

# BENCHMARK™

## BG4000i



**USER MANUAL**



This product is supported by **Midland Power**. Contact us directly for assistance and warranty help. Do not return this product to store.

You must register online for your warranty to be valid. It only takes a minute, do it now while you still have your purchase receipt.

**Register Your Product Online**

[www.benchmark.midlandpowerinc.com/  
register-warranty](http://www.benchmark.midlandpowerinc.com/register-warranty)



Support for your product is available online, including parts, service center locations, and live expert advice.

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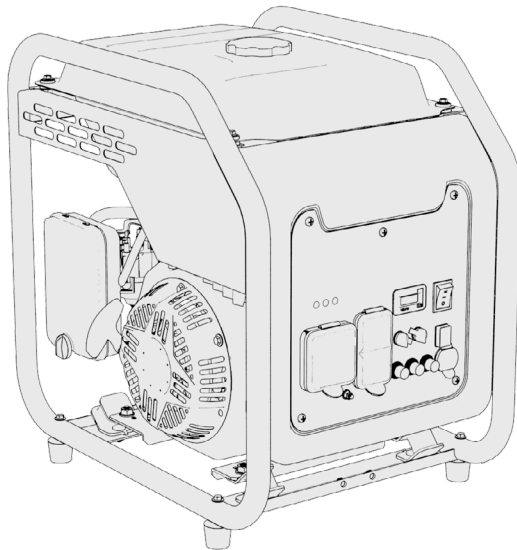
Or call us anytime at **1-877-528-3772**.

## Thanks for choosing the BG4000i!

You're excited to get started, we'll keep this brief.

### **READ THIS ENTIRE GUIDE BEFORE USING THIS PRODUCT AND SAVE FOR LATER USE.**

This user guide contains important instructions including safety, setup, operation, and maintenance that must be followed. All information in this guide is based on information available at the time of print. This guide or revised editions can be found on our website for download. No part of this publication may be reproduced without written permission.



**THIS PRODUCT MEETS ALL CERTIFICATION REQUIREMENTS FROM:**



The engine exhaust from this product contains chemicals known to cause cancer, birth defects or other reproductive harm.




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BG4000I\_UG\_EN\_2022-01-04

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# 1. SAFETY

<b>⚠ DANGER</b>	
Using a generator indoors <b>CAN KILL YOU IN MINUTES</b> . Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.	
 	
<b>NEVER</b> use inside a home or garage, <b>EVEN IF</b> doors and windows are open.	Only use <b>OUTSIDE</b> and far away from windows, doors, and vents.
Avoid other generator hazards. <b>READ MANUAL BEFORE USE.</b>	

## **⚠ DANGER! ⚠**

**Using a generator indoors can kill you in minutes.**

**Generator exhaust contains carbon monoxide. This is a poison that you cannot see or smell.**

**NEVER use inside a home or garage.**

## **⚠ WARNING!**

**This product can expose you to chemicals including carbon monoxide, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

## 1.1 OPERATOR SAFETY

### **⚠ WARNING!**

- Always perform an oil, fuel and air filter check before starting the engine.
- Properly clean and maintain the equipment.
- Operate the generator according to instructions for safe and dependable service.
- Before operating the generator, read the user guide carefully. Otherwise, personal injuries or equipment damage may result.
- Never run the generator in an enclosed area to avoid harm from exhaust emissions of a poisonous carbon monoxide gas.
- Pay attention to the warning labels. The engine exhaust system will become heated during operation and remain hot immediately after the engine is stopped.

- Gasoline is a highly flammable and explosive liquid. Refuel in a well ventilated area with the engine stopped.
- When refueling the generator, keep it away from cigarettes, open flames, smoke and/or sparks.
- Use of gasoline with an ethanol content greater than 10% can damage the engine and fuel system and will void the manufacturer's warranty.
- Place the generator at least 10 feet away from buildings or other equipment during operation.
- Run the generator on a level surface. Tilting the generator may result in fuel spills.
- Do not touch the spark plug while the engine is operating or shortly after the engine has been shut down.
- Know how to stop the generator quickly and understand operation of all the controls. Never permit anyone to operate the generator without proper instructions.
- Keep children, pets and machinery with rotating parts away during operation.
- Do not operate the generator in rain or snow.
- Do not allow any moisture to come in contact with the generator.

## 1.2 AC SAFETY

### **⚠ WARNING!**

Before connecting the generator to an electrical device or power cord:

- Make sure that everything is in proper working order. Faulty devices or power cords can lead to an electrical shock.
- Turn off the generator immediately if the device begins to operate abnormally. Then disconnect the device and investigate the problem.
- Keep away from other electric cables or wires.
- To prolong engine life, make sure that the combined load of your devices does not exceed the rated running wattage of the generator.
- When an extension cable is required, be sure to use a tough rubber sheathed flexible cable (according to IEC245 or equivalent standards). The maximum length of the extension cable: 196 feet (60 meters) for cable of 15.5 gauge (1.5mm<sup>2</sup>); 328 feet (100 meters) for cable of 13.25 gauge (2.5mm<sup>2</sup>).
- Connections for standby power to a building's electrical system must be done by a qualified electrician and must comply with all applicable laws and electrical codes. Improper connections may cause serious

injuries to electrical workers during a power outage, and when the utility power is restored, the generator may explode or cause fires. The generator shall be connected through transfer equipment that switches all conductors other than the equipment grounding conductor. The frame of the generator shall be connected to an approved grounding electrode.

- This unit is floating neutral. The generator (stator winding) is isolated from the frame and from the AC receptacle ground pin.
- Electrical devices that require a grounded receptacle pin connection will not function if the receptacle ground pin is not functional.


### 1.3 MAINTENANCE SAFETY

#### **WARNING!**

- After any maintenance is performed, wash hands immediately using soap and clean water because repeated exposure to lubricant may cause skin irritation.
- Do not clean the filter element with flammable liquids like gasoline because an explosion may occur.
- Turn off the engine and allow the generator to cool down before performing any maintenance. Failure to do so can cause severe personal injury or death.
- Always wear safety glasses when cleaning the generator set with air.
- Do not clean the generator set with a pressure washer because it can damage the generator set.
- When working with batteries, ventilate the area, use safety glasses, do not smoke. Always disconnect the negative first and reconnect it last.
- Use rubber gloves when coming into contact with engine oil.
- Always stop the generator set before removing the oil filler cap.
- Only qualified maintenance personnel with knowledge of fuels, electricity, and machinery hazards should perform maintenance procedures.
- See Chapter 7.1 for maintenance schedule.

## 1.4 OTHER SAFETY TIPS

**⚠ WARNING ⚠**  
**AVERTISSEMENT**

 **TOXIC FUMES HAZARD.** Running engines give off carbon monoxide, an odourless poisonous gas that can cause nausea, fainting, or death. Do not start engine indoors or in an enclosed area, even if the windows and doors are open.

**DANGER TOXIQUE.** Faire fonctionner un moteur dégage de l'oxyde de carbone, un gaz inodore toxique qui peut provoquer la nausée, évanouissement ou la mort. Ne démarrer pas le moteur à l'intérieur ou dans une espace clos, meme si les fenêtres et les portes sont ouvertes.

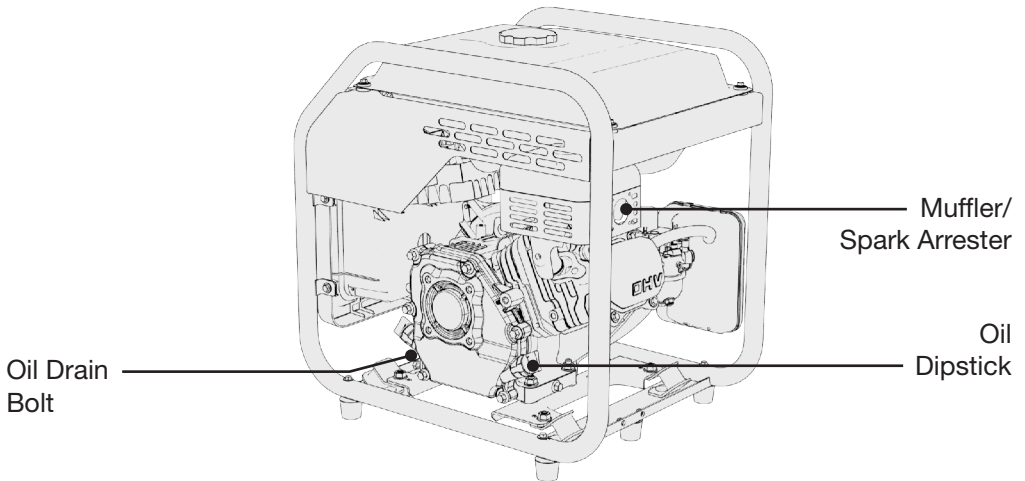
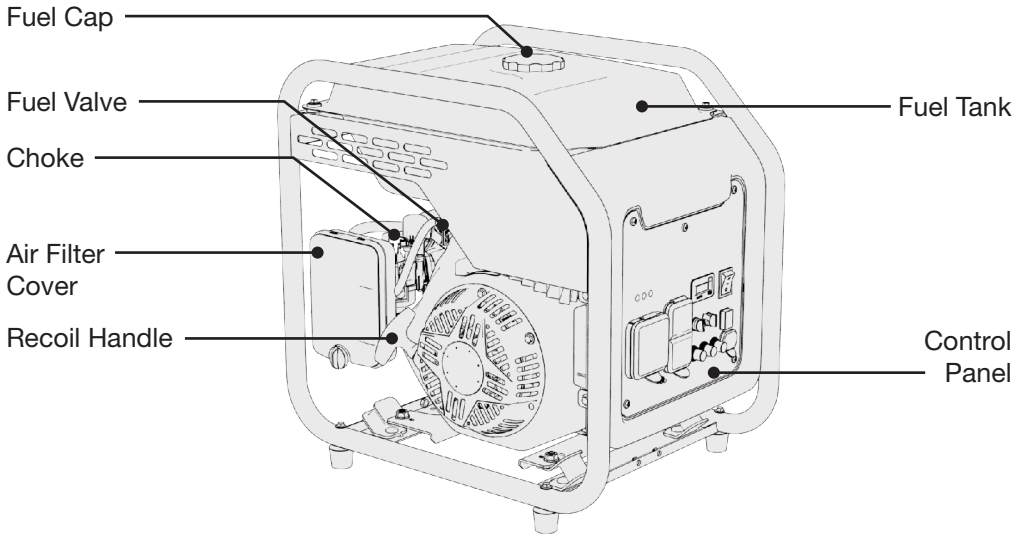
### **⚠ WARNING!**

- To avoid breathing in poisonous carbon monoxide from the exhaust gases, adequate ventilation should be provided, only operate the generator outside and away from enclosed areas, windows, and doors.
- If the generator set is stored outdoors, check all the electrical components on the control panel before each use. Moisture can damage the generator and can lead to an electric shock.
- Generators vibrate in normal use. During and after the use of the generator, inspect the generator as well as extension cords and power supply cords connected to it for damage resulting from vibration. Have damaged items repaired or replaced as necessary. Do not use plugs or cords that show signs of damage such as broken or cracked insulation or damaged blades.
- If you start to feel sick, dizzy, or weak after the generator has been running, move to fresh air **RIGHT AWAY**. See a doctor. You could have carbon monoxide poisoning.

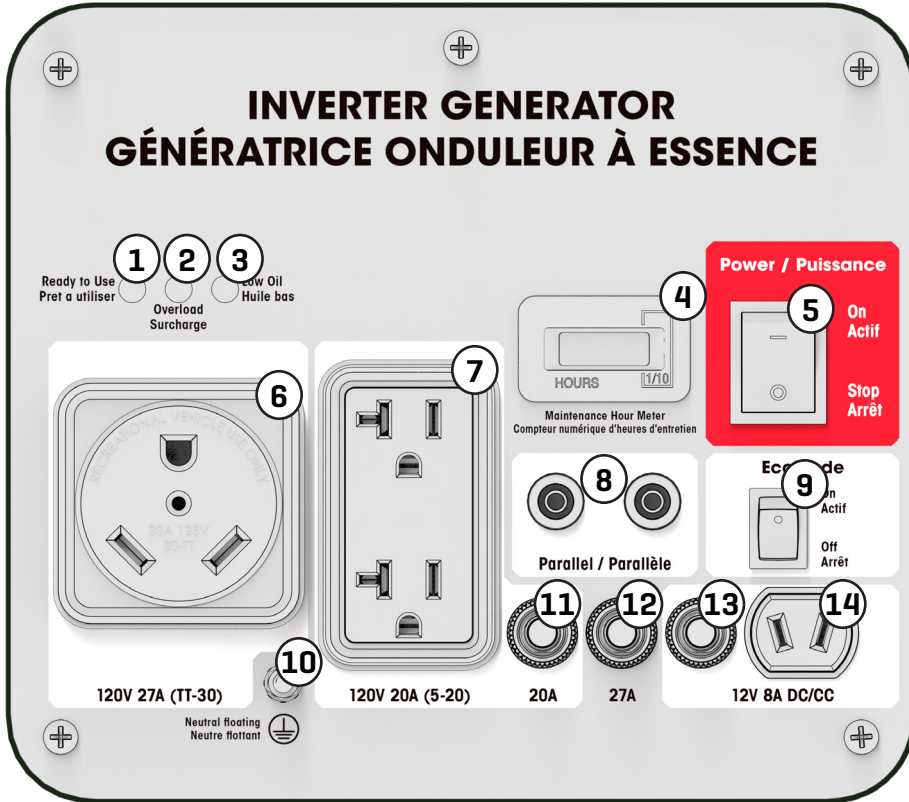
## 2. LEARN ABOUT YOUR GENERATOR

This section will show you how to identify key parts of your generator. Going over the terminology below will make sure we're on the same page.

### 2.1 COMPONENT IDENTIFICATION



## 2.2 CONTROL PANEL



1. Ready to Use Indicator
2. Overload Indicator
3. Low Oil Indicator
4. Hour Meter
5. Power Switch
6. 120V 30A (TT-30 RV)
7. 120V 20A (5-20 R)
8. Parallel Ports
9. EcoMode
10. Ground Terminal
11. 20A AC Breaker
12. 27A AC Breaker
13. DC Breaker
14. 12V 8A DC Receptacle

## 2.3 CONTROL FUNCTIONS

### AC Circuit Breakers

- While the generator is running, the breakers should be put in the ON position.
- If the current has exceeded its limits it will automatically pop out to the OFF position. Reduce the electrical load on the generator and push the button back to the ON position.

### DC Circuit Breakers

- The DC circuit breaker automatically shuts off when the charging circuit is overloaded.
- If the current has exceeded its limits the breaker will automatically pop out to the OFF position. Reduce the electrical load on the generator and push the button back to the ON position.

### Hour Meter

- Display shows total run time. Use this to perform maintenance at the proper intervals according to the 'Maintenance Schedule' section of this manual.

### EcoMode (Economy Control Switch)

- Turning EcoMode to ON is recommended for minimizing fuel consumption. In this mode the engine will dynamically meet the demand of the current electrical load and will automatically go into an idle state if all electrical loads are disconnected.
- Before connecting or removing a high load device to the generator, turn EcoMode to OFF until that device has reached running power.
- When EcoMode is OFF, the engine runs at full speed.

### Ground Terminal

#### **⚠ WARNING!**

**Before using the ground terminal consult a qualified electrician, electrical inspector, or local agency having jurisdiction for local laws and codes that apply to the intended use of the generator.**

- The ground terminal is connected to the non-current carrying metal parts (such as the fuel tank), the frame, and the ground terminals of the AC outlets. Floating Neutral.

## Low Oil Indicator Light

- The oil alert system is designed to prevent engine damage caused by an insufficient amount of oil in the crankcase. Before the oil level in the crankcase reaches an unsafe limit, the oil alert system will automatically shut down the engine (the battery power switch remains in the ON position).
- If the oil alert system shuts down the engine, the low oil indicator light (red) will turn on. Check the engine oil level.

## Power Switch

- The two-way power switch starts and stops the unit.
- ON: Switch must be in this position to recoil start.
- STOP: Stops the engine.

## Ready to Use and Overload Indicator

- In normal operation, the green ready to use indicator light will remain on.
- If the generator is overloaded (producing more than running wattage) or a connected appliance has short-circuited, the output indicator light will turn off and the overload indicator light will turn on.

## 2.4 MAKE SURE YOU HAVE EVERYTHING

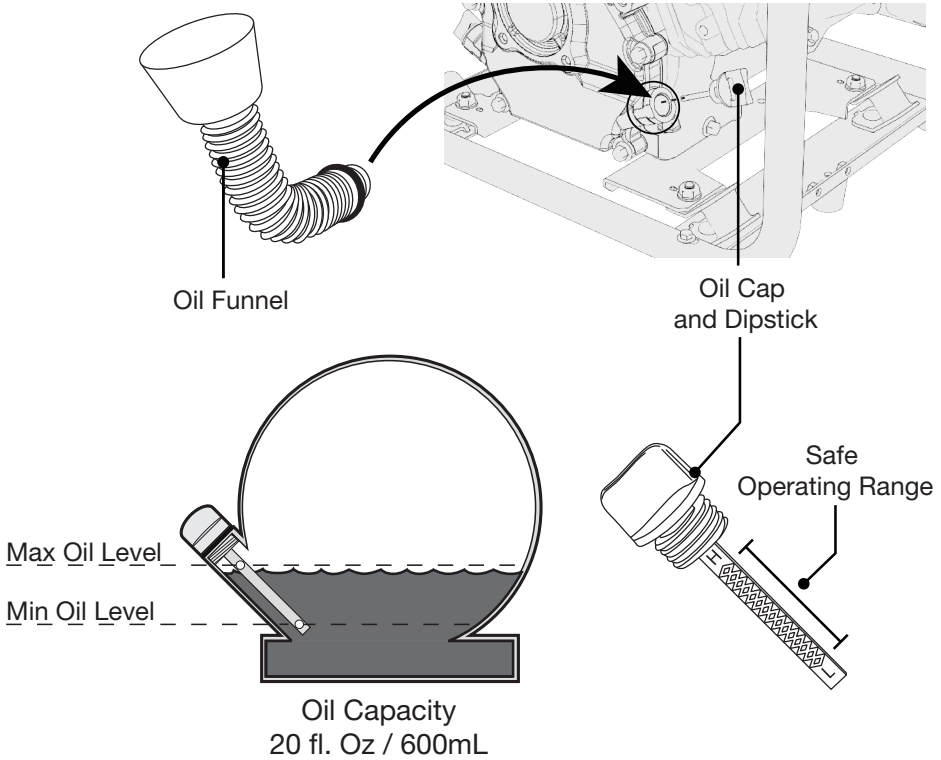
Make sure your generator has everything listed in the table below.

Part Name	Quantity
Inverter Generator	1
User Guide	1
Spark Plug Wrench	1
Oil Funnel	1

### 3. PRE-OPERATION CHECK

Set the generator on a level surface and the power switch to STOP.

#### 3.1 ADD OIL

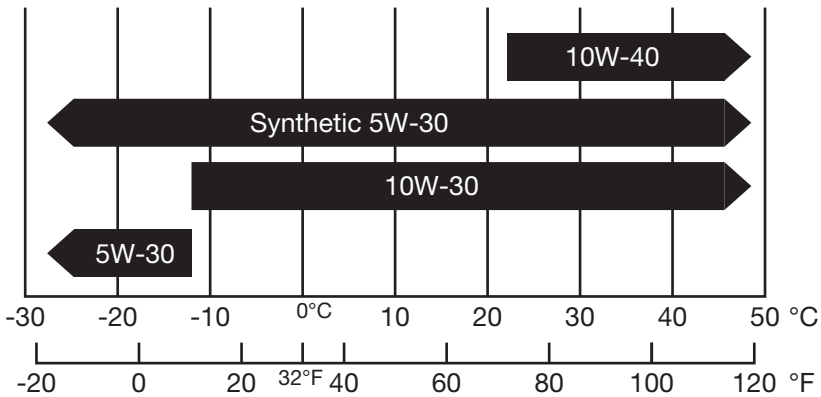


1. Unscrew the oil dipstick.
2. Fill with fresh oil up to the maximum fill level on the dipstick.
3. Check the oil level by reinserting the dipstick *without* rethreading it. Remove the dipstick and examine the oil level. If the oil level is at or below the minimum oil level, continue filling the oil to the maximum oil level mark.
4. Reinsert the dipstick and tighten securely.

#### NOTE

- SAE 10W-30 or SAE Synthetic 5W-30 is recommended for general use. Use of synthetic oil does not change maintenance intervals.
- Oil Capacity: 20 fl. oz. / 0.6 L
- DO NOT OVERFILL.

Effective Viscosity Range of Engine Oils



**NOTE**

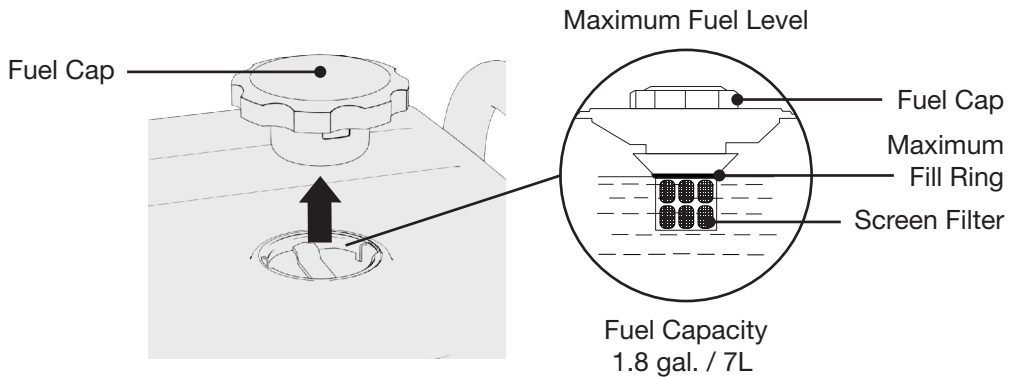
- Do not tilt the generator when adding engine oil. This could result in overfilling and damage to the engine.
- Use high quality 4-stroke engine oil, certified to meet or exceed API standard SG, SF, SAE ratings with strong detergents. Using non-detergent or 2-stroke oil could shorten the engine's working life.
- Do not mix different engine oils.
- Handle and store the engine oil with care, avoid getting dirt or dust into the engine oil.
- Before the engine oil falls below the safety margin, the low oil alert system will automatically shut off the engine. The low oil light will turn on.
- To avoid the inconvenience of unexpected engine shutoff, check the oil level as often as possible.

## 3.2 ADD FUEL

### **⚠ DANGER! ⚠**

**Gasoline is highly flammable and explosive under certain conditions. Refuel in a well-ventilated area with the engine stopped. Do not smoke or allow open flames or sparks in the area where the generator is being refueled or where gasoline is stored. Do not overfill the tank. Be careful not to spill fuel when refueling. Wipe up any spilled gasoline and let the area dry before starting the engine.**

**Gasoline substitutes such as gasohol are not recommended. They may be harmful to the fuel system components.**

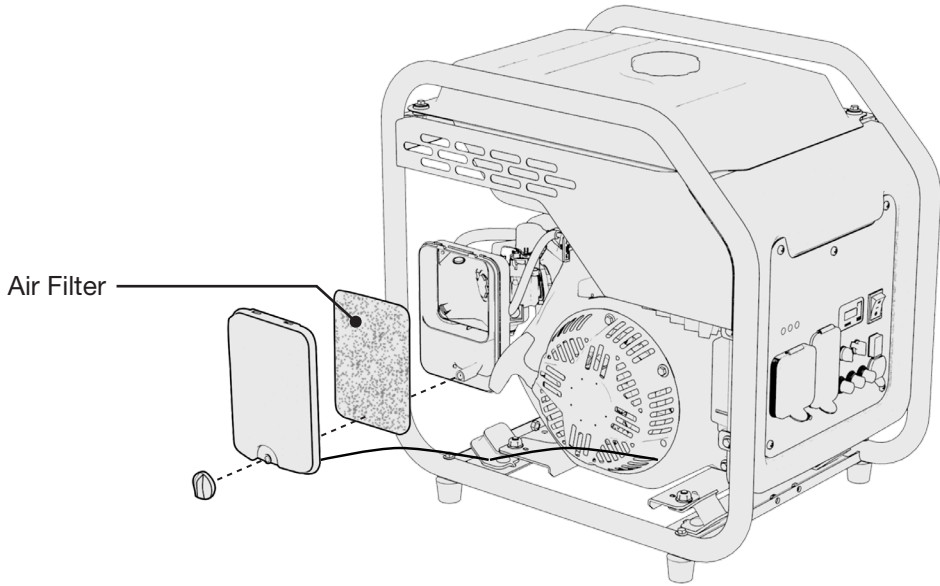


### **NOTE**

- Always place the generator on level ground and in a well ventilated area when filling the fuel tank
- Add fuel only to the red maximum fill ring on the fuel screen filter visible in the filler neck.
- Use of gasoline with an ethanol content greater than 10% can damage the engine and the fuel system and will void the manufacturer's warranty.
- Only use unleaded gasoline (Octane 85 or higher).
- Never use stale or contaminated gasoline, or an oil/gasoline mixture.
- Avoid getting dirt or water into the fuel tank.
- Do not use a mixture of gasoline containing methanol. This will cause serious damage to the engine.

### 3.3 CHECK THE AIR FILTER

Examine the air filter before your first use. Check the maintenance section for a complete cleaning guide.





1. Unscrew the air filter cover and remove the filter.
2. Clean the foam air filter with soap and water or solvent and squeeze dry (do not wring out).
3. Soak in clean engine oil.
4. Squeeze (do not wring) out all excess oil and reinstall. Replace the filter if it is damaged.

#### **NOTE**

- Running the engine without the air filter or a dirty air filter will quickly degrade the engine.

## 4. STARTING THE ENGINE

<b>⚠ DANGER</b>	
Using a generator indoors <b>CAN KILL YOU IN MINUTES</b> . Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.	
	
NEVER use inside a home or garage, <b>EVEN IF</b> doors and windows are open.	Only use <b>OUTSIDE</b> and far away from windows, doors, and vents.
Avoid other generator hazards. READ MANUAL BEFORE USE.	

### **⚠ DANGER! ⚠**

**Using a generator indoors WILL KILL YOU IN MINUTES.**

**Generator exhaust contains high levels of carbon monoxide (CO), a poisonous gas you cannot see or smell. If you can smell the generator exhaust you are breathing CO. Even if you cannot smell the exhaust, you could be breathing CO.**

**NEVER use a generator inside a home, garage, crawlspace, or other partly enclosed area, deadly levels of carbon monoxide can build up in these areas. Using a fan or opening windows and doors will NOT supply enough fresh air.**

**ONLY use a generator outdoors and far away from open windows, doors, and vents. These openings can pull in generator exhaust. Even when you use a generator correctly, CO may leak into the home. ALWAYS use a CO alarm in your home.**

**If you start to feel sick, dizzy, or weak after the generator has been running, move to fresh air RIGHT AWAY and seek medical attention. You could have carbon monoxide poisoning. Never run the generator in an enclosed or even partially enclosed area where people may be present.**

## 4.1 STARTING YOUR GENERATOR

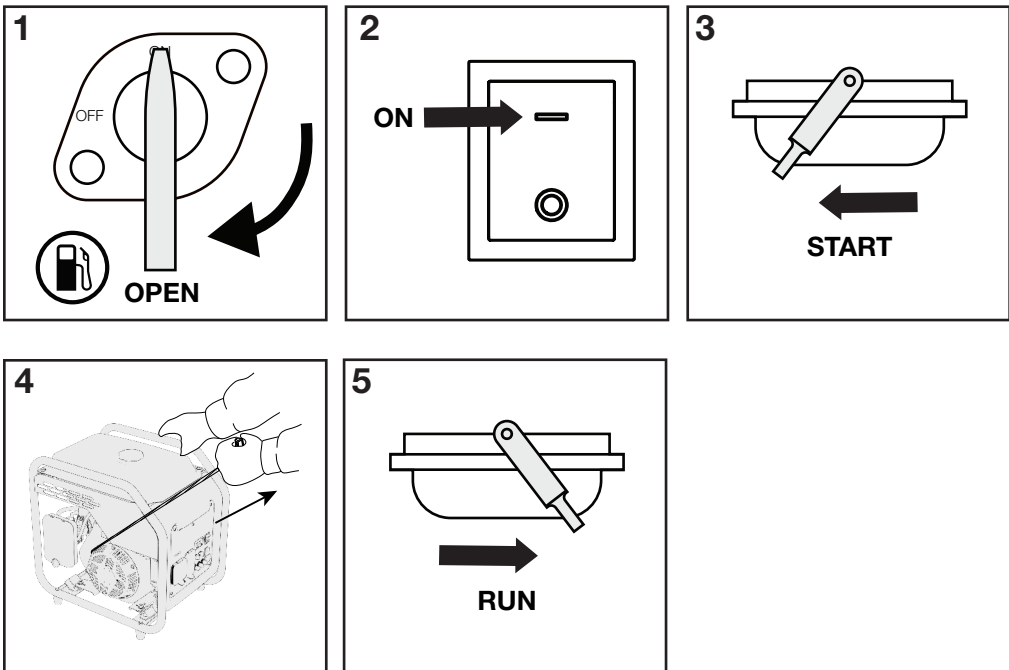
### **⚠ WARNING!**

**Before using the generator, consult a local electrician and local electrical codes to determine grounding requirements for your intended use. This generator is floating neutral.**

### **NOTE**

- Ensure all connected appliances are turned off.
- Return the starter grip slowly by hand, do not let it snap back.
- For proper break-in procedure, do not exceed 50% of the rated running watts in the first five (5) hours of operation. Vary the load occasionally to allow stator windings to heat and cool and help seat the piston rings.

### Recoil Start



1. Open the fuel valve by turning the fuel knob to the ON position.
2. Turn the power switch to the ON position.
3. For a cold engine, move the choke lever to the START position. To restart a warm engine, move the choke lever to the half-START position.
4. Pull the starter slowly until you feel it engage then pull quickly. Repeat until the generator starts.
5. When the engine warms up push the choke lever fully to the RUN position. The choke is used to provide the proper air-fuel mixture when the engine is cold.

## Carburetor Modification for High Altitude Operation

- At high altitudes, the standard carburetor air-fuel mixture will be too rich. Fuel consumption will increase and performance will decrease. A very rich mixture will also foul the spark plug and cause hard starting.
- If using the generator at high altitudes, change the main-nozzle or adjust the idling-screw of the carburetor. If always operating the generator at altitudes above 3280 feet (1,000m), contact an authorized service center to have the carburetor modified.
- Jets are available for high altitude operation, please visit our online part store.
- Conversely, if the carburetor has been modified for high altitude operation, the air-fuel mixture will be too lean for low altitude use. Operation at low altitude may cause the engine to overheat and result in serious engine damage. In this case the carburetor needs to be returned to its original specifications.
- Generator output power should be modified according to the altitude and ambient temperature. See more details on the correction factors in Chapter 12 - Appendix.

# 5. GENERATOR USE

**⚠ WARNING!**

Before using the generator, consult a local electrician and local electrical codes to determine grounding requirements for your intended use. This generator is floating neutral.

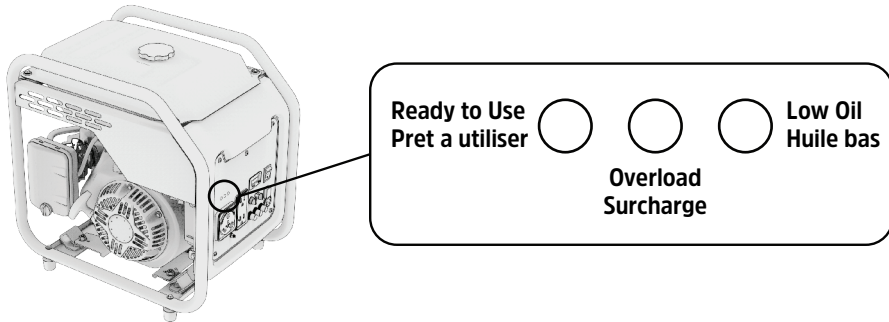
Do not connect to the building's electrical system. Doing so may result in electrical shocks and fire.

To prolong engine life, do not exceed the rated running wattage. Do not connect an extension to the exhaust pipe.

When an extension cable is required, be sure to use a tough rubber sheathed flexible cable (according to IEC245 or equivalent standards). The maximum length of the extension cable: 196 feet (60 meters) for cable of 15.5 gauge (1.5mm<sup>2</sup>); 328 feet (100 meters) for cable of 13.25 gauge (2.5mm<sup>2</sup>).

Keep away from other electric cables or wires.

## 5.1 READY TO USE, OVERLOAD, AND OIL ALERT INDICATOR



Light (Solid)		Description	
Green	Ready to Use Indicator	ON	Indicates normal operation
		OFF	Indicates a problem or unit is off
Red	Overload Indicator	ON	Indicates overload or problem with connected appliances, disconnect any appliances.
		OFF	Indicates normal operation
Red	Low Oil Indicator	ON	Indicates insufficient oil in the crankcase
		OFF	Indicates normal operation

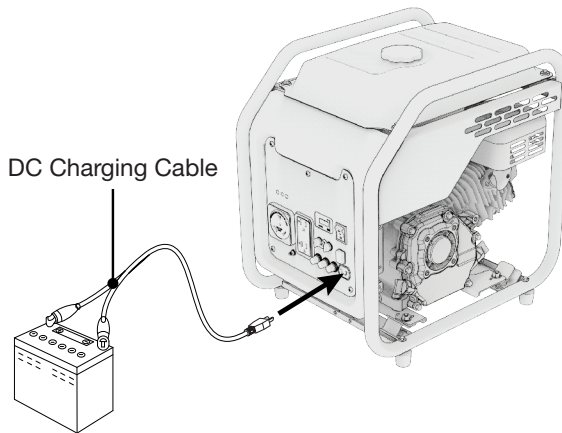
## 5.2 DC APPLICATIONS

The DC receptacle may be used for charging 12V batteries only. In DC operation, turn EcoMode OFF.

### NOTE

- The DC receptacle can be used while the AC power is in use. If used at the same time, be sure not to exceed the total power for AC and DC. (AC: 3200W, DC: 8A)
- Motor vehicles require more than their rated wattage when starting.

### Connecting the charging cable:



1. If connecting to a vehicle battery, disconnect the vehicle battery ground cable from the negative (-) battery terminals.
2. Connect the DC outlet to the battery terminals using a DC charging cable (not included). Connect red lead to positive (+) battery terminal and black lead to negative (-) battery terminal.
3. Turn EcoMode OFF, and start the generator.

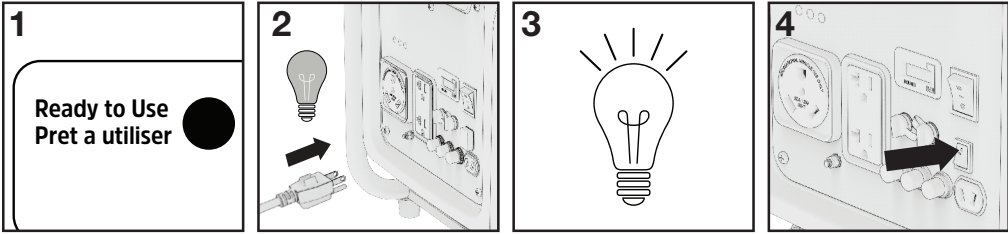
### NOTE

- DO NOT start the vehicle engine when the generator is still connected to the battery, this will damage the generator.
- System floating for DC output.

### Disconnecting the charging cable:

1. Stop the engine.
2. Disconnect the black lead from the negative (-) battery terminal, and the red lead from the positive (+) battery terminal.
3. Reconnect the vehicle battery ground cable.

## 5.3 AC APPLICATIONS

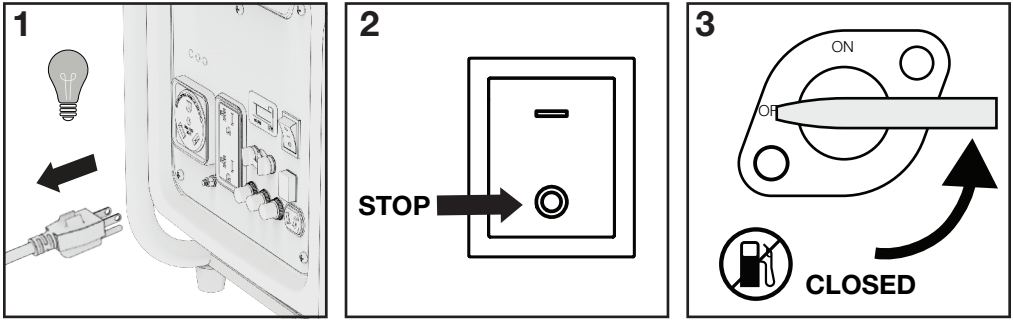


1. Start engine and make sure output indicator light (READY TO USE) is on.
2. Confirm all electrical appliances are switched off, and connect the appliance plugs to the generator receptacle.
3. Turn on the appliances.
4. Turn EcoMode ON.

### NOTE

- Confirm all electrical appliances are in good working condition before connecting them to the generator. If an electrical appliance becomes abnormal, sluggish, or stops suddenly, shut off the generator engine immediately, and disconnect the appliance.
- Most appliances require more than their rated wattage upon startup.
- For continuous operation do not exceed the rated output of the generator.
- The grounding system is not connected to the AC neutral wire.
- Neutral floating for AC system.

## 6. STOPPING THE ENGINE



1. Switch off the connected electrical appliances and disconnect them.
2. Allow the generator to run with no load for a few minutes to stabilize the internal temperature. Turn the power switch to the STOP position.
3. Turn the fuel valve to the OFF position.

### NOTE

- Never start or stop the generator with a load connected.
- Make sure the fuel switch is in the CLOSED position when stopping, transporting, and storing the generator.
- To stop the engine in an emergency, turn the power switch to STOP immediately.

## 7. MAINTENANCE

Proper maintenance keeps your generator in the best operating condition by ensuring safe, economical and trouble-free operation. Only use genuine parts and recommended fluids to replace the worn components. Improper maintenance may cause the generator to malfunction and can lead to serious injury. Contact customer support if you have any maintenance questions.

### General Inspection Tips

- Look for fuel leaks around the fuel tank, fuel hose, and fuel valve. Close the fuel valve and repair leaks immediately.
- Look and listen for exhaust leaks while the engine is running. Have all the leaks repaired before continuing operation.
- Check for dirt and debris and clean as necessary .
- Check the engine oil level and add oil as necessary.

## 7.1 MAINTENANCE SCHEDULE

Regular maintenance will improve performance and extend the service life of the generator. Maintain the generator according to the maintenance schedule below.

### NOTE

- Service more frequently when used in dusty areas or adverse conditions.
- These items should be serviced by an authorized service center, unless you have the proper tools and are mechanically proficient. Refer to user guide for service procedures.

<b>Before Each Use</b>
Check engine oil level Inspect air filter
<b>First 25 Hours or First Month</b>
Change engine oil
<b>Every 50 Hours or 6 Months</b>
Check and clean air filter <sup>1</sup>
<b>Every 100 Hours or 12 Months</b>
Change engine oil <sup>2</sup> Inspect/clean spark arrestor Inspect/clean spark plug
<b>Every 300 Hours</b>
Replace spark plug Replace air filter Clean combustion chamber <sup>3</sup> Inspect/adjust valve clearance <sup>3</sup>

<sup>1</sup> Replace air filter if it cannot be adequately cleaned.

<sup>2</sup> Change oil after every 100 hours or yearly, whichever comes first. Service more frequently when operating under heavy load or in high temperatures.

<sup>3</sup> Recommend service to be performed by authorized service dealer.

## 7.2 CHANGING THE OIL

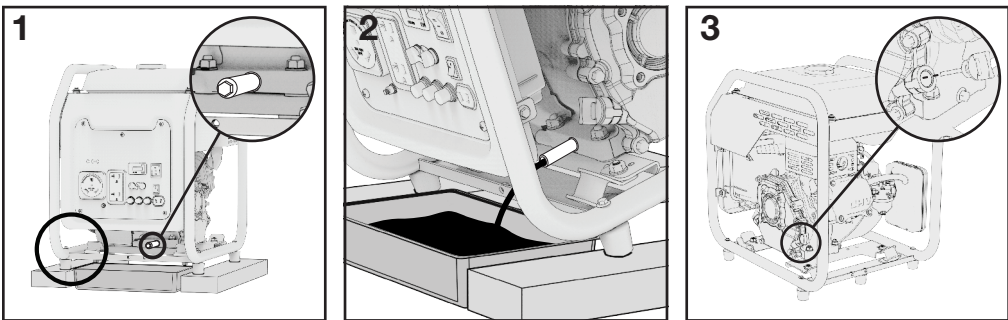
### **⚠ WARNING!**

**Used motor oil can cause skin irritations if left in long-term contact with skin. Thoroughly wash off used oil from hands as soon as possible with soap and water.**

**Do not dispose of used oil in drains or on soil. Local service shops provide environmentally-friendly disposal methods.**

**Remove the spark plug boot from the spark plug before performing maintenance procedures on the generator to avoid an accidental start-up.**

Drain the oil rapidly and completely while the engine is still warm.

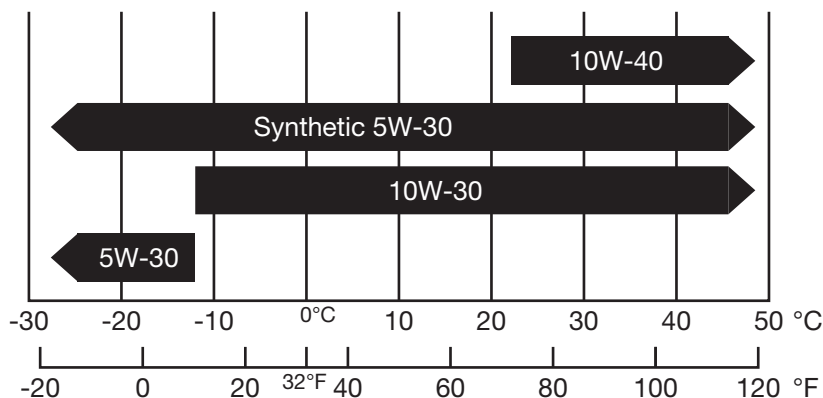


1. Place an oil collection pan under the oil drain bolt. Loosen the oil drain bolt then tip the generator and continue to fully loosen the bolt.
2. Drain into the oil collection pan completely. Reinstall the oil drain bolt.
3. Refill the oil to the maximum level mark. Check the oil level by reinserting the dipstick *without* rethreading it. Remove the dipstick and examine the oil level when the unit is on a flat surface.
4. Reinstall the oil dipstick and tighten it.

### **NOTE**

- Max oil capacity: 20 fl. oz / 0.6L
- SAE 10W-30 or Synthetic 5W-30 oil is recommended for general use.
- Use of synthetic oil does not change maintenance intervals.
- DO NOT OVERFILL.

### Effective Viscosity Range of Engine Oils



#### NOTE

- Do not tilt the generator when adding engine oil. This could result in overfilling and damage to the engine.
- Use high quality 4-stroke engine oil, certified to meet or exceed API standard SG, SF, SAE ratings with strong detergents. Using non-detergent or 2-stroke oil could shorten the engine's working life.
- Do not mix different engine oils.
- Handle and store the engine oil with care, avoid getting dirt or dust into the engine oil.
- Before the engine oil falls below the safety margin, the low oil alert system will automatically shut off the engine. The low oil light will turn on.
- To avoid the inconvenience of unexpected engine shutoff, check the engine oil level as often as possible.

## 7.3 CLEANING THE AIR FILTER

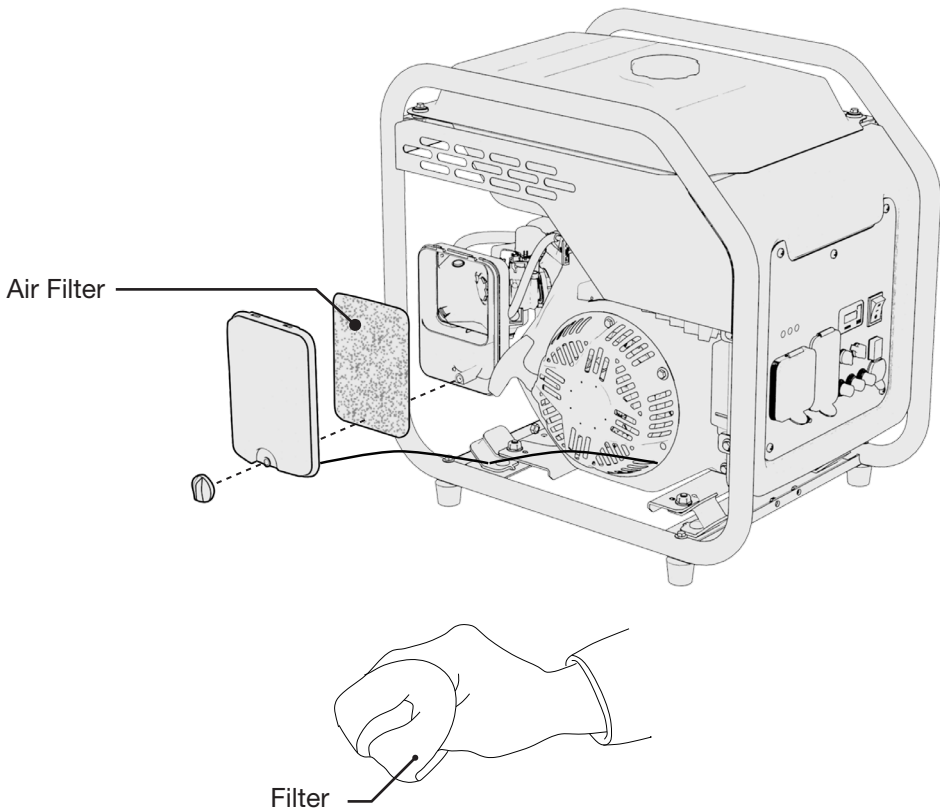
### **⚠ WARNING!**

**Using gasoline or other flammable solvents can cause a fire or explosion. Do not operate this product without an air filter.**

A dirty air filter will restrict air flow into the carburetor. Clean and maintain the air filter regularly, especially in dusty areas.

### **NOTE**

- Never run the generator without an air filter, doing so will quickly degrade the engine.



1. Unscrew and remove the air filter cover.
2. Remove the foam filter.
3. If the foam element is dirty, clean it in warm soapy water, rinse, and allow it to dry thoroughly, or clean in non-flammable solvent and allow to dry.
4. Dip the foam element in clean engine oil, then squeeze out all excess oil. The engine will smoke when started if too much oil is left in the filter.
5. Wipe dirt from the air filter assembly and reinstall into the unit.

## 7.4 SPARK PLUG MAINTENANCE

### NOTE

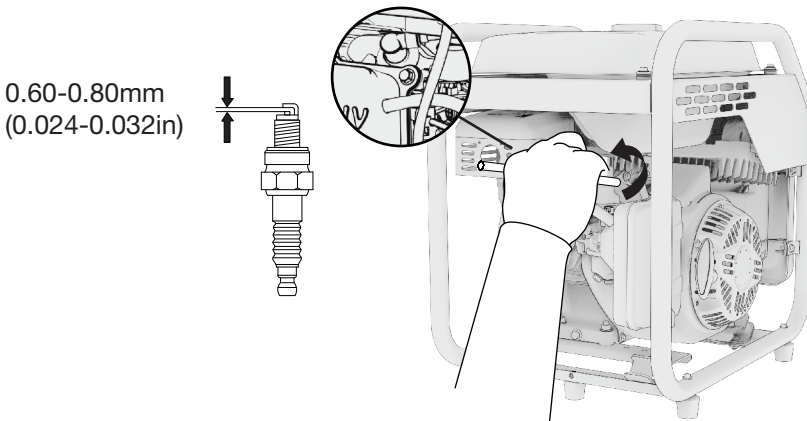
- Do NOT rinse spark plug in water. Follow guidelines and be careful not to overtighten the spark plug.

Recommended spark plug: **F7RTC**

Check the spark plug gap and clean the carbon deposits at the bottom of the spark plug.

**Tighten 3/8 TO 1/2 turn when installing a new spark plug.**

**Tighten 1/8 TO 1/4 turn when re-installing an old spark plug.**

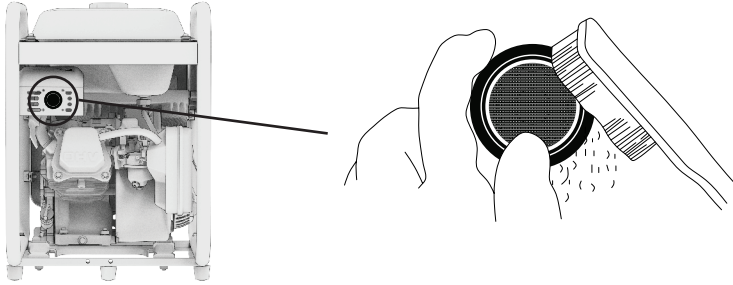


1. Make sure the engine has cooled down.
2. Remove the spark plug cap by pulling it away from the engine.
3. Remove the spark plug with the included spark plug wrench.
4. Visually inspect the spark plug. Replace with a new one if the insulation is cracked or chipped. Clean with a wire brush if the spark plug is reused.
5. Measure the spark plug gap with a feeler gauge. The normal value is: 0.6-0.8mm (0.024- 0.032in). Adjust the gap by carefully bending the electrode.
6. Carefully reinstall the spark plug by hand, to avoid cross-threading. A new spark plug should be tightened 3/8 to 1/2 turn with a wrench. A used spark plug should be tightened 1/8 to 1/4 turn with wrench.
7. Reinstall the spark plug cap.

### NOTE

- The spark plug must be securely tightened or it could cause the spark plug to heat up enough to damage the engine.
- Never use a spark plug with an improper heat range.

## 7.5 SPARK ARRESTER MAINTENANCE



1. Make sure the muffler has cooled down.
2. Use a brush to remove carbon deposits from the spark arrester. If the spark arrester is worn down, replace it.
3. Use compressed air to clear remaining deposits.

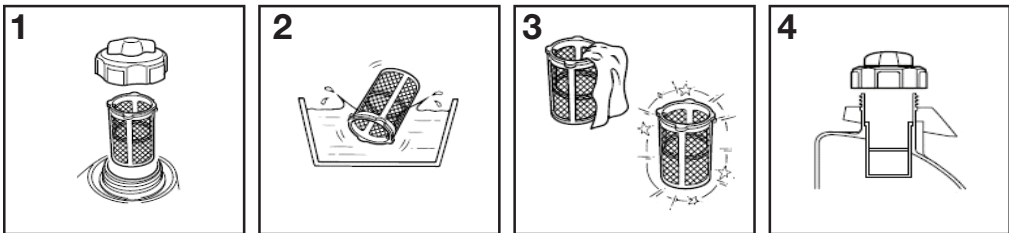
### NOTE

- Failure to properly clean the spark arrester will reduce engine performance.

## 7.6 FUEL FILTER MAINTENANCE

### ⚠ WARNING!

**Gasoline is highly flammable and explosive under certain conditions. Refuel in a well-ventilated area with the engine stopped. Do not smoke or allow open flames or sparks in the area where the generator is being refueled or where gasoline is stored. Do not overfill the tank. Be careful not to spill fuel when refueling. Wipe up any spilled gasoline and let the area dry before starting the engine.**



1. Remove the fuel cap and filter.
2. Clean the filter with solvent.
3. Wipe the filter.
4. Reinsert the filter.

## 7.7 VALVE CLEARANCE

### NOTE

- Recommend service to be performed by authorized service dealer.
- Only check or adjust the valves when the engine is cold.
- The gasket should be replaced if torn or damaged.

**Valve Clearance:** Intake Valve 0.0031 - 0.0047 in. (0.08 - 0.12 mm)  
Exhaust Valve 0.0051 - 0.0067 in (0.13 - 0.17 mm)

**Torque:** 106 inch-pound (12 N·m).

1. Remove the spark plug cap. Carefully remove the breather tube and the valve cover.
2. Identify the intake valve on the right and the exhaust valve on the left. Slowly pull the recoil handle to move the valves until the intake rocker arms is fully down.
3. Adjust the exhaust rocker arm by inserting a feeler gauge between the rocker arm and the valve stem to measure valve clearance.
4. If an adjustment is necessary, hold the rocker arm pivot and loosen the pivot adjusting nut.
5. Turn the rocker arm pivot to obtain the specified clearance. Hold the rocker arm pivot and re-tighten the pivot adjusting nut to the specified torque.
6. Perform step 2 to 5 for the other valve.
7. Reinstall the breather tube, the valve cover and the spark plug cap.

## 7.8 EMISSION CONTROL SYSTEM

### Emission Source

Exhaust gas contains carbon monoxide, nitrogen oxides (NOx) and hydrocarbons. It is very important to control the emissions of NOx and hydrocarbons as they are a major contributor to air pollution. Carbon monoxide is a poisonous gas. The emission of fuel vapors is a source of pollution as well. The generator engine utilizes a precise air-fuel ratio and emission control system to reduce the emissions of carbon monoxide, NOx, hydrocarbons and evaporative fuel emissions.

### Regulation

Your engine has been designed to meet current Environmental Protection Agency (EPA) clean air standards. The regulations dictate that the manufacturer provides operation and maintenance standards regarding the emission control systems. Tune up specifications are provided in the Specifications section and a description of the emission control system may be found in the appendix to this manual. Adherence to the following instruction will ensure your engine meets the emission control standards.

### Modification

Modification of the emission control system may lead to increased emissions. Modification is defined as the following:

- Disassembling or modifying the function or parts of the intake, fuel or exhaust system.
- Modifying or destroying the speed governing function of the generator.

### Engine faults that may affect emission

Any of the following faults must be repaired immediately. Consult with your authorized service centre for diagnosis and repair:

- Hard starting or shut down after starting.
- Unstable idle speed.
- Shut down or backfire after applying an electrical load.
- Backfire or after fire.
- Black smoke and/or excessive fuel consumption.

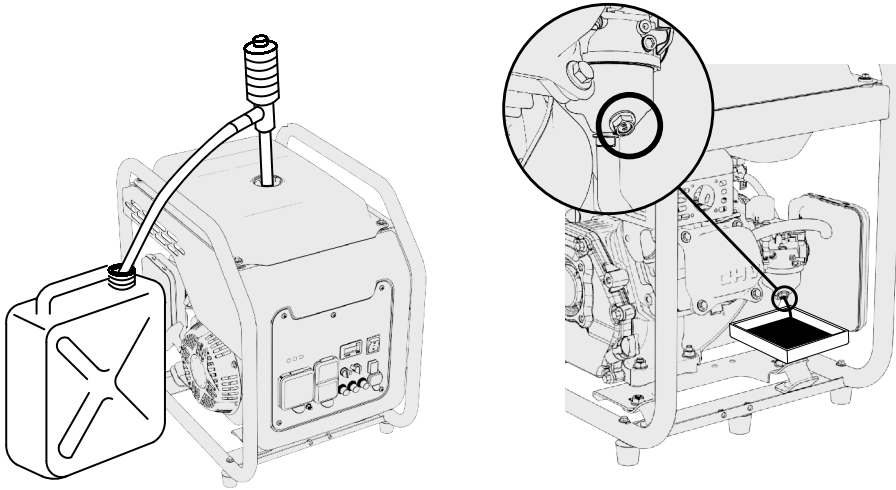
## **Replacement parts and accessories**

The parts making up the emission control system in your product's engine have been specifically approved and certified by the regulatory agencies. You can trust that the replacement parts supplied by customer service have been manufactured to the same production standard as the original parts. The use of replacement parts or accessories which are not designed by – may negatively affect the engine emission performance. Therefore only use replacements parts and accessories from a qualified service centre to guarantee that the replacement products will not adversely affect emission performance.

Replacement parts other than those from an authorized service centre will void the warranty.

## 8. TRANSPORTATION & STORAGE

### Draining the Fuel Tank



1. Turn OFF the engine. Remove the fuel cap and the debris screen underneath the fuel cap.
2. Empty the fuel tank using a siphon and an approved gasoline container.
3. Loosen the carburetor drain bolt to discharge all gasoline from inside of the carburetor.

#### **NOTE**

- Do not use an electric pump to drain the fuel tank.

### Transporting the Generator

- Do not overfill the fuel tank (No residual fuel on the neck of tank).
- Do not use the generator in the vehicle. The generator should ONLY be used while in a well ventilated area.
- Avoid exposing the generator to prolonged direct sunlight while in an enclosed vehicle. The high temperature inside the vehicle could cause fuel to vaporize resulting in a possible explosion.
- Drain the generator of fuel and oil before being transported on rough roads.

## Storage

Gasoline can oxidize in as little as 30 days, causing gum and varnish to build up in fuel system components.

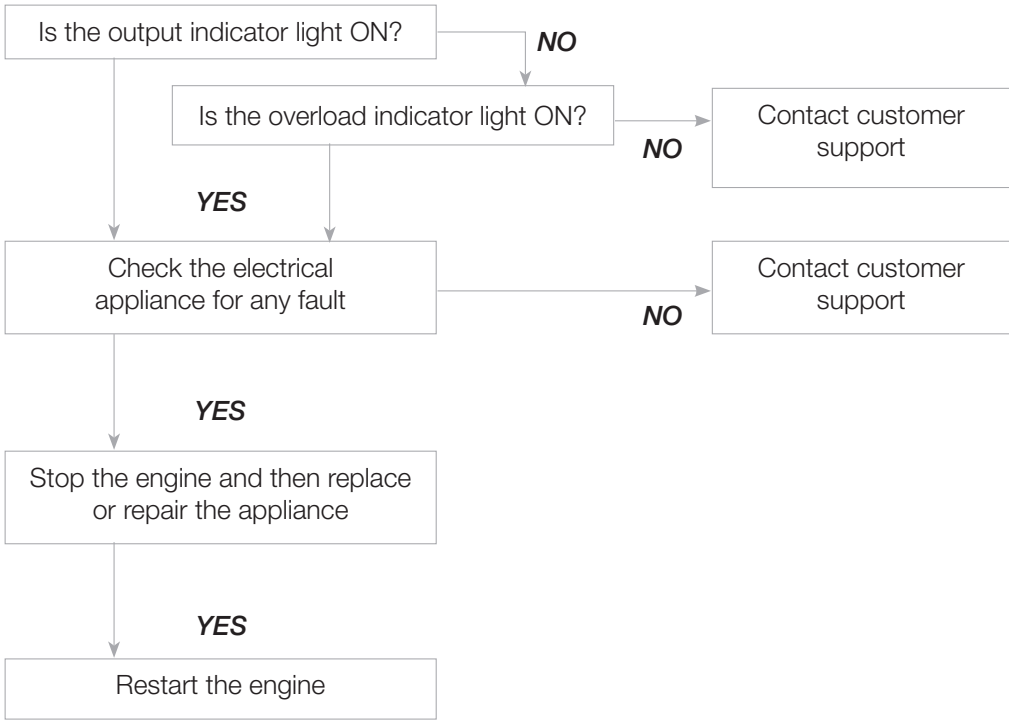
### NOTE

- Ensure that the storage area is free of excess humidity and dust.
- Do NOT store the generator near appliances that produce heat.

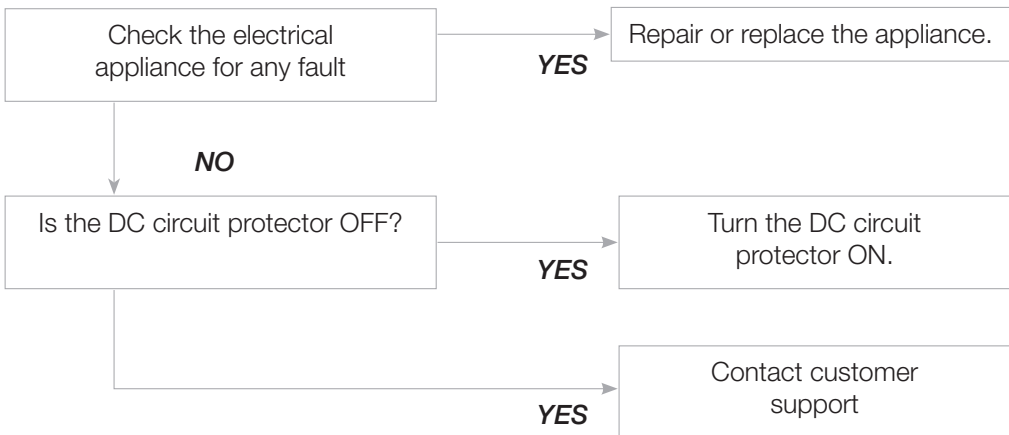
Storage Duration	Preparation Required
Less than 1 Month	<ul style="list-style-type: none"><li>■ No storage preparation required, simply store as is.</li></ul>
2 to 6 Months	<ul style="list-style-type: none"><li>■ Drain the old gas and completely fill the tank with fresh gas before storage. Drain the carburetor float bowl. Add fuel stabilizer according to the manufacturer's directions. Adding a quality fuel stabilizer can keep gas fresh for up to a year.</li></ul>
6 Months or Longer	<ul style="list-style-type: none"><li>■ Drain off the gasoline from the fuel tank, and store in a suitable container. This will help prevent deposits from forming in the fuel system.</li><li>■ Turn the fuel switch to OPEN and loosen the carburetor drain bolt. Take off the spark plug cap and revolve the engine 3 or 4 times, by pulling the recoil handle, to fully discharge the gasoline from the fuel lines.</li><li>■ Turn the fuel switch to CLOSED and tighten the drain bolt of the carburetor.</li><li>■ Change oil while engine is still warm from operation.</li><li>■ Remove the spark plug, and pour a tablespoon of clean engine oil (10~20ml) into the cylinder. Revolve the engine several times by pulling on the recoil start to distribute the oil. Reinstall the spark plug. Pull the starter grip slowly until you feel resistance. At this point, the piston is coming up on its compression stroke and both the intake and exhaust valves are closed. This position helps to protect the engine from internal corrosion.</li></ul>

# 9. TROUBLESHOOTING

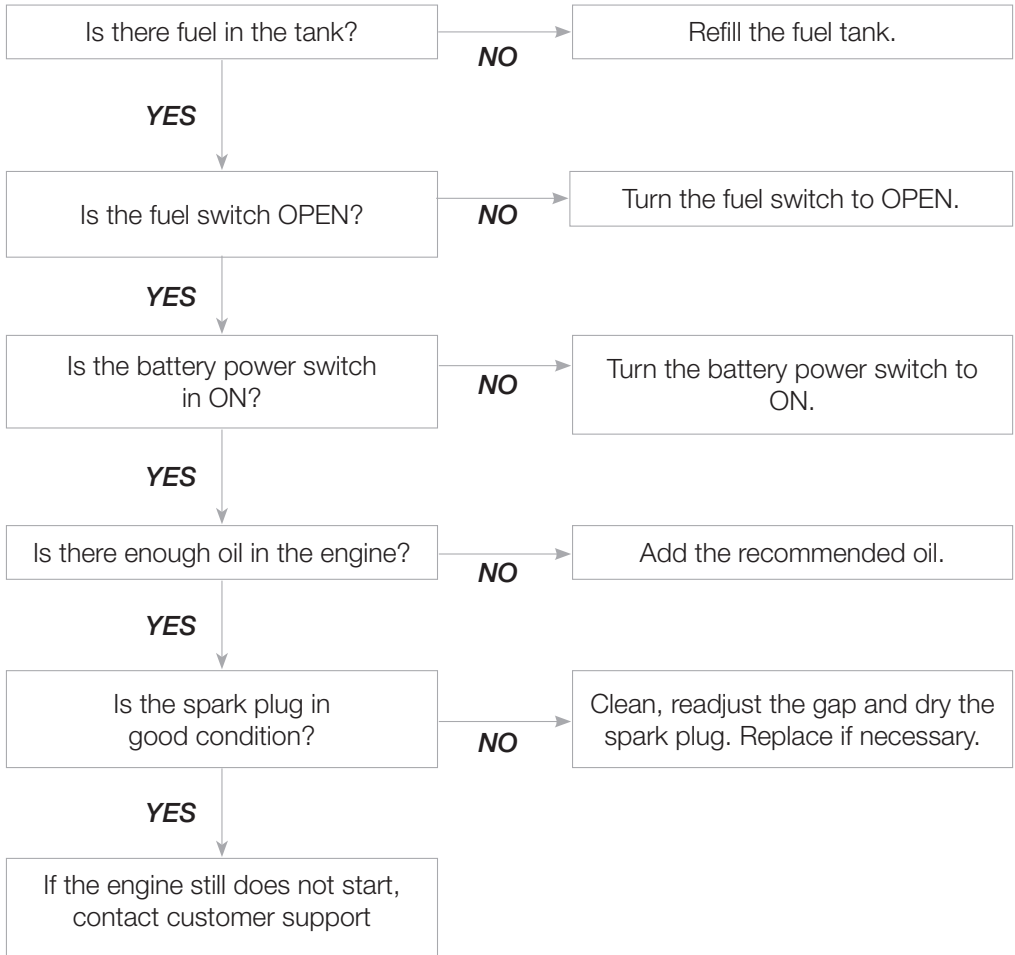
If appliances do not operate:



DC receptacle without any electricity:



If the engine does not start:

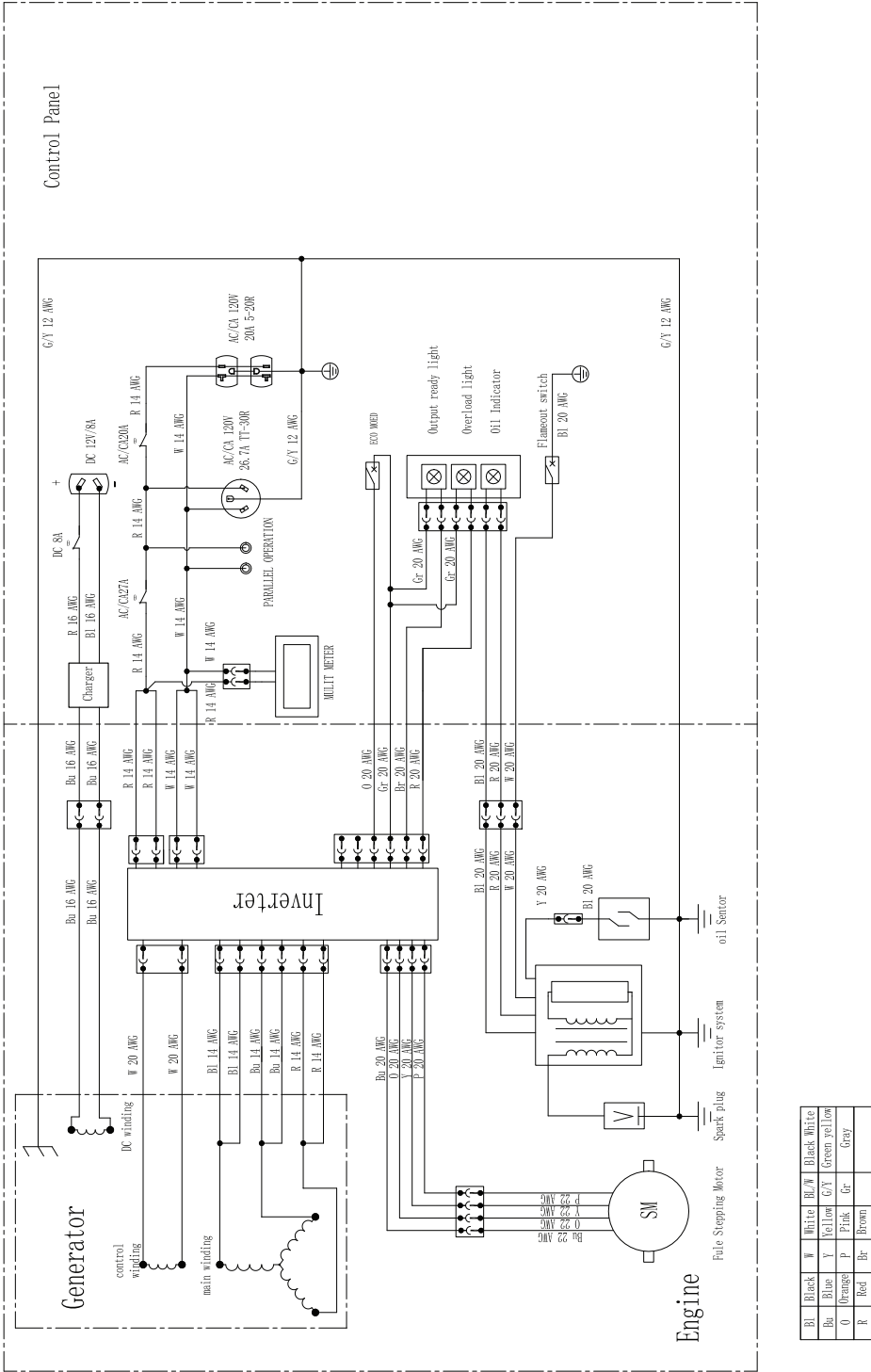


# 10. TECHNICAL SPECIFICATIONS

	SPECIFICATIONS	PARAMETERS
<b>ENGINE</b>	Type	4-stroke, overhead valve, single cylinders, forced-air cooling
	Engine Displacement	212cc
	Engine Speed	3600 rpm
	Spark Plug	F7RTC
	Spark Plug Gap	0.024 - 0.032 in. (0.6-0.8mm)
	Valve Intake Clearance	0.0031 - 0.0047 in. (0.08-0.12mm)
	Valve Exhaust Clearance	0.0051 - 0.0067 in (0.13 - 0.17mm)
	Start System	Recoil Start
	Fuel Type	Unleaded Gasoline
	Oil Capacity	20 fl. oz. / 600mL
	Oil Type	SAE 10W-30
<b>GENERATOR</b>	Model Name	BG4000i
	Rated Frequency	60Hz
	Rated Voltage	120V
	Rated Current	26.7A
	Rated Output Power	3,200W
	Max. Output Power	4,000W
<b>OTHER SPECIFICATIONS</b>	DC Output	12V/8A
	Fuel Tank Volume	1.8 Gal / 7L
	Run Time (100% load)	3.6h @ 3200W
	Working Ambient Temperature	5°F to 104°F (-15°C to 40°C)
	Max. Altitude (Unmodified)	3280 ft. / 1000m
	Sound Power Level at 7m	73-81dB(A)
	Dimensions (L*W*H)	19.1" x 14" x 18.3"
	Net Weight	62.8 lbs / 28.5kg

- Noise level is measured when EcoMode is ON and may vary in different environments.

# 11. WIRING DIAGRAM



# 12. APPENDIX

The standard condition of rated power output:

Altitude: 0m

Ambient temperature: 77°F (25°C)

Relative humidity: 30%

### Factor of Environment Correction:

Altitude (m)	Ambient Temperature°F (°C)				
	77° (25°)	86° (30°)	95° (35°)	104° (40°)	113 (45°)
0	1	0.98	0.96	0.93	0.90
500	0.93	0.91	0.89	0.87	0.84
1000	0.87	0.85	0.82	0.80	0.78
2000	0.75	0.73	0.71	0.69	0.66
3000	0.64	0.62	0.60	0.58	0.56
4000	0.54	0.52	0.50	0.48	0.46

NOTE:

Relative humidity 60% correction factor C-0.01

Relative humidity 80% correction factor C -0.02

Relative humidity 90% correction factor C-0.03

Relative humidity 100% correction factor C-0.04

Example:

Rated power ( PN ) 2.8kVA generator (Altitude: 1000m) Ambient temperature: 35°C,

Relative humidity: 80%

$$P=P_n*(C-0.02)=2.8*(0.82-0.02)=2.24kVA$$

# 13. LIMITED WARRANTY

This product is distributed by:  
Midland Power Inc.  
376 Magnetic Drive, Toronto, ON M3J 2C4, Canada

## Warranty

Beginning at the time of retail purchase and for the duration of the warranty period Midland Power Inc. (Midland) warrants that Equipment manufactured by it is warranted to be free from defects in material and workmanship. Midland will, at its sole discretion, replace or repair any part(s) which, upon evaluation and testing by Midland or an authorized service center, show a defect in workmanship or material. Valid proof of purchase must be submitted online for registration with Midland, or presented to Midland at time of claim, for warranty to be valid. This warranty is not transferable from the original owner.

### Limited Warranty Period:

Non-commercial use:

- Year 1 - Parts and Labour
- Year 2 - Parts
- Year 3 - Parts

Commercial use:

- First 6 Months - Parts and Labour

Replacement parts sold to a consumer or installed by an authorized service center are warranted for a period of 90 days from date of purchase. Labour must be performed by an authorized service center unless given Midland's prior written approval. Midland will not bear any transportation or shipping fees to or from an authorized service center. Service calls, travel charges, overtime, or weekend rates, are not covered.

This warranty does NOT cover:

- a. Any repairs required as a result of any parts not supplied by Midland, and this part is responsible for the failure or malfunction;
- b. Any Equipment modified, altered, disassembled or remodelled;
- c. Any repairs required as a result of a failure to install, maintain, store, transport, or operate the Equipment in accordance with standard practices set out in the user guide;
- d. Damage that occurred after receipt of equipment, not caused by defects in workmanship or material;

- e. Normal maintenance services, as outlined in the user guide and intended for a consumer to perform;
- f. Replacement of parts made in connection with normal maintenance services including oils, adhesives, additives, fuel, filters, brushes, belts, lubricants, spark plugs, gaskets, seals, fasteners, wires, tubes, pipes, fittings, wheels, batteries, and other expendables susceptible to natural wear;
- g. Any accessory or attachment.

Any battery supplied with this Equipment is considered a consumable item and is excluded from this warranty. Batteries can be damaged by shock, shorting terminals, heat, acid spillage, neglect, and other factors. It is the customer's responsibility to take great care when handling a battery so no spillage of acid occurs which may cause corrosion.

Midland disclaims any responsibility for loss of time or use of the product, transportation, or towing costs or any other indirect, incidental, or consequential damage, inconvenience or commercial loss.

This warranty is the entire and only warranty given by Midland for Midland products or equipment. No agent or employee is authorized to extend or enlarge this warranty on behalf of Midland by any written or verbal statement or advertisement.

## **California**

The California Air Resources Board and Midland Power Inc. are pleased to explain the emission control system warranty on your Midland Power Inc. engine. In California, new spark-ignited small off-road equipment engines must be designed, built, and equipped to meet the State's stringent anti-smog standards.

## **Other States, U.S. territories, and Canada**

In other areas of the United States and in Canada, your engine must be designed, built, and equipped to meet the U.S. EPA and Environment Canada emission standards for spark-ignited engines at or below 19 kilowatts.

## **All of the United States and Canada**

Midland Power Inc. must warrant the emission control system on your power equipment engine for the period of time listed below, provided there has been no abuse, neglect, or improper maintenance of your power equipment engine. Where a warrantable condition exists, Midland Power Inc. will repair your power equipment engine at no cost to you including diagnosis, parts, and labor.

Your emission control system may include such parts as the carburetor or fuel injection system, the ignition system, and catalytic converter. Also included may be

hoses, connectors, and other emission-related assemblies.

**Emission Control System Warranty Parts:**

This list applies to parts supplied by Midland Power Inc. and does not cover parts supplied by the equipment manufacturer. Please see the original equipment manufacturer’s emissions warranty for non-Midland Power Inc. parts.

Consumable parts are covered up to a maximum of 30 days.

<b>SYSTEMS COVERED IN WARRANTY</b>	<b>PARTS DESCRIPTION</b>
Fuel Metering	Carburetor assembly (includes starting enrichment system), Engine temperature sensor, Engine control module, Fuel regulator, Intake manifold
Evaporative	Fuel Tank, Fuel Cap, Fuel Hoses, Vapor Hoses, Carbon Canister, Canister Mounting Brackets, Fuel Strainer, Fuel cock, Fuel Pump, Fuel Hose Joint, Canister Purge Hose Joint
Exhaust	Catalyst, Exhaust Manifold
Air Induction	Air filter housing, Air filter element
Ignition	Flywheel magneto, Ignition pulse generator, Crankshaft position sensor, Power coil, Ignition coil assembly, Ignition control module, Spark plug cap, Spark plug
Crankcase Emission Control	Crankcase breather tube, Oil filler cap
Miscellaneous Parts	Tubing, fittings, seals, gaskets, and clamps associated with these listed systems

## **Enjoy!**

Be sure to check [www.benchmark.midlandpowerinc.com](http://www.benchmark.midlandpowerinc.com) for updates regarding your product.





## **Customer Service**

Online: [www.benchmark.midlandpowerinc.com](http://www.benchmark.midlandpowerinc.com)

E-mail: [support@midlandpowerinc.com](mailto:support@midlandpowerinc.com)

Toll Free: 1-877-528-3772



**BENCHMARK**<sup>TM</sup><sub>MC</sub>

**BG4000i**