



ARC175STL

IGBT INVERTER
DC MMA/LIFT-TIG
WELDING MACHINE

(Suitable for 1x110V or 1x220V)

Operators's Manual *Safety, Setup and General Use Guide*



REV.2 0 00131-16
Issue Date: May.11,2016
Manual No: 0-1521

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High-efficiency & Energy-saving

WED-180

PMG Engine Driven Welder

Welcome to use CARBONE Welder

**CARBONE dedicated to supply you
qualified welder and satisfied
service!**

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Dear Customer,

We sincerely thank you for having bought from CARBONE high quality welder.

Before operating the welder please read this manual attentively.

Follow the instructions

contained in it, in this way you will avoid inconveniences due to negligence, mistakes or

incorrect maintenance. The manual is for qualified personnel, who know the rules: about safety and health, installation and use of sets movable as well as fixed.

CARBONE sections for Technical Service and Spare Parts will assist you if it were necessary.

In case you have difficulties in use or installation or others, CARBONE Technical Service is always at your disposal for explanations or interventions.

In case you do not profit on these Services and some parts are replaced, please ask and be sure that are used exclusively original CARBONE parts, which guarantees that the performances and the initial safety prescribed by the norms in force are re-established.

The use of non-original spare parts will cancel immediately any guarantee and Technical Service obligation from CARBONE.

The manual for Use Maintenance and Spare Parts is an integrant part of the product. It must be kept with care during all the life of the product. In case the machine and/or the set should be transferred to another user, this manual must also be given to him.

Our products have been designed for the use of generation for welding, electric and hydraulic system; ANY OTHER DIFFERENT USE NOT INCLUDED IN THE ONE INDICATED, relieves CARBONE from the risks which could happen or, anyway, from that which was agreed when selling the machine; CARBONE excludes any responsibility for damages to the machine, to the things or to persons in this case.

While working it is advisable to keep to the personal safety norms in force in the countries to which the product is destined (clothing, work tools, etc.).

Do not modify for any motive parts of the machine (fastenings, holes, electric or mechanical devices, others.) if not duly authorized in writing by CARBONE: the responsibility coming from any potential intervention will fall on the executioner as in fact he becomes maker of the machine.

W1 Safety Standards & Symbols

Attention

- For safety of the user and machine, please read the operating manual, CARBONE excludes any responsibility for damages to the machine, to the things or to persons in negligence, mistakes or incorrect maintenance.
- Remember that the non-observance of the indications reported by us might cause damage to persons or things.
- Please respect the local dispositions and/or laws.
- The information contained in the manual can be changed without notice.



FIRSTAID. In case the operator should be sprayed by accident, from corrosive liquids a/o hot toxic gas or whatever event which may cause serious injuries or death, predispose the first aid in accordance with the ruling labor accident standards or of local instructions.

Skin contact	Wash with water and soap
Eyes contact	Irrigate with plenty of water, if the irritation persists contact a specialist
Ingestion	Do not induce vomit to avoid the intake of vomit into the lungs , send for a doctor
Inhalation	In case of exposure to high concentration of vapors take immediately to a non-polluted zone the person involved



FIRE PREVENTION. In case the working zone, for whatsoever cause goes on fire with flames liable to cause severe wounds or death, follow the first aid as described by the ruling norms or local ones.

Appropriated	Carbonate anhydride (or carbon dioxide) powder, foam , nebulized water
Not to be used	Avoid the use of water jets
Other indications	Cover eventual shedding not on fire with foam or sand , use water jets to cool off the surfaces close to the fire
Particular protection	Wear an auto-respiratory mask when heavy smoke is present
Useful warnings	Avoid, by appropriate means to have oil sprays over metallic hot surfaces or over electric contacts (switches, plugs, etc.). In case of oil sprinkling from pressure circuits, keep in mind that the inflammability point is very low.

1.General Warning



DANGEROUS

This heading warns of an immediate danger for persons as well for things. Not following the advice can result in serious injury or death.



WARNING

This heading warns of situations which could result in injury for persons or damage to things



CAUTION

To this advice can appear a danger for persons as well as for things, for which can appear situations bringing material damage to things.



IMPORTANT



NOTE



ATTENTION

These headings refer to information which will assist you in the correct use of the machine and / or accessories.



STOP – Read absolutely and be duly attentive



HIGH VOLTAGE–There can be parts in voltage, dangerous to touch. The non-observance of the advice implies life danger.



FIRE–Danger of flame or fire. If the advice is not respected, fires can happen.



HEAT–Hot surfaces. If the advice is not respected burns or damage to things can be caused.



EXPLOSION–Explosive material or danger of explosion. in general. If the advice is not respected there can be explosions.



WATER–Danger of short-circuit. If the advice is not respected fires or damage to persons can be caused. Never use water to put out fires on electrical Equipment



SMOKING–The cigarette can cause fire or explosion. If the advice is not respected fires or explosions can be caused



WRENCH–Using tools. If the advice is not respected, the damage can be caused to things and even to persons.



People use pace-maker, hearing-aid for deaf or something and else.



It is prohibited to make interventions before having non-inserted the voltage.



Do not refuel when the engine is hot.



Switch off the engine prior to refueling.



Fuel can cause fires.



It is advisable to use all protections while shifting the machine.



It is advisable to use protections suitable for the different daily checking works. And / or of maintenance.



Exhaust gases from the engine can kill.



Petrol vapors cause fires and can seriously damages your health.



Moving parts are dangerous. Avoid touching any moving parts with your hands or fingers. Never wear loose clothing which may get trapped by moving parts.



It is compulsory to use the personal protection means given in equipment.



Do not touch any bare wires, leads or contacts as they may be live and there is danger of electric shock which can cause death or serious burns. The electrode and welding cables, etc. are live when the unit is operating.

Insulate yourself from the work surface while welding. Use carpets or other insulating materials to avoid physical contact with the work surface and the floor.



Do not wind cables around the body. Always wear dry, insulating gloves, without holes, and body protection.



Estimate possible electromagnetic problems in the work area caused by the following items:

Telephonic wirings and/or of communication, check wirings and so on, in the immediate vicinity.

Critical devices for safety and/or for industrial checks.

Radio and television receptors and transmitters.

People use pace-maker, hearing-aid for deaf or something and else.

Devices used for rating and measuring.

The immunity of other devices is in the operation area of the welder. Make sure that other used devices are compatible. If it is the case, provide other additional measures of protection.

The daily duration of the welding time.

It is forbidden to weld in rooms containing explosive gases.



Wear ears and body (non-flamable protective clothers).

Avoid inhaling fumes by providing a ventilation system or, if not possible, use an approved air breather.



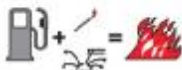
Do not work in closed areas where there is no fresh air flow.

Do not use the welder to defrost (thaw) pipes

Use ear protections if the noise level is high.



Keep flammable material away from the welding area.



Do not weld on containers which contain flammable material. Do not weld near refuelling areas.

Do not weld on easily flammable surfaces.

Protect face and eyes (protective mask with suitable dark lens and side screens).



Before you use the machine, please read the important advice reported by WILLDA to have the better performance.

Advice for gasoline Engine

- Before refuel the engine, shut off in a flat surfaced well-ventilated area.

- No smoking, fire, sparks and other flammable electrical equipment when refueling.

- Screw the oil cap out slowly, letting the oil vapors out.

- Do not fill the tank completely; leave a space of approx. 10 mm between the fuel level and the wall of the tank to allow for expansion.

- Clean any dispersions of fuel before starting up the engine.

- Try to eliminate the oil in the tank before transfer the machine

- Clean any dispersions of fuel before starting up the engine.



Advice before operating the welder

- Keep the machine grounding in good condition

- Keep being dry when using machine and / or electrode

- Keep being insulation between the user and ground.

- Wear dry & insulating gloves.

- Work in well-ventilated area

- Avoid inhaling irritant smoke or gas.

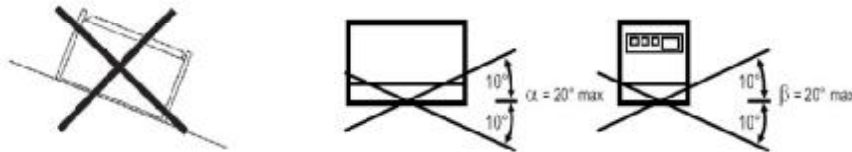
- Protect eye, ear and body with personal protection equipment when working.

- Keep the flammable and combustible goods isolated from the welding area.

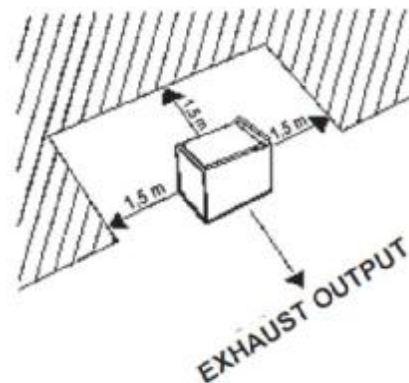
- Do not weld on containers which contain flammable material.

Advice before Installation and Operation

- Use in open space, keep the air swept or vent exhaust gases, which contain the deathly carbon oxyde, far from the work area.
- Place the machine on a level surface at a distance of at least 1.5 meter from buildings or other plants.
- Maximum 20 ° leaning of the machine (in case of dislevel)



- Check that the air gets changed completely and the hot air sent out does not come back inside the set so as to cause a dangerous increase of the temperature.
- Make sure that the machine does not move during the work: block it possibly with tools and/or devices made to this purpose.
- At any move check that the engine is shut-off, that there are no connections with cables which impede the moves.



D. C. WELDING (Continuous Current)

Current Range	50~180 A
Duty Cycle	50~150 A - 100% 180 A - 60%
Suitable electrode Φ	$\Phi 1.6 \sim 4.0 \text{ MM}$ (acidic & alkaline)
Loading (continuous)	$\Phi 1.6 \sim 3.2 \text{ MM}$ 100% $\Phi 4.0 \text{ MM}$ 80%
Open Circuit Voltage	65~85 V

D. C. GENERATION

	230V	110V
Output/Volt./Amps. (Max.)	2.2KW(3HP)/230V*9.6A	2.2KW(3HP)/110V*16A
Output/Volt./Amps. (Continuous)	2KW(2.75HP)/230V*8.7A	2KW(2.75HP)/110V*14.5A

ALTERNATOR

Type	Permanent Magnet Alternator, Self-excited, Brushless
Insulation Class	F

Engine

Brand / Model	KOHLER/ CH270
Type/Cooling System	Gasoline 4-stroke OHV / Air
Cylinders / Displacement	1 / 208 cm ³
Output (Max.)	5.2 KW (7 HP)
Speed	4000 r/min
Fuel Consumption (Welding 80%)	1.31 l/h
Engine Oil Capacity	0.6 L
Starter	Recoil

GENERAL SPECIFICATIONS

Tank Capacity	4.0 L
Running Time(60%)	3.05 H
Protection Degree	IP23
MEAS. L*W*H	460*440*460 MM
Net Weight	36 kg
Acoustic Power LwA (Pressure LpA)	90 dB(A) ($\leq 70 \text{ dB(A) @ 7m}$)

★Dimensions and weight are inclusive of all parts

POWER

Declared power according to ISO 3046-1 (temperature 25°C, 30% relative humidity, altitude 100 m above sea level).
It's admitted overload of 10% each hour every 12 h.
In an approximate way one reduces: of 1% every 100 m altitude and of 2.5% for every 5°C above 25°C.

W4 Control Panel Components

In order to correctly use the machine to have the best performance, please sure know the control panel, the control methods and the control units function well.



- 1、Protector
- 2、Current adjust switch
- 3、Welding and Generating transfer switch
- 4、DC output socket
- 5、Welding output positive electrode
- 6、Welding output negative electrode



Lubrication

Please refer to the operating manual for the machine lubrication.

We recommend oil quality level grade CD,

Warm area can choose 15W / 30 or 15W / 40;

Cold regions can choose 10W / 30;

Colder regions can choose 5W / 30;

Wherein, "5W" on behalf of "-30 °C",

"10W" on behalf of "-20 °C",

"15W" on behalf of "-15 °C",

"30" stands for "15 ~ 30 °C",

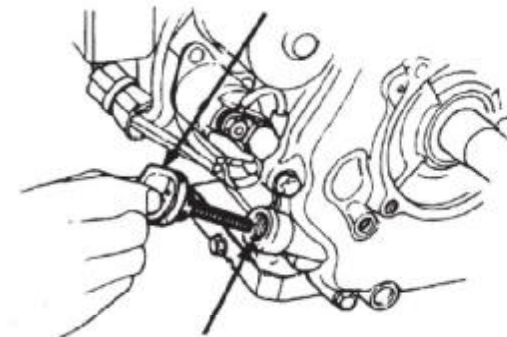
"40" stands for "30 ~ 40 °C",

"50" stands for "40 °C above"

The temperature refers to the temperature range used in the engine

To check the oil level:

- Remove the oil-fill tap (24) and clean the dip-stick
- Insert the dip-stick into the oil filler without screwing it in.
- If the oil level is low, fill with recommended oil up to the top of the oil filler Oil fill tap / dip-stick



Engine Oil Alert Device

The "Oil Alert" system is designed to prevent damage to the motor due to an insufficient quantity of oil in the cup. This system automatically shuts off the motor before the oil level falls below the safety limit. If the motor does not start up again after shutting itself off, check the oil level.



Fuel

Gasoline is highly flammable. Refuel with motor shut off in a flat surfaced well-ventilated area. Do not refuel in the presence of flames. Avoid spilling fuel.

Any eventual spilled fuel and fumes are flammable. Clean any dispersions of fuel before starting up the motor.

Fill the tank with gasoline for automobiles (preferably leads free or with low lead content in order to reduce deposits in the combustion chamber to a minimum).

For further details on the type of gasoline to use, see the motor operating manual supplied.

Do not fill the tank completely; leave a space of approx. 10 mm between the fuel level and the wall of the tank to allow for expansion.

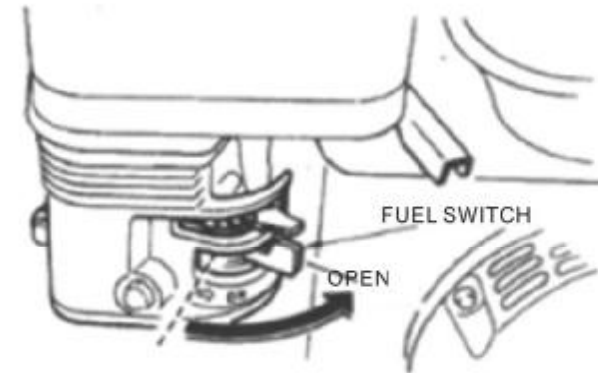


Air Filter

Check that the dry air filter is correctly installed and that there are no leaks around the filter which could lead to infiltrations of non-filtered air to the inside of the motor.

1.Start-up

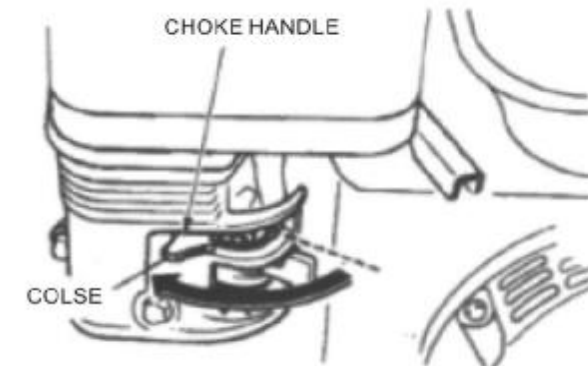
1) Move the fuel valve lever to the ON position.



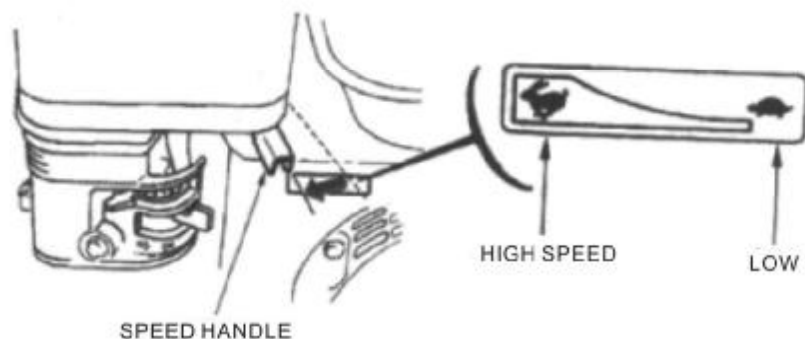
2) To start a cold engine: move the choke lever to the SLOSE position.

To start a warm engine: leave the choke lever in the OPEN position.

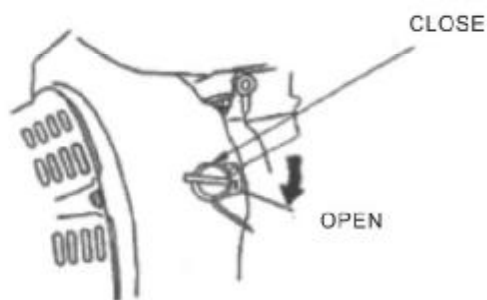
Some engine applications use a remotely-mounted choke control rather than the engine-mounted choke lever shown here.



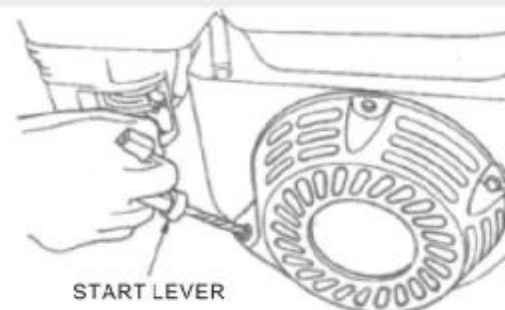
3) Recoil start-up: Mover the throttle lever away from the SLOW position, about 1/3 of the way toward the FAST position. Some engine applications use a remotely-mounted throttle control rather than the engine-mounted throttle lever shown here. Electrical start-up: no need here.



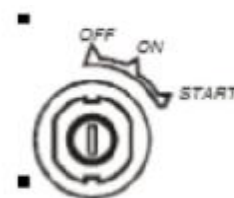
4) Turn the engine switch to the ON position.



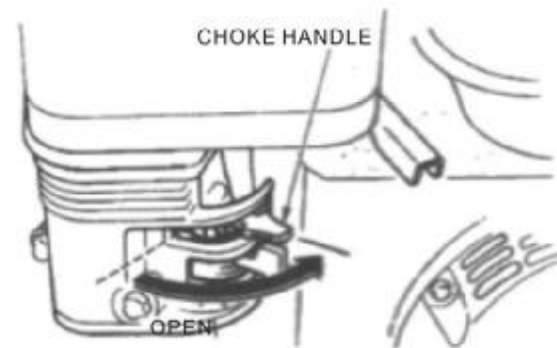
5) Recoil start-up: pull the starter grip lightly until you feel resistance, then pull briskly. Return the starter grip gently.



Electrical start-up: Turn the ignition key to the ON position.



6) If the choke lever has been moved to the SLOSE position to the start the engine, gradually mover it to the OPEN position as the engine warms up.



- If the engine start-up failed, please restart it in 15 Seconds.
- If the engine need stop when working, pleas restart it in 4 munites if the engine start-up is neccessary.
- In the first 50 working hours, the machine output should be equal or less than 60% of Max one. checking the engine oil level at the same time.

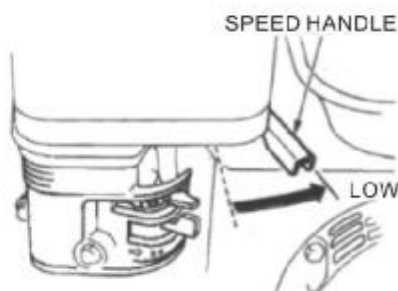
2. Shut-off

To stop the engine in an emergency, simply turn the engine switch to the OFF position.

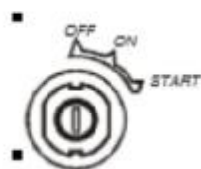
Under the normal conditions, use the following procedure:

1) Recoil start-up: mover the throttle lever to the SLOW position.

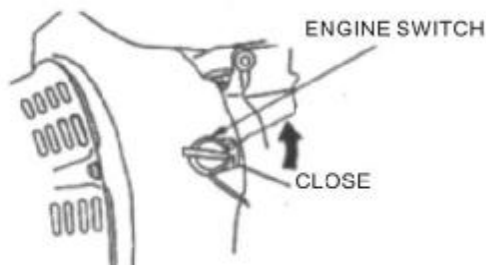
Some engine applications use a remotely-mounted throttle control rather than the engine-mounted throttle lever shown here.



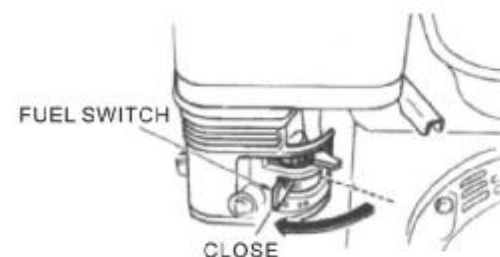
2) Electrical shuts off: Turn the ignition key to the OFF position.



3) Turn the engine switch to the OFF position.



4) Turn the fuel lever to the OFF position.

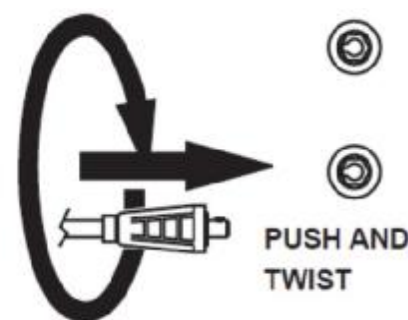


W7 Welder Operation Manual

1. Welder

1) Make sure the ground line connection is right.

2) Insert the welding cable plugs completely in the sockets, turning clockwise to lock them in place. Connect the earth clamp to the negative pole and the electrode holder to the positive.



Pay attention to the two polarities on the welding circuit, which must not come into electrical contact with each other.

- 3) Turn the welding-generating change-over switch to the WELDING position.
 - 4) Start-up the engine as it start-up instruction say, move the throttle lever in the 80~90% SPEED position.
 - 5) Adjust the current by Current Adjust Switch to suit the electrodes' size and type.
 - 6) Start welding.
 - 7) Stop welding.
 - 8) Shut-off the machine as shut-off instruction says.
 - 9) Reset the panel switch, turn and pull out the negative and positive output line.
 - Stop welding when it is necessary to change the electrode or current. Restart welding when the current adjust switch in the right position.
 - Choose the suitable welding cable according to the current.
 - Stop welding when it is necessary to use the generating.
- Turn the welding-generating change-over switch to the GENERATIONG position.
- Adjust the throttle lever to make the voltmeter show 220~260V.
- Put the loading equipment or tag plug socket into the DC output socket, start the loading equipment, then it starts generating.
- When generating, the total output of the loading equipment cannot be higher than the generating rate output.
 - It is suitable for the loading equipment of DC or DC-AC.
 - Welding and generating cannot be used at the same time.

2. Parallel Engine Driven Welder

- Start the machine putting the two welding handles (T) in the wanted position (half of the totalcurrent);
- Put in parallel with the right cables (negative—negative, positive to positive);
- Proceed with welding.

1. Generator

- 1) Make sure the ground line connection is right.
- 2) Turn the welding-generating change-over switch to the GENERATING position.
- 3) Start the engine as the start-up instruction.
- 4) Adjust the throttle lever to make the voltmeter show 220~260V.
- 5) Put the loading equipment or tag plug socket into the DC output socket.
- 6) Start the loading equipment, then it starts generating.
- 7) Shut-off the loading equipment switch.
- 8) Turn the welding-generating change-over switch to the WELDING position.
- 9) Shut-off the machine as the shut-of instruction.
- 10) Turn and pull out loading equipment or tag plug socket.

Attention

- When generating, the total output of the loading equipment cannot be higher than the generating rate output.
 - It is suitable for the loading equipment of DC or DC-AC.
 - Choose the suitable cable according to the current.
 - Stop generating when it is necessary to do the welding. Restart welding when the current adjust switch in the right position.
- Insert the welding cable plugs completely in the sockets, turning clockwise to lock them in place. Connect the earth clamp to the negative pole and the electrode holder to the positive.
- Turn the welding-generating change-over switch to the WELDING position.
- Move the throttle lever in the 80~90% SPEED position.
- Choose the suitable welding cable according to the current.
- Welding and generating cannot be used at the same time.

W9 Trouble-shooting

Problem	Possible cause	Solution
The motor does not start up, or starts up and then stops immediately	Engine switch at position OFF	Position switch to ON
	Lack of or insufficient oil in the engine	Refill or top off
	Lack of fuel in tank or fuel tap closed	Refill the tank. Open the fuel tap
	Dirty or faulty spark plug	Clean or check and eventually replace
	Cold engine	Hold down the CHOKE button, after start-up, for a longer period of time
	Other causes	Consult the engine Operating Manual.

Low Welding no-load voltage	Chopper welding bridge broken	If it is right connection, use a multimeter to check each rectifier tube
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No current under no-load conditions in weld mode	Chopper welding bridge broken	Replace
	Negative and/or positive pole output line loose	Tighten

Irregular or inconsistent welding current	Alternator windings not insulated from earth	Disconnect all the outputs; check the insulation of the alternator
	Welding chopper bridge not insulated from earth	Disconnect all the outputs; check the insulation of the alternator

No current under no-load conditions in auxiliary power mode	Wrong position of change-over switch	Turn to GENERATING position
	Fuse damage	Replace the fuse 15A
	DC output socket damage	Replace
	Auxiliary power diode bridge broken	Replace

W10 Maintenance

General Maintenance

- Maintenance and repair work should only be done by qualified personnel.
- Stop the engine before doing any work on the machine. If for any reason the machine must be operated while working on it, be careful not to touch rotating parts, hot surfaces, live wires, etc. which may be unprotected.
- Remove protective guards only when necessary to perform maintenance and replace them immediately after the maintenance is completed.
- Use suitable tools and wear suitable clothes.
- Do not modify the machine without prior authorization.

1. Machine Maintenance

- We advise the do the maintenance of mechanical parts, electrical parts and oil parts usually.
- We advise to replace the fuel gas, engine oil, cooling liquid of the machine regularly.
- We advise you consider the pro-major-repair regularly.
- We advise to check the engine oil, clean the dust on the machine surface and make sure the Intake / exhaust function is in good condition regularly.
- We advise to check the insulation and connection of the cable.
- We advise to store the machine in a suitable area where it is protected from the elements to prevent rusting, corrosion and other damage to the machine, if the machine will not be used more than 30 days.
- Attention: the engine maintenance should be done under the engine maintenance instruction.

2. Battery Maintenance

- We advise to check the electrolyte capacity in the batter before it start working, esp. after long time storage
- We advise to add some distilled water into the electrolyte to make it under the normal level.

3. Dry Air Filter Maintenance

- Replace the air filter every 200 hours under normal conditions.
- Replace the air filter every 100 hours in dusty environments.

4. Cooling Equipment Maintenance

- We advise to check the cooling liquid level every day.
- We advise to replace the frozen cooling liquid and check the cooler. Clean out the obstructions if they contain in it.

5. Permanent Magnet Alternator Maintenance

- No maintenance is necessary, as the alternator has no brushes or slip rings, and there are no devices for regulation of the output.

Store the machine in a suitable area where it is protected from the elements to prevent rusting, corrosion and other damage to the machine, if the machine will not be used more than 30 days.

- Run the engine until it stops from lack of fuel.
- Drain the used engine oil from the engine oil storage tank, then refill the fresh engine oil (10cc) from the spark plug hole, screw it tight and turn several times.
- Turn the bent axle slowly, until you feel the pressure.
- Take off the battery when storage.
- Clean the every machine parts carefully.
- Cover the machine with a plastic cover and store it in a dry place with good fresh air flow.

W12 Electric diagram

