PREDATOR
59188 Inverter Generators

Predator 59188 Inverter Generators User Manual

Contents

PREDATOR

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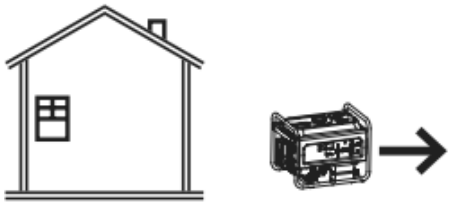
Save This Manual Keep this manual for safety warnings and precautions, assembly, operating, inspection, maintenance, and cleaning procedures. Write the product's serial number on the back of the manual (or the month and year of purchase if the product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

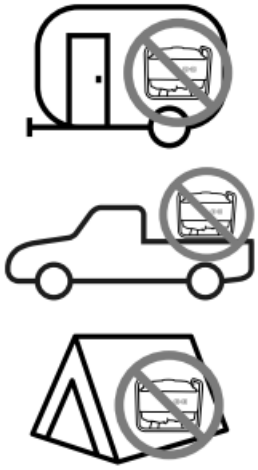
DANGER
Using a generator indoors CAN KILL YOU IN MINUTES. Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.

- NEVER use inside a home or garage, EVEN IF doors and windows are open.
- Only use OUTSIDE and far away from windows, doors, and vents.

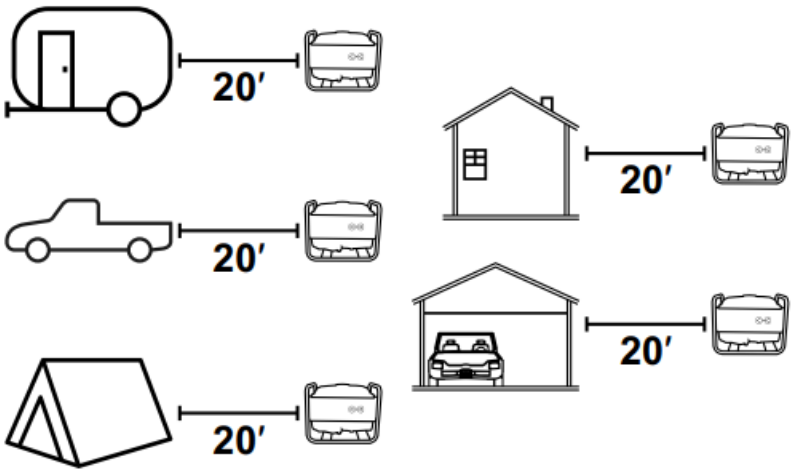


DANGER

- Do not use it in trailers, truck beds, or tents.



- Use at least 20 feet away from people, animals, and structures with exhaust pointed away.



When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible. Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, the actual product may differ slightly from the product described herein. Tools required for assembly and service may not be included.

Warning
Read this material before using this product. Failure to do so can result in serious injury. SAVE THIS MANUAL.

Specifications

Generator	Output	120/240 VAC, 60 Hz, 63.3 / 31.7 A, 1 Phase 12 VDC, 8 A (nominal) 5V USB, 3.1A 7600 Running Watts 9500 Maximum Starting Watts
	Receptacles	2 x GFCI NEMA #5-20R (3-prong, 120 VAC) 1 x NEMA #L5-30R (3-prong, 120 VAC) 1x NEMA #L14-30R (4-prong, 120/240 VAC) 1 x 12 VDC Two Pin Outlet 2 x USB-A Outlets Parallel Kit Terminals
Displacement		459 cc
Compression Ratio		8.5:1
Battery for Electric Start		12V, 12Ah Lead Acid
Engine Type		Horizontal Single Cylinder 4-stroke, OHV
Cooling System		Forced air cooled
Fuel	Type	87+ octane, stabilizer-treated unleaded gasoline
	Capacity	6.60 Gallon / 25.00 Liter
Engine Oil	Type SAE	10W-30
	Capacity	37 fl. oz.
Run Time @ 25% Load with a full tank		18.5 hr.
Sound Level at 23 feet, 25% load		67 dB(A)
Bore x Stroke		92mm x 69mm
Spark Plug	Type	BPR6ES (NGK) or equivalent
	Gap	0.027″– 0.031″
Valve Clearance	Intake	0.0039″– 0.0059″
	Exhaust	0.0059″– 0.0078″
Engine Speed		2560 – 3410 RPM

The emissions control system for this Engine is warranted for standards set by the U.S. Environmental Protection Agency and the California Air Resources Board (CARB). For warranty information, refer to the last pages of this manual.

WARNING SYMBOLS AND DEFINITIONS

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

Warning
Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

Caution
Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

Notice
Addresses practices not related to personal injury.

Symbol Definitions

Symbol	Property or Statement
RPM	Revolutions Per Minute
HP	Horsepower
AWG	American Wire Gauge
	WARNING marking concerning Risk of Eye Injury. Wear ANSI-approved safety goggles with side shields.
	Read the manual before set-up and/or use.

Symbol	Property or Statement
	WARNING marking concerning Risk of Hearing Loss. Wear hearing protection.
	WARNING marking concerning Risk of Respiratory Injury. Operate engine OUTSIDE and far away from windows, doors, and vents.
	WARNING marking concerning Risk of Fire while handling fuel. Do not smoke while handling fuel.
	WARNING marking concerning Risk of Fire. Do not refuel while operating. Keep flammable objects away from engine.

IMPORTANT SAFETY INSTRUCTIONS
WARNING! Read all instructions.
Failure to follow all instructions listed below may result in fire, serious injury, and/or DEATH. The warnings and precautions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors that cannot be built into this product but

must be supplied by the operator. SAVE THESE INSTRUCTIONS

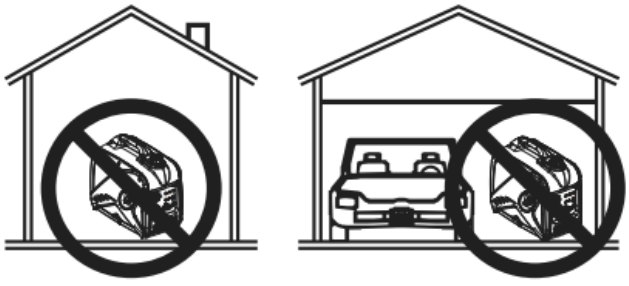
Setup Precautions

1. Gasoline fuel and fumes are flammable and potentially explosive. Use proper fuel storage and handling procedures. Do not store fuel or other flammable materials nearby.
2. Have multiple ABC class fire extinguishers nearby.
3. 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.
4. Set up and use only on a flat, level, well-ventilated surface.
5. All connections and conduits from the Generator to the load must only be installed by trained and licensed electricians, and in compliance with all relevant local, state, and federal electrical codes and standards, and other regulations where applicable.
6. Connections for standby power to a building's electrical system must be made by a qualified electrician. The connection must isolate the Generator power from utility power and must comply with all applicable laws and electrical codes.
7. A transfer switch should be installed by a licensed electrician in compliance with all applicable laws and electrical codes.
8. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during set up.
9. Use only lubricants and fuel recommended in the Specifications chart of this manual.
10. Improper connections to a building's electrical system can allow electrical current from the Generator to back feed into the utility lines. Such back feed may electrocute utility company workers or others who contact the lines during a power outage, and the Generator may explode, burn, or cause fires when utility power is restored. Consult the utility company and a qualified electrician if intending to use the Generator for backup power.
11. Do not operate the Generator before grounding. The Generator must be earth-grounded by all relevant electrical codes and standards before operation.
12. Install carbon monoxide alarm(s) with battery backup in nearby buildings according to the manufacturer's instructions.

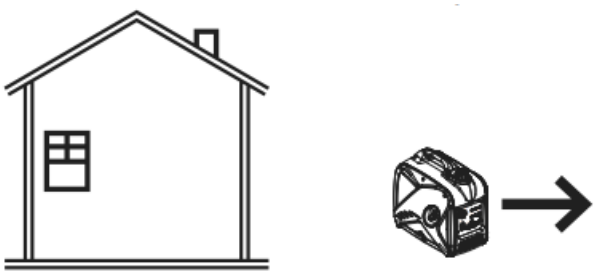
Operating Precautions

1.  CARBON MONOXIDE HAZARD

   Using a generator indoors CAN KILL YOU IN MINUTES. Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.



- NEVER use inside a home or garage, EVEN IF doors and windows are open.



- Only use OUTSIDE and far away from windows, doors, and vents.

2. CARBON MONOXIDE SHUTOFF DANGER! TO PREVENT SERIOUS INJURY AND DEATH FROM CARBON MONOXIDE INHALATION:
   The Carbon Monoxide sensor is an additional layer of protection only. Do not use the Generator in any area or situation that will allow carbon monoxide to accumulate.
   - **FLASHING RED LIGHT:**
     Dangerous levels of carbon monoxide gas have built up and the generator will shut off.
   - Leave immediately until the area has aired out. Move the Generator to a well-ventilated area before operation.
   - **FLASHING YELLOW LIGHT:**
     Carbon monoxide sensor malfunction. Sensor needs service. Do not use the Generator until the sensor is working properly. For technical questions, please call 1-**888-866-5797**.
   - **NOTE:** Yellow light flashes once after starting to indicate passing self-check and is functioning normally. The Carbon Monoxide sensor must only be serviced by a qualified technician to restore it to its original settings.
   - Do not modify or tamper with the Carbon Monoxide sensor. Not following these instructions can result in death or serious injury due to Carbon Monoxide sensor malfunction.
3. Never use a generator indoors, including in garages, basements, crawl spaces, and sheds. Opening doors and windows or using fans will NOT prevent carbon monoxide build-up in the home.
4. When using generators, keep them outdoors and far away from open doors, windows, and vents to avoid toxic levels of carbon monoxide from building up indoors.
5. If you start to feel sick, dizzy, or weak while using a generator, get to fresh air right away. The carbon monoxide from generators can quickly lead to full incapacitation and death.
6. Keep children away from the equipment, especially while it is operating.
7. Keep all spectators at least six feet from the engine during operation.
8. Fire Hazard! Do not fill the gas tank while the engine is running. Do not operate if gasoline has been spilled. Clean spilled gasoline before starting the engine. Do not operate near the pilot light or open flame.
9. Do not touch the engine during use. Let the engine cool down after use.
10. Never store fuel or other flammable materials near the engine.
11. If the plugged-in product operates abnormally or unusually slow, immediately stop using the generator as a power source. Read and adhere to the instruction manual of the product to be powered to make sure that it can be safely and efficiently powered by a portable generator.
12. Before connecting an appliance or power cord to the generator: Make sure that it is in good working order. Faulty appliances or power cords can create a potential for electrical shock.
13. Do not exceed the running wattage of the generator. Make sure that the total electrical rating of all of the tools or appliances plugged into the generator at the same time does not exceed that of the generator. Check that the startup surge will not be beyond the limit of the generator.

14. Avoid substantially overloading which will trip the circuit breaker. Slightly overloading the generator may not trip the circuit breaker, but will lead to premature generator failure.
15. Do not attempt to connect or disconnect load connections while standing in water, or on wet or soggy ground.
16. Do not touch electrically energized parts of the generator and interconnecting cables or conductors with any part of the body, or with any non-insulated conductive object.
17. Connect the generator only to a load that is compatible with the electrical characteristics and running wattage of the generator.
18. Insulate all connections and disconnected wires.
19. Guard against electric shock. Prevent body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerators.
20. Only use a suitable means of transport and lifting devices with sufficient weight-bearing capacity when transporting the generator.
21. Secure the generator on transport vehicles to prevent it from rolling, slipping, and tilting.
22. Industrial applications must follow OSHA requirements.
23. Do not leave the generator unattended when it is running. Turn off the generator (and remove the safety keys, if available) before leaving the work area.
24. The generator can produce high noise levels. Prolonged exposure to noise levels above 85 dBA is hazardous to hearing. Wear ear protection when operating the generator or when working nearby while it is operating.
25. Keep access doors on enclosures locked.
26. Wear ANSI-approved safety glasses and hearing protection during use.
27. People with pacemakers should consult their physician(s) before use. Electromagnetic fields near a heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near the engine's magneto or recoil starter.
28. Use only accessories that are recommended by Harbor Freight Tools for your model. Accessories that may be suitable for one piece of equipment may become hazardous when used on another piece of equipment.
29. Do not operate in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. Gasoline-powered engines may ignite dust or fumes.
30. Stay alert, watch what you are doing, and use common sense when operating this generator. Do not use while tired or under the influence of drugs, alcohol, or medication.
31. Dress properly. Do not wear loose clothing or jewelry. Keep hair, clothing, and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.
32. Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.
33. Do not cover the generator during operation.
34. Keep the generator and surrounding area clean at all times. Keep the generator at least 5 feet from combustible objects.
35. Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refueling.
36. Use the equipment, accessories, etc., With these instructions and in the manner intended for the particular type of equipment, taking into account the working conditions and the work to be performed. Use of the equipment for operations different from those intended could result in a hazardous situation.
37. Do not operate the equipment with known leaks in the engine's fuel system.
38. When spills of fuel or oil occur, they must be cleaned up immediately. Dispose of fluids and cleaning materials as per any local, state, or federal codes and regulations. Store oil rags in a bottom-ventilated, covered, metal

container.

39. Keep hands and feet away from moving parts. Do not reach over or across equipment while operating.
40. Before use, check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the equipment's operation. If damaged, have the equipment serviced before use. Many accidents are caused
    by poorly maintained equipment.
41. Use the correct equipment for the application. Do not modify the equipment and do not use the equipment for a purpose for which it is not intended.
42. Extension Cord – Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized extension cord will cause a drop in line voltage resulting in loss of power and overheating. The table below shows the correct cord size to use depending on cord length and nameplate ampere rating. If rating. If in doubt, use doubt, use the next heavier gauge. the next heavier gauge. The smaller the gauge number, the heavier the cord.

RECOMMENDED MINIMUM WIRE GAUGE FOR EXTENSION CORDS					
CURRENT (AMpS)	**Load @ 120V (WATTS)**	**Load @ 240V (WATTS)**	**0 ~ 50 ft**	**50 ~ 75 ft**	**75 ~ 100 ft**
2	240	480	18 AWG		
4	480	960	18 AWG		16 AWG
6	720	1440	18 AWG	16 AWG	14 AWG
8	960	1920	16 AWG		12 AWG
10	1200	2400	16 AWG	14 AWG	12 AWG
15	1800	3600	14 AWG	12 AWG	10 AWG
20	2400	4800	12 AWG	10 AWG	
25	3000	6000	12 AWG	10 AWG	8 AWG
30	3600	7200	10 AWG	8 AWG	
35	4200	8400	8 AWG	6 AWG	
40	4800	9600	6 AWG		

RECOMMENDED MINIMUM WIRE GAUGE FOR EXTENSION CORDS

Parallel Kit Precautions

TO PREVENT SERIOUS INJURY, DEATH, AND GENERATOR AND/OR EQUIPMENT DAMAGE FROM ELECTRIC SHOCK AND FIRE:

1. Follow the Parallel Kit instructions provided with the Kit for connection and use of a Parallel Kit.
2. Only connect two identical Inverter Generators using a Parallel Kit.
3. Connect Parallel Kit only to terminals marked "Parallel Outlets" on the front of the Generator.
4. Do not remove or connect a Parallel Kit while the Generator is running.
5. Do not use a Parallel Kit that is attached to only one Generator.

Service Precautions

1. Before service, maintenance, or cleaning:
    - Unplug all devices from the generator.
    - Turn the Combination Switch to its “OFF” position.
    - Disconnect the negative battery terminal.
    - Allow the engine to completely cool.
    - Then, remove the spark plug cap from the spark plug.
2. Keep all safety guards in place and proper working order. Safety guards include mufflers, air cleaners, mechanical guards, and heat shields, among other guards.
3. Keep all electrical equipment clean and dry. Replace any wiring where the insulation is cracked, cut, abraded, or otherwise degraded. Replace terminals that are worn, discolored, or corroded. Keep terminals clean and tight.
4. Do not alter or adjust any part of theequipment or its engine that is sealed by the manufacturer or distributor. Only a qualified service technician may adjust parts that may increase or decrease governed engine speed.
5. Wear ANSI-approved safety goggles, heavy-duty work gloves, and a dust mask/respirator during service.
6. Maintain labels and nameplates on the equipment. These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
7. Have the equipment serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the equipment is maintained. Do not attempt any service or maintenance procedures not explained in this manual or any procedures that you are uncertain about your ability to perform safely or correctly.
8. Store equipment out of the reach of children.
9. Follow scheduled engine and equipment maintenance.

Refueling

1. Do not refill the fuel tank while the engine is running or hot.
2. Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refueling.
3. Do not fill the fuel tank to the top. Leave a little room for the fuel to expand as needed.
4. Refuel in a well-ventilated area only.
5. Wipe up any spilled fuel and allow excess to evaporate before starting the engine.
6. To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.

Set-Up

Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before setting up or use of this product.
TO PREVENT SERIOUS INJURY AND FIRE: Operate only with a proper spark arrestor installed.

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. At high altitudes, the engine’s carburetor, governor, and any other parts that control the fuel-air ratio

will need to be adjusted by a qualified mechanic to allow efficient high-altitude use and to prevent damage to the engine and any other devices used with this product.

Grounding

The Generator must be properly grounded by all relevant electrical codes and standards before operation. In many locations, local code will not require this generator to be grounded when used with cord and plug equipment plugged directly into the receptacles on the generator. However, your local regulations may require the generator to be grounded. Contact a licensed electrician or consult local authorities regarding local grounding requirements. If grounding is required, have the unit grounded by a qualified electrician if you are not qualified to do so.

General grounding instructions are as follows

Use one of the following as the grounding electrode: Pipe or conduit, minimum ¾ in. diameter, minimum 8 ft. long. If steel, it must have an anti-corrosion coating. Rod, stainless steel, or copper- or zinc-coated steel, minimum 5/8 in. diameter, minimum 8 ft. long.

1. Drive the electrode at least 8 ft vertically into the ground.
    - If the rock layer prevents vertical entry, drive at an angle not exceeding 45 degrees from vertical.
    - If the rock layer prevents angle entry, bury the electrode in a horizontal trench at least 30 in. deep.
2. The upper end of the electrode must be protected if above ground level.
3. Connect a #6 AWG grounding wire (not included) from the Grounding Terminal on the Generator Control Panel to the buried electrode.
4. For additional information on grounding methods, please see the National Electrical Code.

   Note: There is a permanent conductor between the portable generator inverter module (Neutral Conductor) and the frame.

Electric Starter Battery Connection

For the electric start function, the included 12VDC
The battery must be connected before first use.

1. Remove the Battery Access Panel.
2. Make sure the black strap stretches over the top of the Battery and hooks into the Battery Platform.
3. Remove the covers from the Battery Terminals.
4. Locate the black and red battery cables.
5. Connect the red cable to the positive battery terminal first. Then connect the black cable to the negative battery terminal.
6. Replace the Battery Access Panel.

   Note: This generator is equipped with a battery-charging circuit specific to the installed battery type that will charge the battery when the Generator is running.
7. If the battery needs charging during storage, make sure to use a proper lead acid charger (not provided). Unplug the charger when the battery is fully charged.

Components and Controls

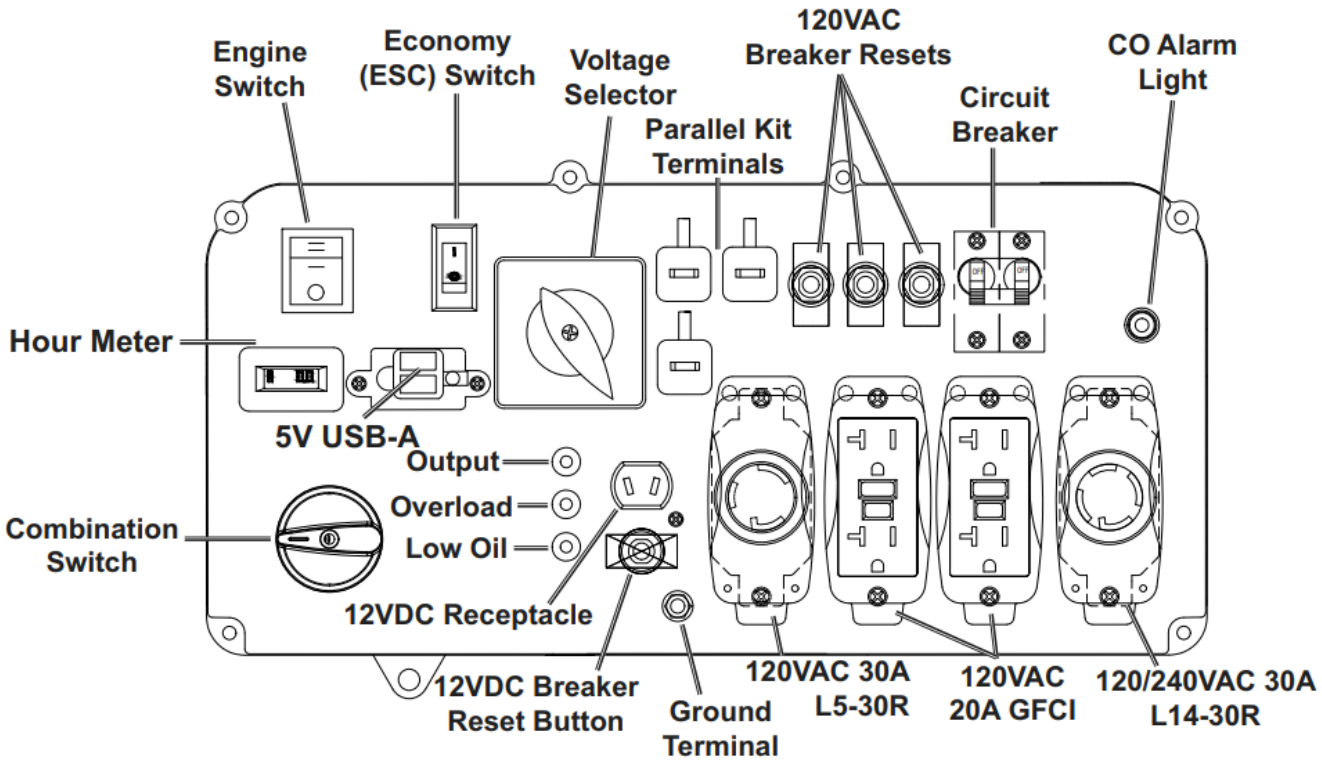
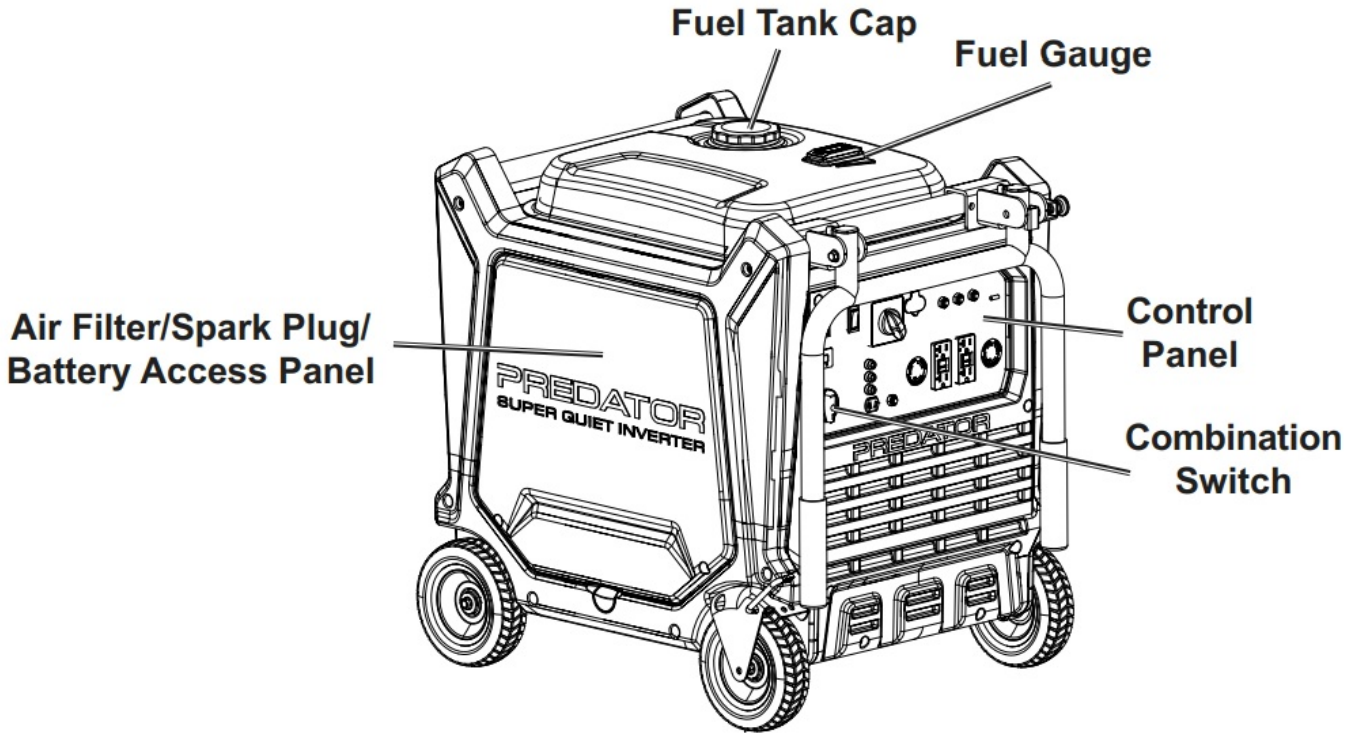


Figure A: Control Panel



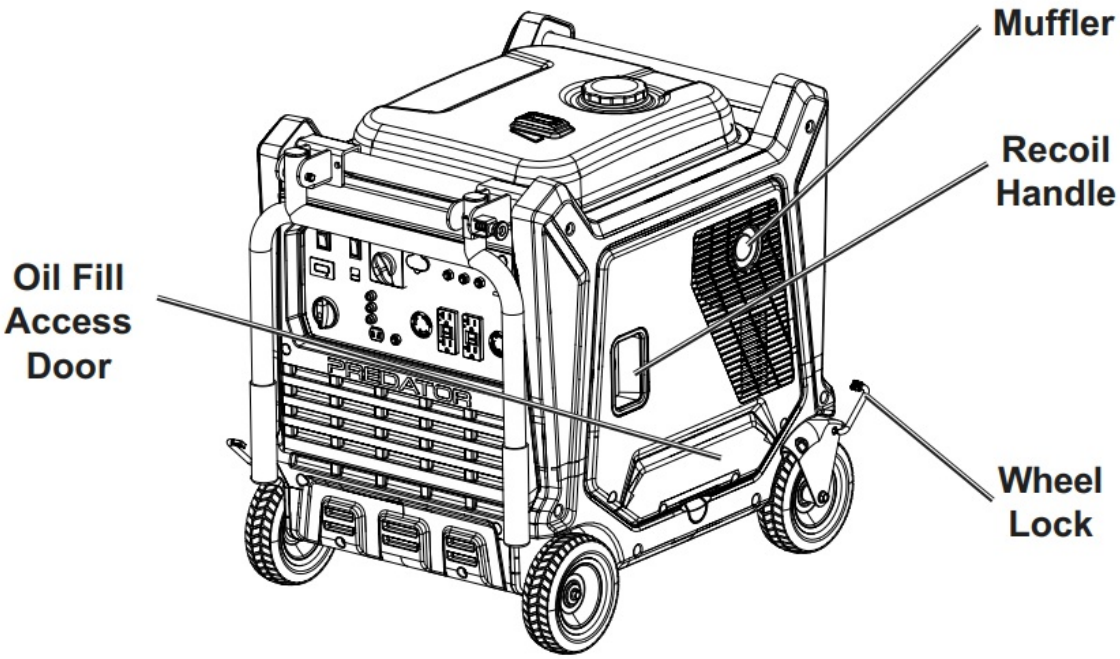


Figure B: Generator Components

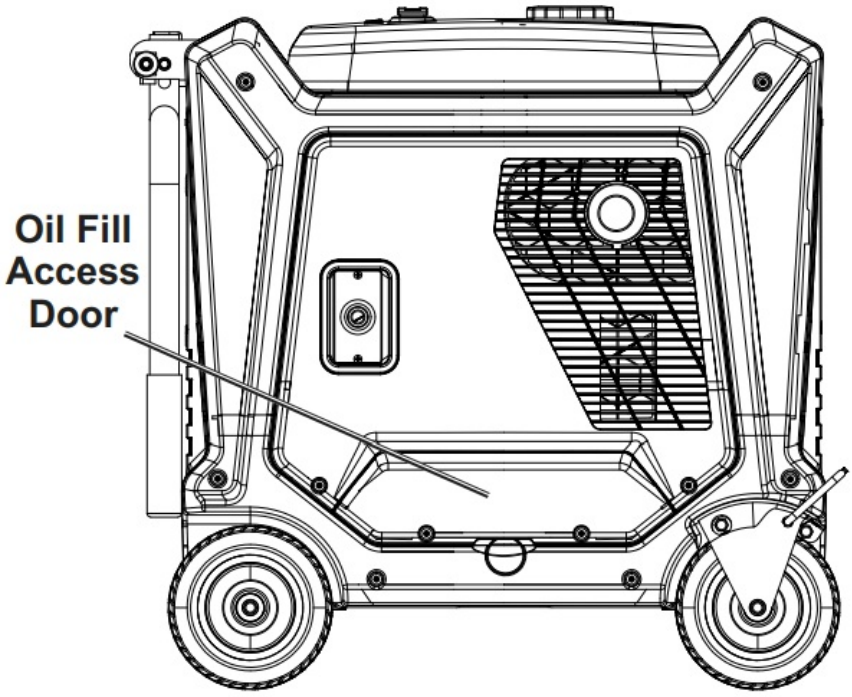
WARNING! TO PREVENT SERIOUS INJURY: Follow Parallel Kit instructions for connection and use of a Parallel Kit (Parallel Kit and instructions sold separately). The generator must be in 120V/240V mode for parallel function

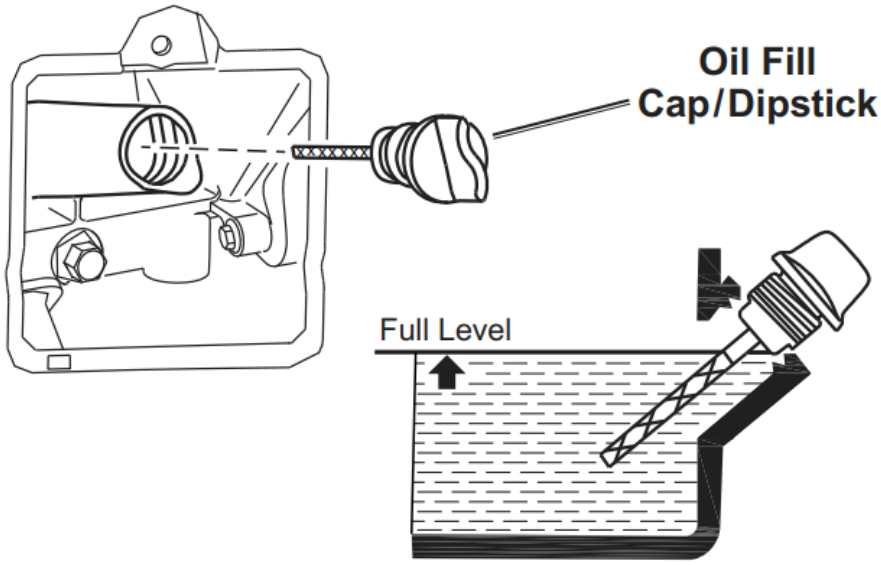
Operation

Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before setting up or use of this product.

Pre-Start Checks

Inspect the Engine and Generator looking for damaged, loose, and missing parts before setting up and starting. If any problems are found, do not use the equipment until fixed properly.





Checking and Filling Engine Oil
NOTICE: The generator is shipped without engine oil. The engine's crankcase MUST be filled with oil before first use. Your Warranty is VOID if the Engine's crankcase is not properly filled with oil before the first use and before each use thereafter. Before each use, check the oil level.
The engine will not start with low or no engine oil.

1. Make sure the Engine is stopped and is level.
2. On the left side of the Generator, loosen the Screw and remove the Oil Fill
3. Access Door, as shown to the right.
4. Clean the top of the Oil Fill Cap/Dipstick and the area around it. Remove the Cap/Dipstick, turning it counterclockwise.
5. Check the oil level. The oil level should be up to the edge of the hole as shown.
6. 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.
7. Thread the Oil Fill Cap/Dipstick back clockwise and replace the Oil Fill Access Door.
   NOTICE: Do not run the engine with too little oil. The engine will shut off if the engine oil level is too low.

Checking and Filling Fuel
WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:
Fill the fuel tank in a well-ventilated area away from ignition sources. If the Engine is hot from use, shut the engine off and wait for it to cool before adding fuel. Do not smoke.

1. Clean the Fuel Cap and the area around it.
2. Unscrew and remove the Fuel Cap.
3. Remove the Strainer and remove any dirt and debris. Then replace the Strainer.
   Note: Do not use gasoline containing more than 10% ethanol (E10). Do not use E85 ethanol. Add fuel stabilizer to the gasoline or the Warranty is VOID.
   Note: Do not use gasoline that has been stored in a metal fuel container or a dirty fuel container. It can cause particles to enter the carburetor, affecting Engine performance and/or causing damage.
4. If needed, fill the Fuel Tank to about 1 inch under the fill neck of the Fuel Tank with 87 octane or higher unleaded gasoline that has been treated with a fuel stabilizer additive.
5. Follow the fuel stabilizer manufacturer's recommendations for use.

6. Replace the Fuel Cap.
7. Wipe up any spilled fuel and allow excess to evaporate before starting the engine. To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.

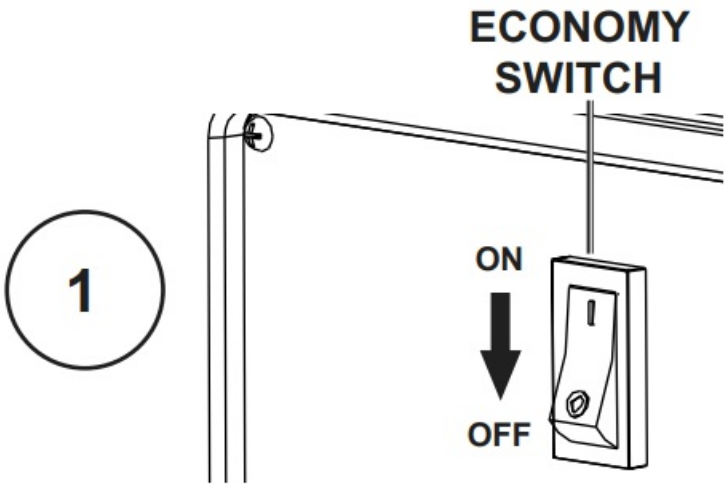
Starting the Engine

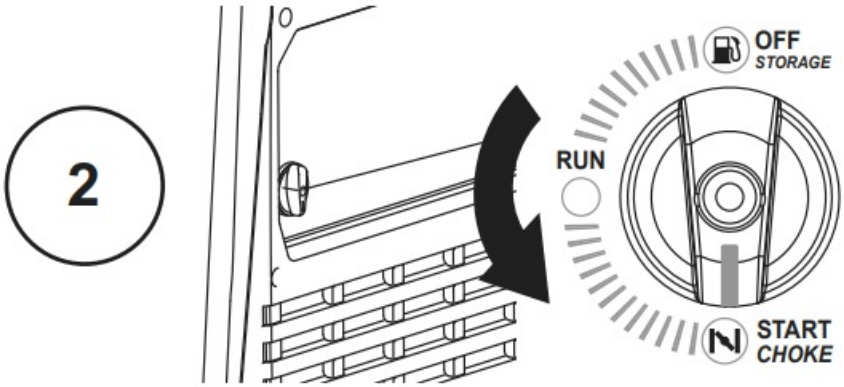
Before Starting the Engine

- Inspect the generator and engine.
- Disconnect all electrical loads from the generator.
- Fill the engine with the proper amount and type of both stabilizer-treated unleaded gasoline and oil.

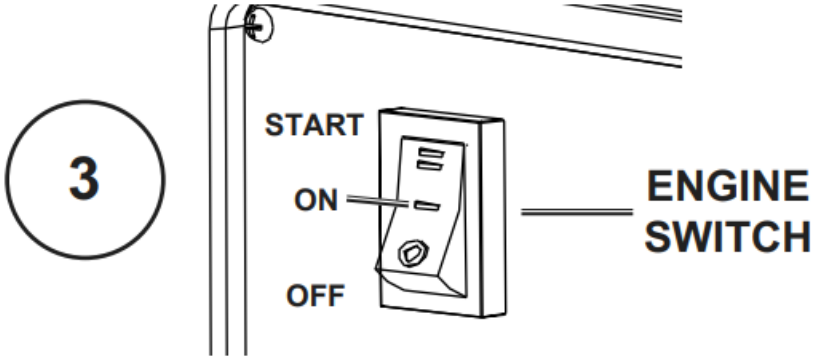
Manual Start

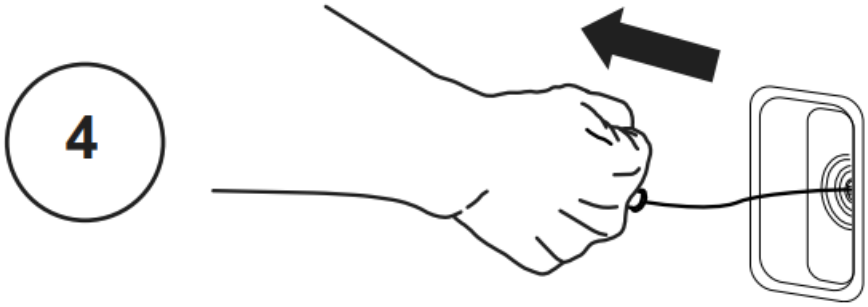
1. Turn the Economy Switch to the OFF position.



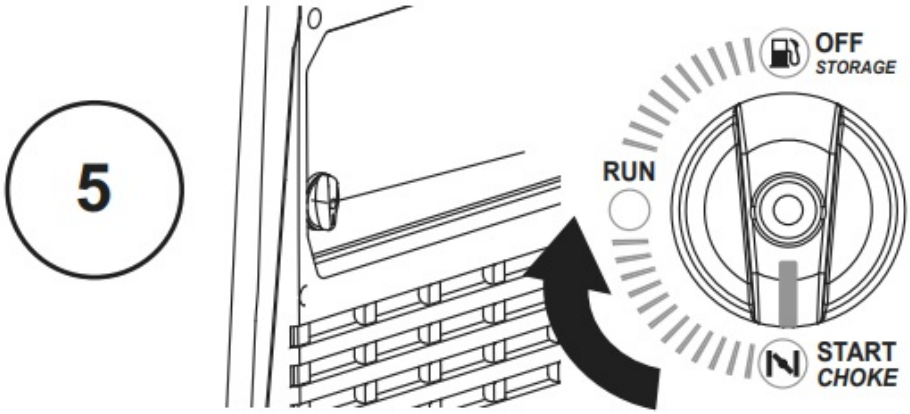


2. Turn the Combination Switch to the START position.
3. Turn the Engine Switch to the ON position.





4. Grip the Starter Handle of the Engine loosely and pull it slowly several times to allow the gasoline to flow into the Engine's carburetor. Then pull the Starter Handle gently until resistance is felt.
5. Allow the Cable to retract fully and then pull it quickly. Repeat until the Engine starts. Do not let the Starter Handle snap back against the housing. Hold it as it recoils so it doesn't hit the housing.



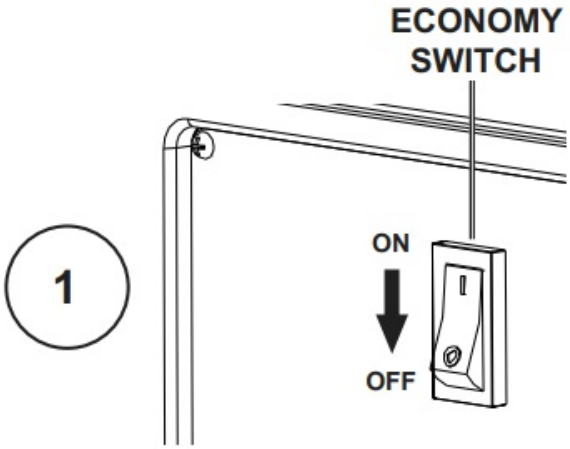
6. After the engine starts, allow it to run for 20 seconds then turn the Combination Switch to the RUN position.

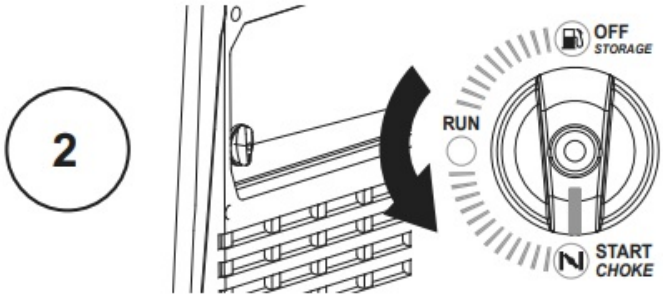
If the engine does not start

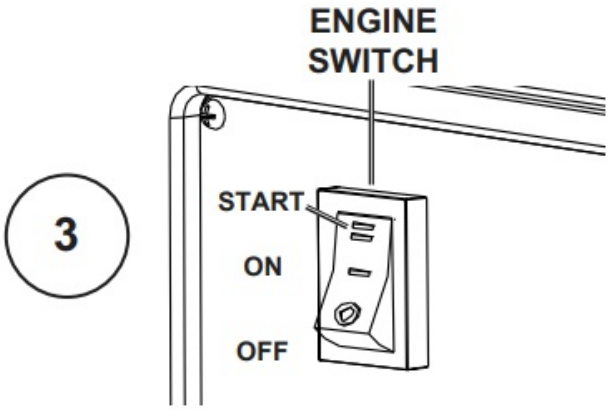
- Check engine oil level.
- The engine will not start with low or no engine oil.
- Check spark arrestor cleanliness.
- The engine will not start if the spark arrestor is clogged.
- For a warm engine – turn the Combination Switch to RUN before trying to start it again.
  Note: Moving the Combination Switch too fast could stall the Engine.
- **IMPORTANT:** Allow the Engine to run at no load for five minutes after each start-up so that the Engine can stabilize.

Electric Start

1. Turn the Economy Switch to the OFF position.







2. Turn the Combination Switch to the START position.
3. Turn the Engine Switch to the START position to start the Engine. If the Engine does not start within 3 seconds, release the Starter Button. Wait at least 10 seconds, then try again.
4. After the engine starts, allow it to run for 20 seconds then turn the Combination Switch to the RUN position.

   Note: If the engine does not start, check the engine oil level. The engine will not start with low or no engine oil.

   Note: If the warm engine does not start, turn the Combination Switch to RUN before trying to start it again.

   Note: Moving the Combination Switching too fast could stall the Engine.

   IMPORTANT: Allow the Engine to run at no load for five minutes after each start-up so that the Engine can stabilize.

CARBON MONOXIDE SHUTOFF

DANGER! TO PREVENT SERIOUS INJURY AND DEATH FROM CARBON MONOXIDE INHALATION:

The Carbon Monoxide sensor is an additional layer of protection only. Do not use the Generator in any area or

situation that will allow carbon monoxide to accumulate.

FLASHING RED LIGHT
Dangerous levels of carbon monoxide gas have built up. Leave immediately until the area has aired out. Move the Generator to a well-ventilated area before operation.

FLASHING YELLOW LIGHT
Carbon monoxide sensor malfunction. Sensor needs service. Call 1-888-866-5797 as soon as possible. Do not use the Generator until the sensor is working properly.
NOTE: Yellow light flashes once after starting to indicate passing self-check and is functioning normally. The Carbon Monoxide sensor must only be serviced by a qualified technician to restore it to its original settings. Do not modify or tamper with the Carbon Monoxide sensor. Not following these instructions can result in death or serious injury due to Carbon Monoxide sensor malfunction.

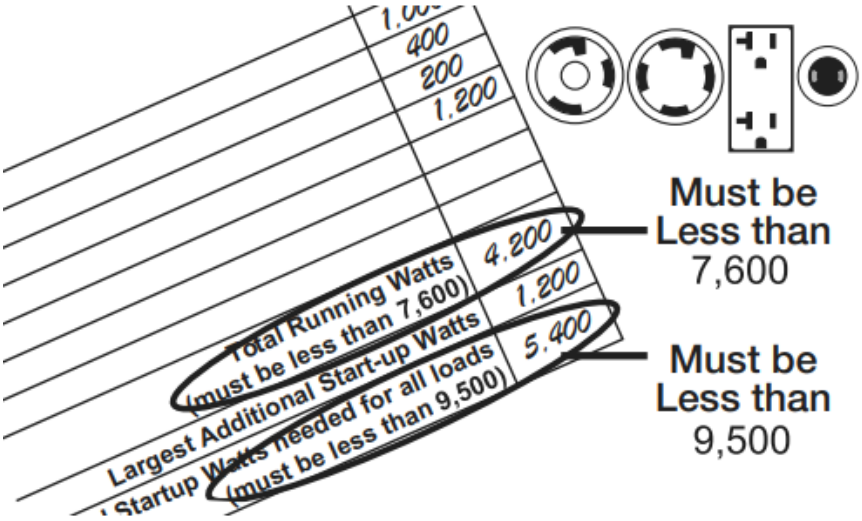
Break-in Period

- Breaking in the Engine will help to ensure proper equipment and Engine operation.
- The break-in period will last about 30 hours of use.
- DO NOT exceed 75% of the Generator's running wattage during this period.
- Change the engine oil after this period.
- Under normal operating conditions, subsequent maintenance follows the schedule is explained in the MAINTENANCE section.

Nominal 12VDC Output

1. Move the Economy (ESC) Switch to the OFF position.
2. Only use the 12VDC receptacle to charge a 12-volt lead-acid type battery using an appropriate charge controller. (Battery and controller not included.) The 12VDC output is not regulated.
3. Do not connect any device to the 12VDC terminal that draws more than 8 amps.
4. If this 12VDC circuit protection is tripped, reduce the load, and press the Reset Button next to the outlet.
   Note: Do not allow the Generator to completely run out of fuel with devices attached. A Generator's output may sharply spike as it runs out of fuel, causing damage to attached devices.

Connecting Electrical Loads
Familiarize yourself with the engine controls, power panel, and how to start the engine before using the Generator. Calculate the wattage of the products you will use with the Generator and verify that the Generator can handle the total load.
WARNING! Connect only properly wired plugs to the Generator. A plug that is spliced onto a different cord may be hazardous. Only a qualified electrician should wire a plug onto a cord.
WARNING! Never exceed the rated capacity for this Generator, as serious damage to the Generator and/or appliances, tools, and equipment could result from an overload. Starting and running wattage requirements should always be calculated when matching this Generator's wattage capacity to the appliance, tool, or equipment. Use the DC12V Receptacle to power 12VDC equipment.



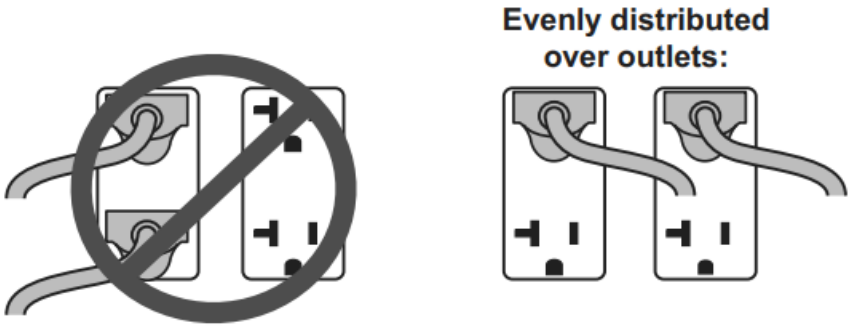
WARNING! TO PREVENT SERIOUS INJURY: Do not charge batteries without a proper charge controller. Do not overcharge.

- Connect the items that require the most wattage first.
- Connect “inductive” load appliances, tools, and equipment next. Inductive loads are small hand tools and some small appliances.
- Connect any lights next.
- Voltage-sensitive appliances, tools, and equipment should be the last to be connected to the Generator.

Plug voltage-sensitive items such as TVs, DVD players, microwaves, and cordless telephones into a UL® Listed voltage surge protector (not included). Then, connect the surge protector to the Generator.
IMPORTANT! Failure to connect and operate appliances, tools, and equipment in this sequence can cause damage to the Generator, appliances, tools, and equipment and will void the Warranty of this Generator.

IF ANY CIRCUIT BREAKERS TRIP CHECK THE FOLLOWING

1. Make sure that ALL circuit breakers are reset before starting the Generator again.
2. Adjust the plugs so the loads are shared across outlet circuits.



3. To achieve rated output from the Generator, distribute loads over outlets.

The generator uses a 2-circuit system to supply power to the receptacles. The loads must be evenly distributed across receptacles to prevent overload on a single circuit. If the loads being drawn are below the max rated wattage of the generator, yet the overload light begins blinking or the generator shuts off, try redistributing plugs across receptacles. 120V Only (3-wire) Adaptor Cord Connected to L14-30 Receptacle: If the overload light begins blinking or the Generator shuts off, too much wattage is being drawn from one circuit even though the rated wattage of the Generator has not been reached. If an additional plug is connected to one of the duplex receptacles, move the plug to the other duplex receptacle. Restart the Generator.

Note
Only half the Generator's rated wattage, or 3800W, will be delivered through a 120V (3-wire) adaptor cord. Exceeding this may cause overload.

240V Cord Connected to L14-30 Receptacle
The 240V cord will draw full wattage from both circuits. If further loads are possible, distribute them across receptacles. Calculating the Total Wattage of Devices Used with the Generator Before using the Generator, check that the products
you want to plug into the unit are below the rated and maximum wattage ratings of the Generator. Use the Wattage Calculation Table below, and the watts listed on your products, to help calculate multiple wattage totals.

To use the table

1. Add up the Running Watts for all items you would like to use at any given time.
2. Make sure that this total is under 7,600 running wattage of the Generator.
3. Find the single highest starting watts for the selected items and add them to the total.
4. Make sure that this total is under 9,500 max. starting wattage of the Generator.
5. Plug in and turn on products from largest wattage to smallest.

Wattage Calculation Table

Equipment	**Running Watts**
Total Running Watts (must be less than 7,600)	
Largest Additional Start-up Watts	
Total Startup Watts needed for all loads (must be less than 9,500)	

Example

Equipment	Running Watts
Electric Water Heater (2,000 + 0)	*2,000*
Television (400 + 0)	*400*
Lawn Mower (1,200 + 1,200)	*1,200*
Hand Drill (600 + 600)	*600*
Total Running Watts (must be less than 7,600)	*4,200*
Largest Additional Start-up Watts	*1,200*
Total Startup Watts needed for all loads (must be less than 9,500)	*5,400*

A generator that is rated more than the minimum required max. starting watts will last much longer than a generator that only supplies the exact watts needed.

To Calculate Wattage
Volts and amps can be multiplied together to get watts (volts x amps = watts). To Calculate Additional Start-Up Watts

(If They Are Not Listed)
For equipment with a motor: Use the rated watts amount as an estimate of additional Start-up Watts. For most lights or heaters: there are no additional start-up watts.

Wattage Estimate Charts

EMERGENCY		
Device	**Running Watts**	**Additional Start-up Watts**
Refrigerator/Freezer	700	1500
Radio	100	0

JOB SITE		
Device	**Running Watts**	**Additional Start-up Watts**
Air Compressor – 1/2 HP	1000	1000
Table Saw – 10″	1700	1300
Belt Sander – 3″	1200	1200
Hand Drill – 1/2″	600	600
Halogen Work Light	1000	0
Reciprocating Saw	900	900

RECREATION		
Device	**Running Watts**	**Additional Start-up Watts**
AM/FM Radio	100	0
Electric Grill	1700	0
Inflator Pump	50	100
CD/DVD Player	100	0
Box Fan – 20″	200	200
Coffee Maker	600	0

HOUSEHOLD		
Device	**Running Watts**	**Additional Start-up Watts**
Computer w/ Monitor	800	0
Electric Clothes Dryer	5500	500
Electric Range	2100	0
Electric Water Heater	2000	0
Light Bulb – 100 watts	100	0
Microwave – 1000 watts	1000	200
Sump Pump – 1/2 HP	1000	1100
Television	400	0
Washing Machine	1100	1100
Well Pump – 1/2 HP	1000	1000

LAWN & GARDEN		
Device	**Running Watts**	**Additional Start-up Watts**
Hedge Trimmer	400	400
Pressure Washer	1200	1200
Lawn Mower	1200	1200
Edger	1000	1000

HEATING & COOLING		
Device	**Running Watts**	**Additional Start-up Watts**
Central AC – 10,000 BTU	1500	1500
Furnace Fan – 1/2 HP	900	1400
Space Heater	1800	0
Window AC – 10,000 BTU	1200	600

Note: Wattages listed below are estimates for that type of equipment only. Check nameplate wattages on all loads before connecting to the Generator.

Overload Indicator

Note: The OVERLOAD light may turn on for a few seconds as a large device starts up. 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. The OVERLOAD light will begin blinking if the generator is approaching the overload limit. If the OVERLOAD light stays on and the Generator stops producing power, the generator 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.
4. Move anything that may be limiting Generator ventilation away.
5. Check if any circuit breakers have tripped and make sure that ALL circuit breakers are reset before starting the Generator again.
6. Restart the Engine and reconnect devices while being careful to not overload the Generator.
7. Distribute loads evenly across receptacles to achieve rated output.

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.
   NOTICE: Do not run the engine with too little oil. The engine will shut off if the engine oil level is too low.
   Note: The LOW OIL light will blink if the Generator stops due to CO sensor shutoff. This does not indicate low oil. Follow all instructions under Carbon Monoxide Shutoff on page 12.

Economy (ESC) Switch

1. Turn the Economy (ESC) Switch ON to limit noise and fuel consumption for lighter generator loads.
2. Turn the Economy (ESC) Switch OFF to operate the engine at full speed:
   - when starting
   - when a heavy load is applied
   - when using the 12VDC output

Hour Meter
The Hour Meter shows cumulative run time in hours.

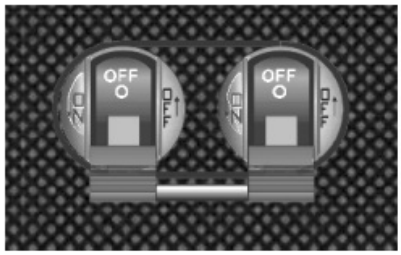
Voltage Selector
The Voltage Selector allows more current to be available at 120V outlets if 240V output is not required:

- Place switch at 120V only – only 120V outlets can be used.
- Place switch at 120/240V: Both 120V and 240V outlets can be used.

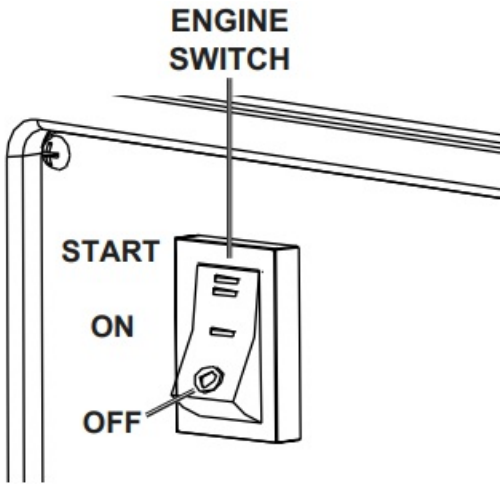
NOTE: Do not change the switch while under load. For parallel function, the Switch position must be at 120/240V.

Circuit Breakers
The circuit breaker protects the Generator from overloading. The rating of the breaker and the load it protects are marked near the breaker. Should any of the Circuit Breakers trip, the Generator will stop the electricity output. If this happens, unplug all loads from the Generator. Then, turn the tripped Circuit Breaker to ON and re-attach loads

gradually. Note: For push-type Circuit Breakers allow a few minutes for cool-down before restarting.

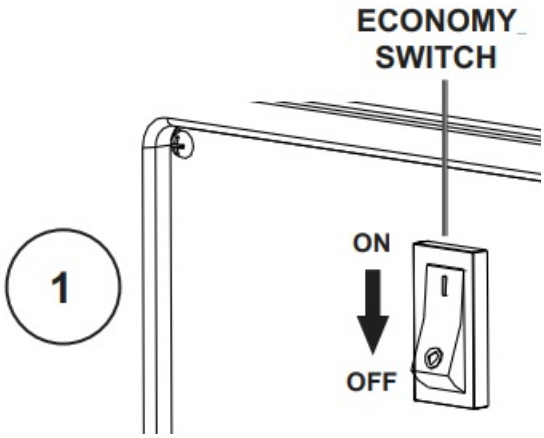


Stopping the Engine
To stop the Engine in an emergency, turn the Engine Switch OFF.

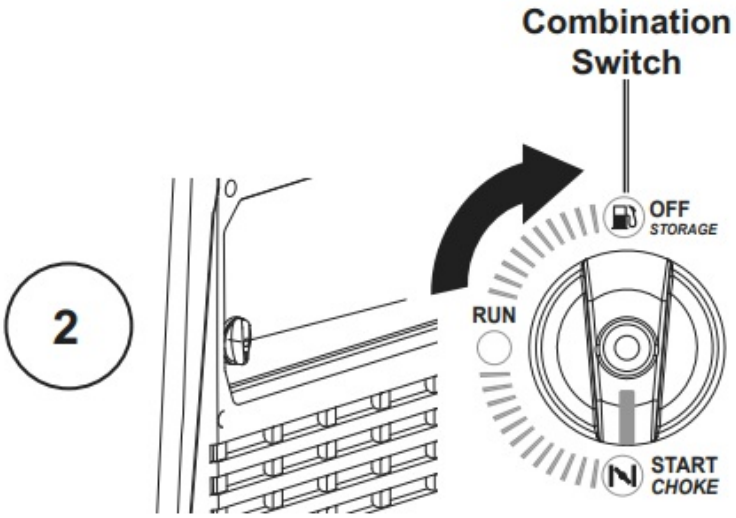


Under normal conditions, use the following procedure to shut off the Generator:

1. Turn all electrical load devices off and unplug them from the generator. If the Economy Switch is ON, turn it to the OFF position.



2. Turn the Combination Switch OFF.



3. After the engine stops, turn the Engine Switch to OFF.

Maintenance

WARNING
TO PREVENT SERIOUS INJURY FROM ACCIDENTAL STARTING: Turn the Combination Switch off the equipment to its “OFF” position, wait for the engine to cool, and disconnect the spark plug cap before performing any inspection, maintenance, or cleaning procedures.

TO PREVENT SERIOUS INJURY FROM EQUIPMENT FAILURE
Do not use damaged equipment. If abnormal noise, vibration, or excess smoking occurs, have the problem corrected before further use. Follow all service instructions in this manual. The engine may fail critically if not serviced properly. Many maintenance procedures, including any not detailed in this manual, will need to be performed by a qualified technician for safety. If you have any doubts about your ability to safely service the equipment or engine, have a qualified technician service the equipment instead.

Cleaning, Maintenance, and Lubrication Schedule

Note: This maintenance schedule is intended solely as a general guide. If performance decreases or if equipment operates unusually, check systems immediately. The maintenance needs of each piece of equipment will differ depending on factors such as duty cycle, temperature, air quality, fuel quality, and other factors.
Note: The following procedures are in addition to the regular checks and maintenance explained as part of the regular operation of the engine and equipment.

Procedure	Before Each Use	Monthly or every 8 hr. of use	Every 3 mo. or 50 hr. of use	Every 6 mo. or 100 hr. of use	Yearly or every 300 hr. of use	Every 2 Years	Page
1. Brush off outside of engine 2. Check engine oil level 3. Check air filter	✓						
Change engine oil				✓			19
Clean/replace air cleaner			✓*				20
1. Check and clean spark plug 2. Check and clean spark arrestor				✓			20
1. Check/adjust idle speed 2. Check/adjust valve clearance 3. Clean fuel tank, strainer and carburetor 4. Clean carbon build-up from combustion chamber					✓**		–
Replace fuel line if necessary						✓**	–

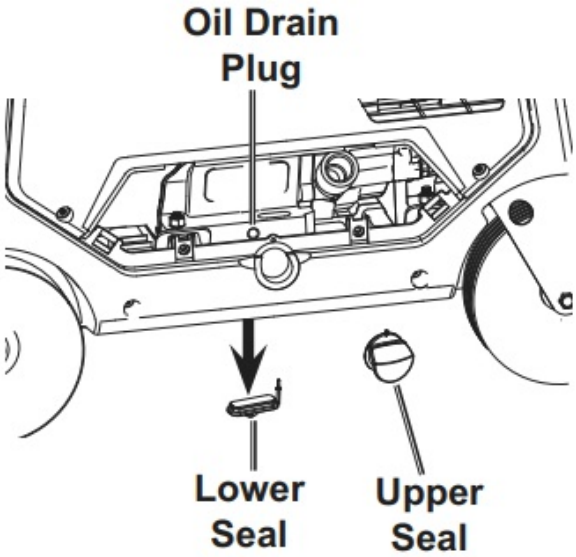
Service more frequently when used in dusty areas.
These items should be serviced by a qualified technician.

Checking and Filling Fuel
WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:
Fill the fuel tank in a well-ventilated area away from ignition sources. If the engine is hot from use, shut the engine off and wait for it to cool before adding fuel. Do not smoke.

1. Clean the Fuel Cap and the area around it.
2. Unscrew and remove the Fuel Cap.
3. Remove the Strainer and remove any dirt and debris. Then replace the Strainer.
   Note: Do not use gasoline containing more than 10% ethanol (E10). Do not use E85 ethanol. Add fuel stabilizer to the gasoline or the Warranty is VOID
   Note: Do not use gasoline that has been stored in a metal fuel container or a dirty fuel container. It can cause particles to enter the carburetor, affecting engine performance and/or causing damage.
4. If needed, fill the Fuel Tank to about 1 inch under the fill neck of the Fuel Tank with 87 octane or higher unleaded gasoline that has been treated with a fuel stabilizer additive.
5. Follow the fuel stabilizer manufacturer's recommendations for use.
6. Replace the Fuel Cap.
7. Wipe up any spilled fuel and allow excess to evaporate before starting the engine. To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.

Engine Oil Change
CAUTION! Oil is very hot during operation and can cause burns. Wait for the engine to cool before changing the oil.

1. Make sure the Engine is stopped and is level.
2. On the right side of the Generator, loosen the Screws and remove the Oil Fill Access Door, as shown to the right.
3.

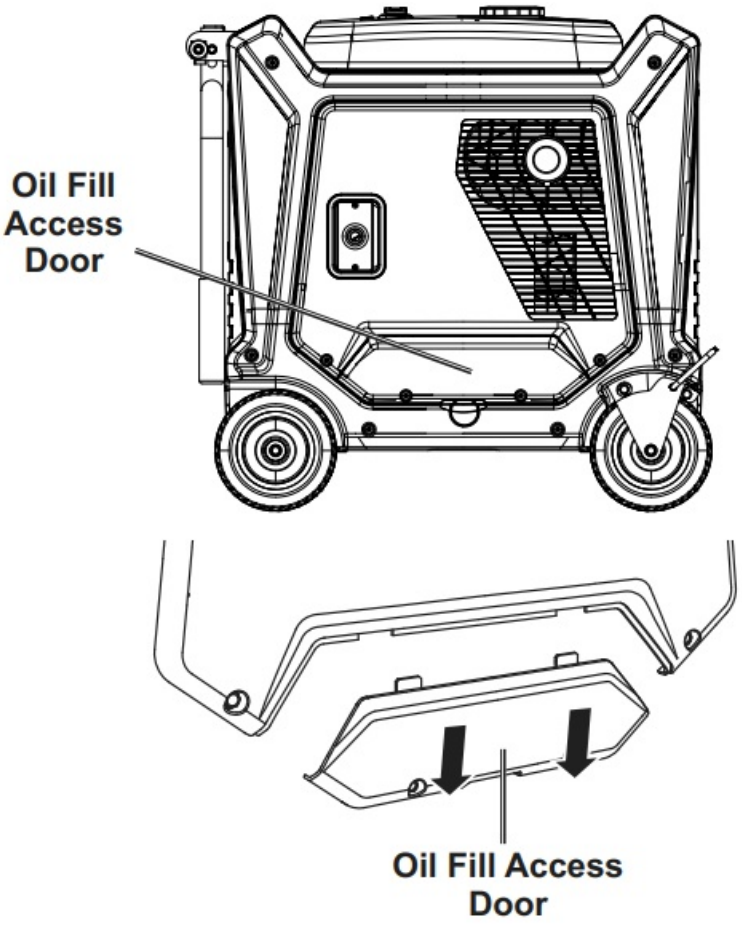


Remove the lower Rubber Seal from underneath the Generator. See below.

4. Place an oil drain pan under the Generator and center under the Oil Drain Hose opening. Remove the Oil Drain Cap, tilt the Generator slightly to facilitate drainage, and wait for the oil to drain completely. Recycle used oil.
5. Clean the top of the Oil Fill Cap/Dipstick and the area around it. Remove the Cap/Dipstick, turning it counterclockwise.
6. Remove the upper Rubber Seal from just below the Oil Drain Plug.
7. Use a wrench (sold separately) to remove the Oil Drain the Plug and allow the oil to drain completely.
8. Replace the Oil Drain Cap. Put the Oil Drain and the Hose back into the Generator.
9. Add the appropriate type of oil until the oil level is at the proper level. SAE 10W-30 oil is recommended for general use.

   Note: Make sure the Generator is level when adding oil to prevent overfilling which could cause engine damage.
10. Check the oil level. The oil level should be up to the edge of the hole as shown.
11. Thread the Oil Fill Cap/Dipstick back clockwise and replace the Oil Fill Access Door.

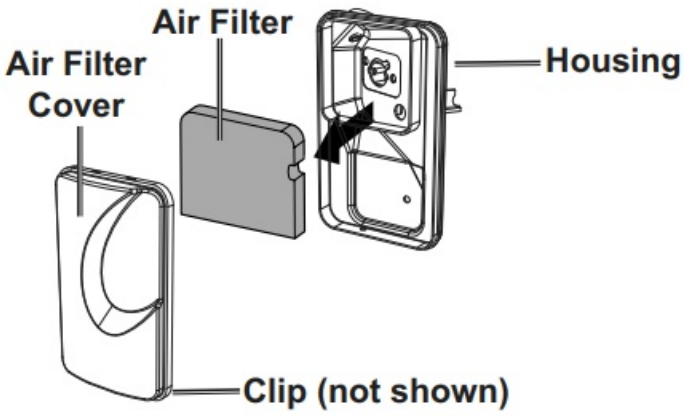
    NOTICE: Do not run the engine with too little oil. The engine will not start with low or no engine oil.



Air Filter Element Maintenance

1. Loosen the screws and remove the Air Filter Access Panel on the left side of the Generator.

2. Unsnap the Air Filter Cover Clip and remove the Air Filter Cover. See the figure below.
3. Remove the Air Filter.



4. Cleaning:
    - For “paper” filter elements:
      To prevent injury from dust and debris, wear ANSI-approved safety goggles, NIOSH-approved dust mask/respirator, and heavy-duty work gloves. In a well-ventilated area away from bystanders, use pressurized air to blow dust out of the air filter.
    - For foam filter elements:
      Wash the element in warm water and mild detergent several times. Rinse. Squeeze out excess water and allow it to dry completely. Soak the filter in lightweight oil briefly, then squeeze out the excess oil.
5. Install the cleaned filter.
6. Secure the Air Filter Cover and replace the Access Panel before use.

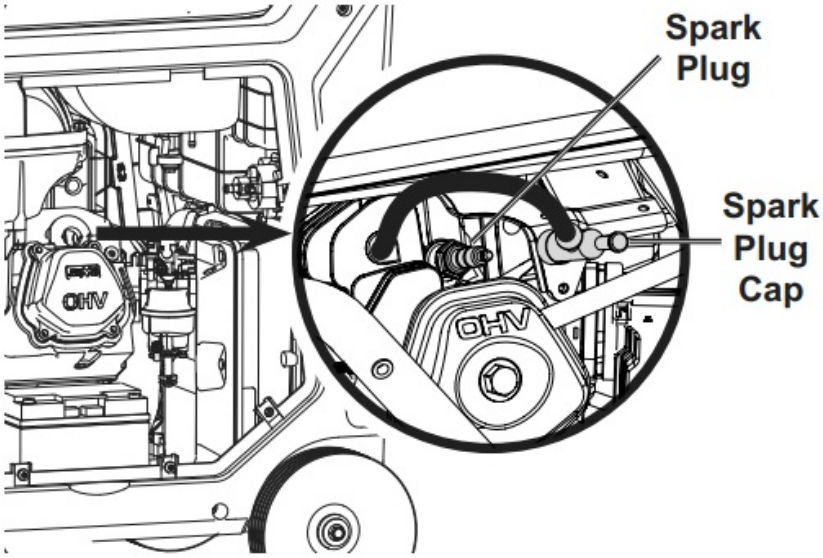
Spark Arrestor Maintenance
TO PREVENT SERIOUS INJURY AND FIRE: Operate only with a proper spark arrestor installed. Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrestor may be required. The operator should contact local fire agencies for laws or regulations 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.
5. **WARNING!** TO PREVENT SERIOUS INJURY FROM ACCIDENTAL BRUSH FIRE, secure the Spark Arrestor back in place immediately after cleaning and before further operation.

Spark Plug Maintenance

1. Loosen two screws and remove the Access Panel on the left side of the Generator.

2. Disconnect the Spark Plug Cap from the end of the plug. Clean out debris from around the Spark Plug.



3. Using the Spark Plug Wrench, remove the Spark Plug.
4. Inspect the Spark Plug: If the electrode is oily, clean it using a clean, dry rag. If the electrode has deposits on it, polish it using emery paper. If the white insulator is cracked or chipped, the spark plug needs to be replaced.
   NOTICE: Use only BPR6ES (NGK) type spark plug or equivalent. Using an incorrect spark plug may damage the engine.
5. When installing a new spark plug, adjust the plug's gap to the specification of the Specifications chart. Do not pry against the electrode, the spark plug can be damaged.
6. Apply anti-seize material to Spark Plug threads. Install the new spark plug or the cleaned spark plug into the engine.
   Gasket-style:
   - Finger-tighten until the gasket contacts the cylinder head, then tighten about 1/2-2/3 turn more.
   - Non-gasket-style: Finger-tighten until the plug contacts the cylinder head, then tighten about 1/16 turn more.
   - **NOTICE:** Tighten the Spark Plug properly. If loose, the Spark Plug will cause the engine to overheat. If overtightened, the threads in the engine block will be damaged.
7. Apply a dielectric spark plug boot protector (not included) to the end of the spark plug and reattach the cap securely.
8. Replace Spark Plug Access Cover and Access Panel.

Storage
When the equipment is to remain idle for longer than 20 days, prepare the engine for storage as follows:

CLEANING
Wait for the engine to cool, then clean the engine with a dry cloth.
NOTICE: Do not clean using water. The water will gradually enter the engine and cause damage.

FUEL
Gasoline Treatment/Draining the Fuel Tank To protect the fuel tank during storage, fill the tank with fresh gasoline that has been treated with a fuel stabilizer additive. Follow the fuel stabilizer manufacturer's recommendations for use. Refer to Checking and Filling Fuel on page 10. Aged gasoline that has not been treated with a stabilizer ahead of time must be safely drained away and not run through the engine.

WARNING!

TO PREVENT SERIOUS INJURY FROM FIRE:
Fill the tank in a well-ventilated area away from ignition sources. If the engine is hot from use, shut the engine off and wait for it to cool before adding fuel. Do not smoke.

Draining the Carburetor
After closing the Fuel Valve, place an appropriate container under the Carburetor and carefully remove the Drain Bolt from the bottom of the Carburetor Bowl, allowing the fuel to drain completely. Replace the Drain Bolt after draining.
WARNING! To prevent serious injury and fire, close the Fuel Valve before draining the Carburetor.

LUBRICATION

- Change engine oil.
- Clean out the area around the spark plug.
- Remove the spark plug and pour one tablespoon of engine oil into the cylinder through a spark plug hole.
- Replace the spark plug, but leave the spark plug cap disconnected.
- Pull the Starter Handle to distribute oil in the cylinder.
- Stop after one or two revolutions when you feel the piston start the compression stroke (when you start to feel resistance).

STORAGE AREA
Cover and store in a dry, level, well-ventilated area out of reach of children. Storage areas should also be away from ignition sources, such as water heaters, clothes dryers, and furnaces. Avoid direct exposure to rain and sunlight.
NOTICE: During extended storage periods the Engine must be started every 3 months and allowed to run for 15–20 minutes or the Warranty is VOID.

AFTER STORAGE
Before starting the engine after storage, keep in mind that untreated gasoline will deteriorate quickly. Drain the fuel tank and change to fresh fuel if untreated gasoline has been sitting for a month if treated gasoline has been sitting beyond the fuel stabilizer’s recommended period, or if the engine does not start.

Troubleshooting

problem	possible Causes	probable Solutions

The engine will not start	FUEL RELATED: 1. No fuel in the tank or fuel valve closed. 2. Combination Switch not in START position, cold engine. 3. Gasoline with more than 10% ethanol used. (E15, E20, E85, etc.) 4. Low-quality or deteriorated old gasoline. 5. Carburetor not primed. 6. Dirty fuel passageways. 7. Carburetor needle stuck. Fuel can be smelled in the air. 8. Too much fuel in the chamber. This can be caused by the carburetor needle sticking. 9. Clogged Fuel Filter.	FUEL RELATED: 1. Fill the fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline and open the fuel valve. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).** 2. Move the Combination Switch to the START position. 3. Clean out ethanol-rich gasoline from the 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. Use fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).** 5. Pull on Starter Handle to prime. 6. Clean out passageways using fuel additives. Heavy deposits may require further cleaning. 7. **Gently** tap the side of the carburetor float chamber with a screwdriver handle. 8. Turn Choke to RUN position. Remove the spark plug and pull the start handle several times to air out the chamber. Reinstall the spark plug and set the Choke to the START position. 9. Replace Fuel Filter.
	IGNITION (SPARK) RELATED: 1. Engine Switch at OFF position. 2. Spark plug cap not connected securely. 3. Spark plug electrode wet or dirty. 4. Incorrect spark plug gap. 5. Spark plug cap broken. 6. Circuit breaker tripped (electric start models only). 7. Incorrect spark timing or faulty ignition system.	IGNITION (SPARK) RELATED: 1. Turn the Engine Switch to ON. 2. Connect the spark plug cap properly. 3. Clean spark plug. 4. Correct the spark plug gap. 5. Replace the spark plug cap. 6. Reset the circuit breaker. Check the wiring and starter motor if the breaker continues to trip. 7. Have a qualified technician diagnose/ repair the ignition system.

	COMPRESSION RELATED: 1. Cylinder not lubricated. Problem after long storage periods. 2. Loose or broken spark plug. (A his sing noise will occur when trying to sta rt.) 3. Loose cylinder head or damaged h ead gasket. (A hissing noise will occur when trying to start.) 4. Engine valves or tappets are mis-a djusted or stuck.	COMPRESSION RELATED: 1. Pour a tablespoon of oil into a spark plug hole. Crank the engine a few times and try to start agai n. 2. Tighten spark plug. If that does not work, replace the spark plug. If the problem persists, may have a head gasket proble m, see #3. 3. Tighten head. If that does not remedy the problem, replace the h ead gasket. 4. Have a qualified technician adjust/ repair valv es and tappets.
	ENGINE OIL RELATED: 1. Low engine oil. 2. Engine mounted on a slope, trigge ring low oil shutdown.	ENGINE OIL RELATED: 1. Fill engine oil to the proper level. Check engin e oil before EVERY use. 2. Operate the engine on a level surface. Check engine oil level.
	SPARK ARRESTOR RELATED: 1. Spark Arrestor clogged with soot.	SPARK ARRESTOR RELATED: 1. Clean and replace the Spark Arrestor.

problem	**possible Causes**	**probable Solutions**
The engine will not start (continued)	ELECTRIC START RELATED: 1. No battery or defective battery inst alled. 2. Battery is low. 3. The electric start fuse (5A) is blown.	ELECTRIC START RELATED: 1. Install a new battery (see page 8). 2. Charge the battery. 3. Replace the fuse with a similar-sized fuse.

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 the 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. The red light on the Carbon Monoxide Sensor illuminates. 2. The CO Sensor Alarm flashes yellow continually shortly after starting. 3. CO Sensor Alarm flashes yellow continually after a longer period of operation. 4. Low oil shutdown. 5. Fuel tank empty or full of impure or low-quality gasoline. 6. Combination Switch at OFF/ Storage position. 7. Defective fuel tank cap creating a vacuum, preventing proper fuel flow. 8. Faulty magneto. 9. Disconnected or improperly connected spark plug cap.	1. Leave the area immediately and allow the area to ventilate thoroughly. Only operate the generator outside. 2. Carbon monoxide sensor malfunction. Sensor needs service. Call 1-888-866-5797 as soon as possible. Do not use the Generator until the sensor is working properly. 3. Make sure to operate the generator within rated ambient temperature; maintain a minimum 5 ft. clearance from all sides. 4. Fill engine oil to the proper level. Check engine oil before EVERY use. 5. Fill the fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.). 6. Turn the Combination Switch to the RUN position. 7. Test/replace the fuel tank cap. 8. Have qualified technician service Magneto. 9. Secure the spark plug cap.
Engine stops when under heavy load	1. Dirty air filter 2. Engine running cold.	1. Clean element. 2. Allow the engine to warm up before 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 the 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 the equipment's load rating. 3. Have a qualified technician diagnose and service the engine.
Engine backfires	1. Impure or low-quality gasoline. 2. The engine is too cold. 3. Intake valve stuck or overheated engine. 4. Incorrect timing.	1. Fill the 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 a qualified technician diagnose and service the engine. 4. Check engine timing.
The attached device doesn't have power	1. The device is 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 the device, reset the Circuit Breaker, plug in the device, and turn it on. 3. Have the product repaired.

Follow all safety precautions whenever diagnosing or servicing the generator or engine.
For technical questions, please call 1-888-866-5797.

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References

- User Manual