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› ANDELI MCT-416 Multiprocess Welder User Manual

ANDELI MCT-416

ANDELI MCT-416 Multiprocess Welder User Manual

Model: MCT-416 | Brand: ANDELI

1. INTRODUCTION AND OVERVIEW

The ANDELI MCT-416 is a versatile 5-in-1 multiprocess inverter welding machine designed for a wide range of welding and cutting applications. This unit supports MIG (CO₂/MIX/FLUX), TIG (HF), PULSE, MMA (Stick), and CUT (Plasma Cutting) functions, making it an ideal tool for various metalworking tasks. Featuring a smart control LED display, it simplifies parameter selection for different welding modes, materials, and wire/electrode types.

This manual provides essential information for the safe and effective operation, setup, maintenance, and troubleshooting of your ANDELI MCT-416 welder.



Figure 1.1: The ANDELI MCT-416 Multiprocess Welder shown with various accessories including welding torches, ground clamp, and consumables.

2. SAFETY INFORMATION

Always prioritize safety when operating welding and cutting equipment. Failure to follow safety guidelines can result in serious injury or death.

- **Eye and Face Protection:** Always wear a welding helmet with appropriate shade lenses to protect against arc flash and sparks.
- **Body Protection:** Wear flame-resistant clothing, heavy-duty gloves, and safety shoes. Avoid synthetic materials.
- **Ventilation:** Ensure adequate ventilation to remove welding fumes, which can be hazardous. Work in a well-ventilated area or use fume extraction.
- **Fire Prevention:** Keep a fire extinguisher nearby. Remove all flammable materials from the work area. Sparks and hot metal can cause fires.
- **Electrical Safety:** Ensure the machine is properly grounded. Do not operate in wet conditions. Inspect cables for

damage before each use.

- **Gas Cylinders:** Secure gas cylinders properly. Handle with care and ensure connections are leak-free.
- **Hot Surfaces:** Welding equipment and workpieces become extremely hot. Allow them to cool before handling.

3. PRODUCT FEATURES

The ANDELI MCT-416 is engineered with advanced features for optimal performance and user convenience:

- **5-in-1 Multiprocess Capability:** Supports MIG (CO2/MIX/FLUX), TIG (HF), PULSE, MMA, and CUT functions.
- **Dual Voltage Input:** Operates on both 110V and 220V power supplies, offering flexibility for various work environments.
- **Smart Control LED Display:** An intuitive digital screen allows for easy selection of welding modes, material types, wire diameters, tungsten rod sizes, electrode types, and workpiece thickness. All parameters are clearly displayed.
- **IGBT Inverter Technology:** Utilizes advanced IGBT inverters for increased efficiency, reliability, and a high duty cycle, enabling extended operation.
- **Wide Material Compatibility:** Suitable for welding ordinary thin steel, iron, stainless steel, low-carbon steel, and for mold repair. *Note: Not suitable for welding aluminum.*



Figure 3.1: The large digital LED display provides clear visibility of welding parameters and settings.

4. SETUP

Proper setup is crucial for safe and effective operation. Always ensure the machine is powered off and unplugged before making any connections.

4.1 Power Connection

- Connect the power cord to a suitable 110V or 220V AC power outlet, ensuring the voltage matches the machine's setting or auto-sensing capability.
- Verify that the power source can provide the necessary current for your welding application.

4.2 Ground Clamp Connection

- Connect the ground clamp cable to the appropriate terminal on the front panel of the welder.
- Attach the ground clamp securely to the workpiece or a clean, bare metal portion of the welding table, ensuring

good electrical contact.

4.3 Torch Connections

Connect the appropriate torch for your desired welding or cutting process. Refer to the diagrams below for correct connections.

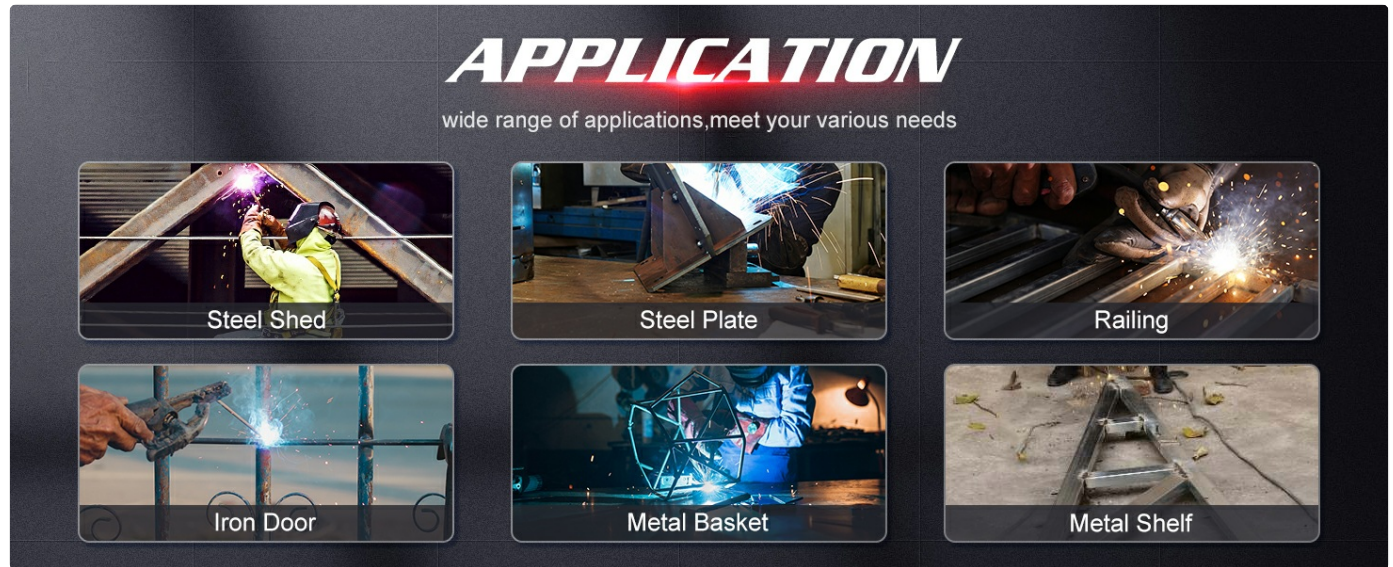


Figure 4.1: Welding Torch Connection Diagrams for various modes.

- **MMA (Stick) Welding:** Connect the electrode holder cable to the positive (+) terminal and the ground clamp to the negative (-) terminal (or vice-versa depending on electrode type).
- **Lift TIG Welding:** Connect the TIG torch to the negative (-) terminal and the ground clamp to the positive (+) terminal. Connect the gas hose from the TIG torch to your argon gas cylinder via a regulator.
- **CUT (Plasma Cutting):** Connect the plasma torch to the designated plasma output. Connect the air hose from the torch to your air compressor via a regulator.
- **MIG/MAG Welding:** Connect the MIG torch to the designated MIG output. For gas-shielded MIG, connect the gas hose from the torch to your CO2 or mixed gas cylinder via a regulator. Install the appropriate welding wire spool inside the wire feeder compartment and thread the wire through the torch liner.
- **Flux MIG Welding:** Similar to MIG, but no external shielding gas is required as the flux-cored wire produces its own shielding.

5. OPERATING INSTRUCTIONS

Once setup is complete, you can begin operation. Always wear appropriate personal protective equipment (PPE).

5.1 General Operation

1. Turn on the main power switch located on the rear of the machine.
2. The LED display will illuminate. Use the rotary encoder and buttons to navigate the menu.
3. Select the desired welding/cutting mode (MIG, TIG, MMA, CUT).
4. Select the material type, wire/electrode diameter, and workpiece thickness. The machine will suggest initial parameters.
5. Adjust welding current, voltage, wire feed speed, and other parameters as needed for your specific application.

5.2 Specific Mode Operations

The MCT-416 offers excellent performance across various welding and cutting processes. Examples of weld results are

shown below.

WELDING SCENE

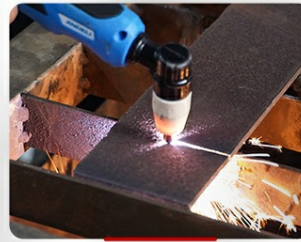
4-in-1 multifunctional LED welding machine, upgraded quality



MIG



LIFT TIG



CUT



MMA

Figure 5.1: Examples of weld beads and cut edges from different processes.

- **MIG Welding (CO₂/MIX/FLUX):**

For gas-shielded MIG, ensure gas flow is set correctly. For flux-cored welding, no external gas is needed. Adjust wire feed speed and voltage to achieve a stable arc and desired bead profile.

- **TIG Welding (Lift TIG):**

Ensure argon gas flow is established. Touch the tungsten electrode lightly to the workpiece to initiate the arc (Lift TIG). Maintain a consistent arc length and feed filler rod as needed.

- **MMA (Stick) Welding:**

Select the appropriate electrode type and diameter. Adjust current based on electrode recommendations. Maintain a consistent arc length and travel speed.

- **CUT (Plasma Cutting):**

Ensure adequate air pressure is supplied to the plasma torch. Position the torch nozzle correctly above the material and initiate the arc. Move the torch steadily along the cut line.

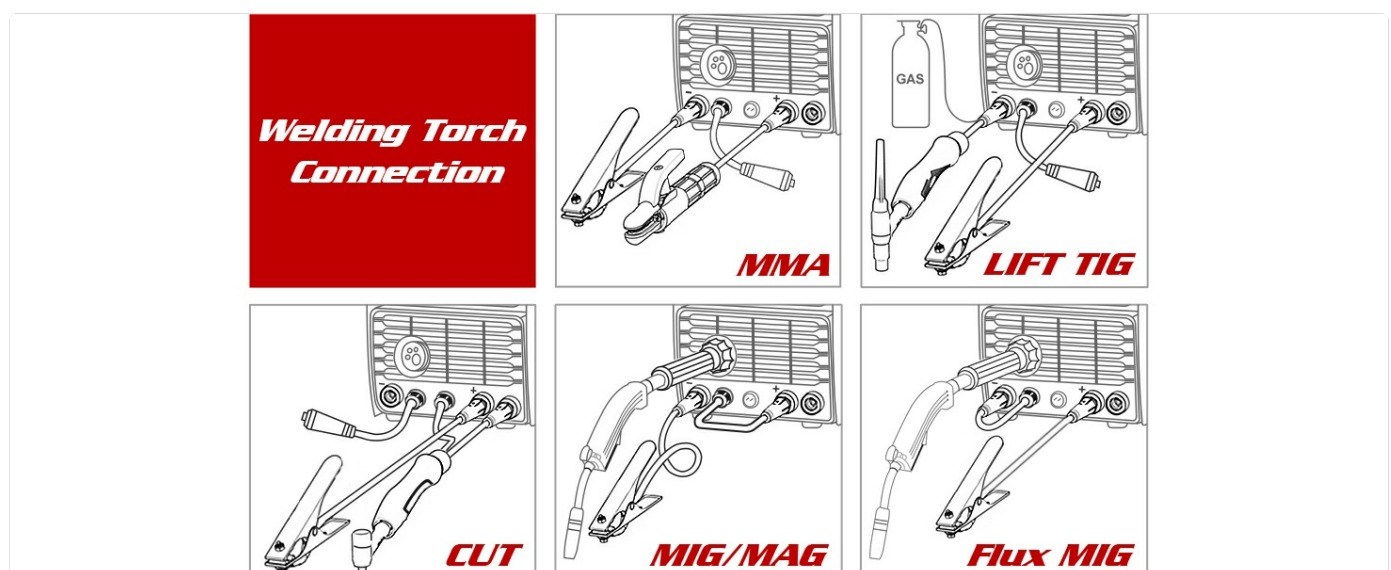


Figure 5.2: Welding and cutting processes in action.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your ANDELI MCT-416 welder.

- **Cleaning:** Periodically clean the exterior of the machine with a dry, soft cloth. Use compressed air to blow out dust and debris from the cooling vents.
- **Cable Inspection:** Regularly inspect all welding cables, power cords, and gas/air hoses for cuts, abrasions, or loose connections. Replace damaged components immediately.
- **Torch Consumables:** Check and replace torch consumables (MIG tips, nozzles, diffusers; TIG collets, bodies, nozzles, tungsten; Plasma electrodes, nozzles, swirl rings) as they wear out to maintain arc quality and performance.
- **Wire Feeder (MIG):** Keep the wire feeder mechanism clean and free of debris. Ensure the drive rollers are appropriate for the wire size and are tensioned correctly.
- **Storage:** Store the welder in a clean, dry environment, away from excessive dust, moisture, and extreme temperatures.

7. TROUBLESHOOTING

This section addresses common issues you might encounter with your MCT-416 welder.

Problem	Possible Cause	Solution
No power/Machine does not turn on	Power cord unplugged; Circuit breaker tripped; Faulty power switch	Check power cord connection; Reset circuit breaker; Contact support if switch is faulty.
No arc/Weak arc	Poor ground connection; Incorrect settings; Worn consumables; Incorrect torch connection	Ensure ground clamp is on clean metal; Verify settings on LED display; Replace worn tips/electrodes; Check torch connections.
Poor weld quality (e.g., porosity, spatter)	Incorrect parameters (voltage, wire speed, current); Insufficient shielding gas (MIG/TIG); Contaminated workpiece; Incorrect travel speed	Adjust parameters; Check gas cylinder and flow rate; Clean workpiece thoroughly; Adjust travel speed and technique.
Overheating/Thermal overload light on	Exceeded duty cycle; Blocked ventilation; High ambient temperature	Allow machine to cool down; Ensure clear airflow to vents; Operate in a cooler environment.
Discrepancy between advertised features and actual unit (e.g., missing pulse, pilot arc)	Product variation; Misunderstanding of features	Carefully review the product specifications and the LED display's available functions. If a significant feature is genuinely missing or misrepresented, contact ANDELI customer service for clarification or support.

8. SPECIFICATIONS

Detailed technical specifications for the ANDELI MCT-416 Multiprocess Welder:

Function	110V±10%				220V±15%				
	MIG	TIG	MMA	CUT	MIG	TIG	MMA	CUT	
Power Supply Voltage (V)	110±10%				220±15%				
Frequency (Hz)	50/60				50/60				
Power Factor	0.73				0.73				
Efficiency (%)	77				77				
No-Load Voltage (V)	53	53	53	290	53	53	53	290	
Rated Input Power (KW)	3.9	2.9	3.9	3.6	5.7	4.2	7	6.2	
Rated Input Current (A)	35.5	26	35.5	33	26	19	32	28	
Welding Current Range (A)	50-120	10-120	10-100	20-25	50-160	10-160	10-160	20-40	
Duty Cycle (% 40°C 10min)	20%	120	120	100	25	160	160	160	40
	60%	70	70	58	14	92	92	92	33
	100%	54	66	45	11	72	72	72	18
Per-Flow Time (S)	/			0-1.0	/			0-1.0	
Post-Flow Time (S)	/			0.1-5.0	/			0.1-5.0	
Cutting Thickness (MM)	/			8	/			18	
Protection Class	IP21S				IP21S				
Insulation Class	H				H				
Cooling	Air Cooling				Air Cooling				
Dimension (MM)	490×225×340				490×225×340				
Net Weight (KG)	12.8				12.8				

Function	MIG	TIG	MMA	CUT	MIG	TIG	MMA	CUT
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Duty Cycle (% 40°C 10min)	20%	120	120	100	25	160	160	40
	60%	70	70	58	14	92	92	33
	100%	54	66	45	11	72	72	18
Per-Flow Time(S)	/	/	/	0-1.0	/	/	/	0-1.0
Post-Flow Time(S)	/	/	/	0.1-5.0	/	/	/	0.1-5.0
Cutting Thickness(MM)	/	/	/	8	/	/	/	18
Protection Class	IP21S				IP21S			
Insulation Class	H				H			
Cooling	Air Cooling				Air Cooling			
Dimension(MM)	490×225×340				490×225×340			
Net Weight(KG)	12.8				12.8			

Figure 8.1: Physical dimensions of the MCT-416 welder.

9. WARRANTY AND SUPPORT

ANDELI is committed to providing high-quality products and customer satisfaction.

- **Certification:** This product is CE certified, ensuring it meets European safety, health, and environmental protection requirements.
- **Warranty:** The ANDELI MCT-416 comes with a two-year warranty from the date of purchase. This warranty covers manufacturing defects and includes free replacement parts.
- **Returns and Exchanges:** Returns and exchanges are accepted within 30 days of receiving the goods.
- **Customer Service:** An efficient customer service team is available to provide free guidance and support if you encounter any problems with your product. Please contact us directly for assistance.

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ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question