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Miller 907757

Miller Multimatic 220 AC/DC Multiprocess Welder Instruction Manual

Model: 907757

1. INTRODUCTION

The Miller Multimatic 220 AC/DC is a versatile multiprocess welding machine designed for a wide range of applications, from light industrial to home and ranch use. This single unit supports MIG (GMAW), Flux-Cored (FCAW), Stick (SMAW), and AC/DC TIG (GTAW) welding processes, offering unparalleled flexibility and efficiency. Its intuitive interface, featuring a 3.5-inch color LCD display, along with features like QuickTech, Auto-Set Elite, and Pro-Set, simplifies setup and operation for both beginners and experienced welders.



Figure 1.1: Miller Multimatic 220 AC/DC Multiprocess Welder with included accessories.



Figure 1.2: The Multimatic 220 AC/DC Welder, weighing 56 lbs and measuring 29" L x 20" W x 19" H.

2. IMPORTANT SAFETY PRECAUTIONS

WARNING: Read and understand all safety information before operating this equipment. Failure to do so may result in serious injury or death.

- **Electric Shock Can Kill:** Do not touch live electrical parts. Wear dry insulating gloves and clothing. 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.
- **Welding Can Cause Fire or Explosion:** Do not weld near flammable materials. Have a fire extinguisher nearby.
- **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.
- **Noise Can Damage Hearing:** Wear ear protection if noise levels are high.
- **Moving Parts Can Cause Injury:** Keep clear of moving parts such as fans and wire feed rolls.

3. INCLUDED COMPONENTS

Your Miller Multimatic 220 AC/DC package includes the following items:

- Power source (Multimatic 220 AC/DC Welder)
- 10 ft. (3 m) MDX-100 MIG gun
- 13 ft. (4 m) cable electrode holder and 25 mm Dinse-style connector
- 12.5 ft. (3.8 m) Weldcraft A-150 (WP-17) TIG torch with 25 mm Dinse-style connector
- 10 ft. (3 m) work cable with clamp and 25 mm Dinse-style connector

- 6.5 ft. (2 m) power cord with MVP™ plugs for 120V and 240V
- RFCS-14 HD foot control with 20 ft. (6 m) cord
- Two flow-gauge regulators and gas hoses for argon or AR/CO₂ MIG gun
- Hobart spool of 0.030 in. (0.8 mm) solid wire
- Two contact tips for 0.030 in. (0.8 mm) wire
- Quick Select drive roll for 0.024 in. (0.6 mm) or 0.030/0.035 in. (0.8/0.9 mm) solid wire and 0.030/0.035 in. (0.8/0.9 mm) flux-cored wire
- AK2C TIG torch accessory kit
- Material thickness gauge #229895
- Hook-and-loop cord wraps

Note: Shielding gas and safety equipment are not included and must be purchased separately.

INCLUDED IN PURCHASE

<ul style="list-style-type: none"> ■ Power source ■ 10 ft. (3 m) MDX™-100 MIG gun ■ 13 ft. (4 m) cable electrode holder and 25 mm Dinse-style connector ■ 12.5 ft. (3.8 m) Weldcraft™ A-150 (WP-17) TIG torch with 25 mm Dinse-style connector ■ 10 ft. (3 m) work cable with clamp and 25 mm Dinse-style connector ■ 6.5 ft. (2 m) power cord with MVP™ plugs for 120V and 240V ■ RFCS-14 HD foot control with 20 ft. (6 m) cord 	<ul style="list-style-type: none"> ■ Two flow-gauge regulators and gas hoses for argon or AR/CO₂ mix ■ Hobart® spool of 0.030 in. (0.8 mm) solid wire ■ Two contact tips for 0.030 in. (0.8 mm) wire ■ Quick Select™ drive roll for 0.24 in. (0.6 mm) or 0.030/0.035 in. (0.8/0.9 mm) solid wire and 0.30/0.35 in. (0.8/0.9 mm) flux-cored wire ■ AK2C TIG torch accessory kit ■ Material thickness gauge #229895 ■ Hook-and-loop cord wraps
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▶ *Note: shielding gas and safety equipment not included.*

Figure 3.1: Detailed list of components included with the Multimatic 220 AC/DC Welder.

4. SETUP

4.1. Power Connection

The Multimatic 220 AC/DC features a Multi-Voltage Plug (MVP) for easy connection to both 120V and 240V power sources without the need for tools. Ensure the power source matches the machine's requirements. The unit is also compatible with generators providing at least 10,000 Watts (10K) output.

4.2. Gas Connections

The machine is equipped with two shielding gas connections, allowing both gases to be connected simultaneously without switching. Connect your argon or AR/CO₂ gas cylinders to the appropriate inlets using the provided flow-gauge regulators and hoses.

4.3. Attaching Accessories

Connect the MDX-100 MIG gun, Weldcraft TIG torch, electrode holder, work clamp, and heavy-duty foot control to their respective ports on the front panel of the welder. Ensure all connections are secure.



Figure 4.1: Front and rear panel connections for power, gas, and welding accessories.

5. OPERATING INSTRUCTIONS

5.1. User Interface

The Multimatic 220 AC/DC features an intuitive 3.5-inch color LCD display that provides clear setup images and welding parameters. Navigate through menus using the control knobs and buttons to select processes and adjust settings.

5.2. Welding Processes

This machine supports the following welding processes:

- **MIG (GMAW):** Gas Metal Arc Welding, ideal for general fabrication.
- **Flux-Cored (FCAW):** Flux-Cored Arc Welding, suitable for outdoor use or on dirty material.
- **AC/DC TIG (GTAW):** Gas Tungsten Arc Welding, offering precise control for thin materials and aluminum.
- **Stick (SMAW):** Shielded Metal Arc Welding, for heavy-duty applications and various materials.

5.3. Smart Features

The Multimatic 220 AC/DC incorporates advanced features to streamline your welding experience:

- **Auto-Set Elite:** This feature simplifies setup by automatically setting weld parameters based on material thickness and wire/electrode type. Settings can be fine-tuned for specific applications.
- **Pro-Set:** Available for TIG and Stick modes, Pro-Set eliminates guesswork when setting weld

parameters, providing optimized settings for consistent, high-quality welds.

- **QuickTech Technology:** Automatically determines polarity, switches to the correct process, and recalls settings from your last used process, saving time and eliminating manual adjustments.
- **Quick Select Drive Roll:** Offers three grooves for solid and flux-cored wire, making wire changes quick and easy.



Figure 5.1: Overview of the Multimatic 220's key features and technologies.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your Multimatic 220 AC/DC welder.

- **Cleaning:** Periodically clean the internal components with dry, compressed air to remove dust and debris. Ensure the power is disconnected before cleaning.
- **Cable and Hose Inspection:** Regularly inspect all cables, hoses, and connectors for signs of wear, damage, or fraying. Replace any damaged components immediately.
- **Wire Feed System:** For MIG/Flux-Cored welding, inspect the wire feed rolls and liner for wear. Clean or replace as necessary to ensure smooth wire feeding.
- **Cooling Vents:** Keep cooling vents clear of obstructions to ensure proper airflow and prevent overheating.

7. TROUBLESHOOTING

This section provides solutions to common issues you might encounter with your Multimatic 220 AC/DC welder.

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
No power to machine	Power cord unplugged; Circuit breaker tripped; Incorrect voltage connection	Check power cord connection; Reset circuit breaker; Ensure correct MVP plug is used for voltage
No arc	Work clamp not properly connected; Incorrect process selected; Machine in thermal overload	Secure work clamp to clean metal; Verify process selection on display; Allow machine to cool down
Poor wire feed (MIG/Flux-Cored)	Incorrect drive roll tension; Worn drive roll; Kinked liner or gun cable	Adjust drive roll tension; Replace worn drive roll; Straighten or replace liner/cable
Inconsistent arc (TIG)	Contaminated tungsten; Incorrect gas flow; Poor ground connection	Re-grind or replace tungsten; Check gas cylinder and regulator; Clean and secure ground connection

8. SPECIFICATIONS

Detailed technical specifications for the Miller Multimatic 220 AC/DC Welder:

Feature	Specification
Model Number	907757
Input Power	120V / 240V, Single-phase, 50/60Hz
Rated Output (120V)	MIG: 105A at 19.2V, 60% duty cycle TIG: 130A at 15.2V, 20% duty cycle Stick: 90A at 23.6V, 40% duty cycle
Rated Output (240V)	MIG: 200A at 24V, 20% duty cycle (170A at 21.5V, 40% duty cycle) TIG: 210A at 18.4V, 20% duty cycle Stick: 190A at 28.4V, 20% duty cycle
Amperage Range	MIG: 30-230A AC/DC TIG: 20-210A DC Stick: 30-200A
Weld Thickness (MIG)	24 ga.-3/8 in. steel
Weld Thickness (AC/DC TIG)	24 ga.-1/4 in. steel and aluminum
Weld Thickness (DC Stick)	16 ga.-3/8 in. steel
Weight	56 lbs (machine only) / 94 lbs (shipping)
Dimensions (L x W x H)	21.5 x 11 x 19 inches (approximate)
Wattage	44000 watts

QUICK SPECS	
PROCESSES	
MIG (GMAW)	
Flux-cored (FCAW)	
AC/DC TIG (GTAW)	
Pulsed TIG (GTAW-P)	
DC stick (SMAW)	
WELD THICKNESS	
MIG:	
24 ga.-3/8 in. steel	
18 ga.-3/8 in. steel	
AC/DC TIG:	
24 ga.-1/4 in. steel and aluminum	
DC stick:	
16 ga.-3/8 in. steel	
INPUT POWER	
120V:	240V:
Single-phase	Single-phase
50/60Hz	50/60Hz
RATED OUTPUT	
CV: MIG/flux-cored:	
120V: 105A at 19.2 V, 60% duty cycle	
240V: 200A at 24 V, 20% duty cycle	
170A at 21.5 V, 40% duty cycle	
CC: TIG:	
120V: 130A at 15.2V, 20% duty cycle	
240V: 210A at 18.4V, 20% duty cycle	
CC: Stick:	
120V: 90 A at 23.6V, 40% duty cycle	
240V: 190 A at 28.4V, 20% duty cycle	
AMPERAGE RANGE	
MIG:	AC/DC TIG:
30–230A	20–210A
DC stick:	
30–200A	

Figure 8.1: Quick Specifications for the Multimatic 220 AC/DC Welder.

9. WARRANTY AND SUPPORT

9.1. Warranty Information

For detailed warranty information regarding your Miller Multimatic 220 AC/DC Multiprocess Welder, please refer to the official warranty statement provided with your product or visit the Miller Electric website. Warranty terms typically cover defects in materials and workmanship for a specified period from the date of purchase.

9.2. Customer Support

Should you require technical assistance, parts, or service, please contact Miller Electric customer support directly. Contact information can be found on the Miller Electric website or in the documentation included with your welder.