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PLASMARGON 520TSCPF

PLASMARGON 520TSCPF Plasma Cutter TIG Welder User Manual

Model: 520TSCPF

1. INTRODUCTION

The PLASMARGON 520TSCPF is a versatile 3-in-1 multi-process machine designed for plasma cutting, High-Frequency (HF) TIG welding with pulse functionality, and Stick/MMA/ARC welding. This unit features dual voltage compatibility (110V/220V) and an upgraded digital panel for easy function switching. It is suitable for various metalworking tasks, offering portability and efficiency for both hobbyists and professionals.



Figure 1: PLASMARGON 520TSCPF machine with various torches and accessories.

2. SAFETY GUIDELINES

Operating welding and plasma cutting equipment requires strict adherence to safety protocols to prevent injury or damage. Always read and understand all safety warnings before use.

- **Eye and Face Protection:** Always wear a welding helmet with appropriate shade settings for welding and cutting operations. Standard safety glasses should be worn under the helmet.
- **Body Protection:** Wear flame-resistant clothing, heavy-duty gloves, and protective footwear. Avoid loose clothing.
- **Ventilation:** Ensure adequate ventilation to remove welding fumes and gases from the work area. Use a fume extractor if necessary.
- **Electrical Safety:** Ensure the machine is properly grounded. Do not operate in wet conditions. Inspect cables and connections for damage before each use.
- **Fire Prevention:** Keep a fire extinguisher nearby. Remove all flammable materials from the work area. Sparks and hot metal can travel.
- **Compressed Air Safety (Plasma Cutting):** Use appropriate air pressure regulators and filters. Ensure

air lines are secure and free from leaks.

- **Work Area:** Keep the work area clean and free of clutter. Ensure stable footing.

3. PACKAGE CONTENTS

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

- 1 x PLASMARGON 520TSCPF Multi-process Machine
- 1 x 2.5M PT-31 Plasma Cutter Torch
- 1 x 2.5M HF TIG Welding Torch (WP-17 type)
- 1 x 1.5M Earth Clamp
- 1 x 1.5M Electrode Holder
- 1 x Air Pressure Valve (Regulator)
- 3 x Consumable Sets for TIG and PT-31 (various tips, nozzles, collets, back caps)
- Air hose connections



Figure 2: Included consumables and accessories for the 520TSCPF.

4. PRODUCT OVERVIEW AND DIMENSIONS

The 520TSCPF machine features a compact design with a digital control panel for easy operation. Understanding the layout of the front panel and the machine's dimensions is crucial for proper setup and use.



Figure 3: Front panel layout with digital display, mode selection, current adjustment, and connection points for torches and clamps.

Machine Dimensions:

- Length: Approximately 14.6 inches
- Width: Approximately 6 inches
- Height: Approximately 9.4 inches
- Weight: Approximately 13.8 lbs (6.3 kg)

3 in 1 Plasma Cutter TIG/Stick Welder Machine

Dual Voltage 110V/220V

**Weigh: 6.3 kg
13.8 lb**



Figure 4: Physical dimensions of the 520TSCPF unit.

5. SETUP

5.1 Power Connection

The 520TSCPF supports dual voltage input (110V/220V). The machine is equipped with a 110V power plug. If a 220V connection is required, a compatible 110V-to-220V converter cable (not included) must be used. Ensure the power source matches the machine's requirements and is properly grounded.

5.2 Air Supply Connection (for Plasma Cutting)

1. Connect the air pressure valve (regulator) to the machine's air inlet port.
2. Attach an air hose from your compressed air source to the air pressure valve.
3. Adjust the air pressure according to the plasma cutting requirements for the material thickness.

5.3 Torch and Clamp Connections

Connect the appropriate torch and ground clamp based on the desired welding or cutting process.

- **Plasma Cutter Torch (PT-31):** Connect to the designated plasma torch port.
- **HF TIG Welding Torch (WP-17):** Connect to the designated TIG torch port.
- **Electrode Holder (for Stick/MMA):** Connect to the positive (+) terminal for most electrodes.
- **Ground Clamp:** Connect to the negative (-) terminal and securely attach to the workpiece.

6. OPERATING INSTRUCTIONS

The 520TSCPF features an upgraded digital panel to easily switch between functions. Use the 'MODE' button to cycle through Plasma, TIG, and MMA/Stick modes. The 'PULSE' button activates the pulse function for TIG welding.

6.1 Plasma Cutting Operation

The plasma cutter function provides 10-50 Amp DC inverter current output. It is suitable for cutting stainless steel, alloy steel, mild steel, copper, and aluminum.

- **Max Ideal Cutting Thickness:** 1/2 inch.
- **Current Output:** 50A at 220V, 30A at 110V.
- Ensure proper air pressure is set for optimal cutting performance.

Plasma Cutter

The Plasma Cutter function is suitable for Cutting Various Metal Plates, Especially for Cutting Carbon Steel, Stainless Steel, Aluminum and Copper.

Max cutting thickness up to 1/2 Inch.



Stick/MMA Welder

Able to Weld a Variety of Metals, Such as Carbon Steel, Stainless Steel, Nickel Alloys, Copper, Brass and Bronze etc. Easy Arc Atart, Atable Welding Arc, Deep Weld Pool.





Figure 5: Plasma cutting and Stick/MMA welding capabilities.

6.2 TIG Welding Operation (HF TIG with PULSE)

The HF TIG welder offers 10-200 Amp DC electric current output. The newly added PULSE function enhances welding aesthetics and extends tungsten life, particularly beneficial for thinner gauge materials.

- **Current Output:** 10-200A at 220V, 10-140A at 110V.
- Suitable for quality TIG welding on stainless steel and carbon steel. This machine cannot weld aluminum in TIG mode.
- Ensure the tungsten electrode head is sharpened before TIG welding for better arc stability and weld

quality.

- A foot pedal (not included) can be used for easier current control during TIG welding.

HF TIG Welder & PULSE TIG Welder

Choose according to your needs.

10-200 A @ 220 V
10-140 A @ 110 V

Diagram of pulsed current

TIG welding with high frequency arc starting non-contact arc initiation

Pulse TIG welder allows the welding thin metal plates. Better control of current output, it is not easy to weld through the metal plate.

Figure 6: HF TIG and Pulse TIG welding features and current control.

6.3 Stick / ARC / MMA Welding Operation

The Stick/ARC/MMA welder provides an output current of 10-180 Amps. This mode does not require gas, making it suitable for outdoor work.

- **Current Output:** 10-180A at 220V, 10-140A at 110V.
- Features include Hot Arc Starting and Anti-Stick for easier arc initiation and prevention of electrode sticking.
- Suitable for welding different acid and basic welding rods from 1.6mm to 4.0mm.
- Produces a deep welding pool and a clean welding surface with minimal spatter.

7. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your PLASMARGON 520TSCPF machine.

- **Cleaning:** Periodically clean the machine's exterior and ventilation openings to prevent dust and debris buildup. Use compressed air to clear internal components if accessible and safe to do so.
- **Cable and Connection Inspection:** Regularly inspect all cables, torches, and clamps for wear, cuts, or damage. Replace damaged components immediately.
- **Consumables:** Replace plasma cutter tips, electrodes, and TIG welding tungsten electrodes as they wear out to maintain weld/cut quality.
- **Air Filter:** For plasma cutting, regularly check and clean or replace the air filter element in the air pressure valve to ensure clean, dry air supply.

8. TROUBLESHOOTING

If you encounter issues with your 520TSCPF machine, consider the following basic troubleshooting steps. For persistent problems, contact customer support.

- **No Power:** Check the power cable connection, wall outlet, and circuit breaker. Ensure the machine's power switch is on.
- **No Arc/Poor Arc:** Verify all torch and ground clamp connections are secure. Check consumables for wear and replace if necessary. Ensure correct current settings for the material and process. For plasma, check air pressure.
- **Overheating:** If the machine shuts down due to overheating, allow it to cool down. Ensure ventilation openings are clear and the duty cycle is not exceeded.
- **Inconsistent Performance:** Check for proper gas flow (TIG), clean air supply (Plasma), and correct material preparation.

9. SPECIFICATIONS

Feature	Specification
Model Number	520TSCPF
Input Voltage	Dual Voltage 110V/220V
Plasma Cutter Output Current	10-50A DC
Plasma Max Cutting Thickness	1/2 inch (ideal)
TIG Welder Output Current	10-200A DC
TIG Features	HF Arc Starting, Pulse Function
Stick/MMA Welder Output Current	10-180A
Stick/MMA Features	Hot Arc Starting, Anti-Stick
Item Weight	21.4 pounds (approx. 9.7 kg)
Package Dimensions	18.5 x 15 x 11.1 inches
Material	Metal, electronic components, plastic
Included Components	520TSCPF Machine, PT-31 plasma cutter torch, WP-17 TIG Torch, Electrode Holder, ground clamp, consumables and accessories

10. WARRANTY AND SUPPORT

For warranty information, technical support, or to purchase replacement parts and accessories, please contact PLASMARGON customer service. Refer to your purchase documentation for specific warranty terms and contact details.

Manufacturer: PLASMARGON