



TIGACDC200GD



Operator's Manual

LINLONG LIMITED
www.weldpro.com




Introduction

Thank you for purchasing the Weldpro TIGACDC200GD welder. This welder is designed and built using the very best quality components to afford a great welding experience and great performance.

This manual contains the description of the hardware and the operating instructions of the equipment. For your safety and that of others, please read this manual carefully.

Attention

Pay attention to the words following the signs below.

Sign	Description
 DANGER	The word following this sign means that there is great potential danger, which may cause a major accident, damage or even death, if the instructions are not followed.
 WARNING	The word following this sign means that there is some potential danger, which may cause bodily injury or property damage, if the instructions are not followed.
 ATTENTION	The word following this sign means that there is potential risk, which may cause malfunctions and/or breakdowns, if the instructions are not followed.

Edition

The contents of this manual are updated regularly in order to include all product updates. The manual is to be used solely as a user's guide, except where indicated otherwise. No warranties of any kind, whether expressed or implied are made in relation to the information, descriptions, suggestions or any other content of the manual.

The images of this manual are for reference only. If there is any inconsistency between the image and the actual product, the actual product will govern.

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SAFETY WARNING

The safety notes contained in this manual are to ensure the correct use of the machinery and to prevent injury to the user or other persons.

The welding machine was designed and manufactured with safety in mind. Please refer to the safety warning contained in the manual to avoid accidents.

The incorrect use of the equipment may cause different injuries, as described below. Please read the user manual carefully to avoid these kind of injuries.

Sign	Description
	<ul style="list-style-type: none"> Any contact with the electric parts may cause fatal electric shock or burns.
	<ul style="list-style-type: none"> The gases and fumes are harmful to health. Operation in confined spaces may cause simple asphyxiation.
	<ul style="list-style-type: none"> Sparks and hot workpieces after welding may cause fire. Incorrectly connected cables may cause fire. The incomplete connection of the workpiece side circuit may cause fire. Never weld in the presence of tinder, as it may cause explosion. Never weld airtight containers such as valves, pipes etc., as they may break.
	<ul style="list-style-type: none"> The arc ray may cause eye inflammation and / or skin burns. Sparks and residue may cause eye and skin burns.
	<ul style="list-style-type: none"> Toppling the gas cylinder may cause physical injuries. The misuse of gas cylinders may lead to high-pressure gas leakage and may cause personal injuries.
	<ul style="list-style-type: none"> Keep fingers, hair, clothes etc. away from moving parts, such as the fan.
	<ul style="list-style-type: none"> Wire shooting out of the welding torch may stab your eyes, face or other exposed body parts.
	<ul style="list-style-type: none"> Never stand in front of or under the suspension hook, as it may fail and cause personal injuries.



DANGER Please observe the following rules to avoid serious accidents

- Never use the equipment for purposes other than welding.
- Follow related regulations regarding the characteristics of the power source, choice of place, usage of high-pressure gas, storage, configuration, safe-keeping of the workpiece after welding and disposal of waste, etc.
- Non-essential personnel shall not enter the welding area.
- Persons using pacemaker are not allowed near the welding machine or welding area without doctor's permission. The magnetism created by energizing the welding machine may have a negative effect on the pacemaker.
- The installation, operation, inspection and maintenance of the equipment must be carried out by authorized personnel.
- For your safety, you must understand the contents of the user's manual.



DANGER Please observe the following rules to avoid electric shock

- Keep away from any electrical parts.
- The machine and workpiece shall be grounded by authorized personnel.
- Cut off the power before installation or inspection, and restart it 5 minutes after finishing that activity. The capacitor is a rechargeable device. Please ensure it has no voltage before starting again even if the power source is cut off.
- Never use wire with inadequate wire gauge, damaged insulation sleeve or exposed conductor.
- Do ensure the proper isolation of wire connections.
- Never use the device when the enclosure is removed.
- Never use broken or wet insulation gloves.
- Welding screens must be used when working in overhead position.
- Check and maintain the equipment regularly. Do not use the equipment until the faulty parts are fixed.
- Turn off the power when not in use.
- Follow the related national and local standards and regulations when using the AC welding machine in confined spaces or overhead position.



DANGER Please observe the following instructions to avoid fire, explosions, etc.

- Remove combustible materials from the welding area.
- Keep away from any combustible materials while welding.
- After welding, keep the hot workpiece away from flammable gases.
- Remove all combustible materials when welding in a patio, on the ground or on a wall.
- The work lead of the base metal should be as close to the welding place as possible.
- Never weld installations with gas pipes or airtight valves.
- Keep a fire extinguisher close to the welding area to prevent fire.



WARNING The gases and fumes are hazardous to health, please wear personal protective equipment according to regulations

- Wear exhaust equipment and respiratory protective equipment to prevent gas poisoning or choke.
- Use suggested exhaust ventilation system and respiratory protective equipment to prevent injuries or poisoning by gas or dust.
- To prevent oxygen deficiency, air out the gas filled space full of CO₂ and argon on the bottom, when operating in trunks, boilers, cabins, etc.
- Request a supervisor's inspection when operating in confined spaces. Air the room and wear respiratory protective equipment.
- Never operate in degreasing, washing or spraying spaces.
- Use respiratory protective equipment while welding armored steel, as this produces poisonous dust and gases.



WARNING The welding arc, sparks, residues and noise are hazardous to health, please wear personal protective equipment

- Eye protection against welding arc is recommended when welding or supervising welding.
- Please wear safety goggles.
- Welder's gloves, welder's goggles, long sleeve clothes, leather apron, and other standard personal protective equipment must be worn during the welding operation.
- A screen to protect other people against the welding arc must be set in the welding area.



WARNING Please observe the following notes to avoid toppling or breaking the gas cylinder

- Use the gas cylinder correctly.
- Use the built-in or recommended gas regulator.
- Read the manual of the gas regulator carefully before using it, and pay attention to the safety notes.
- Secure the gas cylinder with appropriate holder and other related parts.
- Never expose the cylinder to high temperature or direct sunlight.
- Keep your face away from the gas cylinder's valve when opening it.
- Put on the cap when the cylinder is not in use.
- Never put the welding torch on the gas cylinder. The electrode must not touch the gas cylinder.



WARNING Any contact with the rotating parts will cause injury. Please note the following:

- Never use the machine when the enclosure is off.
- The installation, operation, inspection and maintenance of the equipment must be carried out by authorized personnel.
- Keep fingers, hair, clothes etc. away from moving parts, such as the fan.



WARNING The end of the wire may cause personal injuries. Please note the following:

- Never look into the conduction hole when checking if the wire feed is normal, as wire shooting out may stab your eyes and face.
- Keep your eyes, face or other uncovered body parts away from the end of the welding torch when feeding the wire manually or when pressing the switch.



ATTENTION For better work efficiency and power source maintenance, please note the following:

- Take precautions to prevent toppling.
- Never use welding equipment to unfreeze a pipe.
- Lift the power source from side when using a forklift to avoid toppling.
- When using the crane to lift, tie the rope to the ears with an angle smaller than 15° respect to the vertical direction.
- When lifting the welding machine equipped with gas cylinder and wire feeder, disconnect it from the power source and ensure that the machine is in horizontal position. Secure the gas cylinder with a belt or chain when moving it to avoid personal injuries.
- Ensure stability and insulation when lifting the wire feeder by the suspension hook for welding.



ATTENTION Pay attention to electromagnetic interference

- You may need to take extra preventive measures when the equipment is used in a particular location.
- Before installation, assess the potential issues with the electromagnetism in the welding environment as follows:
 - a) Proximity of upper and lower parts of the welding equipment to other nearby power cables, control cables, signal cables and phone cables.
 - b) Wireless radiation-emitting products such as devices emitting and receiving TV signals.
 - c) Computers and other control equipment.
 - d) Protection equipment, etc. equipment to supervise industrial equipment.
 - e) Health of personnel affected, such as personnel using pacemaker or audiphones.
 - f) Instruments for adjusting and measuring instruments.
 - g) Anti-disturb capability of other equipment used. Users should ensure the compatibility of the equipment with the environment, which may require extra preventive measures.
 - h) Practical conditions of the welding and other activities.
- Users should observe the following to decrease radiation interference.
 - a) Connect the welding equipment to the power supply lines by the power supply cable.
 - b) Maintain the welding equipment regularly.
 - c) The cables should be short enough to stay close to each other and to the ground.
 - d) Ensure the safety of all the metal parts to be welded and other parts nearby.
 - e) The workpiece should be properly grounded.
 - f) Shield or protect all other cables and equipment to minimize the effect of possible disturbances. In some special cases, the welding equipment may need to be completely shielded.
- Users are responsible for the interference due to welding.

PRODUCT DESCRIPTION

Congratulations on your purchase. Please take a few moments to completely read through this manual. Doing so will make your welding experience much more pleasant and understandable. And remember, should you need, seek or desire further understanding of welding principals and practices, the internet is your friend! Take advantage of today's information highway. The internet holds a wealth of information and knowledge. Enjoy!

This welder is an inverter based machine the utilizes the most advanced inverter technology. IGBT circuits along with PWM technology along with the greatly reduced size and weight, enable this welder to not only be more efficient by 30%, but also as a result of the electronic circuitry, enables this welding machine to afford the user far more and better range of settings for each specific weld. The ACDCTIG200 also has a 40% duty cycle at full amperage which, explained another way, allows for a full four minutes of uninterrupted continuous welding at full amperage within a ten minute period. Far more capable than any user would dream of attempting.

The ACDCTIG200 is capable of welding with either AC or DC current. This allows the user to choose DC current welding for carbon steel, stainless steel, copper and many other metals, while also being equipped with the ability to switch over to AC welding used in welding aluminum and aluminum alloys. In addition to its advanced TIG welding functions, the ACDCTIG200 is also a very good MMA / Stick welder.

This AC/DC TIG welder adopts our company's exclusive High Frequency technology as well as a pure square wave output, excellent arc force and a wide range of balance control for aluminum cleaning.

This AC/DC TIG welder also offers a feature not always found in this price range. That is a completely dedicated foot control with no interim current control on the foot pedal. This design is a much sought after feature of advanced welders who dislike greatly the idea of inadvertently changing amperage settings while readjusting the foot pedal with their feet while changing their welding positions. This is no longer a concern with the Weldpro ACDCTIG200 since all amperage control settings are made from the console on the machines face.

Thank you for purchasing our product. We are sure you will soon realize the great value and quality that went into the design of this welder as well as all of the advanced features and functions.

TWO YEAR WARRANTY

WELDPRO Warranty and Return Terms Welders and Plasma Cutters

All Weldpro welders and plasma cutters are covered under the following specific terms of warranty. All welders and plasma cutters are warranted to the original purchaser only, when purchased through an authorized seller of Weldpro products for a period of two (2) years from the date of purchase, to be free of manufacturers defect or failure. Proof of purchase and date of purchase paperwork will be required by Weldpro at the time of the claim.

Extended warranty coverage may be available for Weldpro welders and plasma cutters at an additional cost. Always check with Weldpro.

The Weldpro warranty is limited to defects, malfunctions or failure of the equipment to operate properly based specifically and solely from manufacturer defects. Any malfunctions from improper use, lack of maintenance, incorrect or insufficient source supply power to the units, shipping damage, and similar failures not related to specific manufacturers defect will not be honored.

Weldpro will not be responsible in the event of a product failure, for lost time in operation or use of said product. Rather it will honor solely the product itself only.

Further, the warranty will cover the repair or replacement of the unit in question for the term of the warranty with either a new or a refurbished unit, or in some cases replacement parts of the same model, at the discretion of Weldpro. As a term of the Weldpro warranty, if and when applicable, individual parts are needed, they may be supplied to the customer rather than replacing the entire unit. Situations like this may include, but are not limited to items such as foot pedals, torches, mig wire rollers, feed spools, or any other item Weldpro deems more practical to supply individually.

Weldpro will provide free shipping return of the damaged product due to manufacturers defect for the first 30 days of the warranty term if shipping is within the lower 48 United States. Customers outside this area must check with Weldpro for further shipping instructions. Failures after the initial 30-day period, and due to manufacturers defect, may not enjoy free return shipping.

If it is determined when the product is returned to Weldpro that there is no malfunction, or that the assumed malfunction by the customer was user error, Weldpro may request a shipping fee refund prior to the return of the item to the customer.

Prior to returning any item thought to be malfunctioning or damaged due to manufacturers defect, customers are required to contact Weldpro first, to explain the failure and to obtain a Return Merchandise Authorization number, or the item may not be covered under the terms of this warranty.

Weldpro ships in the USA from third party shippers such as, but not limited to UPS, FedEx, and the USPS. Weldpro is not responsible for damage that occurs during shipping. It is the customer's responsibility to check the item at the time of delivery. If a customer receives an item damaged, they must immediately contact both Weldpro and the shipper to document and report the damage as soon as possible, and in no circumstances later than 48 hours after delivery. All shipping and delivery dates are tracked for arrival. Weldpro may require photo image of the damage at their discretion.

Returned items within the first 30 days. Undamaged items in good working condition may be returned within the first 30 days of purchase. In such a case, these items are not eligible for the free return shipping policy associated with items that have manufacturers defects. A restocking fee will be charged for said return of up to 25% on any item returned with a valid RMA number that are undamaged and not covered or subject under the terms of this warranty. The amount of the restocking fee is solely at the discretion of Weldpro and based on the condition of the returned item and its accessory parts and packaging. Further, should Weldpro receive an item in good working condition that has sustained physical damage, Weldpro has the right to refuse acceptance of said returned item completely, and the customer will be responsible for return shipping of the product to them.

Weldpro does not imply or suggest any interpretation of the above warranty beyond what is stated in this print of its terms.

Weldpro is not responsible for injury due to improper use of the equipment or failure to heed all of the safety precautions associated with the dangers of welding or cutting metals.

The terms and conditions of the Weldpro warranty are subject to change without notice. Be sure to check the terms of the Weldpro warranty prior to your purchase.

TECHNICAL PARAMETERS

Model Parameters	TIGACDC200GD	
Supply voltage (V)	AC 115V±15%	AC 230V±15%
Frequency (Hz)	60	
Rated input current (A)	TIG: 26. 4 MMA: 44.3	TIG: 26. 8 MMA: 36. 5
No-load voltage (V)	59	
Output current (A)	TIG: 120 MMA: 120	TIG: 200 MMA: 180
Output voltage (V)	TIG: 14.8 MMA: 24.8	TIG: 18 MMA: 27.2
Arcing way	HF	
Pre-flow (S)	0.1-1	
Current descending (S)	0-25	
Post flow (s)	0-15	
Duty cycle (%)	40	
No-load loss (W)	40	
Efficiency (%)	80	
Power factor	0.73	
Insulation class	F	
Housing protection class	Ip21	
Weight (lb)	31.3	
Dimensions (in)	17.6x7.9x16	

INSTALLATION

Component setup of this welding machine is a simple, straight forward process. This welder is fitted with a Power Voltage Compensator that takes into consideration a $\pm 15\%$ of the rated voltage for this machine. However it is most important to be sure your power supply to this welding is of the proper voltage and is in good condition with clean connections, proper wiring and the correct circuit breakers. It is strongly suggested that if longer leads are used for grounding that larger wire gauge is used to reduce the possibility of line loss due to resistance.

Be sure when you are setting up your welding machine that the vents and fans are not obstructed and are allowed to flow air freely.

The required Argon gas cylinder should only be connected to the welder through a proper regulator / flowmeter. The working range of the gas flow (depending on the work being done) is approximately 20 cubic feet per hour (CFH) or 9.5 litres per minute (LPM). All press on connection hoses should be further secured with a clamp to prevent inadvertent disconnects. Snug connections to both the regulator, argon tank and welding machine. Over tightening any of these connections can damage the equipment.

The tungsten electrode needs to be properly shaped to a point. When doing so it is recommended you use a dedicated grinding wheel. Preferably a diamond coated wheel inexpensive and effective. Also note that while grinding the tungsten to a point, the grinding marks should run longitudinally with the length of the tungsten rather than across the width of the tungsten to avoid arc wander while the arc is finding ground as it welds.

Connecting the electrode and work (also called ground) cables correctly to your welder. Lets take a moment here to clarify what can be a confusing subject to new users. Generically, when welding, the user has a choice of polarity connections. What is correct for one type of welding may be totally wrong for another type of welding. So, lets explain what is happening and which way to connect for which type of welding.

Electric current flows from negative to positive. When TIG welding the polarity settings should be **Straight Polarity Electrode Negative!** That means that the Work clamp (aka ground) is connected to the Plus (+) Dinse connector, and not the negative as some consider normal. Of course with the TIG function, the TIG electrode cable is screwed into its own dedicated threaded receptacle, but rest assured this receptacle is the negative connector. When connecting the TIG Torch, a gentle snug connection is all that is needed. **DO NOT OVER TIGHTED THE BRASS CONNECTOR.**

When using the ACDCTIG200 in the MMA or Stick mode, the connection to the front of the welding machine is just the opposite! Stick or MMA welding is done with **Reverse Polarity Electrode Positive!** That means when you are going to stick weld with the ACDCTIG200 you must connect your electrode holder (the one that holds your welding rod) to the **Positive Dinse Connector** and you connect your work clamp (aka ground) to the **Negative Dinse Connector**.

Connecting the foot pedal or the TIG trigger button to the face of the welder for TIG Mode. When using the foot pedal which is the most common way to TIG weld, connect the foot pedal to the push pin connector on the front of the welder. **NOTE: Be sure the 2T function is the active setting on the face of the welder when using the foot pedal.**

Connecting the torch trigger switch to the welder requires disconnecting the foot pedal plug, and instead plugging in the round small push connector plug which is attached to the TIG Torch cable in its place. When using the TIG Trigger, you can choose between 2T or 4T function. While the 2T function is the most common choice for TIG Trigger button use, the 4T may be an option you wish to explore.

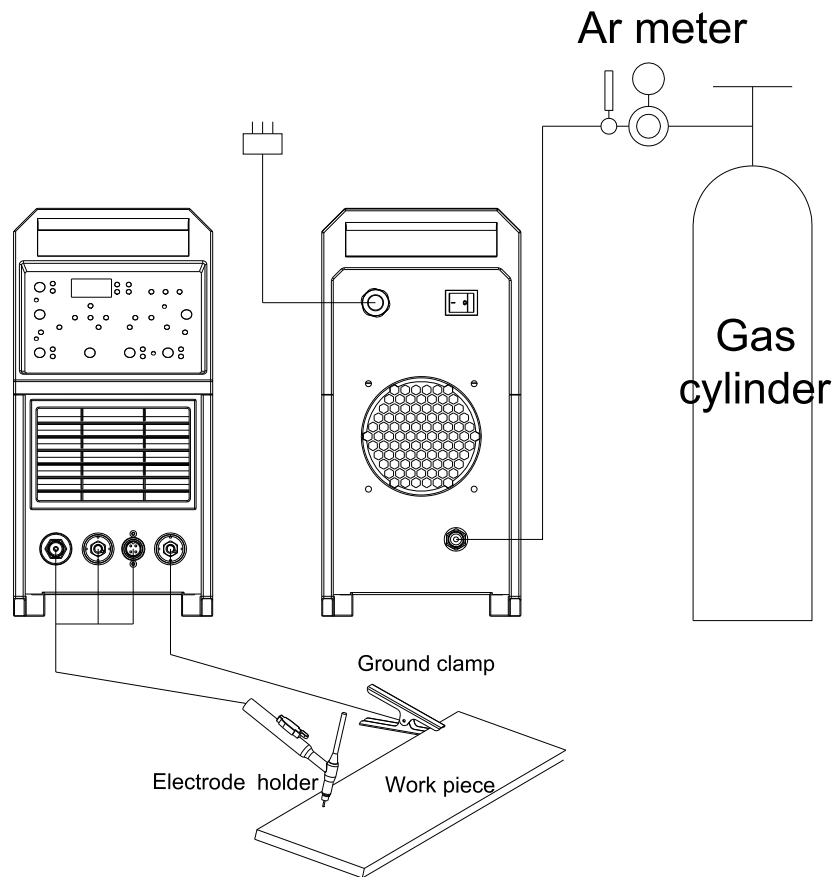
Simply put, the 2T function require 2 Trigger button movements to start and end a weld. 1 push to start the weld, and 2 release to end the weld.

The 4T function requires 4 Trigger button movements to start and end a weld. 1 push to start the weld, 2 release to maintain the weld and continue, 3 push the trigger button once again as the first step to ending the weld, and finally 4, release the button to stop the weld.

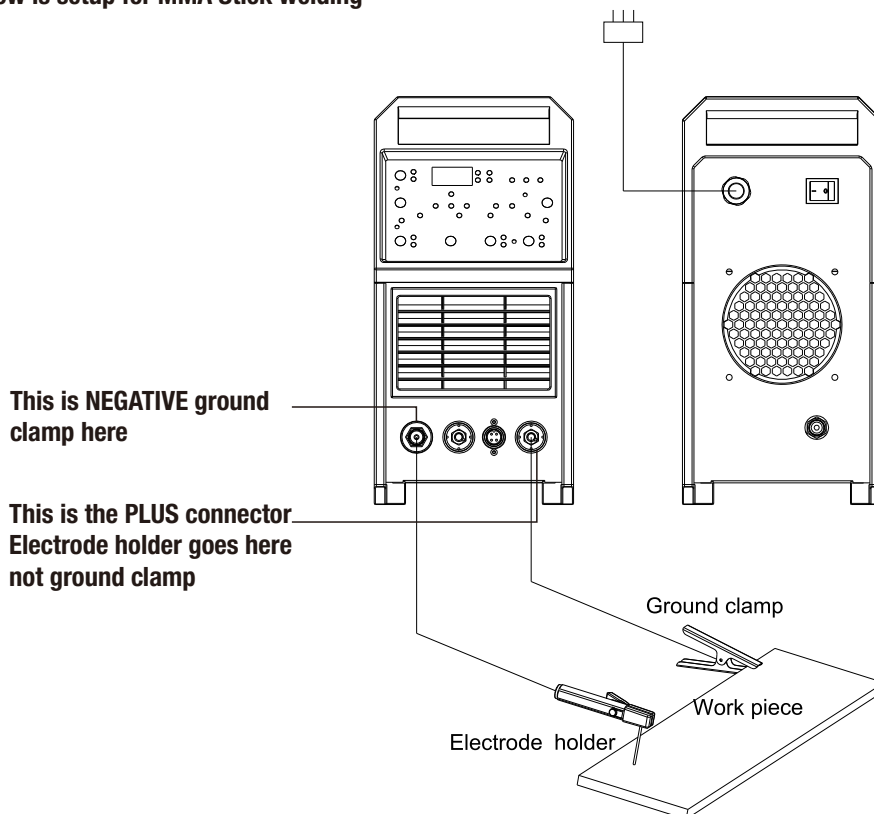
Note : When switching between Trigger Button and Foot Control, it may be necessary to “reindex” the amperage setting. This simply means to adjust and reset the amperage knob on the face of the welder, even if the same current setting is being used in either mode. Reindexing tells the machine to recognize the newly attached device, be it the button or foot control.

After completing the above steps you are ready to weld. Be sure to follow all safety procedures. One last note here. When opening your Argon tank, the valve on the Argon tank is designed to seat and seal the Argon from leaking from the tank in the fully closed or fully open positions. Do not merely crack open the Argon tank valve. Doing so may result in losing valuable and costly Argon gas to the outside air for no good reason, so seat your Argon valve full open to use and full closed for storage.

- **Installation diagram**



- **Blow is setup for MMA Stick welding**



OPERATION

The ACDCTIG200 welder front panel is designed to be intuitive and easy to use while offering a wide variety of advanced function settings. As a result of the many options the user has at his or her disposal, the Main Control Knob is designed to be a “multi-function” knob capable of setting many parameters.

At the top of the front panel and to the immediate right side of the digital numeric display you will find four (4) LED lights, each of which designate the current mode that the welder is in. Regardless of which mode the welder is currently in, the “Multi-Function” knob controls all the settings of those modes. The four (4) LED lights represent the following values for adjustment. From left to right and from top to bottom, those modes are.... A= Amps, %= percent, S= seconds, HZ= Hertz. As you touch the menu buttons on either side of the welder’s face, you will toggle along the graph line from left to right or right to left among the various options. When doing so, the LED mode lights will change and light up to represent the current numeric display value settings.

Below is a brief description of what each TIG function is used for.

Broken up into three horizontal rows, the top row from left to right represents 1. Welding mode MMA (which is stick welding) or TIG which is Tungsten Inert Gas welding mode. Next is the digital display panel explained above. Next, the O.C light which designates an over temp condition which requires waiting and possibly rebooting the system. Lastly, the REM remote light lights with use of the foot pedal.

Along the middle / center row of functions you will find a selection of all the advanced features of the TIGACDC200GD machine. At each end of the center row you will find a menu button. Depending on how far along the line of options you are, you can click either menu button to proceed left to right or right to left.

Some of the functions are not necessary when using the foot pedal controller because the user has complete control some of these options with that foot pedal. These functions are as follows, and will be explained in further detail later. START AMPS, UP SLOPE, DOWN SLOPE, END AMPS. When using the foot pedal it is recommended given the choice to lower these values to zero since the user can use the foot pedal rheostat to control every one of those settings in real time while welding.

1. Preflow is the time in seconds that Argon gas will flow prior the TIG arc being initiated. The purpose of preflow is to insure the area to be welded is protected from the outside environment and air before actual welding begins. This prevents contamination of the weld zone.

When using the foot pedal, a tap of the pedal prior to positioning yourself for weld will help purge the Argon line if the welder has been idle for any period of time and if the TIG torch is directed at the work area, it will shield that are from the environment prior to welding.

When using the TIG Torch trigger, the user cannot directly modulate current as they can with the foot pedal, although techniques are available to simulate this given some practice. They will also be discussed. This is where the Preflow, Start Amp and Up Slope features come in very handy.

When initiating the weld often, if not always, the user wants to gently “ramp up” to full current rather than shock the work instantly. The Start Amp feature allows the user to set the amperage at the initial start of the arc. The Up Slope function allows the user to set the time period in seconds it will take the current to reach full amperage. The “Full Amperage” will be the Peak Amps. Conversely, when the weld is being terminated (while using the TIG Trigger Button) the Down Slope, End Amps, and Post Flow functions are able to be set to finish the weld.

The TIGACDC200GD welder has a very adjustable Pulse feature which can be adjusted multiple ways to offer an almost infinite range of variables.

Pulse is just as it implies, a pulsing of amperage power while welding.

Pulse Frequency is the number of times per second amperage pulses will occur. The range is 0.5 to 200 HZ, or times per second. Peak time on allows the user to set the time within that second that the amperage will be at the dialed in peak setting (highest amperage). Base amps is the measure of what the lesser amperage will be during the pulse, and is represented in a percentage of whatever the user has chosen for the peak amps.

AC Welding

When welding carbon steel using the TIG function, the welder's polarity is set to DC current, Straight Polarity Electrode Negative. The current flows in one direction only. Doing so directs the heat / current, from the tungsten into the metal to be welded. This polarity helps keep the TIG tungsten cool, and heats the work.

Welding Aluminum presents an entirely different set of problems that welding with DC Straight Polarity does not do well with. Aluminum forms a very thin layer / skin over itself called aluminum oxide. Interestingly, aluminum oxide melts at about 3500 degrees F. while the actual aluminum itself we want to weld, melts at a much lower 1500 degrees F. So attempting to weld with DC current flowing from the tungsten to the work metal, the aluminum melts UNDER the oxide coating layer without actually melting the aluminum oxide. This results in an what looks like trying to weld through a glob of mud, or even a mercury like consistency covering. This does not make for a good weld.

The solution, while a bit complicated, provides excellent results. Choosing DC Reverse Polarity will create a current flow from the metal work back up into the TIG Torch tungsten, bursting through the aluminum oxide layer very well, but ... we cannot choose to weld with DC Reverse Polarity where the current flows from the metal work into the Tungsten, because we would quickly melt our TIG Torch, tungsten, and collets. The solution is to weld using AC or Alternating Current. Current that switches back and forth between DC Electrode Negative and DC Electrode Positive, back and forth many times per second.

While it is the DC Electrode Positive cycle that cleans up the aluminum oxide, it is also the cycle that can melt away our tungsten, so we have to carefully meter the amount of time our welding current spends in the DC Electrode Positive phase.

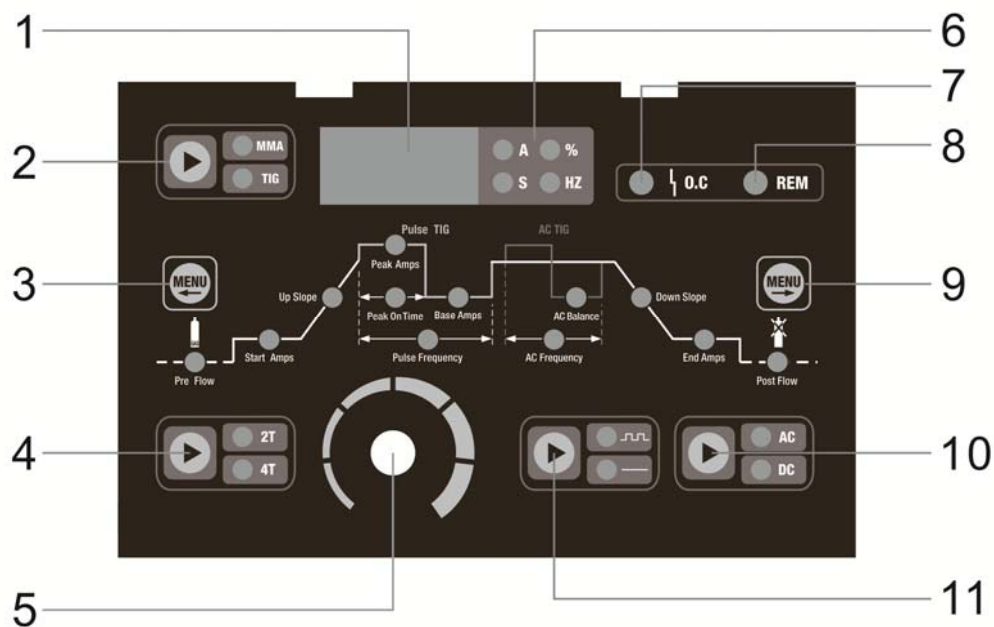
AC Balance feature allows for the adjustment of time during the alternating current cycle that the current spends in electrode positive. The least amount of time in this cycle will provide the best cooling of our TIG tungsten. This is why cleaning the aluminum to be welded prior to welding is so important. It allows us to keep our current in the straight polarity electrode negative cycle longer. An initial setting of 30 % to 35% is recommended to help keep the tungsten cool.

AC Frequency setting is a setting that allows for the adjustment of how many times per second your chosen AC balance setting cycles. It is adjustable from 0.5 to 200 HZ (times per second).

The lower horizontal line of controls is first your choice of 2T or 4T. **(Always select 2T when using the foot pedal)** Second, the main control knob. It has the ability to vary by 1 increment or, if pushed in, 10 increments at a time. Next is the toggle between pulse, and normal (no pulse) and lastly is the toggle between AC and DC current.

Below is an illustrated explanation of the functions

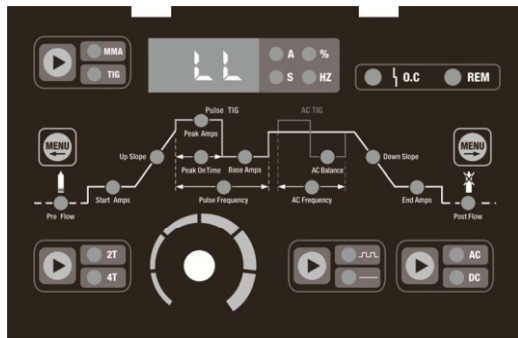
1 Panel Layout



1	Digital Display Meter	7	Abnormal Indicator Light
2	STICK/TIG Selector Button	8	Remote Control Indicator Light
3	Move Left Selector Menu Button	9	Move Right Selector Menu Button
4	2T/4T Selector Button	10	AC/DC Selector Button
5	Parameter Adjustment Knob (Pressed in the knob tuning parameters is for coarse adjustment, not pressed in is for fine tuning.)	11	Pulse /No pulse Button
6	Unit of parameter Indicator Light	12	

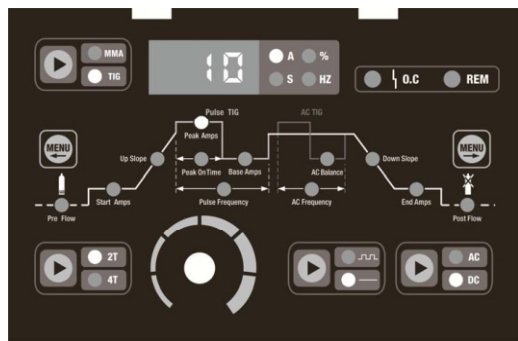
The panel picture above is for reference only. If any difference with the real machine, please follow with the real machine.

2 Operation interface specification



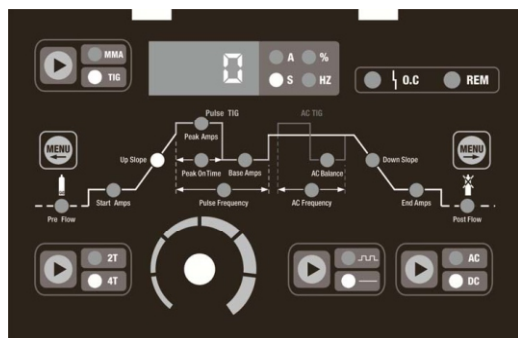
Picture 2

The picture 2 shows the digital display meter reads “LL” when the machine starts working.



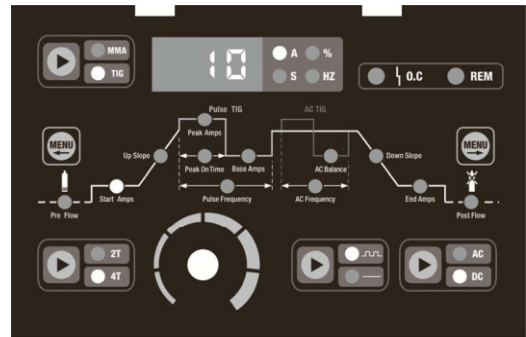
Picture 3

The picture 3 shows when under TIG mode, the Peak Amps indicator light on, adjust the parameter knob, meter reads 5-200A adjustable, press the Move Left/Right Selector Menu Button to choose other parameter settings.



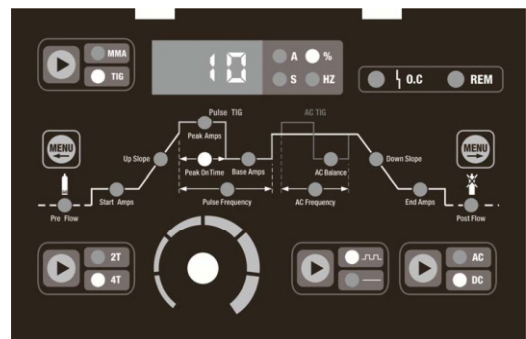
Picture 4

The picture 4 shows when under 4T mode, press the Move Left Selector Menu Button to Up Slope indicator light on, adjust the parameter knob, the meter reads 0-10s adjustable.



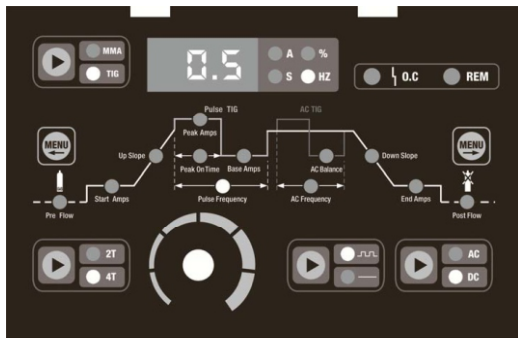
Picture 5

The picture 5 shows press the Move Left Selector Menu Button to Start Amps indicator light on, adjust the parameter knob, the meter reads 5-200A adjustable.



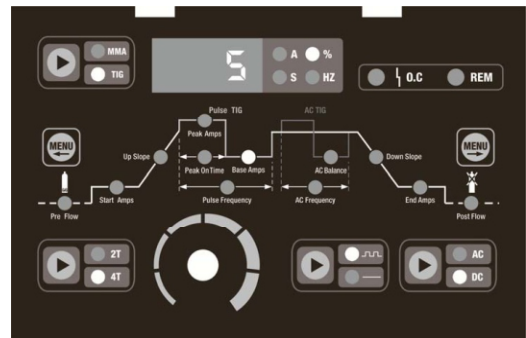
Picture 6

The picture 6 shows when under pulse mode, press the Move Right Selector Menu Button to Peak On Time indicator light on, adjust the parameter knob, the meter reads 10-90% adjustable.



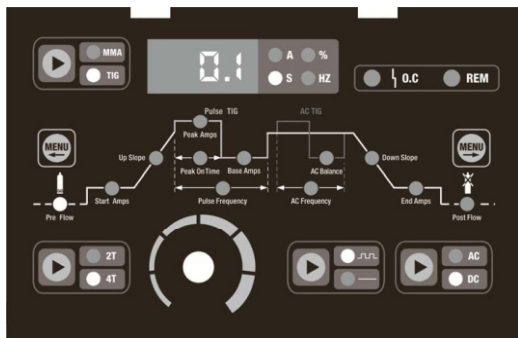
Picture 7

The picture 7 shows press the Move Right Selector Menu Button to Pulse Frequency indicator light on, adjust the parameter knob, the meter reads 0.5-200 HZ adjustable.



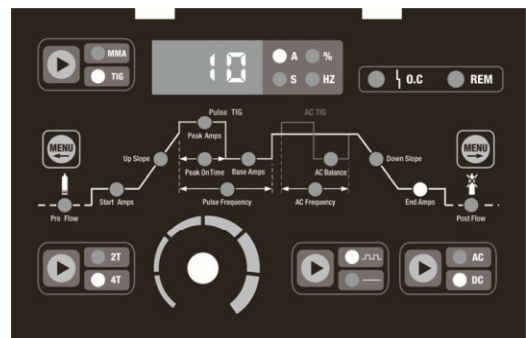
Picture 10

The picture 10 shows press the Move Right Selector Menu Button to Base Amps indicator light on, adjust the parameter knob, the meter reads 5-95% adjustable.



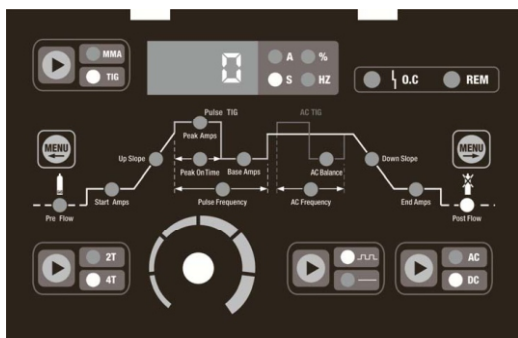
Picture 8

The picture 8 shows press the Move Left Selector Menu Button to Pre flow indicator light on, adjust the parameter knob, the meter reads 0.1-1S adjustable.



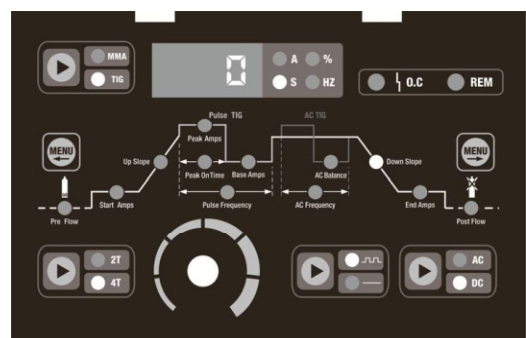
Picture 11

The picture 11 shows press the Move Right Selector Menu Button to End Amps indicator light on, adjust the parameter knob, the meter reads 5-200A adjustable.



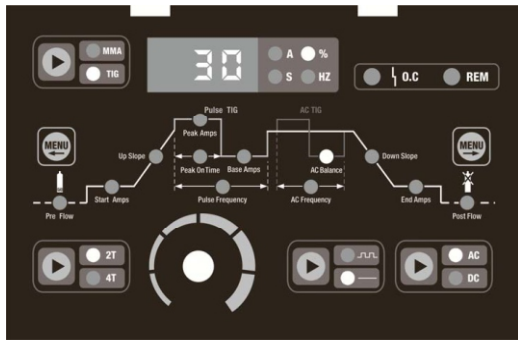
Picture 9

The picture 9 shows press the Move Right Selector Menu Button to Post flow indicator light on, adjust the parameter knob, the meter reads 0-15S adjustable.



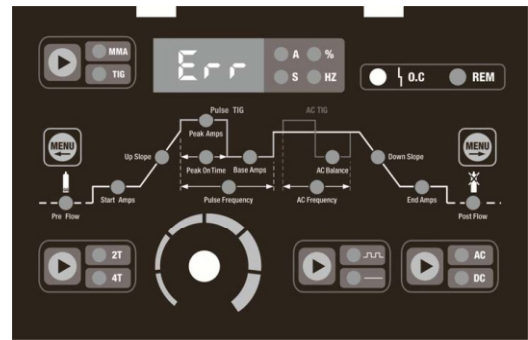
Picture 12

The picture 12 shows press the Move Right Selector Menu Button to Down Slope indicator light on, adjust the parameter knob, the meter reads 0-25S adjustable.



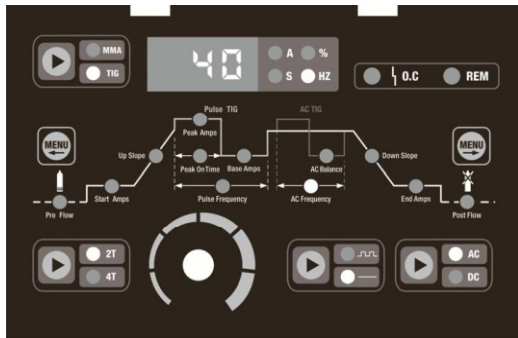
Picture 13

The picture 13 shows when choose under AC mode, press the Move Right Selector Menu Button to AC balance indicator light on, adjust the parameter knob, the meter reads 30-70% adjustable.



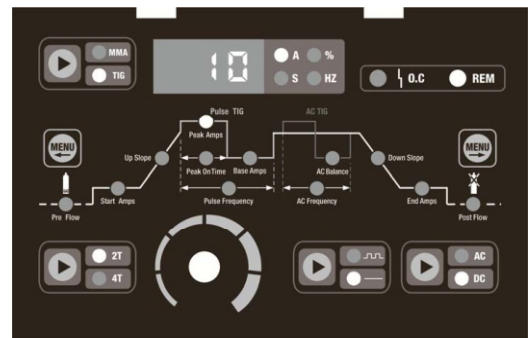
Picture 16

The picture 16 shows when the temperature is too high or abnormal the digital display show "Err", abnormal light O.C lights up, this time no output, will have to wait until the temperature reducing or restart the machine to return to normal.



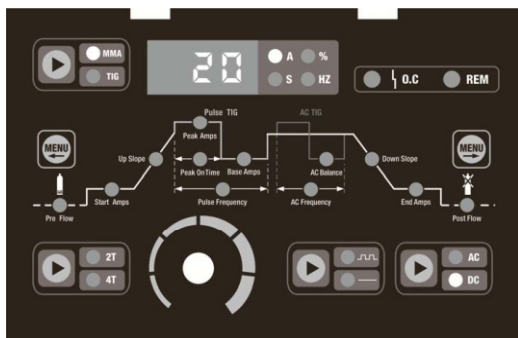
Picture 14

The picture 14 shows when choose under AC mode, press the Move Right Selector Menu Button to AC Frequency indicator light on, adjust the parameter knob, the meter reads 40-200HZ adjustable.



Picture 17

The picture 17 shows In TIG mode, when connecting the foot pedal to the machine, the REM indicator is on, the machine is converted to REM mode automatically. At this time: Start Amps, Peak Amps, End Amps these three current parameters are controlled by the foot pedal, other parameters are controlled by the knob on the front panel.



Picture 15

The picture 15 shows when choose under MMA mode, adjust the parameter knob, the meter reads 20-180A adjustable, only AC/DC mode can be selected, other buttons can't be used.

INSTRUCTION NOTES

1 Operation environment

- 1 Welding operation should be carried out in a relatively dry environment with air humidity usually less than 90%.
- 2 Ambient temperature should be kept between -10C ~40C.
- 3 Welding in the sun or rain should be avoided and water or rainwater should never be seeped into the welder interior.
- 4 Welding in the dusty area or under a corrosive gas environment should be avoided.
- 5 Gas protection welding operation in an environment with strong air flow should be avoided.

2 Safety

In this welder over-voltage, over-current and overheat protection circuits have been installed beforehand. When the grid voltage, output current and machine temperature surpass the set standards, the machine will stop automatically. But excessive use (for example, when the voltage is too high) can still lead to the breakdown of the welder. So you have to pay attention to the following items:

1) Good ventilation!

This machine is a small type welder. In operation a high working current flows in and natural ventilation is unable to meet the welder's requirement for cooling. So a fan is fitted to effectively cool the welder to keep it work smoothly. Operators should make sure that the vent is not covered or plugged, the distance of the welder from its surrounding objects is not less than 0.3 m and good ventilation is kept all the time. All these are very important for better operation of the welder and longer service life of the welder.

2) No overload!

Operators should bear in mind that maximum permissible load current (relative to the selected load duration factor) be observed at any time and welding current should never surpass the maximum permissible load current. Over-current will shorten the service life of the welder remarkably and even burn it down.

3) No over-voltage!

Power voltage is shown in the main performance parameter table. In general, the voltage auto-compensation circuit in the welder will ensure the welding current remain within the permissible range. If power voltage surpasses the permissible value, the welder will be broken down. Operators should fully know this and adopt corresponding preventive measures.

- 4) Behind each welder there is a grounding screw with the grounding mark. Before operation the shell of the welder should be grounded reliably by a cable wire with a sectional area bigger than 6mm² so as to release static electricity or prevent any accident due to leakage.
- 5) If the welding machine exceeds the standard load duration factor in operation, it may probably go into a protective state suddenly and stop work, which indicates it has exceeded the standard load duration factor. Excessive heating triggers the temperature control switch and makes the welding machine stop operation. Under such circumstances you needn't turn off the power so that the cooling fan may work continuously for cooling. When the temperature drops to the standard range, welding may be restarted.

MAINTENANCE AND CHECK TROUBLE

1 Maintenance

- 1 Dust should be removed with dry and clean compressed air regularly. If the welder is used in a heavily polluted environment with dense smoke and polluted air, dust must be removed from the welder each month.
- 2 The pressure of compressed air should be reasonable so that damage is not done to small elements in the welder.
- 3 Regularly check the connection of electric circuit in the welder and make sure circuit be connected properly and joint is secured (especially inserted joint or element). If the cases of rusting or loosening are found, the rust layer or oxidized film should be removed with abrasive paper and then the joint should be connected again and tightened firmly.
- 4 Entry of water or steam into the interior of the welder should be avoided. If this condition occurs, the welder should undergo drying treatment. Then the welder is measured for insulation by a megohmmeter (including the area between connecting points and the areas between the connecting points and shell). Welding can go on only when evidence shows no abnormality.
- 5 If the welder is not to be used for a long time, it should be replaced in the original package and kept in a dry environment.

2 Check Fault

Phenomena enumerated here may have something to do with the parts, gas, environmental factors and power supply you use and efforts should be made in improving the environment to avoid occurrence of such cases.

A Black welding spot

——This shows the welding spot is oxidized without being protected effectively and you can make the following inspection :

1. Make sure that the valve of argon cylinder has been opened with sufficient pressure. As a rule, if the pressure within the cylinder is lower than 0.5MPa, then it is necessary to refill the cylinder.
2. Check if the argon flow-meter is turned on with sufficient flow. You can select different flow rates in light of varying welding current, but too small flow may lead to inadequate gas stiffness and thus failure to cover all the welded spots. We suggest argon flow should never be lower than 3l/min no matter how weak the current will be.
3. The easiest way to check gas delivery is to touch the nozzle of welding torch to see whether the gas passage of the welding torch is blocked.
4. Poor sealing of gas passage or lower gas purity will also give rise to welding quality trouble.
5. Strong air flow in the environment may also lead to deterioration of welding quality.

B Difficulty in arc starting with easy arc breaking :

1. Make sure that the tungsten electrode in use is of good quality as discharge ability of inferior tungsten electrode may fail the requirement;
2. Tungsten electrode without sharpening treatment is also unable to start arc and leads to unstable arc.

C Output current can't reach the rated value :

Deviation of power voltage from the rated value will lead to unconformity of output current value with the set value. When power voltage is lower than the rated value, maximum output current of the welder may also be lower than the rated value.

D Unstable current in the operation of the welder :

This may be attributed to the following factors:

1. Change in grid voltage;
2. Interference from the power grid or other power equipment.

E Severely burn of the tungsten needle

The duty cycle is adjusted too large, causing emission from the workpiece to the tungsten electrode for too long, resulting in severe heat of the tungsten needles.

F The oxide film can't be torn when welding aluminum:

1. the welding gear is selected wrong.
2. The duty cycle is adjusted too small;
3. The secondary inverter has field pipe damage.

G The abnormal pilot lamp is on:

1. The light is on when the welder work abnormally, please turn off the power switch and then reboot the machine, it can continue to use if it return to normal,
2. If the light is on repeatedly, please refer to the professional or the manufacturer for repair.

TROUBLESHOOTING

Faults	Resolvable Methods
1 Power indicator is not lit ,fan does not work and no welding output	<ol style="list-style-type: none">1 Power switch is out of work .2 Check if electrify wire net (which is connected to input cable)is in work.3 Check if input cable is out of circuit .
2 Lower indicator is lit ,fan does not work or revolve several circles ,no welding output	<ol style="list-style-type: none">1 Maybe connect wrong to 380V power cause machine is in protection circuit ,connect to 400V power and operate machine again .2 400V power is not stable,(input cable is too slender)or input cable is connected to electrify wire net cause machine is in protection circuit .Add the section of cable and tighten input connector firmly .Close machine 2-3 minutes then open it again.3 Cable is loosed from switch to power panel ,tighten them again .4 Open and close power switch constantly in short time cause machine is in protection circuit Close machine 2-3 minutes then open it again .5 Main circuit 24V relay of power panel is not close or has damaged .Check 24Vpower source and relay .If relay has damaged replace it with same model.

3 Fan is working ,indicator is not lit and sound of HF arc-striking can not be heard ,wiping welding can not strike arc.	<ol style="list-style-type: none"> 1 Positive and negative electrodes of VH-07 insert component voltage should be about DC310V from power panel to MOS board . (1) If circuit is broken and silicon bridge is poor contact . (2) If some of four high electrolytic(about 470UF/450V) of power panel capacitor is leaking . 2 There is a green indicator in auxiliary power of MOS board ,if it is not on ,auxiliary power is out of work .Check fault spot and connect with seller . 3 Check if connectors is poor contact . 4 Check control circuit and find out reasons or connect with seller. 5 Check if control cable of torch is broken.
4 Abnormal indicator is not on ,sound of HF arc-striking can be heard ,but there is no welding output .	<ol style="list-style-type: none"> 1 Check if torch cable is broken . 2 Check if grounding cable is broken or not connected to welding piece . 3 Output terminal of positive electrode or torch electrify is loosed from inter-machine .
5 Abnormal indicator is not lit ,sound of HF arc-striking can not be heard ,wiping welding can strike arc .	<ol style="list-style-type: none"> 1 Primary cable of arc-striking transformer is not connected to power panel firmly ,tighten it again. 2 Arc-striking tip is oxidized or too far ,give a good polish to it or change it is about 1 mm between arc-striking tip . 3 Switch(sticking/argon-arc welding) is damaged ,replace it . 4 Some of HF arc-striking circuit components is damage ,find out and replace it .
6 Abnormal indicator is lit but there is no welding output .	<ol style="list-style-type: none"> 1 Maybe it is overheated protection ,please close machine first ,then open the machine again after abnormal indicator is out . 2 Maybe it is overheated protection ,wait for 2-3 minutes (argon-arc welding does not has overheated protection function .) 3 Maybe inverter circuit is in fault ,please pull up the supply power plug of main transformer which is on MOS board (VH-07 insert which is near the fan)then open the machine again. (1) If abnormal indicator is still lit ,close machine and pull up supply power plug of HF arc-striking power source (which is near the VN-07 insert of fan),then open machine : a. If abnormal indicator is still lit ,some of fieldistor of MOS board is damaged ,find out and replace it with same model . b. If abnormal indicator is not lit , rise transformer of HF arc-striking circuit is damaged ,replace it . (2) If abnormal indicator is not lit , a. Maybe transformer of middle board is damage ,measure inductance volume and Q volume of main transformer by inductance bridge($L=0.9-1.6\text{mH}$ $Q>35$) .If volume is too low ,please replace it . b. Maybe secondary rectifier tube of transformer is damaged ,find out faults and replace rectifier tube with same model . 4 Maybe feedback circuit is broken .
7 When welding aluminum, can not break oxidized film	<ol style="list-style-type: none"> 1 Wrong welding value 2 Pulse duty too low 3 Twice inverter MOSFET broken
8 Stick is burnt out	Pulse duty is too high, reduce it.

