

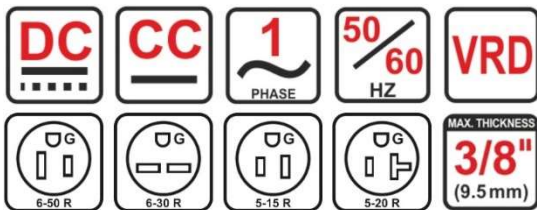


Welding & Cutting Equipment Manufacturer

STICKWELDER 162 D

Owner's Manual

Part 2



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Section 1 Introduction to the Machine

1.1 Description of the Machine

STICKWELDER 162 D is a portable, powerful, and versatile inverter-based welding machine. This unit is capable of either stick welding or TIG welding with a lift start. This machine features an extra function that decreases the power draw of the unit, making it safer and more efficient to work with in adverse conditions. These features plus its lightweight construction make it the ideal choice for light to medium duty projects in all types of weather. This machine is capable of easily welding rods from 1/16 inches (1.6 mm) to 5/32 inches (4.0 mm).



Description and advanced features

- Excellent arc characteristics with the most common rods up to 5/32" (4.0 mm).
- Low power consumption.
- Ability to work outdoors with adequate power generator.
- Fan cooled and thermally protected against overloading.
- Light weight, Carrying belt for easy transportation.
- Ability to use up to 165 feet (50 meters) leads without any power loss at the weld.
- Two available welding processes Stick and TIG (Lift).
- Tested in (104°F /40°C), designed for the toughest conditions.
- Large size Dinse style welding connectors.
- Metal faced panel.
- Comprehensive 3 Year Warranty.

1.2 Weldable Materials

STICKWELDER 162 D is suitable for all-positions welding for various plates and profiles. Weldable materials are all types of carbon steels, low-alloy steels, alloyed stainless, nickel alloys.

1.3 Area of Usage

STICKWELDER 162 D is a portable machine and can be used in: Light duty Fabrication, Automotive Parts and Bodies, Truck and Trailers manufacturing, Work/Service, Machine or parts manufacturing, Boat/Yacht, Training school, Civil Construction, Mechanical Contractors, Refineries, Installation, Maintenance and repair-field operation, Plumbing & HVAC, Infrastructure & roofing, Restoring, Farm and Ranch, Home hobbyist.

1.4 Volt-Ampere Characteristic (Static Characteristic)

Relationship between the voltage and the current at the output terminals of a welding power source when connected to a conventional load is called static characteristic as International and North American standards (IEC60974-1, CSA/UL).

For Tungsten Inert Gas (TIG) process:

When $I_2 \leq 600\text{ A}$

When $I_2 > 600\text{ A}$

$U_2 = (10 + 0.04 I_2)\text{ V}$

$U_2 = 34\text{ V}$

For STICK welding (SMAW or MMA) process:

When $I_2 \leq 600\text{ A}$

When $I_2 > 600\text{ A}$

$U_2 = (20 + 0.04 I_2)\text{ V}$

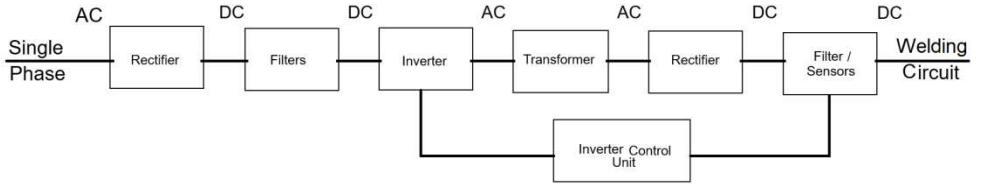
$U_2 = 44\text{ V}$

Note:
 I_2 is the **Welding Amperage** and U_2 is the **Arc Voltage** related to the welding amperage.

STICKWELDER 162 D machine has an excellent volt-ampere characteristic which insures a stable arc and high welding rate and less workpiece distortion.

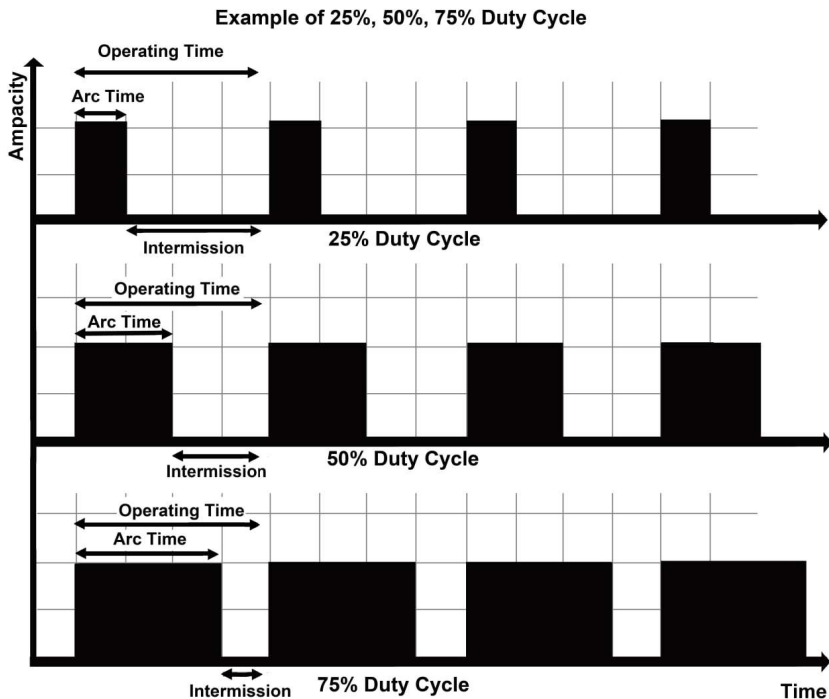
1.5 How does the Machine work?

The flow chart of **STICKWELDER 162 D** is shown as in the following picture.
First, the primary input voltage (AC, 230 V, or 115 V, 50/60 Hz) is rectified into DC. After filtering, it is converted to a much higher frequency by an inverter device (IGBT). In the next step, the voltage will be reduced to a suitable voltage for welding through the main transformer. This AC voltage is applied to a fast recovery rectifier to produce a DC voltage in output. Finally, there is an inductance in output to ensure a smooth welding arc. There is a feedback device in the output; connected to the control system of the inverter ensures arc stability and other important arc parameters. Meanwhile, the welding parameters can be adjusted easily by the control system.



1.6 Duty Cycle

Duty Cycle is a number (in percentage) to determine how much the machine can run continuously or at a specific cycle without a problem. The duration of a complete cycle is 10 minutes (Operating time is in the following example). For example, in the case of a duty cycle of 75%, a continuous load period of 7.5 minutes is followed by a no-load period of 2.5 minutes.



Inside the machine there are devices that control the temperature of different parts. If the machine is over-heated, the IGBTs, transformer, diodes, or other parts may be overloaded; the devices or the thermo-switch send feedback to the control inverter, the machine will be shut down and the alarm indicator will light up. At this time, the machine will be shut down for a few minutes to be cooled by a fan. When the machine is restarted, the welding output current or duty cycle should be reduced.

Note:
prolonged welding arcs might cause the system to overheat and reduce the duty cycle.

1.7 Specifications

The specification of the machine has been tested as International and North American standards in the lab. All the tests have been done in below conditions as CSA C22.2 No. 60974-1:19 Arc welding equipment — Part 1, Welding power sources and also International Standard IEC 60974-1.

The tests are performed at 104° F (+40°C), Humidity of 50 % @ 104° F (+40°C) and altitude of below 1000 m from sea level.

Stickwelder 162 D Technical Specification				
Process	Stick Electrode	TIG (no HF)	Stick Electrode	TIG (no HF)
Input Voltage, Single Phase, 50/60 Hz	208 to 240 V (±10%)		105 to 120 V (±10%)	
Primary Current@Max Welding Current	34 A	23 A	40 A	26 A
Maximum Primary Effective Current (1 eff max)	22 A	14 A	25 A	19 A
Welding Current Range	20 - 160 A	10 - 160 A	20 - 110 A	10 - 110 A
Duty Cycle @ Maximum Welding Current in 104° F (40° C)	25% (160 A)	30% (160 A)	30% (110A)	30% (110A)
Welding Current @ 100% Duty Cycle in 104° F (40° C)	110 A	110 A	75 A	85 A
Open Circuit Voltage : Volt	86V,15V (VRD)	15V (VRD)	88V,15V (VRD)	15V (VRD)
Output Voltage Range : Volt	20.8 - 26.4 V	10.4 - 16.4 V	20.8 - 24.4 V	10.4 - 14.4 V
Weight : lb. (Kg)	18 lb. (8 Kg)			
Dimensions Including Handle (D, W, H) : inch (mm)	17 x 6 x 11 inch (430 x 150 x 300 mm)			
CANAWELD RESERVES THE RIGHTS OF CHANGING THE SPECIFICATION WITHOUT NOTICE				

NOTE: CANAWELD is always striving to produce the best possible products and improving the quality. Therefore, reserves the right to change, improve or revise the specifications or design of this or any product without prior notice. Such updates or changes do not entitle the buyer of equipment previously sold or shipped to the corresponding modifications, updates, improvements, or replacement of such items. The values specified in the table above are optimal values, your values may differ. Individual equipment may vary from the above specifications due in part, but not exclusively, to any one or more of the following: variations or changes in manufactured components, installation and conditions and power grid supply conditions.

Section 2 Installation and Operation

2.1 Considerations for the Connection of the Machine to the Input Supply Network

Machine Connection to Input Supply Network

STICKWELDER 162 D machines can be connected to either 115V or 230V. Please note that, before connecting electricity, check the voltage of the network. Check if the circuit breaker or fuse is suitable for the machine.

Note:
If the supply voltage continuously exceeds the safe operating voltage range, it will shorten the life of the machine.
The wide range of input supply voltages, making it suitable for connecting to any single-phase (maximum 240V) electrical network. Note that, the output power of the machine in 115 volts is less than 230 volts.

IMPORTANT:
DO NOT to connect the machine to a voltage higher than $240\text{ V}+10\%$.

Use Adapter 240/120 V If necessary



Receptacles Types:

120 Volt, 15 A



NEMA 5-15R

120 Volt, 20 A



NEMA 5-20R

240 Volt, 30 A



NEMA 6-30R

240 Volt, 50 A



NEMA 6-50R

Note: Receptacle circuit testers will easily check the continuity of the grounding conductor. Receptacle circuit testers for 120-volt circuits are available at electrical supply or hardware stores; these inexpensive test devices plug into an electrical outlet. Indicator lights show whether the grounding circuit is available at the outlet, as well as other circuit tests. If the test device shows the absence of a ground connection or other circuit problem, call a qualified electrician for assistance. This is a simple test and should be done periodically.

Consult with a qualified electrician to test circuits greater than 120 volts, installation proper fuses and grounding.

Table of cable, extension cable and ground cable size:

Size of SOOW, SOO, SOW, ST, STO, STOO, STW, STOW, STOOW, H07RN-F Power Cables, based on Number of Cords, length and Current				
SIZE OF Conductor in AWG (mm2)	Number of Cord Conductors	Number of current carrying conductors	Current (A) 0-15.2 m (0-50 Ft)	Current (A) Over 15.2-30.5 m (50-100 Ft)
12 (3.31 mm2)	2,3	2	25	18
10 (5.26 mm2)	2,3	2	30	25
8 (8.37 mm2)	2,3	2	40	30
6 (13.3 mm2)	2,3	2	55	40

Recommendation for Fuse or Circuit breaker

Description	208-240 V	100-120 V
Recommended Time-Delay Fuse or Equivalent Circuit Breaker Rating (Maximum)	50 A	A 15A (for NEMA 5-15R receptacle) or 20 A (for NEMA 5-20R receptacle) time-delay fuses or equivalent circuit breaker placed on the individual branch circuit is required. A relevant welding current and/or working duty cycle must be selected according to National/Local Codes and the TIG STICKWELDER 162 D rating plate information.
Recommended Normal Operating Fuse or Equivalent Circuit Breaker Rating (Maximum)	60A	
Recommended Cord Size (Minimum)	12 AWG	12 AWG
Recommended Extension Cord Length (Maximum)	60 ft	25 ft
Recommended Grounding Conductor Size (Minimum)	12 AWG	12 AWG

Attention:

Do not use PVC cable for Earth clamp and cable set. Use SOOW, H07RN-F or an equivalent.

Note 1: The Effective Input Current should be used to determine cable size and supply requirements.

Connection to Generator

The machine can be connected to the generator. The THD (Total Harmonic Distortion) of the generator must be less than 6%.

Make sure the power of the generator is more than the welding machine. Make sure the power of generator is continuous duty or maximum and compare it with maximum and power of the welding machine in 100% duty cycle.

A clean, stable sine wave generator can be used as a power source for the machine. Output voltage spikes can damage the components of the machine.

For full performance stick welding with **160A** output current, a 240V single phase generator with minimum **12 KW** is required. A limited performance welding can be achieved by an **10KW** generator. If the welding amperage is limited to **110A**, a **8KW** generator is sufficient.

Improving the Input Supply Network:

In case the input supply voltage network is not stable, improve it, if possible, Such as:

Reduce the number of powerful electrical devices operating simultaneously, using the same power supply. Increase the cross section of the power supply cable in the event of a significant voltage drop. Consult an electrician for the cable cross section calculation.

If possible, ask your workshop electricity supplier, change the tap of your power transformer network, and decrease or increase your network input voltage, and receive a stable voltage for all appliances in your workshop.

Considerations before Setting up the Machine and Environmental conditions:

The serial number and rating information is located on the bottom of the machine. Use the rating plate information to determine input power requirements and rated output.

Check whether the voltage value variations are within the acceptable working range with a multi-meter.

The input cable of the machine is ready to be plugged into a 230V/115 V compatible connector/socket. You can remove the installed plug and have the input cable “hard-wired” into the proper building electrical panel.

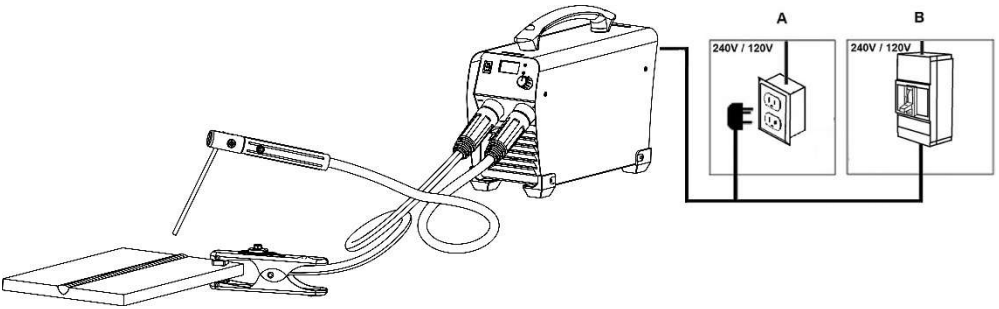
Electrical installation must meet all National and Local Codes. Only a qualified electrician may do the installation.

Do not expose the device to direct sunlight as it will increase internal temperature and reduce duty cycle. Keep the machine dry and store or use it in a dry place that is not affected by the weather conditions. Do not use the machine in areas with excessive dust or corrosive gas in the air or in high concentration environments.

STICKWELDER 162 D machine can provide rated outputs at rated duty cycles when the following environmental conditions prevail:

- Ambient air must be free of abnormal amounts of dust, acids, corrosive gases, or substances, etc., and its temperature must be $-10\text{ }^{\circ}\text{C}$ to $+40\text{ }^{\circ}\text{C}$, during operation.
- The machine base tilted up to 10° .
- Minimum clearance of 1 ft. from the back wall. (For better ventilation)

NOTE:
Study the safety instructions, welding charts and instructions to adjust the welding parameters properly.



Operation Environment

The elevation of the welding operation must be above sea level and less than 1000 meters.

Temperature range of operation must be from -10°C to +40°C.

The relative humidity must be less than 90%. (20°C).

The machine must be placed above the floor level, with the maximum tilting angle not exceeding 10°.

The equipment must be protected from heavy rain or intense sunlight in hot weather.

The concentration of dust, acid, or corrosive gas in the surrounding air or material must not exceed the usual limit.

Adequate ventilation must be applied during the welding process. There should be at least 30cm between the machine and the wall.

There should be at least 1m between the machine and the workpiece.

Operation Notices

- Before attempting to use this device, thoroughly read this operating manual.
- Connect the machine to the ground wire.
- If the power switch is closed (ON), no-load voltage may be exported. No part of your body should come into contact with the output electrode.
- Before the procedure, no uninformed individuals should be left.
- Do not look at the arc with uncovered eyes.
- To enhance duty ratio, make sure the equipment is well ventilated.
- To save energy, turn off the machine after the job is completed.
- When the power switch shuts off protectively due to a failure, do not restart it until the problem has been rectified. Otherwise, the problem's scope will be expanded.

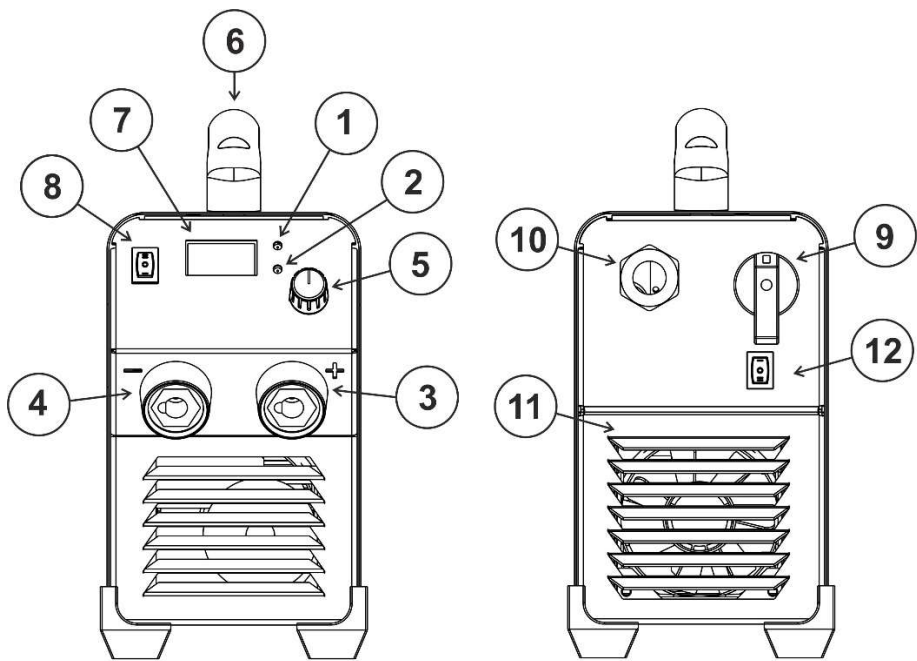
Additional Notices:

- Inspect the welding equipment and connections first; otherwise, malfunctions such as an ignition-sparked fire hazard, out-of-control gas leakage, and other issues will arise.
- Do not point the torch/electrode holder towards your hand or any other part of your body.
- In the TIG process, the flow rate is determined by the amount of welding power used on the project.

Adjust the gas flow displayed on the gas hose pressure meter or the gas bottle pressure meter by using the regulating screw.

2.2 Panels and Parts Description

Control and Rear Side Panel



- 1. Power LED : To indicate the power. Power LED on indicates that the power switch of the machine is on.
- 2. Fault Indicator: To indicate the machine is under overcurrent or overheating protection status when it illuminates.
- 3. Positive "+" Output Terminal: To connect the electrode holder.
- 4. Negative "-" output terminal: To connect the work clamp.
- 5. Welding Current Adjustment Knob: To adjust the output current.
- 6. Handle
- 7. Current Display
- 8. TIG (Lift)/MMA switch.
- 9. Power Switch: Power ON/OFF rotary switch.
- 10. Power Input: Power input cable.
- 11. Cooling fan
- 12. VRD Function Selector

2.3 Stick Welding Installation and Operation

Polarity Connection

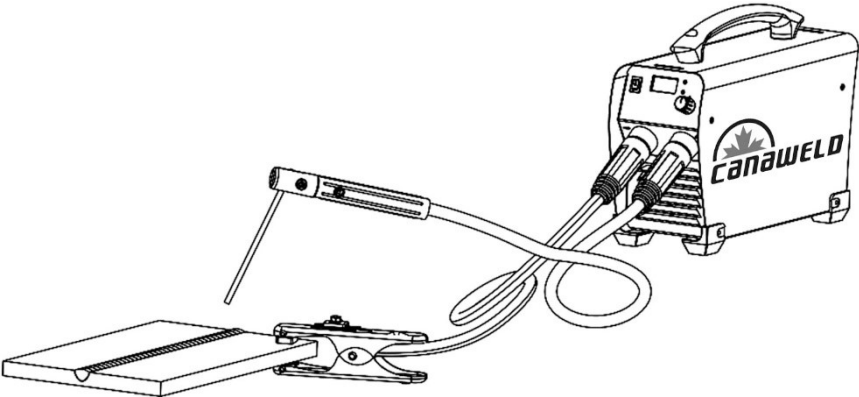
In direct current (DC) welding, stick or tungsten electrode, can be either positive or negative. As a result, the connection method can be Direct Current Electrode Positive (DCEP) or Direct Current Electrode Negative (DCEN). DCEP is also known as Direct Current Reverse Polarity (DCRP) or "Reverse", and DCEN is known as Direct Current Straight Polarity (DCSP) or "Straight".

STICK Welding Polarity Connection

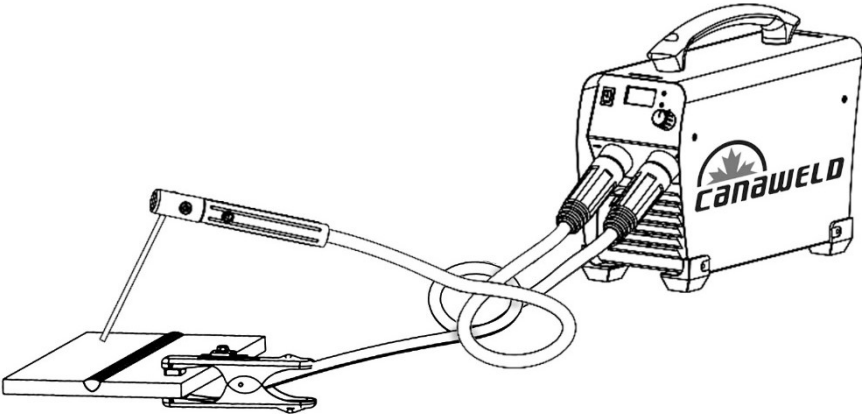
The standard DC welding cable connection is polarized in two different ways. If the wrong polarity is chosen in accordance with the technical requirements of welding, it will result in arc instability, spatter, significant adhesion, and other problems. In such instances, the joints must be rapidly reversed.

DC Stick welding

Choosing the connection of DCEN or DCEP according to the different electrodes. Please refer to the electrode manual.



Direct Current Reverse Polarity (DCRP) , "Reverse", or "DCEP"



Direct Current Straight Polarity (DCSP) , "Straight", or "DCEN"

Stick Welding Setup

- Attach the earth clamp to the workpiece. Firm contact must be made with the workpiece's clean, naked metal, without any corrosion, paint, or scale at the point of contact.
- Attach the electrode lead to the "+" connector and tighten it in the clockwise direction.
- Each machine comes with a power cord that must be dependent on the input voltage and linked in the proper place to avoid selecting the incorrect voltage.
- Ensure appropriate contact and the avoidance of oxidation between the corresponding input power supply terminal and socket; the input voltage fluctuation must be in acceptable range when measured with a multi-meter.
- Fix the power ground securely

Note:

If the workpiece is farther away from the welding machine, the electrode holder and ground cable should be longer, therefore pick the right conductor and increase its cross-sectional area to lower cable voltage loss.

Stick Welding Operation

If the installation process described above is done correctly, turn the power switch to the "ON" position, at which point the fan and screen light will turn on and the machine will function as intended. Select the "Stick" welding setting.

Using the welding amperage adjustment knob, adjust the welding current as necessary. Insert the electrode into the electrode holder, and then tighten the clamp.

To produce an arc, tap the electrode on the workpiece. Then, hold the electrode still to keep the arc in place. Commence welding. If necessary, readjust the welding amperage control knob to obtain the required welding condition.

After completion of welding, the power source should be left turned ON for 2 to 3 minutes. This allows the fan to run and cool the internal components. Rotate the power switch to the OFF position.

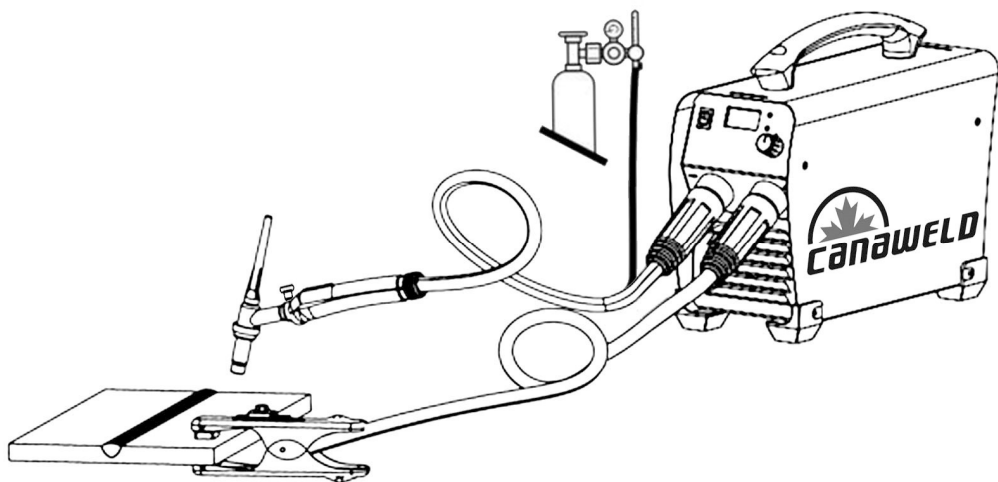
2.4 TIG welding Installation & Operation

TIG Welding Set up

1. Insert the earth cable plug into the positive socket on the front of the machine and tighten it.
2. Plug the welding torch into the negative socket on the front panel and tighten it.
3. Connect the gas regulator to the gas cylinder and connect the gas line to the Gas Regulator.
Check for Leaks!
4. Connect the gas line to the gas line (black hose) of the TIG torch. **Check for Leaks!**
5. Connect the power cable of the welding machine with the output switch in the electric box on site. Turn on the power switch.
6. Carefully open the valve of the gas cylinder. Set the required gas flow rate.
7. Select "TIG (Lift)" on the front panel.
8. Set welding amperage.
9. Open the gas valve on the torch.
10. Scratch the tungsten electrode tip to the workpiece and start the welding process.

TIG Welding Polarity Connection

Generally, TIG welding is operated in Direct Current Electrode Negative (DCEN) or "Straight".



TIG Welding Operation

If the installation process described above for TIG welding is done correctly, turn the power switch to the "ON" position, at this point the fan and screen light will turn on and the machine will function as intended. Select the "TIG (Lift)" welding setting, and the machine will operate in the TIG (Lift) mode.

Using the parameter knob, adjust the welding amperage as necessary.

Open the gas valve on the torch.

To produce an arc in Lift mode, put the torch head on the workpiece. The tungsten electrode tip must be touched the workpiece surface. Then, slowly lift the tip of the torch to ignite the arc and start the welding. Hold the electrode still to keep the arc in place and continue the welding process. If necessary, readjust the welding amperage by the control knob to obtain the welding condition required.

After completion of welding:

Close the gas valve on the TIG torch after the required post flow.

Keep the power source turned ON for 2 to 3 minutes. This allows the fan to run and cool the internal components.

Rotate the power switch to the OFF position.

Short-circuit protect function:

TIG DC (LIFT) Welding Operation:

If the tungsten electrode touches the workpiece when welding, the current will drop to 20A, which can reduce the tungsten spoilage farthestly, prolong the using life of the tungsten electrode and prevent tungsten clipping.

Stick Electrode Welding Operation:

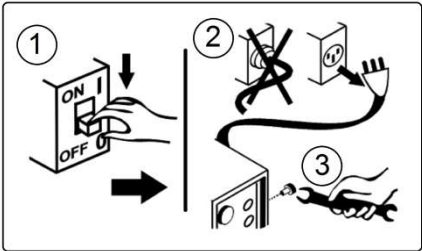
If the electrode touches the workpiece over two seconds, the welding current will drop to the 20A automatically to protect the electrode.

Section 3 Maintenance of the Machine



WARNING:
Always disconnect the machine power source before doing any maintenance to avoid personal injury accidents such as electric shock and burns.

By following proper maintenance procedures, the welding machine can operate safely and reliably for a long time.



3.1 Grounding Maintenance:

Why test ground systems?

Over time, corrosive soils with high moisture content, high salt content, and high temperatures can degrade ground rods and their connections. Despite low ground resistance values upon initial installation, these values can increase if the ground rods are eaten away.

If there are intermittent electrical problems, the problem may be related to poor grounding or poor power quality. All grounds and ground connections must be checked annually as a part of normal proactive maintenance plan. Once identified, the problem can be solved by replacing or adding ground rods to the grounding system.

3.2 Earth Clamp Maintenance:

Do not Use if the Earth clamp is damaged or in bad condition.

If the Earth clamp is not in good condition, this will cause welding current leakage or a drop voltage in the machine output, which looks like someone changing the settings on your welding machine

Often the first reaction of the operator is to change the machine settings to compensate, rather than fix the real cause of the problem.

There are typically 3 areas of “connection” on an earth clamp that can cause a current leakage or blockage.

- Cable to the cable lug: Lugs are probably the worst offender here! They can be hard to fit properly, sometimes the cable can be removed from the lug, the lug bolt/terminal may come loose, etc., Use a high-quality, copper tin plated cable lug and a professional crimping tool.
- Within the clamp itself: Be careful of broken clamp jaws or worn parts. Use a high-quality Earth clamp, Strong spring and other mechanical parts, Current conductive parts made from copper or brass and not Steel alloys at all.
- Clamp to workpiece connection: A weak clamp spring or improper connection to the workpiece, corroded clamping jaws or low electrical conductivity, particularly if the workpiece is rusty, causes poor electrical conduction with it and increase in heat.

Once a “connection” problem in an Earth clamp develops, the affected component will then begin to heat up. The heat will then accelerate the original problem, causing the connection to fail further, which will then cause more heat and the cycle to continue.

Conclusion:

Do Check your earth clamp regularly. Make sure the cable lug is firmly fitted and bolted. Replace the clamp in case of weak spring, broken parts, overheating, etc.

Do not just give your clamp a shake and reattach it. This won't solve the problem.

Use only high-quality, well-designed Earth clamps.

3.3 Regular Maintenance Planning:

Date	Maintenance item
Daily Inspection	<p>a) Check if all panel buttons, potentiometers, switches, and electrical connections on the front and rear sides of the machine are working properly. If not, repair or replace them.</p> <p>b) After turning on the power source, observe / listen whether the machine has any abnormal noise or smell. If yes, try to find the reason and if you cannot find the reason, please contact the local agent or branch.</p> <p>c) Turn on the power source to make sure the fan is working properly. Check if the fan blades move a little or starts spinning. If not, observe whether there is anything stuck in the blade, and if so, remove it. If the fan is damaged, replace it immediately. Make sure the machine is unplugged.</p> <p>d) Observe if the connectors are loose or overheated. Observe whether the current output cable and the input power cable are damaged. If a cable is damaged, it must be wrapped, insulated, or changed.</p> <p>e) In TIG mode, check the torch gas connections and circuit for any probable leaks.</p>
Monthly Inspection	<p>Use dry compressed air (with low pressure settings) to clean the inside of the machine, especially clean the dust on the heat sinks, main voltage transformer, inductor, IGBT modules, diodes, capacitors, and all PCBs, etc. Check the bolts and screws of the machine, if any bolt or screw is loose, tighten it. If it is stripped, replace it. If it is rusty, wipe the rust off the bolt and make sure it works well.</p>
Annual Inspection	<p>Compare the actual value of parameters with the display value installed on the machine. If the difference is significant, the machine must be calibrated. The value of the parameters can be measured by a calibrated instrument.</p>

Note:
Only professional service personnel authorized by Canaweld may service the machine!

Section 4 Troubleshooting

4.1 Power Supply Troubleshooting

Note: Only professional service personnel authorized by Canaweld may service the machine!
If there is a problem and you can't find the authorized professional maintenance personnel, please contact the local agent or the company branch. If there are some simple machine troubles, you can use the following information from the below table:

PROBLEM	POSSIBLE REASON	SOLUTION
When the machine is turned on, the fan turns on, but the 7-segment display and/or LEDs do not illuminate.	Faulty components in the front panel PCB	Contact Canaweld Service Center.
When the machine is turned on, the 7- segment display and/or LEDs turn on, but the fan does not work.	Something is blocked the fan blades physically	Remove the blockade.
	The fan motor damaged	Change the fan
The Power LED does not illuminate, and fan blades are not running.	Power supply voltage is not sufficient or is disconnected	Check power supply fuses and replace if necessary or reset the circuit breakers. Turn ON the machine.
	Improper input power connections	Check for the correct input power connections
	Faulty components in the power supply.	Contact Canaweld Service Center.
During operation, the arc goes out and can't be restarted again and the Fault LED (Overheat) is illuminating.	The Power Supply is overheated.	Allow the device to cool down for at least 6 minutes. Make sure the device is not operating beyond the duty cycle limit.
	The Fan blades are blocked.	Check the fan and the blades.
	Faulty components in the unit	Contact Canaweld Service Center.

Arc cannot be ignited but the open circuit voltage is there.	The welding cable is not connected to the output terminal of the welder.	Connect the welding cable to the welder's output.
	The welding cable is damaged.	Repair or change it.
	The earth clamp is not connected properly.	Ensure the earth clamp is properly connected to the clean and dry workpiece area. Inspect the earth clamp for damage, repair or replace as needed.
	The welding cable is too long.	Use an appropriate welding cable.
	There is oil or dust on the workpiece.	Remove rust, paint, and other residues to ensure good contact between the earth clamp and the workpiece.
No gas flow (in TIG torch)	Gas cylinder is empty or closed or the gas pressure is low.	Open or change the gas cylinder
	Something is blocked the torch gas line	Remove the obstacle/blockade.
	The torch valve is damaged	Contact Canaweld Service Center.
The welding current cannot be adjusted	The control PCB or the current sensor is damaged.	Contact Canaweld Service Center.
The welding current displayed isn't accordant with the actual value.	The control PCB or the current sensor is damaged.	Contact Canaweld Service Center.
The penetration of the molten metal pool is not enough.	The welding current is adjusted too low	Increase the welding current

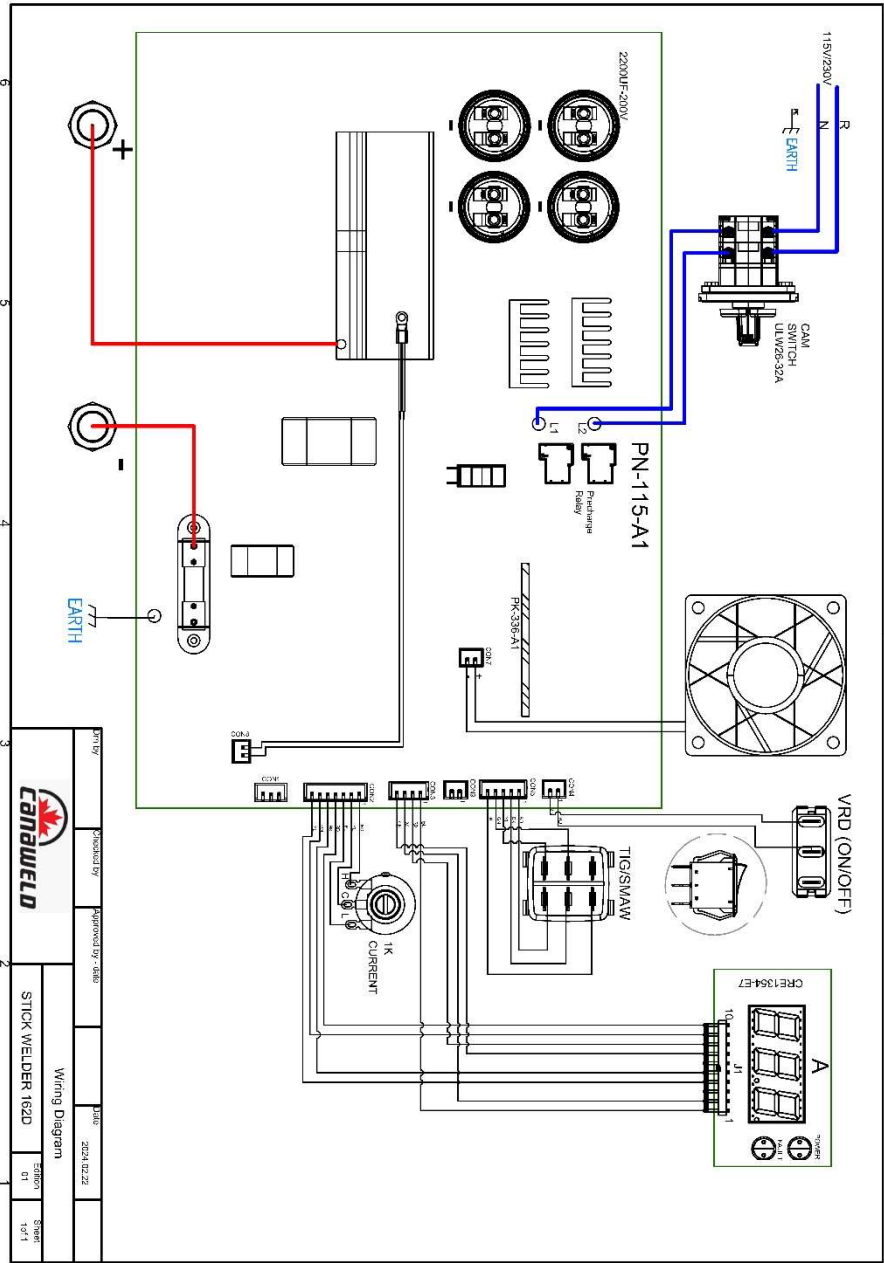
Weld output is erratic or incorrect	Improper weld cable	Use proper size and type of weld cable
	Loose connection	Clean and tighten all weld connections
	The control PCB or the current sensor is damaged.	Contact Canaweld Service Center.
Weld arc wanders and/or flutters during TIG welding.	Improper tungsten size	Use proper tungsten size
	Unprepared tungsten electrode tip	Use appropriately prepared tungsten.
	High rate of gas flow	Reduce the rate of gas flow.
	In correct polarity in DC welding	Check the welder's output polarity and choose Direct Current Electrode Negative (DCEN).
	Too long arc length	Decrease the arc length to 0.1in. (2-3mm)
	Contaminated base metal	Clean up the base metal to remove any paint, grease, oil, or dirt, including rust, oxide, and mill scale.
	Contaminated tungsten	Repoint the tungsten after cutting 1/2 inch of contaminated tungsten.
	Incorrect shielding gas or mixture	Inspect the gas type; it must be argon
After welding is completed, the tungsten electrode becomes oxidized and loses its brightness.	Too long arc length	Decrease the arc length to 0.1in. (2-3mm)
	Shielding gas is leaking	Check for any gas leakage and tighten all gas fittings.
	Post flow is too short	Keep the torch gas valve open until the weld pool is cold.
Fault LED is permanently ON	Wind or drafts around the welding area	Protect the weld zone from the wind and drafts.
	Faulty components in the power supply.	Contact Canaweld Service Center.
When an arc is struck, the TIG electrode melts down.	TIG torch is connected to the (+) positive terminal.	Connected the TIG torch to the (-) negative terminal.

Tungsten electrode is quickly consumed	Wrong welding output polarity in DC welding	Change the polarity.
	Insufficient gas flow	Adjust the gas flow rate between 10 to 25 CFH
	Incorrect tungsten size for the current application	Change tungsten size.
	Oxidation of tungsten after welding	Keep the torch gas valve open until the tungsten electrode is cold.
	Utilization of gases containing CO2 or oxygen	Change gas to pure argon
Tungsten has contaminated the weld pool	Tungsten melting into weld puddle	Change electrode to thoriated, Ceriated, or Lanthanated tungsten
		Decrease welding current
		Increase tungsten diameter
	Tungsten in contact with the weld puddle	Prevent tungsten from coming into touch with the weld puddle. Raise the torch so that the tungsten is no longer touching the work piece.

Porosity in the weld pool and/or improper weld bead color in the TIG welding mode	Improper gas flow rate	Adjust the argon gas flow rate between 10 to 25 CFH
	Torch or hose fittings that are loose	Tighten all torch and hose fittings.
	A faulty gas hose or a loose connection	Replace the faulty gas hose and inspect the connections for leaks, cuts, or pin holes.
	Base metal condensation	Warm up the workpiece with hot air or just Argon gas for a few minutes. Remove any moisture from the base metal before welding. Metals that have been stored in cold temperatures condense when exposed to warm and humid temperatures.
	Not matching or contaminated filler metal	Inspect the filler metal type. Clean the filler metal of any grease, oil, or moisture.
	Contaminated base metal	Clean up the base metal to remove any paint, grease, oil, or dirt, including rust, oxide, and mill scale.
Smoke and/or yellow powder on the gas cup or tungsten discolor in the TIG welding mode	Insufficient gas flow rate	Increase the gas flow rate and adjust it between 10 to 25 CFH
	Incorrect shielding gas or mixture	Inspect the gas type; it must be argon
	Tungsten in contact with the weld puddle	Prevent tungsten from coming into touch with the weld puddle. Raise the torch so that the tungsten is no longer touching the work piece.
	Incorrect tungsten or cup size.	Use tungsten and cup sizes that are appropriate in accordance with the joint being welded.
	Insufficient post flow	Keep the torch gas valve open until the tungsten electrode is cold.

Unstable AC Welding Arc in the TIG welding mode	Incorrect shielding gas or mixture	Inspect the gas type; it must be argon
	Contaminated base metal	Clean up the base metal to remove any paint, grease, oil, or dirt, including rust, oxide, and mill scale.
	Contaminated tungsten	Repoint the tungsten after cutting 1/2 inch of contaminated tungsten.
	Improper arc length	Modify the arc length to 0.1in. (2-3mm)
	Unprepared tungsten electrode tip	Use appropriately prepared tungsten.
	Excessive arc rectification or balance control setting.	Insert filler metal. Speed up the welding process. Increase balance control to approach maximal penetration.
	Frosted light grey look of the tungsten electrode end.	Repoint the tungsten after cutting 1/2 inch of contaminated tungsten.
	Insufficient gas flow rate	Increase the gas flow rate and adjust it between 10 to 25 CFH

4.2 Wiring Diagram



Drawn by	Approved by	Checked by	Welding Diagram
Stick Welder 162D	10/11	10/11	10/11

Section 5 Spare parts List, (STICKWELDER 162 D)

Attention: ALL TIMES USE ORIGINAL AND THE RECOMMENDED SPARE PART

No.	Name		Unit	Qty	Part No.
1	Knob & Cap, Black		pcs	1	CGB1880147
2	Double position Rocker Switch 6 leg		pcs	1	CGB0780237
3	Double position Rocker Switch 3 leg		pcs	1	CGB0780236
4	Adapter Plug 230-120V		pcs	1	CGA9980060
5	Gland PG21 black		pcs	1	CGA6492584
6	Input cable 3/C, 10AWG (5.3mm2) - UL		meter	3	CWSOOW10-3
7	Power Plugs 30/50 A		pcs	1	CGB0780465
8	Cam Switch ULW26-32 A 2Stage		pcs	1	CGB0780069
9	shoulder strap		pcs	1	CGA9980052
10	Handle 240mm		pcs	1	CGA7190463

11	Earth Clamp, 250A		pcs	1	TGJ0580131
12	Male Cable Plug 35-50		pcs	1	CWMC3570
13	Welding connector Female Fix 35-70 Type		pcs	1	CWFF3570
14	Electrode Holder EH 301		pcs	1	TGJ0180094
15	welding cable 4 AWG (20 mm2)		meter	3	CGBAWG4-19
16	machine feet Left		pcs	2	CGA6380194
17	machine feet Right		pcs	2	CGA6380195

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