

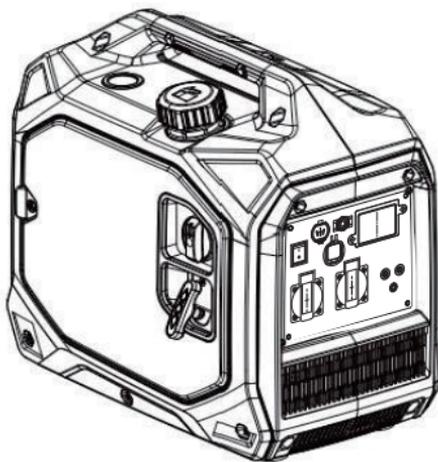
HAHN

& SOHN

GENERATOR

SILENT INVERTER GASOLINE ENGINE GENERATOR

Owner's Manual



ORIGINAL INSTRUCTION

Thank you very much for choosing generator set product manufactured by our Company!

This Manual is of the instructions on how to use the generator set properly. The user is asked to read it carefully before use. Operate it safely and properly, and you will receive the best return.

All technical data and diagrammatic presentations in this Owner's Manual are consistent with the latest product at the time of publication. Due to the revision and other changes, contents of this Manual may be slightly different from actual situation. The Company is entitled to revise it at any time, and the revised version will be developed without prior notice, please understand that. The copyright of this Owner's Manual belongs to the Company, and this Manual is not allowed to be reproduced without written consent of the Company, violators must be prosecuted.

This Manual is a permanent component of the generator set. If the generator set is resold, please resell the Manual together with the generator set.

Note: Pictures in this Manual are for reference only. If there is any inconsistency from actual product, the actual product shall prevail.

Safety Warning

Your personal and property safety and that of others are very important. Please carefully read extremely important safety warnings written by us in the Manual and decals on generator set.

The safety warning can alert you to note potential hazards that may harm you and others. In front of each safety warning, there is a symbol * and one of three words "DANGER", "WARNING" or "ATTENTION". Details are as follows:

DANGER!

Failing to follow the instruction, you will be in danger of life or suffer from extremely serious injury.

WARNING !

Failing to follow the instruction, you will be in danger of life or suffer from very serious injury.

CAUTION !

Failing to follow the instructions, you may suffer from minor injury.

NOTICE

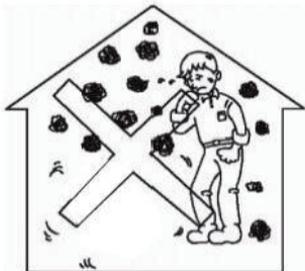
Failing to follow instructions may result in damage to your generator set and other property.

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1. Safety Instructions

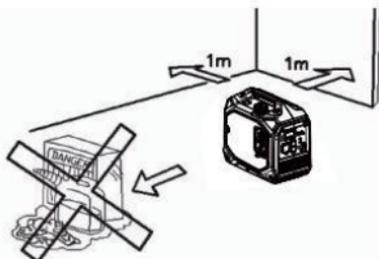
Before operating the generator, it will help you avoid accidents to read and understand the Manual and familiarize yourself with the safe operation procedures of the generator.



Please do not use indoors



Please do not use in humid environment



Please separate from combustible materials by at least 1m



Please do not smoke when refueling



Please maintain not overflowing when refueling



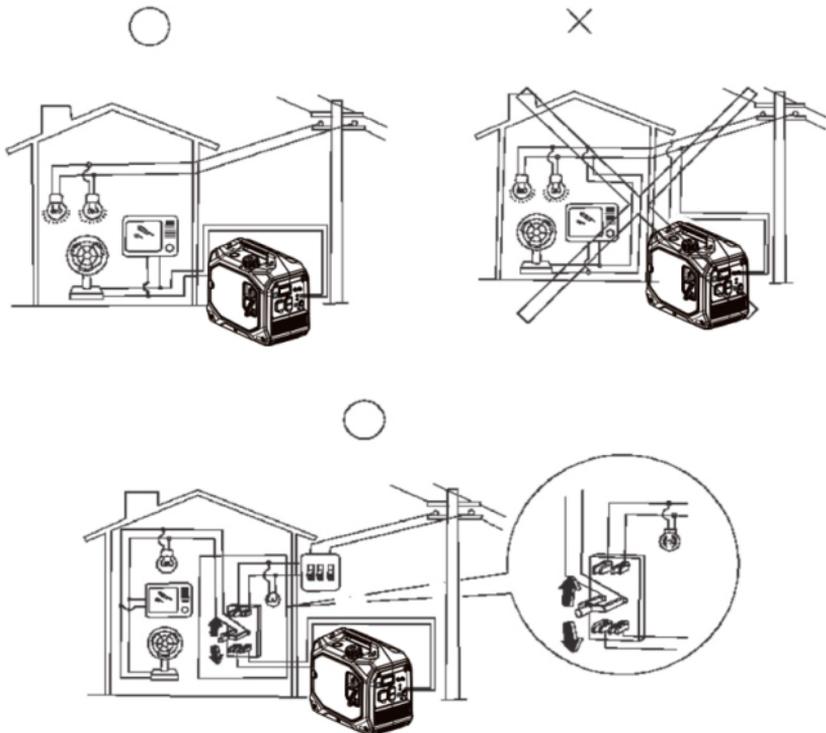
Please shut down the engine before refueling

Connect to household power supply

NOTICE

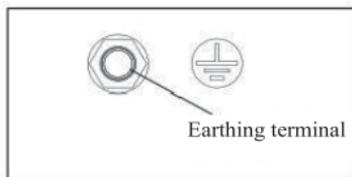
When the generator is connected to household power source as a backup power supply, the connection shall be carried out by a professional electrician or a person familiar with electricity.

After connecting the load to the generator, check carefully whether electrical connection is safe and reliable. Improper electrical connection may cause generator damage, burning or fire.



Generator earthing

In order to prevent suffering from electric shock or incorrect use of electrical appliance, the generator shall be grounded by high-quality insulated wire.

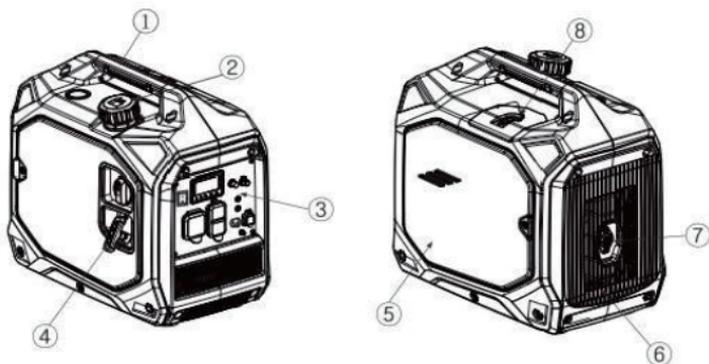


NOTICE

Keep ventilation holes on control panel side, rear louver side and generator bottom unobstructed and free from debris, mud, water and other debris entering. If these ventilation holes are blocked, any damage may be caused to the engine, frequency converter or generator.

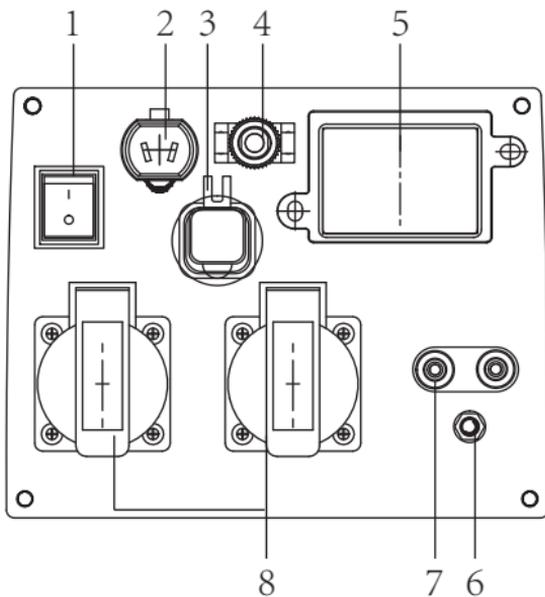
Do not put the generator together with other articles when handling, storing or using it. Any oil leaking may cause damage to the engine or your property safety.

2. Part Name



- ① Handling handle
- ② Fuel tank cap
- ③ Control panel
- ④ Crank handle
- ⑤ Decorative cover plate
- ⑥ Louver
- ⑦ Muffler
- ⑧ Spark plug maintenance door

3. Control panel

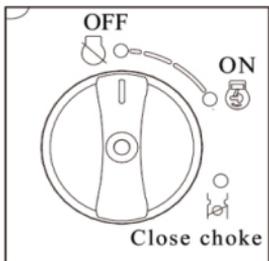


- | | |
|-------------------------|----------------------------------|
| ① Stall key | ⑤ Multi-function digital display |
| ② DC socket | ⑥ Earthing terminal |
| ③ USB output | ⑦ Parallel socket |
| ④ Overcurrent protector | ⑧ AC socket |

4. Control Function

4.1 Three-in-one Combination Switch

(hereinafter referred to as combination switch)



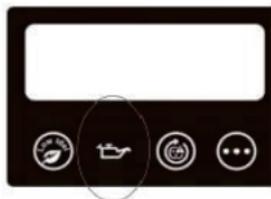
- ① Fuel switch and choke valve switch  "CHOKE"; the fuel switch is on and the choke valve is fully off, and the engine can crank normally.
- ② Fuel switch and choke valve switch  "ON". The fuel switch is on and the choke valve is fully off, and the engine can run normally.

Note: When the engine is in warm-up mode, there is no need to close the throttle valve switch.

4.2 Engine Oil Indicator (red)

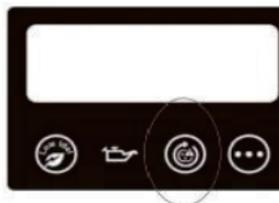
When engine oil in the crankcase drops below safety mark, oil protection system will automatically shut down the engine and engine oil warning indicator will turn on; only fill engine oil to engine oil level mark, the engine can be cranked again.

If oil alarm indicator flashes for a few seconds, engine oil volume is insufficient, fill oil and re crank it.



4.3 Overload Indicator (red)

When the overload indicator lights up, the generator has detected that the output of connected electrical equipment has been overloaded, causing the inverter to overheat or AC voltage to rise. At this moment, the AC protector is working, to stopping the generator from generating electricity, to protect the generator and connected electrical equipment. The AC indicator (green) is off, while the overload indicator (red) is on, but the engine will not stop running.



When overload indicator is on and the unit has no output, take following countermeasures:

1. Turn off electrical equipment connected and shut down the engine.
2. Reduce total power of electrical equipment connected within rated output range.
3. Check whether cold air inlet is blocked by foreign matter and whether there is any abnormality in relevant control components. If there is any problem, eliminate it immediately.
4. After checking, re crank the engine.

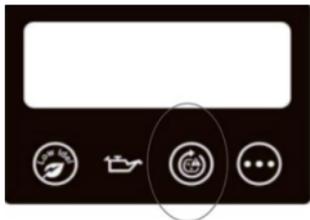
Tip: When using electrical equipment requiring high starting current (such as the compressor, submersible pump, etc.), the overload indicator may start to light up for a few seconds at the beginning, but this is not the failure mentioned earlier.

4.4 AC Indicator (green)

The AC indicator lights when the engine is cranked and outputs normally.

Indicator Judgment

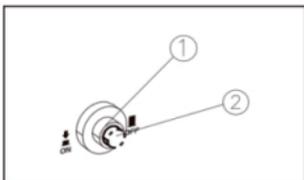
1. Green indicator on: indicating it is operating normal, and the generator has output;
2. Green indicator on and red indicator flashing: it indicates overload, and the generator has output;
3. The green indicator off, and red indicator flashing once and then flashing again after an interval of 3s: it indicates that the voltage at front end of the busbar is too low and the generator has no output;
4. The green indicator goes out, the red indicator flashes twice, and then flashes twice after an interval of 3s: it indicates that the engine speed is too low and the generator has no output;
5. Green indicator off, red indicator flashes 3 times and then flashes 3 times again after an interval of 3s: it indicates that the temperature of inverter is too high and the generator has no output;
6. Green indicator off, red indicator flashes 5 times and then flashes 5 times again after an interval of 3s: it indicates that the voltage at front end of the busbar is too high, and the generator has no output;
7. Green indicator off, red indicator flashes 6 times and then flashes 6 times again after an interval of 3s: it indicates that output load of inverter is too high and the generator has no output;



4.5 DC Protection

When electronic equipment connected to the generator is running, if the current exceeds rated current, DC switch will automatically turn to "OFF" position. When operating the generator again, press down the DC switch to "ON" position.

- ① "ON" DC is outputting normal.
- ② "OFF" DC does not output.



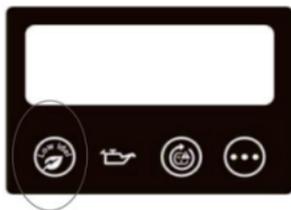
NOTICE

If the DC protection is in the OFF state, reduce the load of electronic devices connected to within the rated output range of the generator. If the DC protection is still in the OFF state, please stop using electrical device directly and consult your dealer.

4.6 Energy Saving Switch

- ② "OFF"
- ① "ON"

When energy-saving switch is placed in "ON" position, energy-saving equipment controls engine speed based on the load connected, which can achieve better fuel consumption and low noise.



When the energy-saving switch is set to the "OFF" position, the engine will run at rated speed, regardless of whether being connected to a load.

Tip: When using following equipment, such as air compressor, submersible pump, etc., the energy-saving switch must be turned off because large cranking current is required.

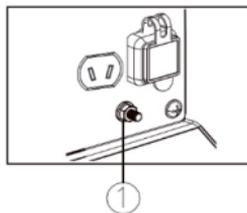
4.7 Fuel Tank Cap

Rotate it counterclockwise to remove the fuel tank cap.



4.8 Earthing Terminal

Earthing terminal shall be connected to earthing wire to prevent electric shock. When an electrical equipment is grounded, the generator must be grounded.

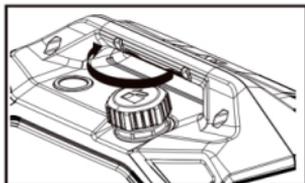


5. Preparation Items

5.1 Fuel

DANGER!

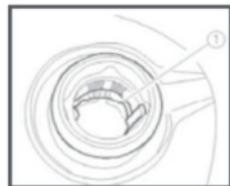
- Fuel is flammable and toxic, please read the Safety Instruction carefully before refueling (See Page 2 for details).
- Do not refuel it too full, otherwise the fuel will spill after the tank warms up.
- After refueling, confirm that the fuel tank cap has been tightened.



NOTICE

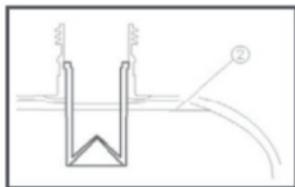
- After refueling, confirm that the fuel tank cap has been tightened.
- It must be refueled with unleaded gasoline, as leaded gasoline may seriously damage internal parts of the engine.
- Remove fuel tank cap, to fill gasoline to the level of red horizontal indicating mark.

- ① Red indicating mark;
- ② Fuel level.



Recommend fuel: unleaded gasoline

Fuel tank volume: 4.8L

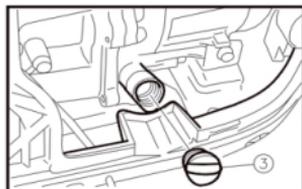
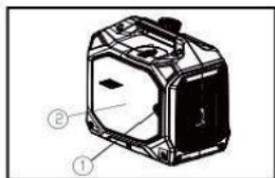


5.2 Engine Oil

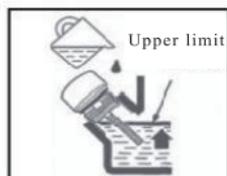
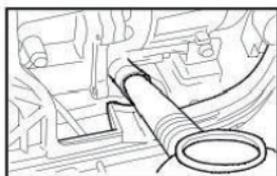
NOTICE

This generator had not been filled with engine oil when being delivered from the manufacturer. Do not crank the generator until sufficient engine oil has been filled into it.

1. Please place the generator on a horizontal plane.
2. Unscrew screws ① to remove exterior cover plate ②.
3. Open oil filling cap ③.



3. Inject recommended volume of engine oil and tighten the oil cap.
5. Reinstall the exterior cover plate and tighten screws.



Recommended engine oil: SAE SJ15W-40

Recommended engine oil grade: SE Model in API standard or higher

Engine oil volume: 0.45L

5.3 Pre-operation Inspection

WARNING !

If any of following parts is unable to operate normal, please carefully inspect and repair before crank the generator.

The user shall pay attention to the state of generator. Even if the generator is not in service, its important part may suddenly fails.

Tip: Before using the generator every time, a pre-operation inspection shall be done to inspect the state of generator. Even if the generator is not in service, its important part may suddenly fails.

Pre-operation Inspection

Fuel

- Check fuel level in the fuel tank
- Refuel it if necessary

Engine Oil

- Check oil level of the generator
- If necessary, please fill recommended engine oil to oil mark specified
- Check whether there is oil leaking.

Abnormal Condition During Operation

- Check operating status
- If necessary, please consult the dealer

6. Operation

WARNING !

- Do not use this generator in a confined space, as the gas emitted out of the generator may cause loss of consciousness or even death of human within a short period. Please use it in a well-ventilated place.
- Before cranking the generator, do not connect any electrical equipment.

NOTICE

- This generator had not been filled with engine oil during transport. Do not crank the engine until sufficient oil has been filled.
- When filling engine oil, do not tilt the generator to prevent excessive engine oil from being filled to damage the engine.

Tip: The generator can operate at rated output load under standard atmospheric condition. "Standard atmospheric condition"

Ambient temperature: 25°C, atmospheric pressure: 100kPa

Relative humidity 30%

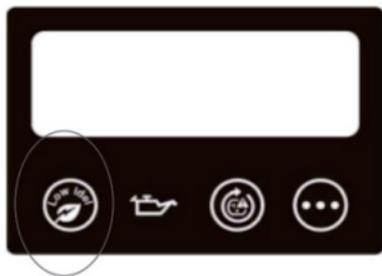
The output of generator will vary due to the temperature, altitude (The higher the altitude, the lower the air pressure) and humidity.

When the temperature, humidity and altitude exceed standard atmospheric condition, the output of generator set will decline.

In addition, when used in a narrow space, the load must be reduced, as the cooling of the generator is impacted.

6.1 Generator Cranking

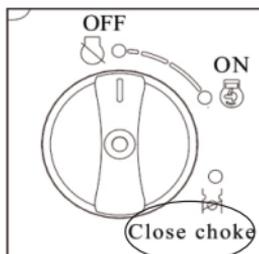
1. Turn ESC energy-saving switch to "OFF"



2. Rotate the control of combination switch to "Close CHOKE" position.

a. The fuel is turned on.

b. The choke is closed and in normal cold-engine operating condition.



Tip: When cranking at hot-engine state, it is unnecessary to close the choke valve, but turn the combination switch to "ON".

3. First, gently pull the manual starter until the cable is securely fastened, and then apply force to pull it.

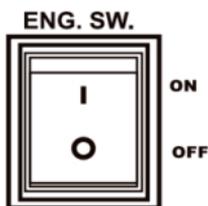
Tip: When pulling the manual starter, grip the handling handle tightly to prevent the generator from falling.



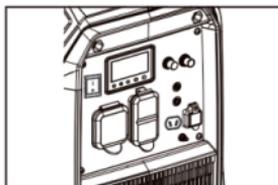
6.2 Shutdown

Tip: Turn off all electrical equipment

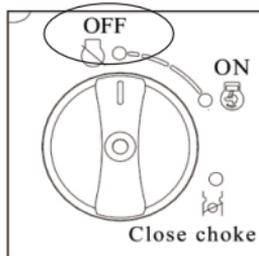
1. Press and hold "OFF" of the switch.



2. Disconnect all electrical equipment.



3. Rotate the control knob of combination switch to "OFF" position to allow a. fuel switch to turn off.



6.3 AC Connection

WARNING ! Before plug in the plug, all electrical equipment shall be disconnected.

NOTICE

- Make sure that all electrical equipment, including wires and plugs, are in good condition before connecting to the generator.
- Make sure that all loads driven by the generator are within rated load range;
- Make sure that load current is within rated current range of rated socket.

Tip: Make sure that the generator has been grounded, and if electrical equipment is required to be grounded, the generator set must be grounded.

1. Crank the engine.
2. Turn the ESC energy-saving switch to "ON".
3. Plug the plug into AC socket.
4. Make sure that the AC indicator is on.
5. Turn on electrical equipment.

Tip: Before increasing engine speed, energy-saving switch must be switched to "OFF".

If the generator set provides power to multi loads or electrical equipment, please start them in descending order based on the load size of each electrical equipment.

6.4 Battery Charging (Optional)

Tip:

- Rated DC voltage of this generator is 12V.
 - Only after the generator is cranked, connect the battery to the generator.
 - Before starting charging, make sure that DC protector has been turned on.
1. Crank the generator.
 2. Connect red wire of the battery to positive (+) terminal of the battery.
 3. Connect black wire of the battery to negative (-) terminal of the battery.
 4. Turn ESC to OFF to start charging.

NOTICE

- Ensure that ESC has been placed in OFF while charging the battery.
- Ensure that red wire of the charger is connected to positive terminal (+) of the battery, and black wire is connected to negative board terminal (-). Be sure not to connect reverse.
- The connection between charger cable and the end of battery shall be reliable, to prevent the generator from loosening under vibration or other conditions.
- Operate properly following steps in the Owner's Manual.
- In the process of charging, if current exceeds the value of rated current, DC protector will switch off the output. Press the DC protector to "ON" to restart charging. If the DC protector is turned off again, immediately stop charging and contact the dealer.

Tip: The following in the Owner's Manual indicates that the charging has been completed

- Measure specific gravity of the electrolyte to determine whether the battery has been fully charged. In the case of complete charging, the specific gravity of electrolyte ranges from 1.26 to 1.28.
- It is recommended to check the electrolyte specific gravity once at least every 1 hour to prevent the battery from being over-charged.

WARNING !

In charging process, do not smoke, connect or disconnect from the battery. The spark caused will ignite the gas surrounding the battery.

The electrolyte of the battery contains sulfuric acid, which is toxic and poses a risk of burning. Please avoid expose to skin, eyes and clothing.

Treatment method:

- External exposure - flush with plenty of water
- Accidental ingestion - Drinking plenty of water or milk, taking dissolved milk, egg liquid or vegetable oil containing magnesium oxide. Seek medical treatment immediately.
- Accidental eye expose - flush with water for 15 minutes and seek medical treatment promptly. The battery can generate explosive gas, please stay it away from sparks, flame, cigarette, etc. Please maintain ventilating when charging or using the battery in confined space. When working nearby the battery, try to close your eyes as much as possible.

Please keep the battery out of the reach of children.

6.5 Scope of Application

Before using the generator, please confirm that total load is within rated load range of the generator, otherwise it may damage the generator.

AC				
Power factor	1	0.8-0.95	0.4-0.75 (Efficiency 0.85)	
Client's output power	≤ 1,800W	≤ 1,440W	≤ 612W	Rated voltage 12V

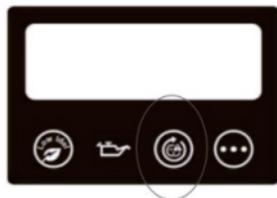
Tip:

- Every equipment will display the power amount applied during its own operation.
- AC and DC can be used at the same time, however, total power amount shall not exceed rated output power.

For example:

Rated output of generator		3,200W
Utilization rate	Power factor	
AC	1.0	≤ 3,200W
DC	---	96W(12V/8.3A)

When total power exceeds the rated level, overload indicator will turn on (see Page 13 for details).



NOTICE

Be sure not to exceed the load, total power of electrical equipment shall not exceed output power of the generator, as overloading can damage the generator.

When supplying power to precision instruments, electronic controllers, personal computers, electronic computers, microcomputers, etc. with this generator, please maintain sufficient spacing between the equipment and the generator to prevent electromagnetic interference from the engine. At the same time, also ensure that the engine is not interfered by other surrounding electronic devices.

If supplying power to medical equipment with this generator, it is recommended to consult with the equipment manufacturer and professional, because some electronic equipment or general motors in the hospital require a great current when starting up, which cause that they are unable to be used, even if their startup parameters meet the condition in the table above.

Please contact the equipment manufacturer for consultation.

7. Maintenance and Service

Good maintenance and service are the best guarantee for safe, economical and zero-failure operation. They also contribute to environmental protection.

In order to maintain the engine in good condition, you must regularly inspect and maintain it. Please follow the schedule below.

Item		Service cycle	Each time	The first service is made in the first month or 20 hours of use	Afterwards, the maintenance is carried out every three months or every 50 hours	Every year or use of 100 hours
Engine oil	Check - fill		√			
	Replacement			√	√	
Gearbox gear oil (if any)	Check oil level		√			
	Replacement			√	√	
Air cleaner element	Inspection		√			
	Clean			√		
	Replacement				√	
Sediment bowl (if any)	Clean					√
Spark plug	Clean - adjust					√*
Spark eliminator	Clean				√	
Idle (if any)**	Check - adjust					√
Valve clearance **	Check - adjust					√
Fuel tank and fuel filter **	Clean					√
Fuel hose	Inspection	Every two years (if necessary, please replace)				
Cylinder head, piston	Remove carbon deposit**	Displacement <225cc, every 125 hours; displacement ≥225cc, every 250 hours.				
* These items shall be replaced if necessary;						
** These items shall be maintained by the dealer authorized by the Company, unless the user has proper tools and maintenance ability.						

NOTICE

- If working frequently at high temperature or heavy load, the oil shall be replaced every 25 hours.
- If working frequently in dusty or harsh environment, air filter element shall be cleaned every 10 hours, and if necessary, the air filter element shall be replaced every 25 hours.
- The inspection cycle and time shall be based on the first to arrive maintenance.
- If service cycle time has elapsed, the service shall be carried out as soon as possible according to the table above.

WARNING!

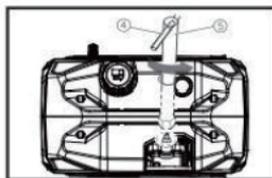
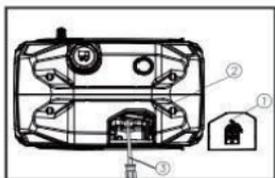
Please shut down the engine first before performing any maintenance. The engine shall be placed in a horizontal position. In order to prevent the engine from starting up, and spark plug cap shall be separated from spark plug.

Do not use it indoors or use it in a tunnel, cave or other places poorly-ventilated. Make sure that work area is well ventilated. The exhaust emitting out of the engine contains toxic gas, carbon monoxide, which can cause shock, loss of consciousness and even death if inhaled.

7.1 Spark Plug Inspection

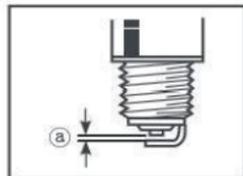
Spark plug is one of important parts of the generator, which must be inspected regularly.

1. Open maintenance cover ① and spark plug cap ② at the top of engine.
2. Insert the screwdriver ③ into the socket, rotate it counterclockwise, to remove the spark plug.



3. Check for fading and remove carbon deposit. Ceramic core around center electrode of the spark plug shall appear moderately light brown.
4. Check the model of spark plug and clearance.

Standard spark plug: A5RTC
Spark plug clearance: 0.7-0.8mm



Tip: The clearance of spark plug is required to be adjusted by feeler gauge or thickness gauge, and adjusted when necessary.

5. Install Spark Plugs

Spark plug torque: 12.5N. m

Tip: If there is no torque wrench when mounting spark plug, one better estimation method is to screw additional 1/4 ~ 1/2 turns after feeling that it is tightened. However, the spark plug shall be tightened to the torque specified as soon as possible.

7.2 Adjusting the Carburetor

The carburetor is one of important parts of the engine. The adjustment shall be carried out by a dealer with professional knowledge, professional data and equipment, to ensure that the adjustment is proper.

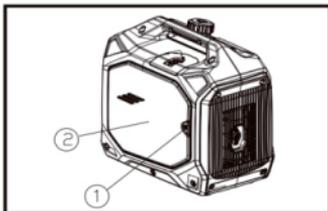
7.3 Oil Replacement

WARNING!

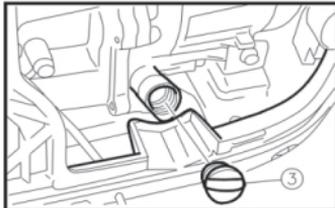
Do not drain oil immediately after shutting down the generator. Oil temperature is very high, so pay attention to avoid scalding during operation.

1. Place the generator on a horizontal surface and crank it for a few minutes, to increase its temperature, and then shut down the engine. Turn the three-in-one combination control switch knob and vent knob of the fuel tank cap to OFF position.

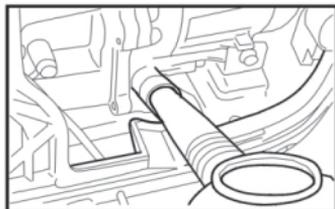
2. Remove screws ① and remove exterior cover plate ② .



3. Remove engine oil cap ③ .



4. Place an oil pan under the engine, tilt the generator to quickly pour out oil;



5. Place the generator back on a horizontal plane.

NOTICE

Be sure not to tilt the generator when filling oil to prevent excessive oil from being filled to damage the power.

6. Refill engine oil to an appropriate position.

Recommended engine oil: SAE SJ15W-40

Oil grade: API standard SJ type or higher

Volume: 0.45L

7. Wipe clean the cap and remove any spilled oil.

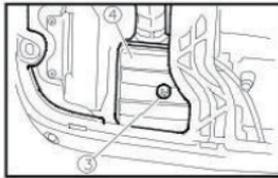
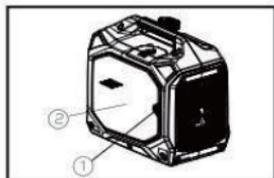
NOTICE:

Do not allow any foreign matter to enter the engine compartment

8. Tighten oil dipstick.
9. Cover the exterior cover plate and tighten screws.

7.4 Air Filter

1. Remove screws ① and remove exterior cover plate ②.
2. Remove screws ③ and remove air filter cover plate ④.



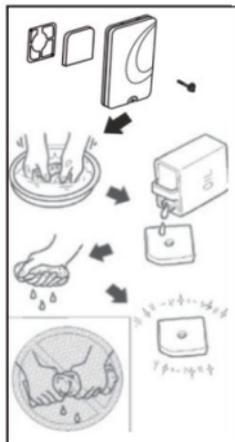
3. Remove foam filter element ①.
4. Clean the foam filter element with solvent and dry it.
5. Fill engine oil to the foam filter element and squeeze out excess oil. The foam filter element shall be wet, but shall not drip oil.

NOTICE

Do not twist the foam filter element to avoid damage.

6. Put the foam filter element into the air filter.

Tip: Make sure that the surface of foam filter element is close tight to the air filter, and do not leave a gap for air leakage.



Do not crank the engine before mounting the air filter, because it can generate excessive toxic gas and wear oil cylinder during use.

7. Re-mount the air filter cover in its original position and tighten screws.

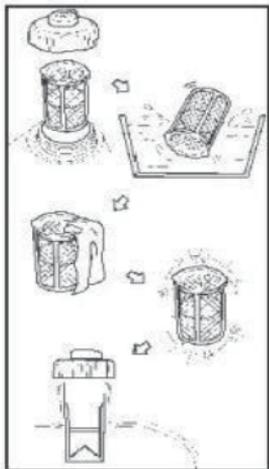
8. Re-mount the exterior cover and tighten screws.

7.5 Fuel Filter Screen

WARNING! Do not use gasoline in any place with smoke or flames.

1. Remove fuel tank cap and filter screen.
2. Clean the fuel tank filter screen with gasoline.
3. Wipe dry the filter screen and place it back into the fuel tank.
4. Mount back the fuel tank cover.

Note to be sure to tighten the fuel tank cap.



Modification to carburetor for high-altitude operation

In high-altitude region, standard carburetor will reduce air intake due to air pressure. The performance will decrease and fuel consumption will increase. And very dense mixture will also contaminate the spark plug, to cause it difficult to start. Running at a height different from that when the engine was certified may increase emission for extended duration.

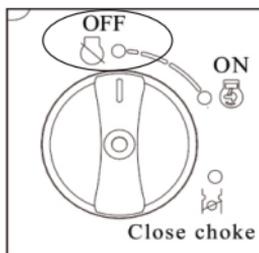
It can improve high-altitude performance to modify the carburetor. If you always operate your engine at an altitude higher than 5,000 feet (1,500 m), please contact your after-sales service of the dealer to perform this modification of carburetor. When this engine is operating, the modification to the carburetor used in high-altitude region will satisfy each emission standard during its service life.

8. Storage

If you plan to store this generator set for long term, in order to prevent aging, you are required to take some storage measures.

8.1 Pump Fuel Empty

1. Turn the three-in-one combination control switch knob to OFF.



2. Open the fuel tank cap and remove the filter. Pump all the fuel out of the fuel tank into dedicated fuel tank, and then mount the fuel tank cap back.

WARNING !

Fuel is highly volatile and toxic, please read the "Safety Instructions" carefully (see Page 1).

NOTICE

Wipe off any fuel spilled timely with clean and soft cloth to prevent damage to plastic casing.

3. Crank the engine and shut down it after about 20 minutes when the fuel is completely used up.

- Do not connect any electrical equipment.
- Running time of the engine depends on remaining fuel in fuel tank.

4. Remove screws and remove exterior cover plate.

5. Unscrew fuel drain bolt on the carburetor, to drain fuel in the carburetor into dedicated fuel tank.
6. Turn the three-in-one combination control switch to OFF.
7. Tighten the oil drain bolt.
8. Mount back the exterior cover plate and tighten screws.
9. After the engine completely cools down, close vent knob of fuel tank cap.

8.2 Engine Storage

Follow steps below to protect the casing and piston rings and other corrodible parts.

1. Remove the spark plug, pour in a spoonful of engine oil, mount back the spark plug, and pull the hand pulled starter (turn off the combination switch) for a few minutes to lubricate cylinder block with engine oil.
2. Pull the hand-pulled starter until you feel tight (to prevent rusting of the cylinder block and valves).
3. Wipe the surface of set clean, and then handle it in a well-ventilated and dry place, to sheath it with a sheath.

9. Troubleshooting

9.1 Engine Unable to Start

1. Fuel system

No gasoline in combustion chamber

- There is no fuel in the fuel tank Refuel it;
- Fuel filter blockage Clean fuel filter;
- The carburetor is blocked, clean the carburetor.

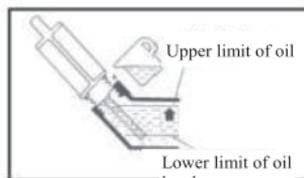
2. Oil system

Insufficient

- The oil level is too low ... Fill engine oil.

3. Electrical system

- Turn the combination switch to "CHOKE" and the manual starter is functioning normally The spark plug fails to ignite.
- The spark has carbon deposit or moisture ...Clean the spark plug and wipe it dry.
- Ignition system problem ... Please contact the dealer.



9.2 No Voltage Output of Generator

- The safety device (DC protector) is in "OFF" position ... Press down the DC protector to place it in "ON" position.
- AC indicator (green) is off ... Shut down the engine and re-crank it.

10. Technical Parameters

Model		GS4150-E
Generator	Type	Frequency conversion
	Frequency (Hz)	50
	Rated voltage (V)	120
	Starting Watts: (kW)	3.5
	Running Watts: (kW)	3.2
	Power factor	1
	DC output (V-A)	12
Engine	Engine type	Engine type: Single-cylinder, four-stroke, forced air cooling, overhead valve
	Displacement (cc)	181
	Fuel type	Unleaded gasoline
	Fuel tank volume (L)	4.8
	Engine oil volume (L)	0.45
	Spark plug model	A5RTC(TORCH)
	Crank mode	Recoil starter
Complete engine	L × W × H (mm)	490×305×465
	Net weight (kg)	24

