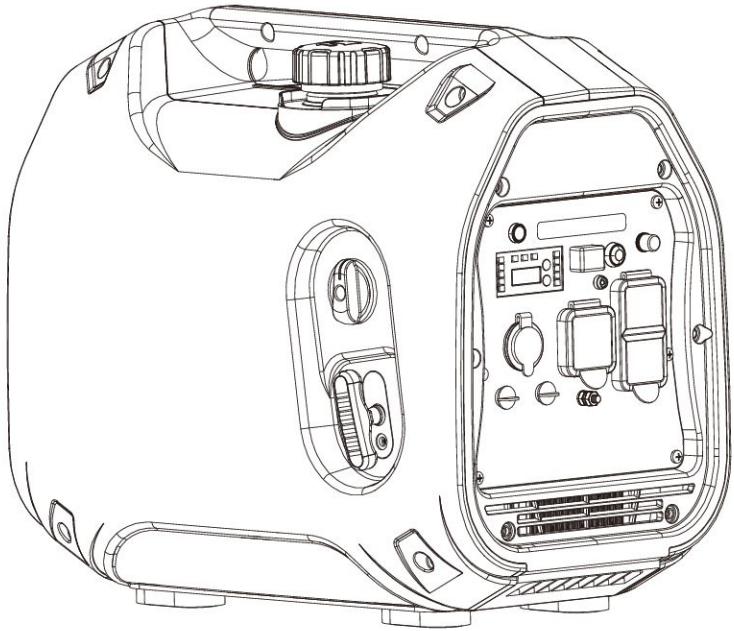
PULS ENERGY®
— POWER WHEN YOU NEED IT

PG2000iC

INVERTER GENERATOR
User's Manual



WARNING: SAVE THIS MANUAL FOR FUTURE REFERENCE

This manual contains important information regarding safety. Operation, maintenance and storage of this product. Before use, read carefully and understand all cautions, warnings, instructions and product labels. Failure to do so could result in serious personal injury and/or property damage.

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

This Manual will instruct you how to operate and use the generator set safely and properly. Please be sure to read it carefully before using.

All technical data and diagrammatic presentations in this User'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 User'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 part of the generator set. If the generator set is resold, the Manual will be resold together with the generator set.

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SAFETY

Personal and property safeties of you and others are very vital. Please read the Safety Warning in the User's Manual and the decals of the generator set carefully.

The Safety Warning can alert you to those potential hazards that could harm you and others. In front of each Safety Warning, there is one of four words “**DANGER**”, “**WARNING**”, “**ATTENTION**”, and “**CAREFUL**”. Details are as follows:

DANGER

Failure to follow the instruction will result in being in peril of your life or extremely serious injury.

WARNING

Failure to follow the instruction will result in being in peril of your life or very serious injury.

CAREFUL

Failure to follow the instruction will result in minor injury.

ATTENTION

Failure to follow the instruction will result in the damage to your generator set and other properties.

When Adding Or Draining Gasoline

Turn the generator engine OFF and let it cool for at least 2 minutes before removing the fuel cap. Loosen the cap slowly to relieve pressure in the tank.

- Fill or drain fuel tank outdoors.
- DO NOT overfill the tank. Allow space for fuel expansion.
- If fuel spills, wipe it up and let the area dry before starting the engine.
- Keep fuel away from sparks, open flames, heat, and other ignition sources.
- Check fuel lines, tank, cap, and fittings frequently for cracks or leaks; replace if necessary.
- DO NOT light a cigarette or smoke anything.

When Starting Equipment

- Ensure spark plug, muffler, fuel cap, and air cleaner are in place.
- DO NOT crank engine with spark plug removed.

When Operating Equipment

- DO NOT operate this product inside any building, carport, porch, mobile enclosure, marine applications, or shed.
- DO NOT tip engine or equipment at an angle that causes fuel to spill.
- DO NOT stop the engine by moving the choke control the to "Start" position.
- DO NOT exceed the generator's wattage capacity.
- Start the generator and the let engine stabilize before connecting electrical loads.
- Connect electrical loads in the OFF position, then turn ON for operation.
- Turn electrical loads OFF and disconnect from the generator before stopping the generator.

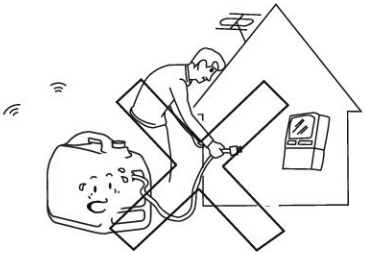
ATTENTION

Improper treatment of the generator could damage it and shorten its life.

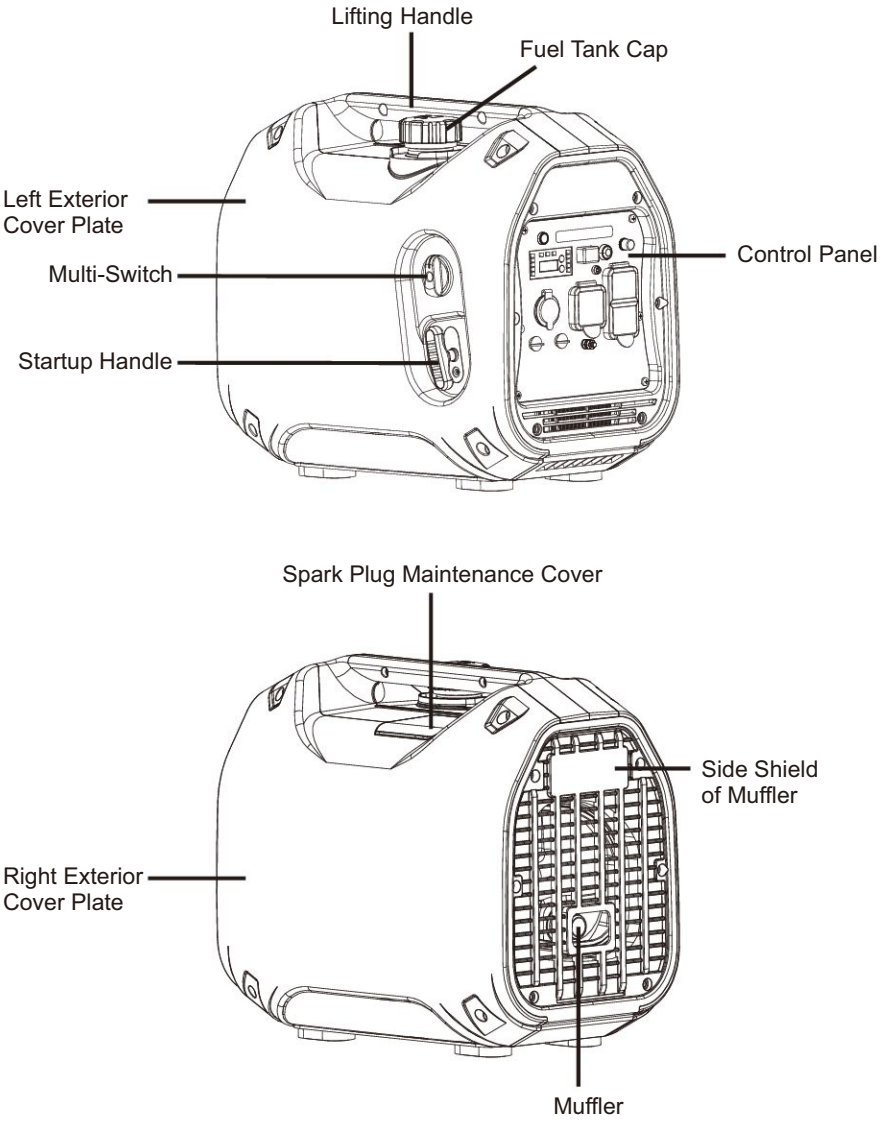
- Use generator only for intended applications.
- If you have questions about intended use, ask a dealer.
- Operate generator only on solid, level surfaces.
- DO NOT expose the generator to excessive moisture, dust, dirt, or corrosive vapors.
- DO NOT insert any objects through cooling slots.
- If connected devices overheat, turn them off and disconnect them from the generator.

SAFETY

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
	
Do not directly connect to the household power supply system	Please do not smoke when refueling
	
Please do not spill when refueling	Please shut down the generator before refueling

NAMES OF COMPONENTS



STATEMENT: The illustrations used in this manual are intended as representative reference views only.

CONTROL FUNCTIONS

Multi-Switch

OFF - Ignition circuit is off, the fuel valve is closed, the engine will not run.

RUN - Ignition circuit is on, the fuel valve is open, the choke is open, and the engine runs normally.

START (CHOKE) - (only used for cold starting) Ignition circuit is on, fuel valve is open, choke is closed.



Multi-Switch

NOTICE: If the engine is hot, do not use the choke.

Oil Indicator (red)



When the oil in the crankcase drops below safety line, oil protection system will automatically shut down the engine, and low oil indicator lights up; the engine can be restarted up only after the oil is filled to oil level.

Tip: In the case of flame-out of the engine or being unable to be started up, turn the combination switch to “RUN” position, and then pull startup handle. If low oil indicator flashes a few seconds, the oil volume is insufficient, fill oil and restart it.

Overload Indicator (red)



When the overload indicator lights up, the generator has detected that the output of connected electrical equipment has been overloaded, causing frequency converter to be overheated or AC voltage to rise. At this moment, AC protector works and stops generating, to protect the generator and connected electrical equipment. AC indicator (green) is off and overload indicator (red) lights up, but the engine will not stop running.

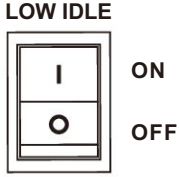
When overload indicator is on and the generator has no output, please take following counter measures:

① Switch off electrical equipment connected, and shut down the generator.
② Reduce total power of electrical equipment connected to the range of rated output.
③ Check whether there is any foreign matter blocking in cooling air inlet, and whether there is any abnormality in related control components. If there is any problem, eliminate it immediately.
④ After checking, restart the engine.

Output Indicator (green)

The AC indicator lights when the engine is started and output normally.

Energy-Saving Switch (LOW IDLE)



CONTROL FUNCTIONS

1) "ON"

When energy saving switch is switched to "ON" position engine speed is reduced when the generator is under light load. This feature will reduce fuel consumption and noise.

2) "OFF"

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

Reset

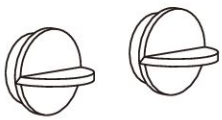
If the inverter is overloaded, the reset breaker will trip. The engine will continue to run, but there will be no output from the inverter. Unplug the devices and reduce the load. Push in the reset breaker to reset it.

RESET



Parallel Connector

To increase AC power output, the connector sockets are used to connect the two same type generator with special paralleling cords. The connector sockets is only used to the communication between the inverters, they can not used for AC power output. The special paralleling cords shall be purchase separately, and they shall be approved by certification body.



PARALLEL CONNECTOR

AC Circuit Breaker

If the total AC load exceeds the rated current, the AC circuit breaker will open (trip) and the button will pop out. In this case disconnect all loads, restart the generator and push in the AC circuit breaker(s).



Ground Terminal

The ground terminal is used to externally ground the generator.



PREPARATIONS

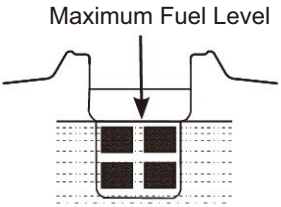
Add Gasoline

DANGER

- Fuel is flammable and toxic, please read the Safety Instruction carefully before refueling;
- Do not fuel too full, otherwise fuel will spill after fuel tank is warmed;
- After refueling, confirm that the fuel tank cap has been tightened.

ATTENTION

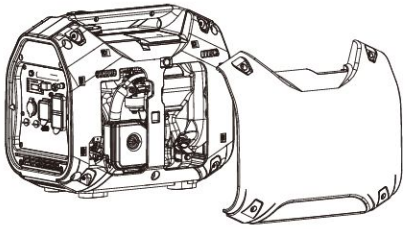
- After refueling, dry gasoline residue with a clean and soft cloth in time to avoid damaging plastic enclosure;
- Unleaded gasoline must be used, as leaded gasoline can seriously damage internal parts of the generator;
- Remove fuel tank cap, and add gasoline to red horizontal indicating line oil level.
- Fuel tank capacity: 1.14 US gallon(4.3L)



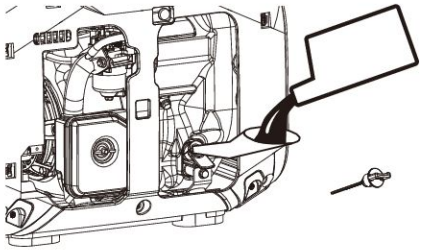
Add Engine Oil

No oil is filled into this generator when being delivered. Do not start up the generator without filing sufficient oil.

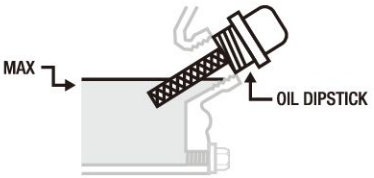
1. Please place the generator onto a horizontal plane surface;
2. Loosen the bolt and remove the right exterior cover plate;

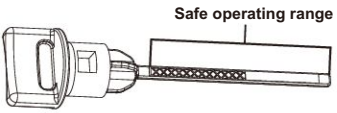


3. Unscrew oil dipstick;
4. Using a funnel, as needed, add the appropriate type of oil until the oil level is at the proper level. SAE 10w-30 oil is recommended for general use. DO NOT OVERFILL.



5. Check engine oil level daily and add as needed.
   Reinsert the dipstick, but do not tighten it, and remove it again to check the oil level. The oil level should reach the full liquid level as shown in the figure.





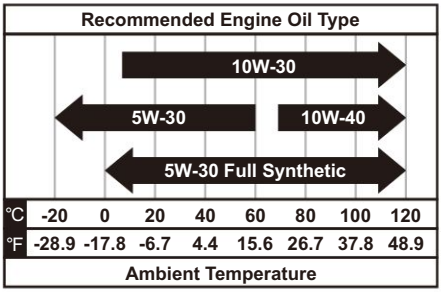
6. After refueling, tighten the oil dipstick, wipe off the surrounding oil, and reassemble the exterior cover plate.

ATTENTION

Your generator was functionally tested in the factory and may contain minimum residual oil. Additional oil is required to operate the unit. Do not overfill.

ATTENTION

The recommended oil type for typical use is 10W-30 automotive oil. However, using the listed conventional oils shown in the "Recommended Engine Oil Type" chart may be used for typical use including the first 5 hours of the break-in run time period of the engine. If running generator in extreme temperatures, refer to the "Recommended Engine Oil Type" chart.



Pre-use Inspection

WARNING

Even if the generator is not in service, its important component may suddenly fails. Before the generator is started up, if any of following components is unable to work properly, please inspect and repair carefully.

Tip: The condition of the generator shall be inspected before using every time.

Pre-Operation Inspection

Fuel

- Check fuel level in fuel tank of the generator, and fuel it if necessary.

Oil

- Check oil level of the generator, and fill oil if necessary;
- Check whether there is oil leaking.

Abnormal conditions during operation

- Check operating condition of the generator;
- If there is any need, please do not hesitate to consult your dealer.

OPERATION

Generator Location

WARNING

NEVER operate the generator inside any building, garage, basement, crawlspace, shed, or enclosure, including the generator compartment of a recreational vehicle.

NEVER operate or start the generator in the back of an SUV, camper, trailer, truck bed (regular sides, flat or other configuration), under staircases, stairwells, next to walls or buildings, or any other location that could limit airflow or trap exhaust.

DO NOT operate or store the generator in wet weather conditions such as rain or snow. Using a generator in wet conditions could result in serious injury or death due to electrocution.

Generators must have a minimum of 5 feet (1.5 m) of clearance from all combustible material.

Generators must also have a minimum of 5 feet (1.5 m) of airflow clearance on all sides to allow for adequate cooling, maintenance, and service.

Always place the generator in a well-ventilated area. NEVER place the generator near air intake vents or where exhaust fumes could be drawn into occupied or confined spaces.

Always carefully consider wind and air currents when positioning the generator.

Always allow generators to properly cool before transport or for storage purposes.

Failure to follow proper safety precautions may result in personal injury, damage to the generator, and void your warranty.

WARNING

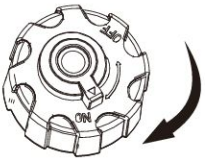
During operation, the muffler and exhaust fumes will become hot. If there is inadequate cooling space or if the generator is blocked or enclosed, temperatures can rise quickly and may lead to a fire.

Starting up the Generator

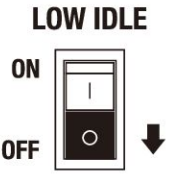
1. Make sure the generator is on a solid, flat, level surface.

2. Disconnect all electrical loads from the generator. Never start or stop the generator with electrical devices plugged in or turned on.

3. Turn the fuel tank cover ventilation knob to “ON”. (Actual prevail)



4. Press LOW IDLE to "OFF" position.



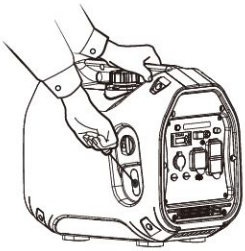
5. Turn the Multi-Switch to "START(CHOKE)" to start a cold engine.



6. Firmly grasp and pull the recoil handle slowly until you feel increased resistance, then pull rapidly.

Tip: When pulling the hand starter, hold the generator carrying handle firmly, to prevent the generator from overturning.

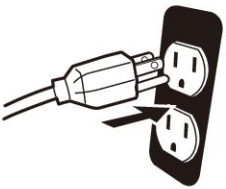
OPERATION



7. With the engine started, turn the Multi-Switch to the “RUN” position.



8. After 1-2 minutes of normal operation of the generator, connect the required equipment.



ATTENTION

For gasoline restarts with hot engine in hot ambient temperature >86°F (30°C): Rotate the Multi-Switch to the "CHOKE" position for only one pull of the recoil cord. If generator does not start after first pull, rotate the dial to the “RUN" position for the next three pulls. Too much choke leads to spark plug fouling and engine flooding. This will cause the engine not to start.

ATTENTION

For gasoline starting in standard ambient temperature >59°F(15°C): Keep Multi-Switch in "CHOKE”position for three pulls of the recoil cord. If generator does not start after three pulls, rotate the Multi-Switch to the “RUN” position for the next three pulls. Too much choke leads to spark plug fouling and engine flooding. This will cause the engine not to start.

ATTENTION

For gasoline starting in cold ambient temperature < 59°F (15°C): Keep the Multi-Switch in the “CHOKE” position until engine starts. As soon as the engine starts and runs smoothly turn the Multi-Switch to the “RUN”position. In extreme cold temperatures, this may take several seconds.

ATTENTION

If the engine starts but does not continue to run make certain that the generator is on a flat, level surface. The engine is equipped with a low oil sensor that will prevent the engine from running when the oil level falls below a critical threshold.

Parallel Operation

The parallel connection ports allow you to connect two generators to increase the total available electrical power. Follow the instructions included with your parallel connection kit for proper installation and operation.

Overload Indicator

Note: The OVERLOAD light may turn on for a few seconds as a large device starts. This is normal for loads approaching the capacity of this generator.

1.The total combined load through the outlets on the generator must not exceed the running power of the unit.

2. If the OVERLOAD light turns on and the generator stops producing power, it has been overloaded.

3. Turn off and disconnect all electrical devices and stop the engine. Compare device requirements to generator rating and reduce the total wattage of connected devices if necessary. Move anything that may be limiting generator ventilation away.

4. Check if any circuit breakers have tripped and make sure that ALL circuit breakers are reset before starting the generator again.

5. Restart the engine and reconnect devices while being careful to not overload the generator.

Low Oil Indicator

1. If the engine oil level is too low, the LOW OIL light turns on and the engine will automatically shut off.

2. The engine cannot be restarted until the proper amount of oil has been added. Add the appropriate type of oil until the oil level is at the proper level. SAE 10w-30 oil is recommended for general use.

ATTENTION

Do not run the engine with too little oil. Engine will shut off if engine oil level is too low.

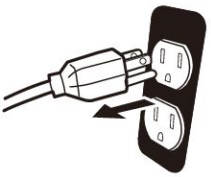
Low Idle

1. Turn on a Low Idle Switch to limit noise and fuel consumption with a light generator load.
2. Turn off the low idle mode to run the engine at full speed under the following conditions:

- Starting the generator.
- If the load exceeds 50%, it is recommended to turn off the low idle mode.

Shutting Down the Generator

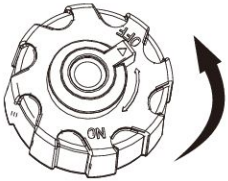
1. Turn off and unplug all connected electrical loads. Never start or stop the generator with electrical devices plugged in or turned on.



2. Turn the Multi-Switch to "OFF" position.



3. Turn the fuel tank cover ventilation knob to “OFF”. (Actual prevail)



4. Remove or consume all untreated gasoline if you plan to store the generator longer than 3 months.

Service Environment of the Generator

- Applicable temperature: 23℉(-5℃)~ 104℉(40℃);
- Applicable humidity: below 95%;
- Applicable altitude: regions below 1,500 m (It shall be used by reducing power in regions above 1,000 m).

Standard atmospheric condition

- Ambient temperature Tr: 298k (77℉)(25°C)
- Relative air humidity Φr: 30%.
- Absolute atmospheric pressure Pr: 100kPa

When actual environmental condition is inconsistent with the condition of output power of the generator set:

- Every 41℉(5°C) of increase in ambient temperature will reduce the power of generator by about 2%
- Every 30% of increase in relative humidity of air will reduce the power of generator by about 1.5%
- Every 300 m rising of ASL will reduce the power the generator by about 4.5%

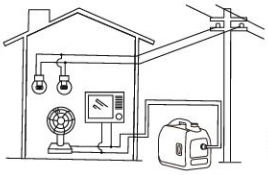
Generator Wiring

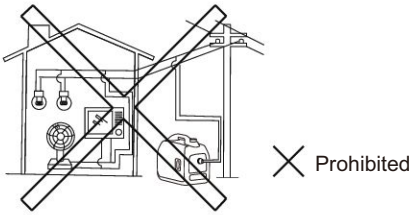
- When the generator is connected to household power source as a backup power supply, the connection shall be carried out by a professional electrician or a person familiar with electricity.
- After connecting the load to the generator, check carefully whether electrical connection is safe and reliable. Improper electrical connection may cause generator damage, burning or fire.
- Avoid connecting this generator to commercial power outlet.
- When extending the cable, be sure not to exceed its length.

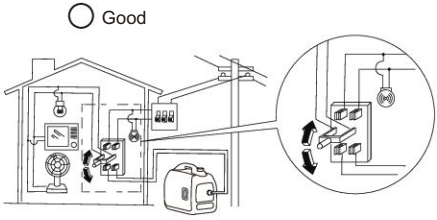
① 60m cross-section area is 1 .5mm^2

② 100m cross-section area is 2.5mm^2

- The appearance of extension cable shall be protected by a layer of tough and elastic rubber cover (IEC25) or other substitutes.







USING THE GENERATOR

Connection of AC power

WARNING **Ail electrical equipment shall be disconnected before inserting the plug.**

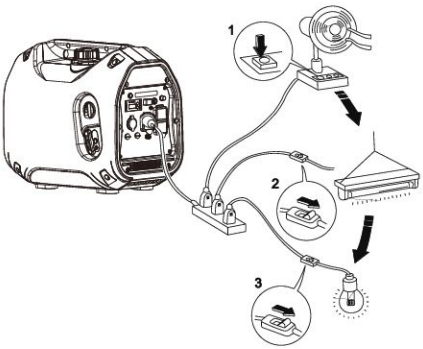
ATTENTION

- 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 set is grounded, and if electrical equipment requires grounding, the generator set must be grounded.

① Start up the engine;
② Turn energy-saving switch to “ON” ;
③ Insert the plug into AC outlet;
④ Make sure that AC indicator is lit up;
⑤ Switch on electrical equipment.

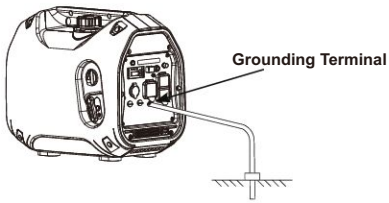
Tip: Before increasing engine speed, low idle switch must be switched to “OFF”. If the generator set supplies power to multi loads or electrical equipment, start from large to small according to the size of each electrical equipment.



Generator Grounding

In order to prevent any damage to the generator caused by electric shock or improper electrical application, it is recommended that the generator is grounded with good conductor with insulating sheath.

① Please use grounding wire with sufficient electrical energy capacity;
② Connect one end of grounding wire reliable to grounding bolt on control panel of the generator set;
③ Insert grounding body (iron rod with a diameter of 5 ~ 10mm) 200mm below into the earth and lead it out with conductor;
④ Connect the other end of the grounding wire reliable to the led wire of grounding body.



Range of Application

Before using the generator, please make sure that total load is within rated load range of the generator, otherwise the generator may be damaged.

Tip:

- AC and DC can be used at the same time, but total power amount shall not exceed rated output power.
- When total power exceeds rated power, overload indicator will light up.

SERVICE AND MAINTENANCE

Good maintenance and service is the best guarantee for safe, economical and reliable operation. It also contributes to environmental protection.

In order to keep the generator in good condition, you must inspect and maintain it regularly. The maintenance schedule is as follows:

Item \ Maintenance cycle		Each	First in 1 month or 20 hours	Then every three months or every 50 hours	100 hours per year or use
Engine oil	Check-fill	√			
	Replace		√	√	
Gearbox gear Oil (if any)	Check oil	√			
	Replace		√	√	
Air cleaner element	Inspection	√			
	Clean		√		
	Replace			√	
Settling cup (if any)	Clean				√
Spark plug	Clean-adjust				√*
Spark eliminator	Clean			√	
Idle speed (if any)**	Check-adjust				√
Valve clearance**	Check-adjust				√
Fuel tank and fuel filter***	Clean				√
Fuel line	Inspection	Every two years (Please replace if ncessary)			
Cylinder head, piston	Remove carbon deposit**	Displacement < 225cc, every 125 hours; displacement capacity ≥ 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.

ATTENTION

- If it often works under high temperature or high load, oil shall be changed every 25 hours;
- If it often works in dusty or harsh environment, air cleaner element shall be cleaned every 10 hours. If necessary, the air cleaner element shall be replaced every 25 hours;
- It shall be maintained on spot-inspection or on regularly scheduled inspections;
- If maintenance cycle time has elapsed, perform the maintenance as soon as possible as per the table above.

WARNING

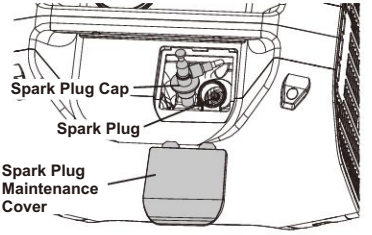
Please shut down the engine first before performing any maintenance. The engine shall be placed in a horizontal position. In order to prevent the engine from starting up, separate spark plug cap shall be separated from spark plug.

Do not use it indoors or use it in a tunnel, cave or other places ventilated poorly. Make sure that work area is well ventilated. Exhaust gas from the engine contains toxic gases, carbon oxides, and the inhalation can cause shock, loss of consciousness, and even death.

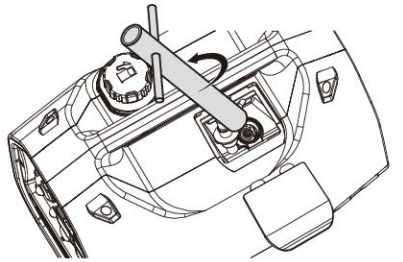
Spark Plug Inspection

Spark plug is an important part of the generator, which must be inspected regularly.

1. Remove Spark plug maintenance cover and spark plug cap of the generator.

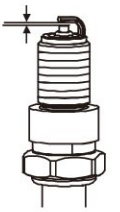


2. Insert the screwdriver into the sleeve, to screw it counterclockwise, and then remove the spark plug.



3. Check whether there is discoloration, and remove carbon deposits. Check whether there is little pale to moderate brown on ceramic cores around center electrode of the spark plug.

4. Check the model of spark plug and clearance.



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

Tip: The spark plug clearance is required to be measured by line thickness gauge, which shall be adjusted if necessary.

5. Installation of spark plug.

Spark cold torque：**12.5 N.m**

Tip: If there is no torque wrench when installing the spark plug, a better estimation method is to screw it 1/4-1/2 turns by force after screwing it in place, but the spark plug shall be screwed to specified torque as soon as possible.

Adjustment of the Carburetor

The carburetor is an important components 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.

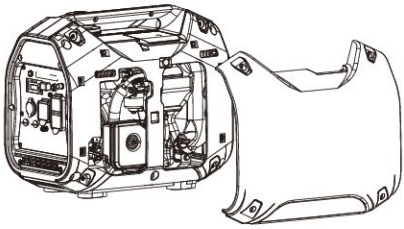
Replacement of Oil

WARNING

Do not drain the oil immediately after turning off the generator. During operation, the oil is very hot and can cause serious burns.

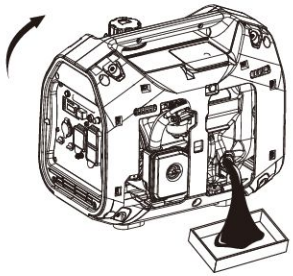
1. Please place the generator onto a horizontal plane surface;

2. Loosen the bolt and remove the right exterior cover plate;



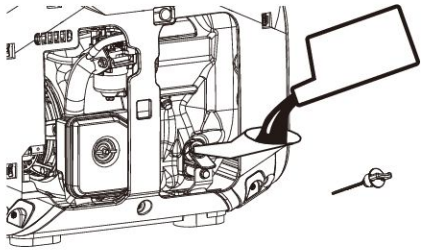
3. Unscrew oil dipstick;

4. Place a container under the engine, tilt the generator, and pour out the oil;

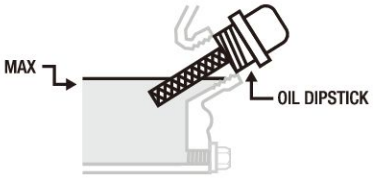


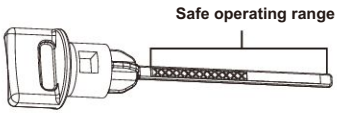
ATTENTION: When fling oil, do not tilt the generator frequently to prevent damage to the power by filling too much oil.

5. Using a funnel, as needed, add the appropriate type of oil until the oil level is at the proper level. SAE 10w-30 oil is recommended for general use. DO NOT OVERFILL;



6. Check engine oil level daily and add as needed.
   Reinsert the dipstick, but do not tighten it, and remove it again to check the oil level. The oil level should reach the full liquid level as shown in the figure.



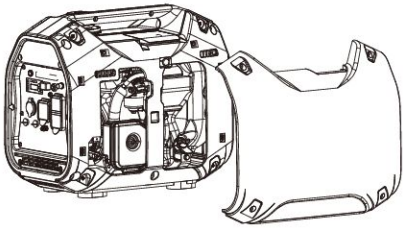


6. After refueling, tighten the oil dipstick, wipe off the surrounding oil, and reassemble the exterior cover plate.

Air Filter

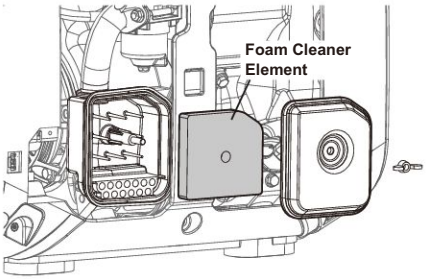
Dirty air cleaner may prevent air from flowing into the carburetor. In order to prevent failure of the carburetor, please maintain air cleaner regularly. If being used in a dusty environment, it shall be maintained frequently.

1. Loosen the bolt and remove the right exterior cover plate.

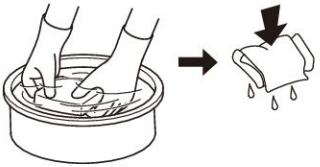


2. Remove screws, to remove cover plate of air cleaner.

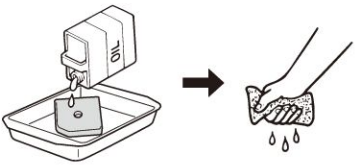
3. Remove foam cleaner element.



4. Clean the components with cleaning agent. After cleaning, wrap the components in a cloth and screw them dry.



5. Drip a few drops of oil to foam filter element and squeeze off excess oil. The foam cleaner element shall be wet, but there shall not be oil dripping.



ATTENTION

Be sure not to twist the foam cleaner element forcibly to avoid damage.

6. Put foam cleaner element into air cleaner.

Tip: Make sure that the surface of foam cleaner element is in close contact with air cleaner, and there shall be no gap leaking air.

7. Reassemble empty air cleaner cap back to original position, and tighten screws.

8. Assemble right exterior cover plate and tighten the bolt.

ATTENTION

Be sure not to start the engine before air cleaner is assembled, because ti will generate excessive toxic gas and wear the cylinder.

Spark Arrestor Maintenance

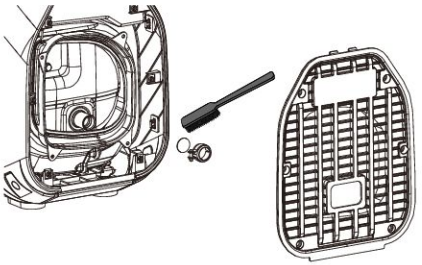
WARNING

TO PREVENT SERIOUS INJURY AND FIRE: Operate only with proper spark arrestor installed.

WARNING

The operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrestor may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.

1. Allow the generator to cool completely.
2. Remove the Screws from the back of the generator.
3. Remove the Tail Pipe and Spark Arrestor.
4. Clean the Spark Arrestor using a wire brush (sold separately). Replace the arrestor if damaged.



WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL BRUSH FIRE, secure Spark Arrestor back in place immediately after cleaning and before further operation.

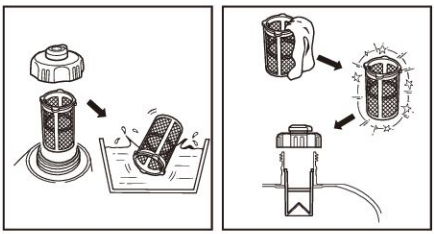
Fuel Filter Screen

WARNING

Be sure not to open fuel tank of the generator in a place where smoking or with flame.

1. Remove fuel tank cap and fuel tank filter screen;
2. Clean fuel tank filter screen with gasoline;
3. Wipe filter screen dry, and put it back into fuel tank;
4. Reassemble fuel tank cap.

ATTENTION: Be sure to screw fuel tank cap tight.



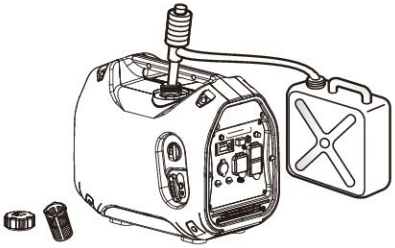
STORAGE AND TRANSPORT

Generator Storage

If it is stored long-term, in order to prevent aging, you shall take some storage measures.

1. Turn off the generator.

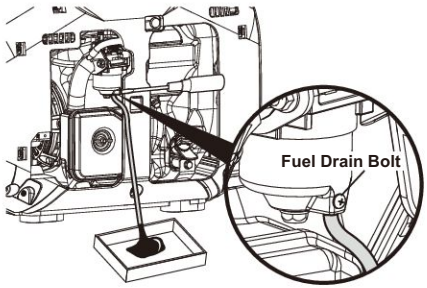
2. Open fuel tank cap, to take out fuel filter screen. Pump all fuel in fuel tank into special fuel tank, and then reassemble fuel tank cap back.



3. Start up the engine to burn off fuel in the carburetor, and then shut it down.

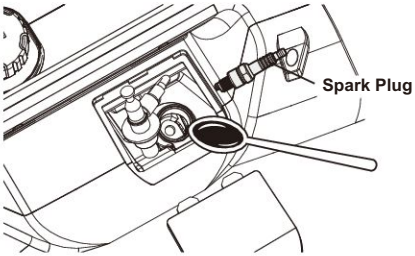
Tip: Do not connect any electrical equipment. Running time of the engine depends on remaining fuel in the fuel tank.

4. Unscrew fuel drain bolt on the carburetor, and drain fuel in the carburetor into special fuel tank. Tighten fuel drain bolt.



5. Unscrew oil dipstick, and drain oil in the crankcase off. Fill new oil to upper oil limit, and then assemble oil dipstick.

6. Remove the spark plug and pour 5-10ml of clean oil into the combustion chamber. Turn the crankshaft a few times to distribute the oil, then reassemble the spark plug.



7. Gently pull startup handle until you feel resistance, allowing both inlet valve and exhaust valve to be closed.

8. Place the generator set in a clean and dry area.

Generator Transport

- When the generator set is transported, it shall be ensured that there is no fuel spilling.
- Do not fill excessive fuel Into fuel tank.
- Do not run the generator, and avoid direct sunlight.
- Do not transport the generator set on rough road for long time.

TROUBLESHOOTING

Problem	Possible Causes	Probable Solutions
Engine will not start	FUEL RELATED:	FUEL RELATED:
	1. No fuel in tank or fuel valve closed.	1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline and open fuel valve. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	2. Choke not in START position, cold engine.	2. Move Choke to START position.
	3. Gasoline with more than 10% ethanol used. (E15, E20, E85, etc.)	3. Clean out ethanol rich gasoline from fuel system. Replace components damaged by ethanol. Use fresh 87+ octane stabilizer-treated unleaded gasoline only. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	4. Low quality or deteriorated, old gasoline.	4. Use fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	5. Carburetor not primed.	5. Pull on Starter Handle to prime.
	6. Dirty fuel passageways.	6. Clean out passageways using fuel additive. Heavy deposits may require further cleaning.
	7. Carburetor needle stuck. Fuel can be smelled in the air.	7. **Gently** tap side of carburetor float chamber with screwdriver handle.
	8. Too much fuel in chamber. This can be caused by the carburetor needle sticking.	8. Turn Choke to RUN position. Remove spark plug and pull the start handle several times to air out the chamber. Reinstall spark plug and set Choke to START position.
	9. Clogged Fuel Filter.	9. Replace Fuel Filter.
	IGNITION (SPARK) RELATED:	IGNITION (SPARK) RELATED:
	1. Power Switch at OFF position.	1. Turn Power Switch to ON.
	2. Spark plug cap not connected securely.	2. Connect spark plug cap properly.
	3. Spark plug electrode wet or dirty.	3. Clean spark plug.
	4. Incorrect spark plug gap.	4. Correct spark plug gap.
	5. Spark plug cap broken.	5. Replace spark plug cap.
	6. Circuit breaker tripped (electric start models only).	6. Reset circuit breaker. Check wiring and starter motor if breaker continues to trip.
	7. Incorrect spark timing or faulty ignition system.	7. Have qualified technician diagnose/ repair ignition system.
	COMPRESSION RELATED:	COMPRESSION RELATED:
	1. Cylinder not lubricated. Problem after long storage periods.	1. Pour tablespoon of oil into spark plug hole. Crank engine a few times and try to start again.
	2. Loose or broken spark plug. (Hissing noise will occur when trying to start.)	2. Tighten spark plug. If that does not work, replace spark plug. If problem persists, may have head gasket problem, see #3.
	3. Loose cylinder head or damaged head gasket. (Hissing noise will occur when trying to start.)	3. Tighten head. If that does not remedy problem, replace head gasket.
	4. Engine valves or tappets mis-adjusted or stuck.	4. Have qualified technician adjust/ repair valves and tappets.
	ENGINE OIL RELATED:	ENGINE OIL RELATED:
	1. Low engine oil.	1. Fill engine oil to proper level. Check engine oil before EVERY use.
	2. Engine mounted on slope, triggering low oil shutdown.	2. Operate engine on level surface. Check engine oil level.
	SPARK ARRESTOR RELATED:	SPARK ARRESTOR RELATED:
	1. Spark Arrestor clogged with soot.	1. Clean and replace Spark Arrestor.

Follow all safety precautions whenever diagnosing or servicing the generator or engine.

TROUBLESHOOTING

Problem	Possible Causes	Probable Solutions
Engine misfires	1. Spark plug cap loose. 2. Incorrect spark plug gap or damaged spark plug. 3. Defective spark plug cap. 4. Old or low quality gasoline. 5. Incorrect compression.	1. Check cap and wire connections. 2. Re-gap or replace spark plug. 3. Replace spark plug cap. 4. Use only fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).** 5. Diagnose and repair compression. (Use **Engine will not start: COMPRESSION RELATED** section.)
Engine stops suddenly	1. Carbon Monoxide level high. Red light on Carbon Monoxide Sensor illuminates. 2. CO Sensor Alarm flashes yellow continually shortly after starting. 3. CO Sensor Alarm flashes yellow continually after longer period of operation. 4. Low oil shutdown. 5. Fuel tank empty or full of impure or low quality gasoline. 6. Defective fuel tank cap creating vacuum, preventing proper fuel flow. 7. Faulty magneto. 8. Disconnected or improperly connected spark plug cap.	1. Leave area immediately and allow area to ventilate thoroughly. Only operate generator outside. 2. Carbon monoxide sensor malfunction. Sensor needs service. Do not use the Generator until the sensor is working properly. 3. Make sure to operate generator within rated ambient temperature; maintain minimum 5 ft. clearance from all sides. 4. Fill engine oil to proper level. Check engine oil before EVERY use. 5. Fill fuel tank with fresh 87+ octane stabilizer treated unleaded gasoline. Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.). 6. Test/replace fuel tank cap. 7. Have qualified technician service magneto. 8. Secure spark plug cap.
Engine stops when under heavy load	1. Dirty air filter 2. Engine running cold.	1. Clean element. 2. Allow engine to warm up prior to operating equipment.
Engine knocks	1. Old or low quality gasoline. 2. Engine overloaded. 3. Incorrect spark timing, deposit buildup, worn engine, or other mechanical problems.	1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).** 2. Do not exceed equipment's load rating. 3. Have qualified technician diagnose and service engine.
Engine backfires	1. Impure or low quality gasoline. 2. Engine too cold. 3. Intake valve stuck or overheated engine. 4. Incorrect timing.	1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).** 2. Use cold weather fuel and oil additives to prevent backfiring. 3. Have qualified technician diagnose and service engine. 4. Check engine timing.
Attached device doesn't have power	1. Device not plugged in properly. 2. Circuit Breaker tripped. 3. Product needs service.	1. Turn off and unplug the device, then plug it back in again and turn on. 2. Turn off and unplug device, reset Circuit Breaker, plug in device and turn on. 3. Have product repaired.
Attached device begins to operate abnormally	1. Problem with device. 2. Rated load capacity exceeded.	1. Immediately unplug device. Have device repaired by a qualified technician, or replace device. 2. Lower the number of items plugged into the generator to stay within the rated capacity, or use a more powerful generator.

Follow all safety precautions whenever diagnosing or servicing the generator or engine.

TECHNICAL PARAMETERS

Engine	Engine Model	148F/P-2	164F/P-2
	Engine Type	Single Cylinder, Four Stroke, Air Cooled, Overhead Valve	
	Cylinder Diameter×Stroke (mm)	48.6×43	64×45
	Displacement(cc)	79.7	145
	Compression Ratio	8.7±0.2	8.7±0.2
	Gas Distribution Mode	OHV	OHV
	Cooling Mode	Forced Cold Air	Forced Cold Air
	Output Power(kW/r/min)	2.4/5000	3.8/4500
	Starting Mode	Recoil Starting	Recoil Starting
	Fuel Tank Capacity(L)	4.3	4.3
	Type and Grade of Fuel	Unleaded Gasoline For Vehicles	
	Lubricating Oil Capacity(L)	0.35	0.45
	Lubricating Oil Model	SAE 10W/30	SAE 10W/30
	Lubrication Way	Splash Lubrication	Splash Lubrication
Generator	Noise dB(7m@50% load)	62	63
	Power Factor	1	1
	Number of Phase	Single Phase	Single Phase
Configure	Electric Machinery	Permanent Magnet	Permanent Magnet
	Voltage Regulation	Controller Regulation	Controller Regulation
	Frequency regulation	Controller Regulation	Controller Regulation
Dimensions(mm)		485×285×455	485×285×455
Net Weight(kg)		19/19.5/20	20/20.5/21/22/22.5

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The website is in Ukrainian.