AWT MIG-140-US

AWT MIG-140-US 140 Amp Flux Core MIG/Stick 2-in-1 Welding Machine User Manual

Model: MIG-140-US

1. Introduction

This manual provides essential information for the safe and effective operation, maintenance, and troubleshooting of your AWT MIG-140-US 140 Amp 2-in-1 Welding Machine. This unit supports both Flux Core MIG (gasless) and MMA (Stick) welding processes. Please read this manual thoroughly before using the equipment.

Important Safety Information: Welding can be hazardous. Always wear appropriate personal protective equipment (PPE) including a welding helmet with proper shade, welding gloves, protective clothing, and safety shoes. Ensure adequate ventilation in your work area. Keep children and unauthorized personnel away from the welding area. Disconnect power before performing any maintenance or adjustments.

2. Product Overview

The AWT MIG-140-US is a compact and portable welding machine designed for various applications, from DIY projects to light industrial use. It features synergic control for simplified parameter settings and IGBT inverter technology for stable welding performance.

Figure 1: AWT MIG-140-US Welding Machine and Included Accessories.

2.1 Key Features

- **2-in-1 Multi-Process:** Supports Flux Core MIG (gasless) and MMA (Stick) welding.
- **Synergic Control:** Automatically optimizes welding parameters based on wire diameter for ease of use.
- **IGBT Inverter Technology:** Provides stable arc, smooth welding, and efficient power conversion.
- **Portable Design:** Lightweight (9 lbs) with a handle for easy transport.
- **Safety Features:** Equipped with VRD, over-current, overload, and thermal protection.

2.2 Panel Button Introduction

Figure 2: Front Panel Controls and Indicators.

1. **Power LED:** Indicates the machine is powered on.
2. **Overheat LED:** Illuminates if the machine overheats, indicating a need to cool down.
3. **Synergic LED:** Indicates synergic mode is active.
4. **Welding Process LED:** Shows the selected welding process (Flux 0.030", Flux 0.035", MMA).
5. **Smart Digital Display:** Shows current welding parameters (e.g., amperage, voltage).
6. **Voltage Adjustment Knob:** Adjusts welding voltage.
7. **Welding Process Select Button:** Cycles through available welding processes.
8. **Current/Wire Feed Speed Adjustment Knob:** Adjusts welding current or wire feed speed depending on the mode.

3. Setup

3.1 Unpacking and Inspection

Carefully unpack the welding machine and all accessories. Inspect for any shipping damage. Report any damage to your supplier immediately. Ensure all components listed in the package contents are present.

3.2 Power Connection

Connect the machine to a standard 110V AC power outlet. Ensure the power source is capable of providing the necessary current for welding (up to 140A output). Use a dedicated circuit if possible to avoid tripping breakers.

3.3 Wire Spool Installation (Flux Core MIG)

Figure 3: Wire Spool and Feed System.

1. Open the side panel of the welder.
2. Place the 2lb flux core wire spool onto the spool holder. Ensure it rotates freely.
3. Feed the wire through the guide tube and into the wire feed mechanism.
4. Close the wire feed roller arm and adjust the tension knob to apply slight pressure to the wire.
5. Ensure the correct drive roller groove (0.030" or 0.035") is aligned with your wire diameter.

3.4 MIG Gun and Ground Clamp Connection

- Connect the MIG gun to the designated connector on the front panel.
- For Flux Core MIG welding, ensure the polarity is set correctly (typically DCEN - Direct Current Electrode Negative, meaning the MIG gun is negative and the ground clamp is positive). Refer to the machine's polarity diagram if available.
- Connect the ground clamp cable to the appropriate terminal and securely attach the clamp to the workpiece, ensuring good electrical contact.

3.5 MMA (Stick) Welding Setup

- Connect the electrode holder cable to the appropriate terminal (typically DCEP - Direct Current Electrode Positive, meaning the electrode holder is positive and the ground clamp is negative for E6013 electrodes).
- Connect the ground clamp cable to the remaining terminal and securely attach it to the workpiece.
- Insert the desired electrode into the electrode holder.

4. Operating Instructions

4.1 Powering On

Turn on the main power switch located on the rear of the machine. The Power LED on the front panel should illuminate.

4.2 Selecting Welding Process

Press the **Welding Process Select Button** (7) to cycle between Flux Core MIG (0.030" or 0.035") and MMA modes. The corresponding LED (4) will light up.

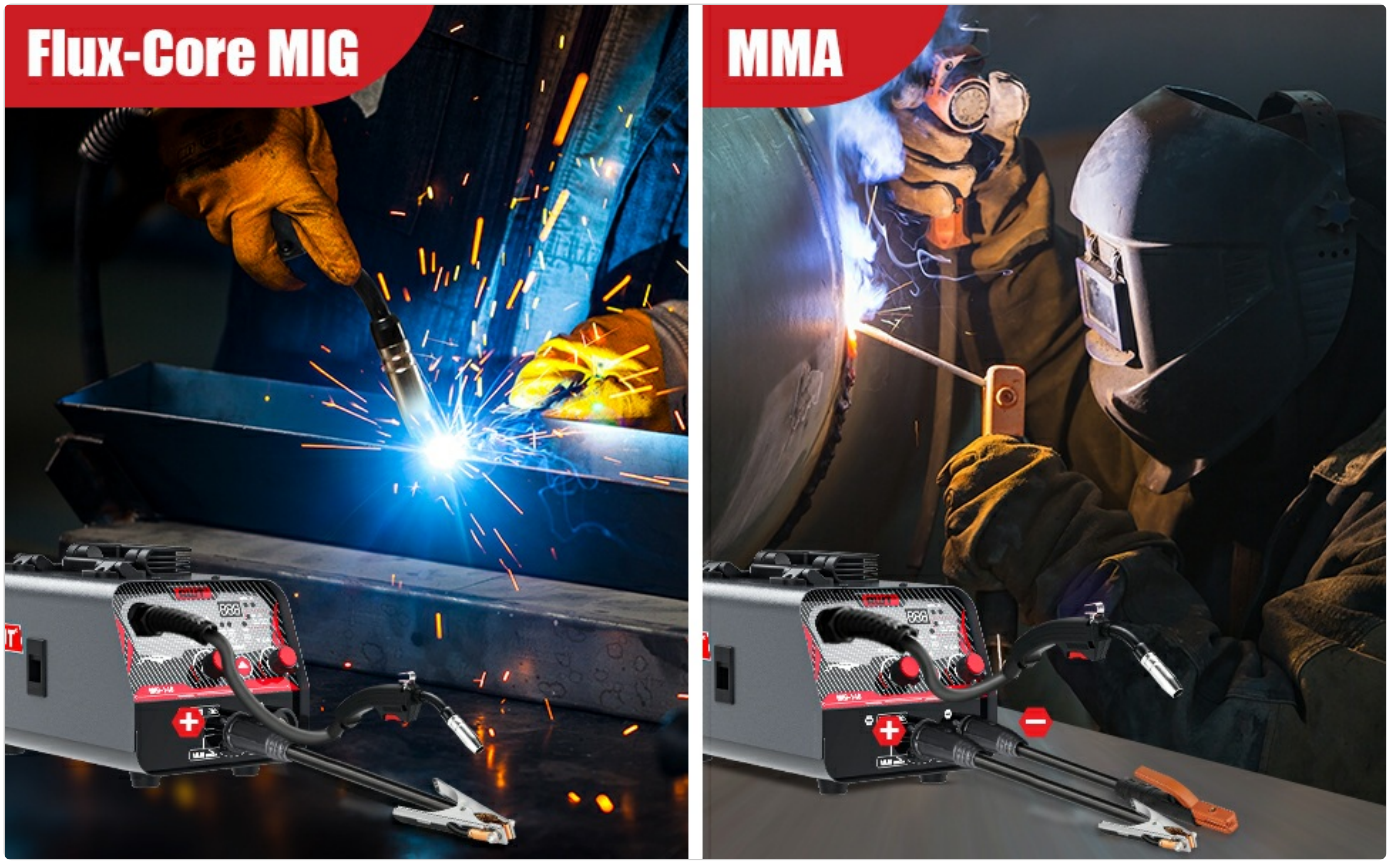

Figure 4: Visual representation of Flux-Core MIG and MMA welding.

4.3 Synergic Control (MIG Mode)

In MIG mode, the machine offers synergic control. Press and hold the 'CHOOSE' button (part of item 7) for 3 seconds to activate or deactivate synergic mode. When active, the machine automatically sets optimal voltage and wire feed speed based on the selected wire diameter. You can fine-tune parameters using the **Voltage Adjustment Knob** (6) and **Current/Wire Feed Speed Adjustment Knob** (8) if manual adjustment is preferred.

Figure 5: Activating Synergic Control.

4.4 Welding Process

- **MIG Welding:** With the MIG gun connected and wire loaded, press the trigger on the MIG gun to initiate the arc and feed wire. Maintain a consistent travel speed and arc length for optimal results.
- **MMA Welding:** Strike the electrode against the workpiece to initiate the arc. Maintain a steady hand and appropriate arc length.

The AWT MIG-140-US can weld mild steel up to 5/32" (4.0mm) thickness.

Figure 6: Examples of Weldable Materials (Square Pipe, Mild Steel, Cast Iron, Sheet Metal, Stainless Steel).

5. Maintenance

Regular maintenance ensures the longevity and optimal performance of your welding machine. Always disconnect the power supply before performing any maintenance.

5.1 Daily Maintenance

- Clean the MIG gun nozzle and contact tip to remove spatter.
- Check the ground clamp and electrode holder for secure connections and wear.
- Inspect welding cables for damage.

5.2 Weekly/Monthly Maintenance

- Clean the wire feed rollers and guide tubes. Ensure proper tension.
- Replace worn contact tips and nozzles as needed.
- Use compressed air to blow out dust and debris from the machine's interior vents.

6. Troubleshooting

If you encounter issues with your welding machine, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
No arc/Poor arc start	Loose ground clamp, incorrect settings, worn contact tip, power issue.	Ensure ground clamp is secure. Check welding parameters. Replace contact tip. Verify power supply.
Wire feed issues	Incorrect wire tension, clogged liner, wrong drive roller groove, tangled wire.	Adjust wire tension. Clean or replace liner. Ensure correct drive roller. Untangle wire spool.
Overheat LED illuminates	Exceeded duty cycle, blocked ventilation.	Allow machine to cool down. Ensure clear ventilation paths. Reduce welding time.
Poor weld quality (e.g., excessive spatter)	Incorrect voltage/current, improper stickout, dirty workpiece.	Adjust welding parameters. Maintain correct stickout. Clean workpiece thoroughly.

If problems persist after attempting these solutions, please contact customer support.

7. Specifications

Specification	Value
Manufacturer	AWT
Model Number	MIG-140-US
Item Weight	15.12 pounds
Product Dimensions	6.7 x 11.4 x 5.9 inches
Power Source	DC
Input Voltage	110V
Output Current	Up to 140A
Welding Processes	Flux Core MIG, MMA (Stick)
Max Weld Thickness	5/32" (4.0mm) mild steel
Included Components	Accessories (MIG gun, ground clamp, electrode holder, flux core wire, brush/hammer, contact tips, strap, manual)

8. Warranty and Support

Your AWT MIG-140-US welding machine comes with a 2-year coverage. For any questions, technical assistance, or warranty claims, please contact AWT customer support. Our team is available 24 hours to assist you.

Contact Information: Refer to the contact details provided on the product packaging or the official AWT website for the most up-to-date support information.