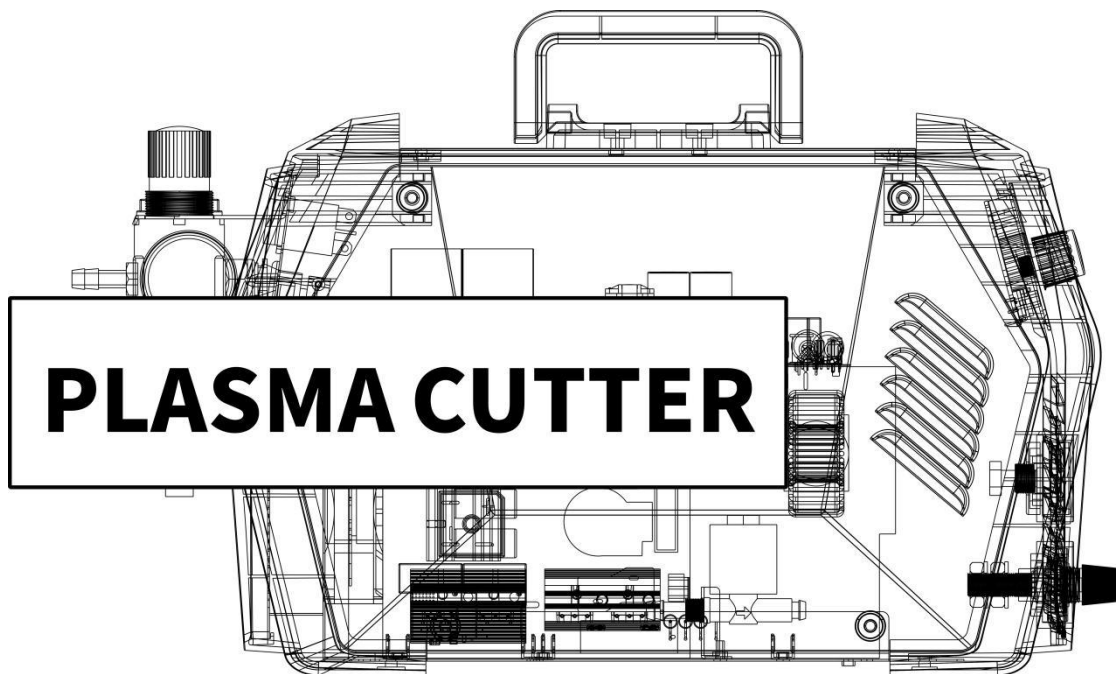




## Plasma Cutter 55 Pro



**User Manual**

[www.arccaptain.com](http://www.arccaptain.com)



Dear Valued Customer,

**Thank you for going with ARCCAPTAIN!** We're all about making plasma cutters superior for you. ARCCAPTAIN was built by high quality components, every single unit machine was passed multiple industry leading laboratory tests to provide a great cutting experience and performance.

**Two-year warranty service is provide to yours!** When unpacking, make sure that the product is intact and undamaged. DO NOT return directly before contact our customer service.

**Six ways to connect us and join in ARCCAPTAIN Community:**

Email: service@arccaptain.com

Online: [www.arccaptain.com/pages/contact-us](http://www.arccaptain.com/pages/contact-us)

Facebook: arccaptainwelder

Instagram: arccaptain\_welder

Youtube: arccaptain-weld

Whatsapp: +19892449456



---

This manual is designed to help you get the most out of your ARCCAPTAIN products. Please save this manual and take time to read the safety warnings and precautions, assembly, operating, inspection, maintenance. They will help you protect yourself against potential hazards on the worksite. Failure to do so can result in serious injury!

Save for future reference:

|                   |  |
|-------------------|--|
| Product:          |  |
| Date Purchased:   |  |
| Serial Number:    |  |
| Product Feedback: |  |

[www.arccaptain.com](http://www.arccaptain.com)

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# 1.SAFETY



## WARNING

**READ ALL SAFETY WARNINGS BEFORE WORKING!**

**Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. Save all warnings and instructions for future reference!**

If you encounter any issues during installation or operation, refer to the relevant sections in this manual for inspection. If you're still unsure or unable to resolve the problem, please contact ARCCAPTAIN professional support.

## 1.1 General Safety

- Do NOT use the plasma cutter if the switch does not turn it on and off.
- Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the plasma cutter.
- Ensure the switch is off before connecting to power or moving the plasma cutter to prevent accidental starting.
- Always maintain and use safety guards, covers, and devices properly.
- Keep hands, hair, clothing, and tools away from moving parts like V-belts, gears, and fans.
- Follow these instructions and consider working conditions when using the plasma cutter and accessories.
- This manual may not cover every possible situation. It's important for the operator to use common sense and caution while using this product.

## 1.2 Electrical Safety



## WARNING

**BEWARE OF ELECTRIC SHOCK!**



- DO NOT cut in a damp area or come in contact with a moist or wet surface.
- DO NOT modify any wiring, ground connections, switches, or fuses in this cutting equipment.
- DO NOT come into physical contact with any part of the cutting current circuit, including the workpiece, ground clamp, electrode or cutting wire, and metal parts on the electrode holder or MIG gun.
- DO NOT connect the ground clamp to electrical conduit, and DO NOT cut on electrical conduit.
- NEVER leave the plasma cutter unattended while energized. Turn off the power if you have to leave.
- DO NOT attempt to plug the plasma cutter into the power source if the ground prong on INPUT POWER CABLE plug is bent over, broken off, or missing.
- DO NOT alter INPUT POWER CABLE or plug in any way.
- People with pacemakers should consult their physicians before use. Magnetic field can make cardiac pacemaker a bit wonky.



## WARNING

**REPLACING COMPONENTS CAN BE DANGEROUS!**

- Only experts should replace machine parts. Avoid dropping foreign objects into the machine during component replacement. Ensure correct wire connections after replacing PCBs to prevent property damage.

## 1.3 Fire Safety



### WARNING

**BEWARE OF FIRE HAZARD!**

- Place the machine on non-combustible surfaces to prevent fires.
- Ensure no flammable materials are near the working area to reduce fire risk.
- Avoid installing the machine near water sources to prevent water damage.
- Always weld/cut materials in a dry environment with humidity below 90% and maintain a working temperature between -10°C and 40°C.
- When welding/cutting outdoors, ensure shelter from sunlight and rain, keeping the machine dry at all times.
- Do not operate the machine in dusty or chemically corrosive environments.
- Remove or secure all combustible materials within a 35 feet (10 meters) radius of the work area. Use fire-resistant material to cover or seal open doorways, windows, cracks, and other openings.
- Improper use can lead to fire or explosion. Avoid flammable materials near the working area, keep a fire extinguisher nearby with trained personnel, refrain from cutting closed containers, and do not use the machine for pipe thawing.

## 1.4 Fumes and Gases Safety



### WARNING

**SMOKE CAN BE HARMFUL TO YOUR HEALTH!**

- Keep your head away from the smoke while cutting to avoid breathing in harmful gases.
- Ensure the working area is well-ventilated with exhaust or ventilation equipment during cutting.
- Only work in a confined area if it's well-ventilated, or wear an air-supplied respirator.

## 1.5 Arc Rays and Noise Safety



### WARNING

**EXCESSIVE NOISE DOES GREAT HARM TO HEARING!**

**ARC RADIATION MAY HURT YOUR EYES AND BURN YOUR SKIN !**

- Arc radiation can harm eyes and skin; excessive noise can damage hearing.
- Use certified cutting eye protection with at least a number 10 shade lens rating.
- Wear leather leggings and fire-resistant shoes or boots; avoid clothing that can catch sparks or molten metal. Do not touch hot workpiece with bare hands.
- Keep clothing free of flammable substances and wear dry, insulating gloves and protective clothing.
- Wear an approved head covering and use appropriate cutting attire.
- When cutting overhead or in confined spaces, use flame-resistant ear plugs or ear muffs.
- Wear ear covers or other hearing protectors when cutting.

## 1.6 Gas Shielded Cutting – Cylinder Safety



### **WARNING CYLINDERS CAN EXPLODE WHEN DAMAGED!**

- Never cut on a pressurized or closed cylinder.
- Avoid letting the electrode holder, electrode, cutting torch, or cutting wire touch the cylinder.
- Keep cylinders away from all electrical circuits, including cutting circuits.
- Always keep the protective cap on the valve except when the cylinder is in use.
- Use only the correct gas shielding equipment designed for your specific type of cutting, and maintain it properly.
- Protect gas cylinders from heat, physical damage, slag, flames, sparks, and arcs.
- Always follow proper procedures when moving cylinders.
- Do not install the machine in an environment with explosive gas to avoid an explosion.

## 1.7 Additional Safety Information

- Use only the supplied power cord for this plasma cutter or an identical replacement cord. Do not install a thinner or longer cord on this plasma cutter.
- Maintain labels and nameplates on the plasma cutter. These carry important information.
- Ensure the ground clamp is securely connected to the workpiece during cutting.
- Pressing the gun switch when cutting or cutting.
- When disposing of the cutting machine, please note the following:
  - Burning electrolytic capacitors on the main circuit or PCB board may cause explosions.
  - Burning plastic components such as the front panel may produce toxic gases. Dispose of it as industrial waste.

# 2.PRODUCT DESCRIPTION

## 2.1 Function Overview

This is NEW Pro Serial Plasma Cutter, with advanced technology, perfect function and high performance. This ultra-portable plasma cutting system is suitable for various application needs. Additionally, the new Serial includes the latest remote control via **APP**.

- **Advanced digital control**

The Plasma cutting machine CUT55 utilizes advanced MCU intelligent digital control technology, with all major components operated through software. Features like **2T/4T, post-flow, and safety protection** could easily read on digital display. All digital control enhances cutting consistency and stability while also making the cutter more compact and enabling precise cutting.



Figure 1

- **Powerful cutting performance**

This plasma cutter features a **pilot arc** function, enabling high frequency non-touch arc

starting. With this mode, the torch head doesn't require contact with the metal plate, extending the lifespan of consumables and allowing for increased cutting thickness. Additionally, plasma cutters with this function can cut through steel plates with rust and paint on the surface.

- **Multi-scene cutting**

The CUT55 is a versatile plasma cutter that can be used with either 120V or 240V AC voltage. It operates using compressed air as the plasma gas source for cutting metals, so ensure your air compressor is ready for use. The unit is designed to cut up to 3/5" inch mild steel, but has the capability to cut other metals such as stainless steel, copper, cast iron, and aluminum. With its simple operation and high cutting speed, it delivers smooth cutting surfaces without requiring additional polishing.

- **Smart postflow**

The gas will continue to flow for a little while of postflow, The postflow will adjust to the most suitable time based on the current size(0-5s), reduce unnecessary adjustment operations.

## 2.2 Technical parameters

| Items                        | Models                         |                                |
|------------------------------|--------------------------------|--------------------------------|
|                              | CUT55                          |                                |
| Rated input power supply     | Single-phase AC240V<br>50/60Hz | Single-phase AC120V<br>50/60Hz |
| Rated input capacity (kVA)   | 9.4                            | 5.5                            |
| Power factor                 | 0.7                            |                                |
| Rated output (A/V)           | 55/102                         | 35/94                          |
| Rated duty cycle (%)         | 60                             |                                |
| No-load voltage (V)          | 330V                           |                                |
| Output current range (A)     | 20~55                          | 20~35                          |
| Arc ignition mode            | HF contact                     |                                |
| Post-flow time (s)           | 5                              |                                |
| Gas pressure range (Mpa/PSI) | 0.2~0.5Mpa<br>29~72psi         |                                |
| Insulation grade             | H                              |                                |
| Cooling mode                 | Air cooling                    |                                |
| Enclosure ingress protection | IP21S                          |                                |
| Efficiency (%)               | 85                             |                                |

|                          |                                  |
|--------------------------|----------------------------------|
| <b>Dimensions(L*W*H)</b> | 17.8in*9.6in*6.1in/452*244*155mm |
| <b>Weight (lb)</b>       | 11.5lb/5.2kg                     |

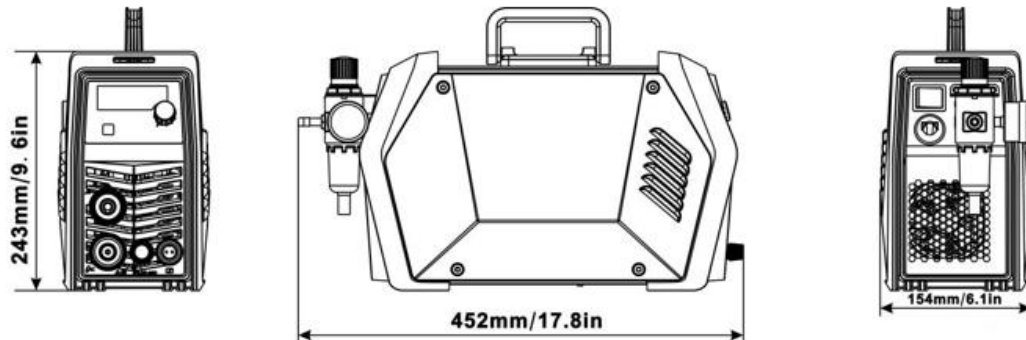


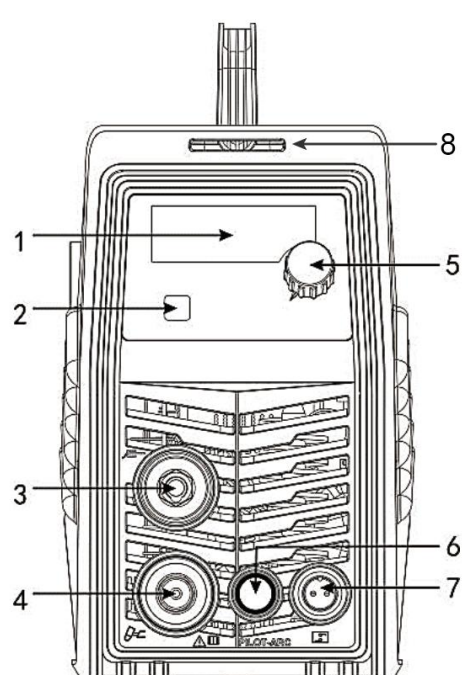
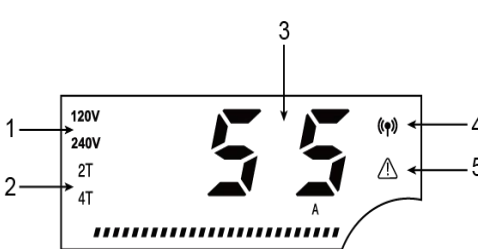
Figure 2: Size

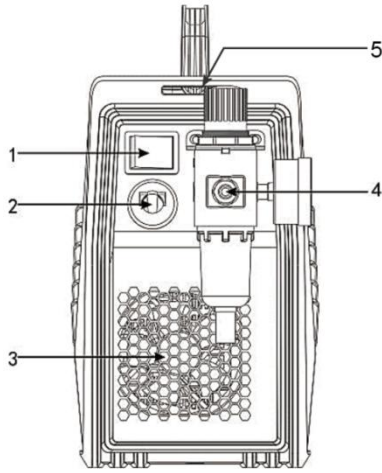
## 2.3 Package

| Name                        | Specification                       | Quantity (pcs) |
|-----------------------------|-------------------------------------|----------------|
| Cutting machine             | CUT55 Pro                           | 1              |
| Air Compressor Filter       | Installed on the machine            | 1              |
| Cutting torch & accessories | AG-60                               | 1              |
| Ground clamp                | 200A-0.025in <sup>2</sup> DKJ 10-25 | 1              |
| Gas hose                    | 0.3*0.47in                          | 1              |
| Hose clamp                  | /                                   | 2              |
| Adapter                     | 240V to 120V                        | 1              |
| Strap                       | /                                   | 1              |
| Operator's manual           | CUT55 Operator's manual             | 1              |

## 3. INSTRUCTIONS

### 3.1 Panel Instruction

| Part name                                     | Function                                                      | Picture                                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>1.Digital screen</b>                       | To display the cutting information                            |  <p><b>Figure 3 Front panel controls</b></p> |
| <b>2.Operation mode button</b>                | For 2T/4T cutting mode conversion                             |                                                                                                                                 |
| <b>3.Earth cable terminal</b>                 | To connect the earth cable                                    |                                                                                                                                 |
| <b>4.Cutting torch terminal</b>               | To connect the cutting torch                                  |                                                                                                                                 |
| <b>5.Current control knob</b>                 | To adjust the output current                                  |                                                                                                                                 |
| <b>6.Pilot arc terminal</b>                   | To connect pilot arc Line                                     |                                                                                                                                 |
| <b>7. Interface for torch trigger (2 pin)</b> | To connect the control signal of cutting torch                |                                                                                                                                 |
| <b>8. Strap hole</b>                          | To connect the strap                                          |                                                                                                                                 |
| <b>1. Input voltage</b>                       | Display the current input voltage:120v/240v                   |  <p><b>Figure 4 Digital Display</b></p>     |
| <b>2. 2T/4T</b>                               | Display the current operating mode                            |                                                                                                                                 |
| <b>3. Current</b>                             | Display Current                                               |                                                                                                                                 |
| <b>4. Wireless*</b>                           | Display wireless signal light, use App to control the machine |                                                                                                                                 |
| <b>5. Alarm lights</b>                        | Abnormal alarm display light                                  |                                                                                                                                 |

|                            |                                                                                       |                                                                                    |
|----------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>1.Power switch</b>      | To control the ON/OFF of the input power of the machine                               |  |
| <b>2.Cable</b>             | For power supply input                                                                |                                                                                    |
| <b>3.Cooling fan</b>       | For heat dissipation through forced air cooling                                       |                                                                                    |
| <b>4.Air reducer valve</b> | To adjust the pressure of the input air. The hose will connect to here by hose clamp. |                                                                                    |
| <b>5.Strap hole</b>        | To connect the strap                                                                  |                                                                                    |

**Figure 5 Back panel controls**

**\* For more detailed information about the connection and operational guidelines for the ARCCAPTAIN APP, please visit [arccaptain.com](https://www.arccaptain.com/) and explore the resources available there.**

## 3.2 Nameplate

On the machine, there is a plate that includes all the operating specifications for your new unit. The serial number of the product is also found on this plate.

The duty cycle rating of a plasma cutter defines how long the operator can cut and how long the cutter must rest and be cooled. Duty cycle is expressed as a percentage of 10 minutes and represents the maximum cutting time allowed. The balance of the 10-minute cycle is required for cooling.

For example, a plasma cutter has a duty cycle rating of 60% at the rated output of 55A. This means with that machine: you can cut at 55 A output for six (6) minutes out of 10 with the remaining four (4) minutes required for cooling. The duty cycle of your new plasma cutter can be found on the data plate affixed to the machine. It looks like the diagram below.

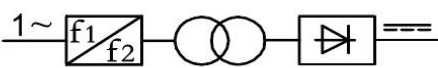
| ARCCAPTAIN®                                                                                      |                     |                            |                   |      |
|--------------------------------------------------------------------------------------------------|---------------------|----------------------------|-------------------|------|
| CUT55PRO                                                                                         |                     | AIR Plasma cutter          |                   |      |
|                 |                     | Serial No. :               |                   |      |
|                                                                                                  |                     | ANSI/NEMA/IEC 60974-1-2019 |                   |      |
|                 | U <sub>1</sub> 240V | 20A/88V ~ 55A/102V         |                   |      |
|                                                                                                  |                     | X                          | 60%               | 100% |
|                                                                                                  | U <sub>0</sub> 330V | I <sub>2</sub>             | 55A               | 43A  |
|                                                                                                  |                     | U <sub>2</sub>             | 102V              | 97V  |
|                                                                                                  | U <sub>1</sub> 120V | 20A/88V ~ 35A/94V          |                   |      |
|                                                                                                  |                     | X                          | 60%               | 100% |
| U <sub>0</sub> 330V                                                                              | I <sub>2</sub>      | 35A                        | 27A               |      |
|                                                                                                  | U <sub>2</sub>      | 94V                        | 91V               |      |
| <br>1 ~ 50/60Hz | U <sub>1</sub>      | I <sub>1max</sub>          | I <sub>1eff</sub> |      |
|                                                                                                  | AC240V              | 31A                        | 24A               |      |
|                                                                                                  | AC120V              | 38A                        | 29A               |      |
| IP21S                                                                                            |                     | Insulation class: H        |                   |      |

Figure 6: Nameplate

## 4.INSTALLATION AND CONNECTION

**WARNING**

**BEWARE OF ELECTRIC SHOCK!**

Check and follow the instructions listed in the “Safety” section of this manual.

**WARNING**

**DO NOT set up without SWITCH OFF !**

### 4.1 Installation of the cutting torch

Check the torch for proper assembly. Install proper torch parts for the desired application (Refer to the following Torch head figure).

**NOTE:** The power supply will **NOT** operate unless the torch shield cup is fully seated against the Parts in Place pins in the torch head.

1. Connect the Electrode into the Torch Head.
2. Connect the Nozzle into the Torch Head.
3. Connect the Shield Cup into the Torch Head.
4. Connect the Wire Spacer Guide onto the Shield Cup

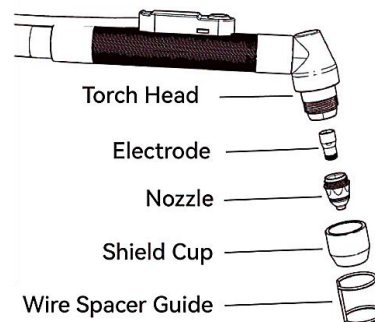


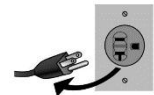
Figure 7 cutting torch head

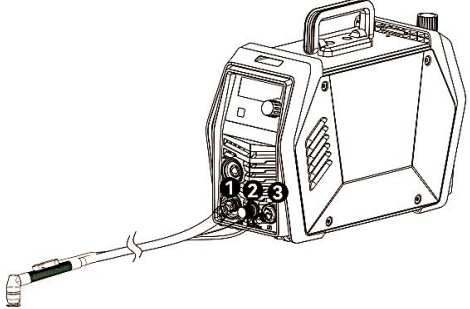
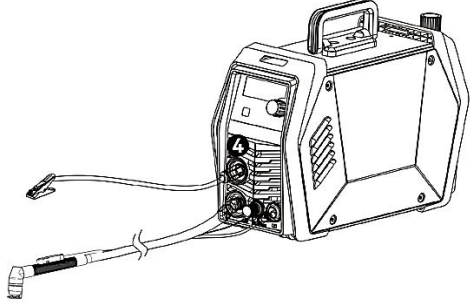
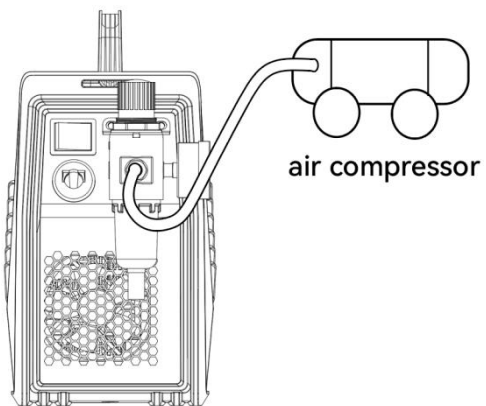
## 4.2 Installation of the Connection Cable



**WARINING**

**DO NOT set up without SWITCH OFF !**



| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Picture                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1. Connect the Cutting gun to “-” Negative polarity and aviation plug</b></p> <p><b>NOTICE:</b></p> <p>The Cutting gun connector <b>MUST</b> be tightly connected to the socket to avoid power short circuit.</p>                                                                                                                                                                                                                                                                                                                                                                             |  <p><b>Figure 8 Connection of cutting torch</b></p>     |
| <p><b>2. Connection of earth cable</b></p> <p>Insert the quick plug on the earth cable into the terminal and tighten it clockwise.</p> <p><b>NOTICE:</b></p> <p>The ground clamp connector <b>MUST</b> be tightly connected to the socket to avoid power short circuit.</p> <p><b>Ensure the ground clamp is connected on clean, bare metal (not rusty or painted).</b></p>                                                                                                                                                                                                                         |  <p><b>Figure 9 Connection of earth cable</b></p>      |
| <p><b>3. Connection of air compressor</b></p> <p>The CUT55 requires compressed air to be attached to the unit. Use a hose clamp to tighten the gas hose to avoid air leakage</p> <p><b>NOTICE:</b></p> <p>The input air pressure mini-mum must be 72.5 PSI, 5 Bar and must not exceed 150 PSI, 10.3 Bar. An air regulator is included with the unit with optimum pressure setting set to 57.5 PSI, 4 Bar.</p> <p>The unit is also equipped with an air filter which captures water and oil vapor. The vapor collected can be drained out of the bottom of the unit by turning the drain button.</p> |  <p><b>Figure 10 Connection of air compressor</b></p> |

#### 4. Connection of input power

The CUT55 PRO operates in 240V or 120V power supply. Plug the Power Cord into a properly grounded. Set Cutting Gun down on nonconductive, nonflammable surface away from any grounded objects. And then then turn the Power Switch ON. The fan should start. The Digital screen should turn on.

**NOTICE:**

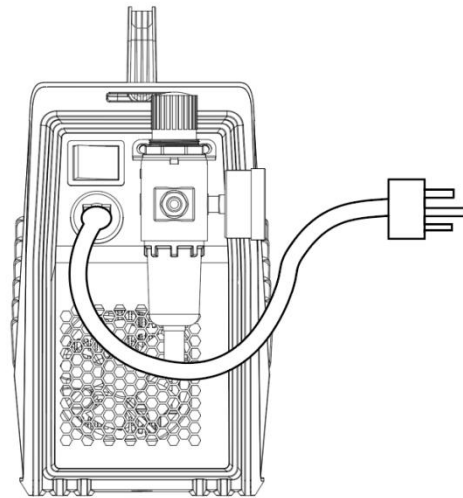
Adjust the Voltage Switch to match the outlet voltage:

For 120VAC, attach the provided adapter to the Power Cord.

For 240VAC, do not use the adapter.

Plug the Power Cord into a properly grounded and rated receptacle matching the plug and selected voltage.

Need to be connected to circuits with 50A and above circuit breakers



**Figure 11 Connection of input power**

## 5. OPERATION



**WARNING**

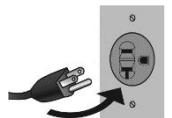
**BEWARE OF ELECTRIC SHOCK!**



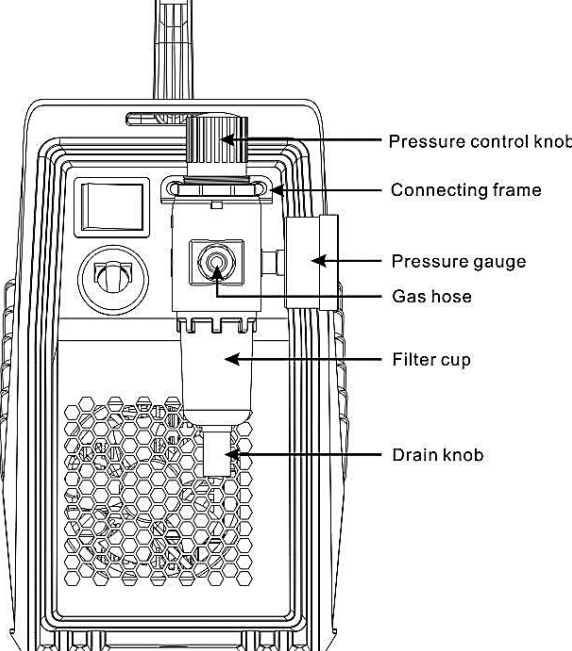
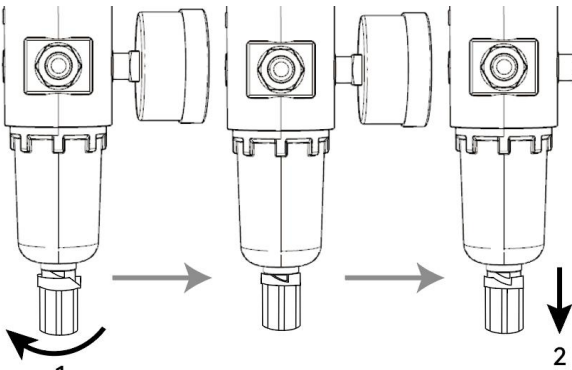
**NOTICE:**

**To prevent serious injury from fire or electric shock:**

- 1.DO NOT touch anything, especially not the ground clamp, with the gun or cutting wire or an arc will be ignited.**
- 2. DO NOT touch plasma cutter Components while it is plugged in.**



## 5.1 Operation of the reducer valve

| Description                                                                                                                                                                                                                                                                                                                                                                                                      | Picture                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Steps for reducer setting are as follows:</b></p> <ol style="list-style-type: none"> <li>1. lift the <b>pressure control knob</b> upward. adjust the gas pressure to the desired value by rotating the knob (rotate to “+” direction to increase gas pressure; rotate to “-” direction to reduce gas pressure);</li> <li>2. press down the <b>pressure control knob</b> to get the knob locked.</li> </ol> |  <p><b>Figure 12 Installation of the reducer valve</b></p>   |
| <p><b>Release water and oil vapor or gas</b><br/> <b>WARNING: DO NOT set up without SWITCH OFF !</b></p> <ol style="list-style-type: none"> <li>1. Turn the knob to the left to open the drain knob.</li> <li>2. Pull the drain knob down to Release water and oil vapor or gas.</li> </ol> <p><b>NOTICE:</b><br/> The drain knob needs to be turned off before cut55 can be used properly.</p>                  |  <p><b>Figure 13 Release water and oil vapor or gas</b></p> |

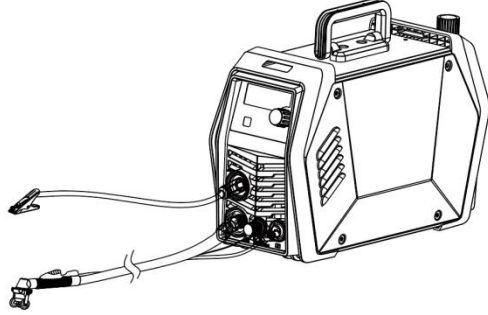
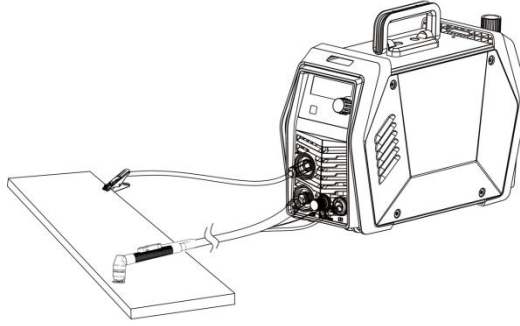
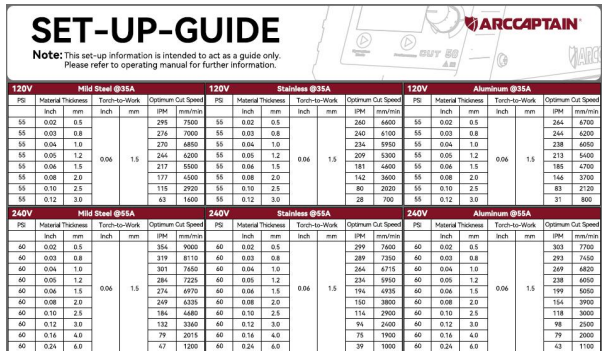
## 5.2 Operation method



**WARNING**

**BEWARE OF ELECTRIC SHOCK!**

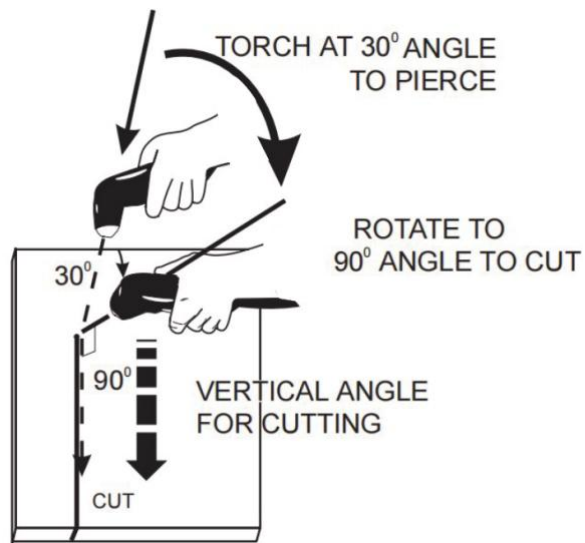


| Description                                                                                                                                                                                                           | Picture                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Confirm that cut55 has been installed and operated correctly, refer to <b>sections 4 and 5</b>                                                                                                                     |  <p><b>Figure 14 Installation</b></p>                                                                                                                                                                                                                                                                                            |
| 2. Clamp the Ground clamp onto the workpiece, The Ground clamp must be securely connected to the workpiece.                                                                                                           |  <p><b>Figure 15 Clamp the Ground clamp</b></p>                                                                                                                                                                                                                                                                                 |
| 3. Set the output current control knob at maximum position for higher cutting speed and less dross formation. Reduce the current, if desired to reduce the cut width, heat affected zone or travel speed as required. |  <p><b>Figure 16 refer to Appendix 1</b></p>                                                                                                                                                                                                                                                                                   |
| 4. You can refer to <b>Appendix 1</b> to set cutting parameters                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 5. 2T/4T mode select                                                                                                                                                                                                  | <p><b>2T (2 touch) mode:</b></p> <ul style="list-style-type: none"> <li>Press the trigger to start the cutting current</li> <li>Release trigger to stop the cutting current.</li> </ul> <p><b>4T (4 touch) mode:</b></p> <ul style="list-style-type: none"> <li>Press trigger to start cutting</li> <li>Release trigger during cutting.</li> <li>Press and release trigger to shut cutting current off.</li> </ul> |

1. When ready to cut, place the torch near the work, make certain all safety precautions have been taken and pull the trigger. The pilot arc will start.

2. Pierce the work piece by slowly lowering the torch onto the metal at a 30° angle away from the operator. This will blow the dross away from the torch nozzle. Slowly rotate the torch to vertical position as the arc becomes deeper.

**NOTE:** Graphics shown are for understanding torch angles for best results – the distances from the workpiece are exaggerated. In actual operation, the nozzle should be held just above the work piece surface.



**Figure 17 Cutting operation**

#### • **NOTE**

For better torch control, it is acceptable to let the nozzle drag along the work piece surface. This will shorten nozzle life. Also, it is acceptable to place a non-conductive torch guide on the work piece in order to achieve a cleaner cut

- When the trigger is released, the arc will stop. The gas will continue to flow for 5 seconds of postflow. If the trigger is activated within this time period
- If the dross is difficult to remove, reduce the cutting speed. High speed dross is more difficult to remove than low speed dross.
- The right side of the cut is more square than the left as viewed along the direction of travel.
- Clean spatter and scale from the nozzle frequently.

#### • **Parts in place**

**Cutting torch reference Figure 7 cutting torch head. If the accessories of cutting torch need to be replaced, please log in to the official website:**

**WWW.ARCCAPTAIN.COM**

- Check the assembly of the torch consumables. If they are not properly in place, the machine will not start. **Make sure that the shield cup is hand tight. Do not use pliers or over tighten.**
- Check the conditions of the inside of the nozzle. If debris has collected, rub the electrode on the inside bottom of the nozzle to remove any oxide layer that may have built up. Refer to the "Routine Maintenance Section".

- Check the condition of the electrode. If the end has a crater-like appearance, replace it along with the nozzle. The maximum wear depth of the electrode is approximately .062". A green and erratic arc will indicate definite electrode failure and the electrode should be replaced immediately.

- Replace the nozzle when the orifice exit is eroded away or oval shaped.

### • Pilot arc discussion

The CUT has a smooth, continuous pilot arc. The pilot arc is only a means of transferring the arc to the workpiece for cutting. Repeated pilot arc starts, in rapid succession, is not recommended as these starts will generally reduce consumable life. Occasionally, the pilot arc may sputter or start intermittently. This is aggravated when the consumables are worn or the air pressure is too high.

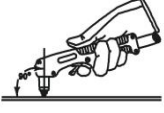
Always keep in mind that the pilot arc is designed to transfer the arc to the workpiece and not for numerous starts without cutting. When the pilot arc is started, a slight impulse will be felt in the torch handle. This occurrence is normal and is the mechanism which starts the plasma arc. This impulse can also be used to help troubleshoot a "no start" condition.

## 5.3 Notes for cutting operation

**⚠ WARNING BEWARE OF ELECTRIC SHOCK!**



|                                                                                     |                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | It is recommended not to ignite the arc in the air if not necessary, for it will shorten the lifespan of the electrode and nozzle of the torch.                                                                                                |
|  | It is recommended to initiate the cutting from the edge of workpiece, unless penetration is needed.                                                                                                                                            |
|  | Ensure spatters fly from the bottom of workpiece while cutting. If spatters fly from the top of workpiece, it indicates that the workpiece can not be fully cut because the cutting torch is moved too fast or the cutting current is too low. |
|  | Keep the nozzle slightly touching the workpiece or keep a short distance between the nozzle and workpiece. If the torch is pressed against the workpiece, the nozzle may stick to the workpiece, and smooth cutting is unavailable.            |
|  | For cutting round workpiece or to meet precise cutting requirement, molding board or other assistant tools are needed.                                                                                                                         |
|  | It is recommended to pull the cutting torch while cutting.                                                                                                                                                                                     |

|                                                                                   |                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>Keep the nozzle of cutting torch upright over the workpiece, and check if the arc is moving with the cutting line. If the space is not enough, don't bend the cable too much, step on or press upon the cable to avoid suffocating of gas flow. The cutting torch may be burned because the gas flow is too small. Keep the cutting cable away from edge tools.</p> |
|  | <p>Clean up the spatters on the nozzle timely, for it will affect the cooling effect of the nozzle. Clean up the dust and spatters on the torch head after using everyday to ensure good cooling effect.</p>                                                                                                                                                           |

- **The workpiece is not cut fully. This may be caused by:**
  1. The cutting current is too low.
  2. The cutting speed is too high.
  3. The electrode and nozzle of the torch are burned.
  4. The workpiece is too thick.
- **Molten slag drops from the bottom of workpiece. This may be caused by:**
  1. The cutting speed is too low.
  2. The electrode and nozzle of the torch are burned.
  3. The cutting current is too high.

## 5.4 Cutting parameters table

**⚠ WARNING BEWARE OF ELECTRIC SHOCK!**



Select proper current according to the cutting parameters table, workpiece material, cutting thickness and cutting speed, etc. (The figure in the below table is an approximation.)

**Figure 18 Cutting speed (in/min) when cutting current is 55A**

| Cutting thickness (inch) | 0.004 | 1/32 | 1/16 | 1/8 | 3/16 | 7/32 | 1/4 | 9/32 | 5/16 | 3/8 |
|--------------------------|-------|------|------|-----|------|------|-----|------|------|-----|
| Mild steel               |       | 315  |      | 59  |      |      | 15  |      |      |     |
| Galvanized steel         |       | 315  |      | 59  |      |      | 15  |      |      |     |
| Stainless steel          |       | 315  |      | 59  |      |      | 15  |      |      |     |
| Aluminum                 |       | 315  |      | 59  |      |      |     |      |      |     |
| Brass                    |       | 29.5 |      |     |      |      |     |      |      |     |
| Red copper               |       | 29.5 |      |     |      |      |     |      |      |     |

## 5.5 Replacement of electrode and nozzle



**WARNING**

**BEWARE OF ELECTRIC SHOCK!**



When the phenomena below occur, the electrode and nozzle should be replaced. Otherwise, there will be strong arc in the nozzle, which will break down the electrode and the nozzle, or even burn the torch. Nozzles of different models are different, so ensure the nozzle is of the same model when replacing it.

1. Electrode wear  $> 0.06\text{in}$
2. Distortion of the nozzle
3. Cutting speed declining, arc with green flame
4. Difficult in arc ignition
5. Irregular cut

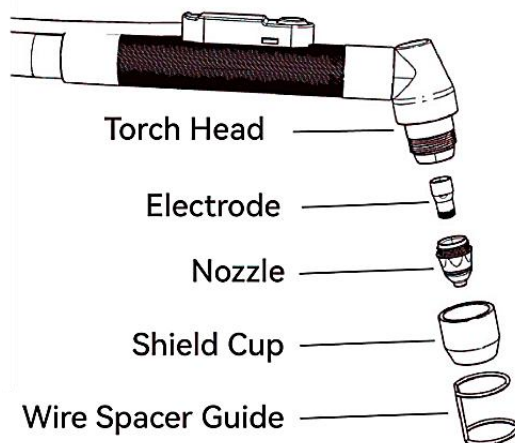


Figure 19 Exploded view of cutting torch

If the accessories of cutting torch need to be replaced, please log in to the official website: [WWW.ARCCAPTAIN.COM](http://WWW.ARCCAPTAIN.COM)

## 6.MAINTENANCE



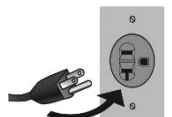
**WARNING**

**BEWARE OF ELECTRIC SHOCK!**



### NOTICE:

The power of the switching box and the cutting machine should be shut down before daily checking (except appearance checking without contacting the conductive body) to avoid personal injury accidents such as electric shock and burns.



**Tips:**

1. Daily checking is very important in keeping the high performance and safe operation of this cutting machine.
2. Do daily checking according to the table below, and clean or replace components when necessary.
3. In order to ensure the high performance of the machine, please choose components provided or recommended by dealer when replacing components.

4.

**Daily checking of the cutting machine**

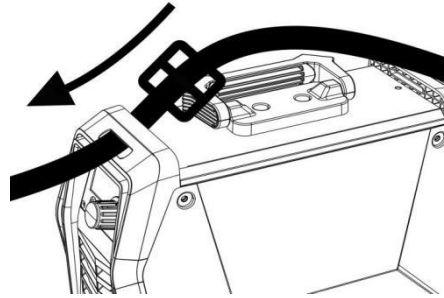
| Items       | Checking requirements                                                                                                                                                                                                              | Remarks                                                                                   |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Front panel | Whether any of the components are damaged or loosely connected;<br>Whether the output quick sockets are tightened;<br>Whether the abnormality indicator illuminates.                                                               | If unqualified, check the interior of the machine, and tighten or replace the components. |
| Back panel  | Whether the input power cable and buckle are in good condition;<br>Whether the air intake is unobstructed.                                                                                                                         |                                                                                           |
| Cover       | Whether the bolts are loosely connected.                                                                                                                                                                                           | If unqualified, tighten or replace the components.                                        |
| Side plates | Whether the side plate is loosely fixed.                                                                                                                                                                                           |                                                                                           |
| Chassis     | Whether the screws are loosely connected.                                                                                                                                                                                          |                                                                                           |
| Routine     | Whether the machine enclosure has color fading or overheating problems;<br>Whether the fan sounds normal when the machine is running;<br>Whether there is abnormal smell, abnormal vibration or noise when the machine is running. | If abnormal, check the interior of the machine.                                           |

**Daily checking of the cables**

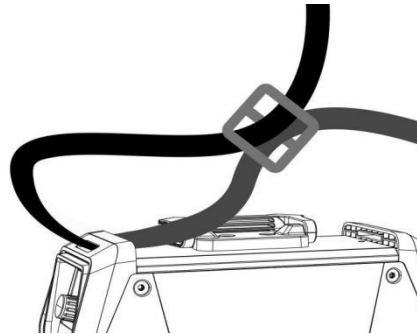
| Items         | Checking requirements                                                                                                                                                                                                     | Remarks                                                                                           |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Earth cable   | Whether the grounding wires (including workpiece GND wire and cutting machine GND wire) break off.                                                                                                                        | If unqualified, tighten or replace the components.                                                |
| Cutting cable | Whether the insulating layer of the cable is worn, or the conductive part of the cable is exposed;<br>Whether the cable is drawn by an external force;<br>Whether the cable connected to the workpiece is well connected. | Use appropriate methods according to the work site situation to ensure safety and normal cutting. |

## 7.STRAP INSTALLATION

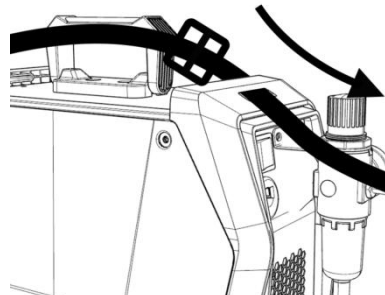
Step 1: Thread the strap through the strap hole in front of the welder.



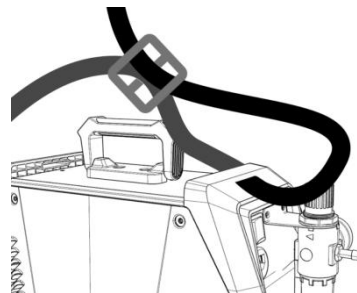
Step 2: Thread the strap through the nylon buckle as shown in the diagram.



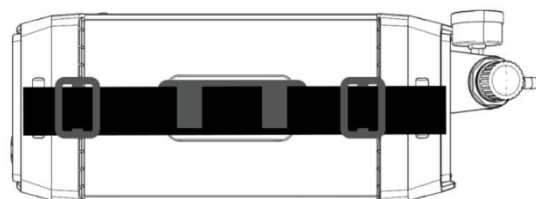
Step 3: Thread the strap through the strap hole in back of the welder.



Step 4: Thread the strap through the nylon buckle as shown in the diagram.



Step 5: The strap installation is complete.



## 8. TROUBLESHOOTING



**WARNING**

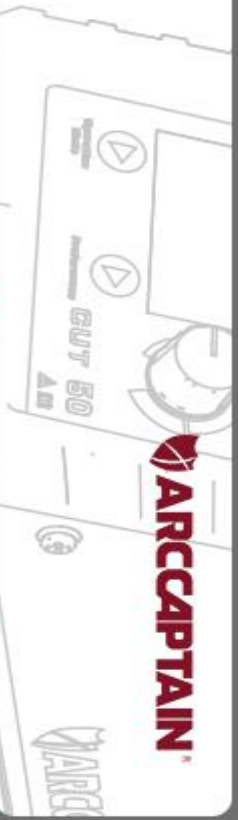
**BEWARE OF ELECTRIC SHOCK!**



The abnormality indicator on the front panel would illuminate in case of any failures inside the cutting machine.

| Malfunction phenomena                                                                                                                                                    | Cause and solution                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Turn on the machine, the LED screen illuminates, the control PCB keys do not function, and there is no response when pushing the torch trigger.                          | The cutting machine crashes: Shut down the machine, and restart it.                                                                                                                                                                                                                                                              |
| the LED Display E-1 or E-2                                                                                                                                               | <ol style="list-style-type: none"><li>1. E-1 overheat protection: machine is under overheat protection and stops working until E60 disappears</li><li>2. E-2 over-current protection: internal components are damaged, please contact dealer for help</li></ol>                                                                  |
| Turn on the machine, the LED screen illuminates, and the fan works. When pushing the torch trigger, the solenoid valve functions, but there is no HF discharge rustling. | <p>The arc ignition part fails:</p> <ol style="list-style-type: none"><li>1. The inter electrode distance of the discharge nozzle is too long.</li><li>2. There is leakage of the HF capacitor 222/10KV.</li><li>3. The mosfet or the optocoupler on the HF board is damaged.</li><li>4. The input voltage is too low.</li></ol> |
| Arc can not be ignited.                                                                                                                                                  | The air pressure is overly high or overly low.                                                                                                                                                                                                                                                                                   |

## Appendix 1

| <div><h1>SET-UP-GUIDE</h1><p><b>Note:</b> This set-up information is intended to act as a guide only.<br/>Please refer to operating manual for further information.</p></div> |                    |               |                   |                     |                    |               |                   |                    |                    |               |                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------|-------------------|---------------------|--------------------|---------------|-------------------|--------------------|--------------------|---------------|-------------------|
| 120V Mild Steel @35A                                                                                                                                                                                                                                               |                    |               |                   | 120V Stainless @35A |                    |               |                   | 120V Aluminum @35A |                    |               |                   |
| PSI                                                                                                                                                                                                                                                                | Material Thickness | Torch-to-Work | Optimum Cut Speed | PSI                 | Material Thickness | Torch-to-Work | Optimum Cut Speed | PSI                | Material Thickness | Torch-to-Work | Optimum Cut Speed |
|                                                                                                                                                                                                                                                                    | Inch               | Inch          | IPM               |                     | Inch               | Inch          | IPM               |                    | Inch               | Inch          | IPM               |
|                                                                                                                                                                                                                                                                    | mm                 | mm            | mm/min            |                     | mm                 | mm            | mm/min            |                    | mm                 | mm            | mm/min            |
| 55                                                                                                                                                                                                                                                                 | 0.02               | 0.5           | 295               | 55                  | 0.02               | 0.5           | 260               | 55                 | 0.02               | 0.5           | 264               |
| 55                                                                                                                                                                                                                                                                 | 0.03               | 0.8           | 276               | 55                  | 0.03               | 0.8           | 240               | 55                 | 0.03               | 0.8           | 244               |
| 55                                                                                                                                                                                                                                                                 | 0.04               | 1.0           | 270               | 55                  | 0.04               | 1.0           | 234               | 55                 | 0.04               | 1.0           | 238               |
| 55                                                                                                                                                                                                                                                                 | 0.05               | 1.2           | 244               | 55                  | 0.05               | 1.2           | 209               | 55                 | 0.05               | 1.2           | 213               |
| 55                                                                                                                                                                                                                                                                 | 0.06               | 1.5           | 217               | 55                  | 0.06               | 1.5           | 181               | 55                 | 0.06               | 1.5           | 185               |
| 55                                                                                                                                                                                                                                                                 | 0.08               | 2.0           | 177               | 55                  | 0.08               | 2.0           | 142               | 55                 | 0.08               | 2.0           | 146               |
| 55                                                                                                                                                                                                                                                                 | 0.10               | 2.5           | 115               | 55                  | 0.10               | 2.5           | 80                | 55                 | 0.10               | 2.5           | 83                |
| 55                                                                                                                                                                                                                                                                 | 0.12               | 3.0           | 63                | 55                  | 0.12               | 3.0           | 28                | 55                 | 0.12               | 3.0           | 31                |
|                                                                                                                                                                                                                                                                    |                    |               |                   |                     |                    |               |                   |                    |                    |               |                   |
| 240V Mild Steel @55A                                                                                                                                                                                                                                               |                    |               |                   | 240V Stainless @55A |                    |               |                   | 240V Aluminum @55A |                    |               |                   |
| PSI                                                                                                                                                                                                                                                                | Material Thickness | Torch-to-Work | Optimum Cut Speed | PSI                 | Material Thickness | Torch-to-Work | Optimum Cut Speed | PSI                | Material Thickness | Torch-to-Work | Optimum Cut Speed |
|                                                                                                                                                                                                                                                                    | Inch               | Inch          | IPM               |                     | Inch               | Inch          | IPM               |                    | Inch               | Inch          | IPM               |
|                                                                                                                                                                                                                                                                    | mm                 | mm            | mm/min            |                     | mm                 | mm            | mm/min            |                    | mm                 | mm            | mm/min            |
| 60                                                                                                                                                                                                                                                                 | 0.02               | 0.5           | 354               | 60                  | 0.02               | 0.5           | 299               | 60                 | 0.02               | 0.5           | 303               |
| 60                                                                                                                                                                                                                                                                 | 0.03               | 0.8           | 319               | 60                  | 0.03               | 0.8           | 289               | 60                 | 0.03               | 0.8           | 293               |
| 60                                                                                                                                                                                                                                                                 | 0.04               | 1.0           | 301               | 60                  | 0.04               | 1.0           | 264               | 60                 | 0.04               | 1.0           | 269               |
| 60                                                                                                                                                                                                                                                                 | 0.05               | 1.2           | 284               | 60                  | 0.05               | 1.2           | 234               | 60                 | 0.05               | 1.2           | 238               |
| 60                                                                                                                                                                                                                                                                 | 0.06               | 1.5           | 274               | 60                  | 0.06               | 1.5           | 194               | 60                 | 0.06               | 1.5           | 199               |
| 60                                                                                                                                                                                                                                                                 | 0.08               | 2.0           | 249               | 60                  | 0.08               | 2.0           | 150               | 60                 | 0.08               | 2.0           | 154               |
| 60                                                                                                                                                                                                                                                                 | 0.10               | 2.5           | 184               | 60                  | 0.10               | 2.5           | 114               | 60                 | 0.10               | 2.5           | 118               |
| 60                                                                                                                                                                                                                                                                 | 0.12               | 3.0           | 132               | 60                  | 0.12               | 3.0           | 94                | 60                 | 0.12               | 3.0           | 98                |
| 60                                                                                                                                                                                                                                                                 | 0.16               | 4.0           | 79                | 60                  | 0.16               | 4.0           | 75                | 60                 | 0.16               | 4.0           | 79                |
| 60                                                                                                                                                                                                                                                                 | 0.24               | 6.0           | 47                | 60                  | 0.24               | 6.0           | 39                | 60                 | 0.24               | 6.0           | 43                |

Note: The above information is intended for a down hand butt weld with a gas flow of 8-12 l/min. Please refer to the operation manual for further information. Settings taken at front panel knobs