readily available. Sparks and hot metal can cause fires.
- **Work Area:** Keep the work area clean and free of clutter. Ensure stable footing.
- **Children and Bystanders:** Keep children and unauthorized personnel away from the operating area.
- **Machine Overload:** Do not exceed the machine's rated duty cycle to prevent overheating and damage.

3. Package Contents

Verify that all items listed below are included in your package. If any items are missing or damaged, please contact AIXZGLOBAL customer service.

- AIXZ AIC45 Plasma Cutter Machine
- XT45 Non-HF Cutting Torch

- Ground Clamp
- Air Filter and Pressure Regulator Assembly
- Air Hose
- XT45 Consumables (Nozzles, Electrodes, etc.)

Image 3.1: Included plasma cutter equipment components.

4. Product Features

- **IGBT Inverter Technology:** The AIC45 utilizes stable and mature IGBT inverter technology, providing a DC output current of 20-30A at 50/60Hz. It features a 60% duty cycle and an LCD digital display for easy monitoring and control of voltage and current settings.
- **Non-High Frequency (Non-HF) Start:** This plasma cutter employs a low-frequency start mechanism, which results in reduced electromagnetic interference. This design facilitates easier arc initiation, improves cutting success rates, and minimizes interference with other electrical equipment, contributing to a safer working environment.

Image 4.1: Non-HF technology benefits.

- **Non-Touch Pilot Arc:** The non-touch pilot arc technology allows for cutting without direct contact between the torch and the metal workpiece. This feature is particularly effective for cutting rough, painted, or rusty surfaces, producing cleaner cuts with minimal slag and extending the lifespan of consumables.

Image 4.2: Non-touch pilot arc in action.

- **Optimized Cutting Capability:** The AIC45 is capable of achieving a clean cut thickness of 10mm and a maximum separation cut thickness of 16mm. It is suitable for cutting various metallic materials, including stainless steel, carbon steel, aluminum, copper, and titanium, offering fast cutting speeds and smooth cut surfaces.

Image 4.3: Cutting thickness capabilities.

- **Integrated Air Filter Regulator:** The machine includes an air filter and pressure regulator to ensure a clean and consistent air supply to the torch, which is crucial for optimal cutting performance and consumable longevity.

Image 4.4: Air filter regulator detail.

- **Lightweight and Portable Design:** Weighing approximately 5 kg (11.24 lbs) and with compact dimensions, the AIC45 is designed for easy transport and storage, making it suitable for various work environments.

Image 4.5: Dimensions and weight for portability.

- **High Heat Dissipation:** Equipped with efficient fan cooling, the machine ensures high heat dissipation, contributing to stable operation and extended component life.

Image 4.6: High heat dissipation system.

- **2T/4T Switch:** The control panel includes a 2T/4T switch. In 2T (Two-Touch) mode, the arc starts when the trigger is pressed and stops when released. In 4T (Four-Touch) mode, the arc starts with a brief press and

release, and stops with another brief press and release, allowing for longer cuts without continuously holding the trigger.

5. Setup Instructions

Before beginning, ensure the machine is powered off and disconnected from the main power supply.

1. **Unpacking:** Carefully remove all components from the packaging and inspect for any shipping damage.
2. **Connect Air Filter Regulator:** Attach the air filter and pressure regulator assembly to the designated 'AIR IN' port on the rear of the plasma cutter. Ensure a secure, airtight connection.
3. **Connect Air Supply:** Connect your air compressor hose to the inlet of the air filter regulator. The air compressor should be capable of providing sufficient airflow and pressure for plasma cutting (refer to specifications).
4. **Connect Ground Clamp:** Securely attach the ground clamp cable to the positive (+) terminal on the front panel of the plasma cutter. Connect the clamp to the workpiece or a clean, bare metal section of the work table, ensuring good electrical contact.
5. **Connect Cutting Torch:** Plug the XT45 cutting torch cable into the negative (-) terminal on the front panel. Twist to lock it in place.
6. **Power Connection:** Connect the plasma cutter's power cord to a suitable 230V power outlet. Ensure the outlet is properly grounded and can handle the machine's current requirements.
7. **Initial Air Pressure Adjustment:** Turn on your air compressor. Adjust the air filter regulator to the recommended operating pressure (typically 4.5-5.5 bar or 65-80 PSI for plasma cutting, consult specific torch recommendations if available).

Image 5.1: Front and rear panel connections and controls.

6. Operating Instructions

Always wear appropriate Personal Protective Equipment (PPE) including a welding helmet, gloves, and protective clothing before operating the plasma cutter.

1. **Power On:** Flip the main power switch on the rear of the machine to the 'ON' position. The LCD display will illuminate.
2. **Adjust Current:** Use the current adjustment knob on the front panel to set the desired cutting amperage. The LCD display will show the selected current. Refer to cutting charts for recommended settings based on material type and thickness.
3. **Select 2T/4T Mode:** Choose between 2T (Two-Touch) or 4T (Four-Touch) mode using the switch on the control panel, depending on your cutting preference and duration.
4. **Prepare Workpiece:** Ensure the workpiece is clean, dry, and free of rust or paint for optimal cutting. Secure the ground clamp firmly to the workpiece or work table.
5. **Initiate Pilot Arc:** Position the torch nozzle approximately 1-2mm above the starting point of the cut. Press the torch trigger. The pilot arc will ignite without touching the workpiece.
6. **Begin Cutting:** Once the pilot arc is established, slowly move the torch across the workpiece, maintaining a consistent standoff distance. The plasma jet will cut through the metal. Adjust cutting speed as needed to achieve a clean cut.
7. **Monitor Cut:** Observe the molten metal and sparks. A proper cut will show sparks exiting from the bottom of the workpiece. If sparks are spraying upwards, the cutting speed may be too fast or the current too low.
8. **End Cut:** Release the torch trigger to extinguish the arc. Allow the workpiece to cool before handling.
9. **Power Off:** After completing your work, turn off the plasma cutter and disconnect it from the power supply.

7. Maintenance

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

- **Consumable Inspection:** Regularly inspect the torch consumables (nozzle, electrode, shield cup) for wear. Replace them when they show signs of pitting, excessive wear, or damage to maintain cut quality and arc stability.

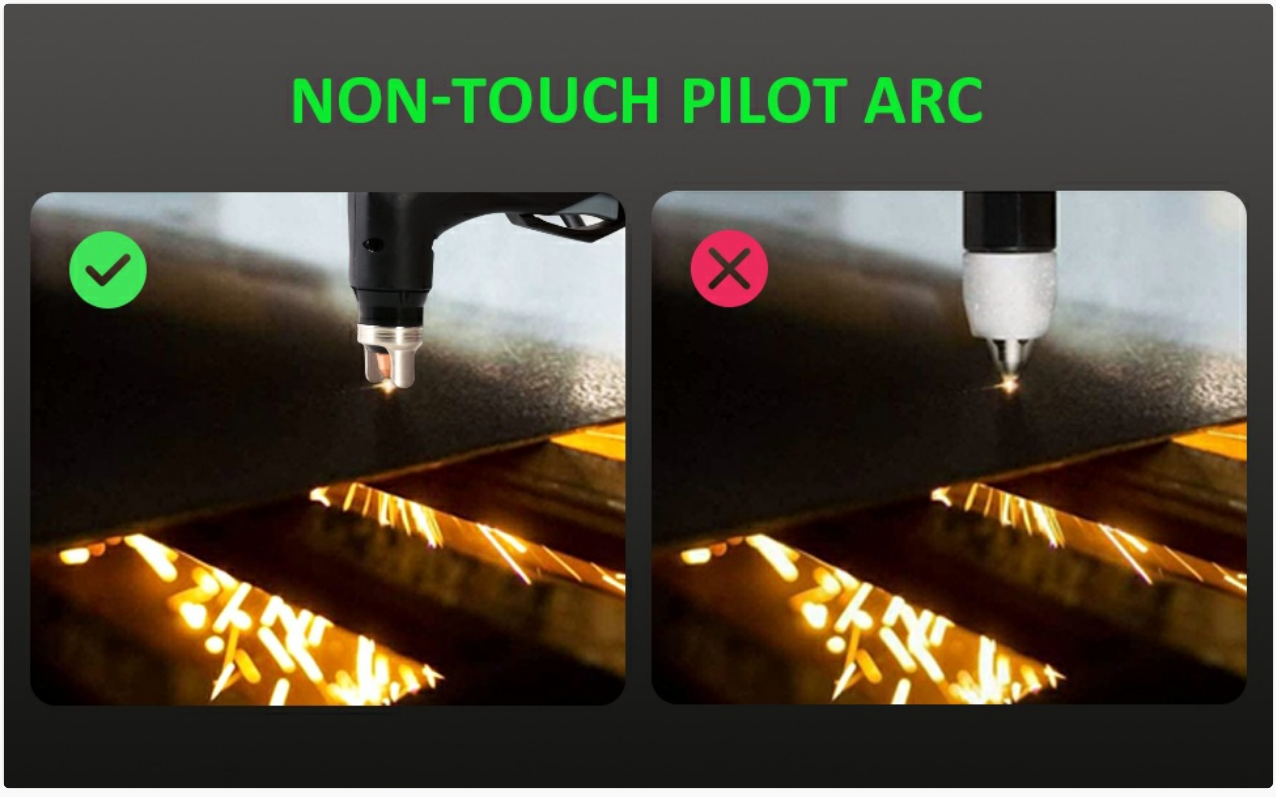

Image 7.1: XT45 Plasma Cutter Torch components.

- **Air Filter Regulator:** Periodically check the water trap on the air filter regulator. Drain any accumulated moisture by opening the drain valve at the bottom. Ensure the filter element is clean; replace if heavily contaminated.
- **Cleaning:** Keep the machine and torch clean. Wipe down the exterior with a dry cloth. Ensure cooling vents are free from dust and debris to prevent overheating.
- **Cable Inspection:** Inspect all cables (power, torch, ground) for cuts, abrasions, or damage. Replace any damaged cables immediately.
- **Storage:** Store the plasma cutter in a clean, dry environment when not in use.

8. Troubleshooting

This section addresses common issues you might encounter with your AIXZ AIC45 plasma cutter.

Problem	Possible Cause	Solution
Arc does not start or is unstable	• Poor ground connection • Worn or incorrect consumables • Insufficient air pressure • Power supply issue	• Ensure ground clamp is securely attached to clean metal. • Inspect and replace torch consumables (nozzle, electrode). • Check air pressure setting on regulator. • Verify power connection and voltage.
Poor cut quality (rough, excessive slag)	• Incorrect cutting speed • Incorrect amperage setting • Worn consumables • Improper standoff distance • Insufficient air pressure	• Adjust cutting speed (slower for thicker material, faster for thinner). • Increase or decrease amperage as needed. • Replace worn consumables. • Maintain consistent standoff distance. • Check and adjust air pressure.
Machine overheats and shuts down	• Exceeded duty cycle • Blocked cooling vents • High ambient temperature	• Allow the machine to cool down. Adhere to the rated duty cycle. • Clear any obstructions from the cooling vents. • Operate in a cooler environment if possible.
Air leaks	• Loose connections • Damaged air hose or fittings	• Tighten all air connections. • Inspect air hose and fittings for damage; replace if necessary.

9. Specifications

Feature	Specification
Manufacturer	AIXZ
Model Number	AIC45
Input Voltage	230V
Output Current	20-30A DC
Frequency	50/60 Hz
Duty Cycle	60%
Max Clean Cut Thickness	10 mm
Max Separation Cut Thickness	16 mm
Product Dimensions (L x W x H)	27.94 x 11.94 x 24.89 cm (11 x 4.7 x 9.8 inches)
Product Weight	5 kg (11.24 lbs)

10. Warranty and Support

AIXZGLOBAL is committed to providing quality products and customer satisfaction. While specific warranty details are not provided in this manual, if you encounter any issues with your AIC45 plasma cutter during operation, or if the machine does not function as expected, please contact our professional customer service team immediately. We are available to assist you with troubleshooting and support.
Please retain your proof of purchase for any warranty claims or support inquiries.