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Miller 907710001

Miller Maxstar 161 STL TIG Welder User Manual

Model: 907710001

INTRODUCTION

The Miller Maxstar 161 STL is a compact and versatile TIG welder designed for industrial-class light applications. It supports both Stick and TIG welding processes, making it suitable for a range of materials including mild steel and stainless steel. This manual provides essential information for the safe and effective operation, setup, and maintenance of your Maxstar 161 STL welder.

This unit operates on 120V or 240V AC input power, offering a maximum output of 160 Amps and a minimum of 5 Amps. It features a 60% duty cycle and weighs approximately 13 lbs, making it highly portable. Please read this manual thoroughly before operating the equipment.

SAFETY INFORMATION

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

- **Electric Shock Can Kill:** Do not touch live electrical parts. Wear dry welding gloves and protective clothing. Insulate yourself from work and ground.
- **Fumes and Gases Can Be Dangerous:** Keep your head out of the fumes. Use ventilation or exhaust to remove fumes from the breathing zone.
- **Welding Can Cause Fire or Explosion:** Remove all flammables within 35 feet (10.7 m) of the welding arc. Have a fire extinguisher nearby.
- **Arc Rays Can Burn Eyes and Skin:** Wear a welding helmet with a proper shade filter. Wear protective clothing to protect skin.
- **Hot Parts Can Cause Severe Burns:** Allow equipment to cool before touching. Use insulated gloves and tongs to handle hot parts.
- **Magnetic Fields Can Affect Pacemakers:** Pacemaker wearers should consult their doctor before operating welding equipment.

For a comprehensive list of safety precautions, refer to ANSI Z49.1, "Safety in Welding, Cutting, and Allied Processes," available from the American Welding Society.

WHAT'S IN THE BOX

Upon unpacking, ensure all components are present:

- TIG Welder, Maxstar 161 STL Series unit
- Power cords (for 120V and 240V AC input)
- Ground clamp with cable
- TIG torch with cable
- Gas regulator
- Carrying case
- Consumables (e.g., collets, collet bodies, tungsten electrodes, ceramic cups)



This image displays the Miller Maxstar 161 STL TIG Welder unit, a compact blue welding machine, alongside its essential accessories. These include various power cords for different voltage inputs, a robust ground clamp, a TIG torch with its cable, a gas regulator with two gauges for precise gas flow control, and a durable black carrying case designed to store the welder and its components. Also visible are small consumables like collets and tungsten electrodes.

SETUP

1. Power Connection:

Select the appropriate power cord for your input voltage (120V or 240V AC). Ensure the power source is off before connecting the welder. Plug the power cord into a properly grounded electrical outlet. The unit automatically detects the input voltage.

2. Gas Connection (for TIG Welding):

Connect the gas regulator to your shielding gas cylinder (typically 100% Argon for TIG welding steel/stainless steel). Connect the gas hose from the regulator to the gas inlet fitting on the rear of the welder. Ensure all connections are tight to prevent leaks.

3. Work Clamp Connection:

Connect the work clamp cable to the appropriate terminal on the welder (usually the negative (-) terminal for DC TIG). Securely attach the work clamp to the workpiece or work table, ensuring good electrical contact.

4. TIG Torch Connection:

Connect the TIG torch cable to the positive (+) terminal on the welder for DC TIG. Ensure the torch is properly assembled with the correct size collet, collet body, tungsten electrode, and ceramic cup for your application.

OPERATING INSTRUCTIONS

General Operation

- Turn on the welder using the power switch.
- Select the desired welding process: TIG (GTAW) or Stick (SMAW).
- Adjust the amperage using the control knob. The unit offers a range from 5 Amps to 160 Amps.
- For TIG welding, set the gas flow rate on the regulator (typically 15-20 CFH for Argon).
- Perform a test weld on scrap material to verify settings before welding your actual workpiece.

TIG Welding (GTAW)

The Maxstar 161 STL is a DC TIG welder, primarily suited for welding mild steel and stainless steel. While some product descriptions may mention aluminum, effective TIG welding of aluminum typically requires an AC output, which this model does not provide. Therefore, this unit is best utilized for DC-specific applications.

- **Material Thickness:** Capable of welding mild steel and stainless steel from 0.020 inches up to 3/16 inches.
- **Tungsten Selection:** Use appropriate tungsten type and diameter for DC TIG welding (e.g., 2% Lanthanated or 2% Thoriated).
- **Arc Starting:** The unit features Lift-Arc™ TIG for arc starting without high-frequency, minimizing electrical interference.

Stick Welding (SMAW)

The Maxstar 161 STL also supports Stick welding, offering a robust and reliable arc for various electrodes.

- **Electrode Selection:** Compatible with a range of stick electrodes.
- **Hot Start™:** Provides positive arc starts without sticking.
- **Adaptive Hot Start™:** Automatically increases output amperage at the start of a weld if the start requires it.

MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your welder.

- **Cleaning:** Periodically clean the internal components with dry, compressed air to remove dust and debris. Ensure the power is disconnected before cleaning.
- **Cable Inspection:** Regularly inspect all cables (power, work, torch) for cuts, abrasions, or loose connections. Replace damaged cables immediately.
- **Fan Vents:** Keep the fan vents clear of obstructions to ensure proper airflow and prevent overheating.
- **Consumables:** Replace TIG torch consumables (collets, collet bodies, ceramic cups) as they wear out to maintain arc quality.

TROUBLESHOOTING

This section addresses common issues you might encounter.

Problem	Possible Cause	Solution
Welder does not power on.	No input power; tripped circuit breaker; faulty power cord.	Check power outlet and circuit breaker. Inspect power cord for damage.
No arc or weak arc.	Poor work clamp connection; incorrect amperage setting; worn consumables; gas flow issue (TIG).	Ensure work clamp has good contact. Adjust amperage. Replace worn torch parts. Check gas supply and flow.
Overheating shutdown.	Exceeded duty cycle; blocked ventilation; high ambient temperature.	Allow unit to cool down. Clear fan vents. Operate in a well-ventilated area.
Porosity in TIG weld.	Insufficient shielding gas; gas leak; contaminated workpiece; incorrect gas flow.	Check gas cylinder level and connections. Clean workpiece thoroughly. Adjust gas flow rate.

SPECIFICATIONS

Feature	Detail
Brand	Miller
Model Number	907710001
Welding Processes	Stick (SMAW), TIG (GTAW)
Input Voltage	120/240V AC
Input Phase	1
Input Hz	50/60
Max. Output Amps	160 A
Min. Output Amps	5 A
Rated Output	130A @ 15.2V
Duty Cycle	60 Percent
Polarity	DC
Welded Material (Primary)	Mild Steel, Stainless Steel
Material Thickness (Mild Steel)	0.020 in to 3/16 in
Product Dimensions	30.7 x 10.7 x 13.8 inches
Product Weight	43 Pounds (Power Source Weight: 13 lb)
Manufacturer	MILLER ELECTRIC

WARRANTY AND SUPPORT

For warranty information, technical support, or service, please contact Miller Electric directly. Retain your proof of purchase for warranty claims.

Manufacturer: MILLER ELECTRIC

Visit the official Miller website for the most up-to-date support resources, FAQs, and contact information.

www.millerwelds.com