Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's date code in the back of the manual (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference. 25c

PREDATOR

5000 WATT EFI DUAL FUEL SUPER QUIET INVERTER GENERATOR

5000 GASOLINE MAX STARTING WATT
3900 GASOLINE RUNNING WATTS
5000 LPG MAX STARTING WATTS
3600 LPG RUNNING WATTS

Visit our website at:
https://www.harborfreight.com

Email our Product Support at:
productsupport@harborfreight.com

71424

WARNING: Improper installation, adjustment, alteration, service, or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information consult a qualified service technician, service agency, manufacturer, or the gas supplier.

FOR YOUR SAFETY
IF YOU SMELL GAS:

1. Don't touch electrical switches.
2. Extinguish any open flame.
3. Immediately call your gas supplier.

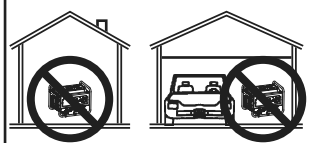
FOR YOUR SAFETY

Do not store gasoline or other flammable vapors and liquids in the vicinity of this or any other generator.

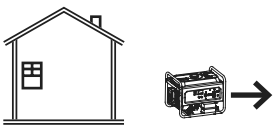
⚠ DANGER

Using a generator indoors CAN KILL YOU IN MINUTES.

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



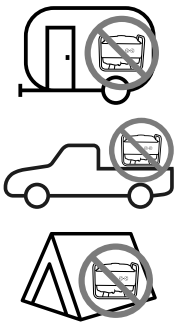
NEVER use inside a home or garage, EVEN IF doors and windows are open.



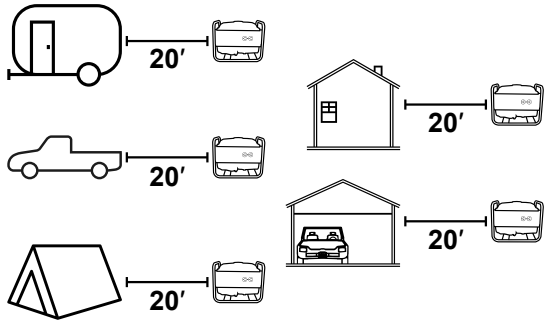
Only use OUTSIDE and far away from windows, doors, and vents.

⚠ DANGER

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



Use at least 20 feet away from people, animals, and structures with exhaust pointed away. Generator will still produce carbon monoxide, even when burning propane.



When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-800-444-3353 as soon as possible.

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No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools.
Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, 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.

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Specifications

Generator	AC Output (Gasoline)	120VAC, 60Hz, 32.5A, 1 Phase 3900W Running Watts 5000W Maximum Starting Watts
	AC Output (LPG/ Propane)	120VAC, 60Hz, 30A, 1 Phase 3600W Running Watts 5000W Maximum Starting Watts
	DC Output	12VDC, 8A (Nominal) USB Ports, PD 24W, 5/9/12V
	Receptacles	2x 120VAC, 20A 1x 120VAC, RV TT-30R 1x 12VDC Two Pin Outlet 1x USB-A 1x USB-C Parallel Ports
Displacement		224cc
Engine Type		Horizontal Single Cylinder 4-stroke, OHV
Cooling System		Forced air cooled
Fuel	Type	87+ octane stabilizer-treated unleaded gasoline or LPG/propane
	Gasoline Tank	3.20 Gallon / 12.00 Liter
	LPG/Propane Tank	20 lb tank minimum
Engine Oil	Type SAE	10W-30 above 32° F 5W30 at 32° F or below
	Capacity	0.64 Quart / 0.60 Liter
Run Time @ 25% Load with full gasoline tank		13.5 hr.
Run Time @ 25% Load with full 20lb. LPG/Propane tank		15 hr.
Sound Level at 23 feet		61 dB(A) @25% Load
Bore x Stroke		70 mm x 58 mm
Compression Ratio		8:6:1
Rotation viewed from PTO (power takeoff - the output shaft)		Counterclockwise
Spark Plug	Type	F7RTC (LG) or Equivalent
	Gap	0.028" - 0.031"
Valve Clearance	Intake	0.003" - 0.005"
	Exhaust	0.005" - 0.007"
Speed	Idle	2600 - 3800 RPM
Fuel Control System		Electronic Fuel Injection
Electric Start Battery		12V, 6.5Ah, Lead-Acid Non-Spillable
Remote Control Battery		3V, CR2032
Internal Battery		CO Module: 3V, CR2032 Display: 3V, CR2032 Contains non-replaceable battery.

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

In reference to the remote: Changes or modifications not expressly approved by Harbor Freight Tools could void the user's authority to operate the equipment. FCC ID: 2AL6E-YKQT01

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 which, 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 which, if not avoided, could result in minor or moderate injury.
NOTICE CAUTION	Addresses practices not related to personal injury.

Symbol Definitions

Symbol	Property or Statement
RPM	Revolutions Per Minute
HP	Horsepower
EFI	Electronic Fuel Injection
	WARNING marking concerning Risk of Eye Injury. Wear ANSI-approved safety goggles with side shields.
	Read the manual before set-up and/or use.
	WARNING: Contains coin battery.

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 which cannot be built into this product, but must be supplied by the operator.

This manual contains important instructions that should be followed during installation and maintenance of the generator and any batteries.

⚠ SAVE THESE INSTRUCTIONS.

IF YOU SMELL GAS

1. **NO FLAMES OR SPARKS!** Immediately put out all smoking materials and other open flames. Do not operate lights, appliances, telephones, or cell phones. Flames or sparks from these sources can trigger an explosion or a fire.
2. **LEAVE THE AREA IMMEDIATELY!** Get everyone out of the building or area where you suspect gas is leaking.
3. **SHUT OFF THE GAS.** Turn off the main gas supply valve on your propane tank if it is safe to do so. To close the valve, turn it to the right (clockwise).
4. **REPORT THE LEAK.** From a neighbor's home or other nearby building away from the gas leak, call your propane retailer right away. If you can't reach your propane retailer, call 911 or your local fire department.
5. **DO NOT RETURN TO THE BUILDING OR AREA** until your propane retailer, emergency responder, or qualified service technician determines that it is safe to do so.
6. **GET YOUR SYSTEM CHECKED.** Before you attempt to use any of your propane appliances, your propane retailer or a qualified service technician must check your entire system to ensure that it is leak-free.

CAN YOU SMELL IT?

Propane smells like rotten eggs, a skunk's spray, or a dead animal. Some people may have difficulty smelling propane due to their age (older people may have a less sensitive sense of smell); a medical condition; or the effects of medication, alcohol, tobacco, or drugs.

ODOR LOSS. On rare occasions, propane can lose its odor. Several things can cause this including:

- The presence of air, water, or rust in a propane tank or cylinder
- The passage of leaking propane through the soil

Since there is a possibility of odor loss or problems with your sense of smell, you should respond immediately to even a faint odor of gas.

PROPANE GAS DETECTORS

Under some circumstances, you may not smell a propane leak. Propane gas detectors (not included) sound an alarm if they sense propane in the air. They can provide an additional measure of security. You should consider the purchase of one or more detectors for your home.

GUIDELINES regarding propane gas detectors:

- Buy only units that are listed under the latest Underwriters Laboratories (UL) standard.
- Follow the manufacturer's instructions regarding installation and maintenance.
- Never ignore the smell of propane, even if no detector is sounding an alarm.

APPLIANCE MAINTENANCE

LEAVE IT TO THE EXPERTS. Only a qualified service technician has the training to install, inspect, service, maintain, and repair your appliances. Have your appliances and propane system inspected just before the start of each heating season.

DO NOT TRY TO MODIFY OR REPAIR valves, regulators, connectors, controls, or other appliance and cylinder/tank parts. Doing so creates the risk of a gas leak that can result in property damage, serious injury, or death.

CO AND YOUR SAFETY

WHAT IS CARBON MONOXIDE (CO)? You can't taste or smell CO, but it is a very dangerous gas. High levels of CO can come from appliances that are not operating correctly, or from a venting system or chimney that becomes blocked.

CO CAN BE DEADLY! High levels of CO can make you dizzy or sick. In extreme cases, CO can cause brain damage or death. Symptoms of CO poisoning include: headache, dizziness, fatigue, shortness of breath, and nausea.

IF YOU SUSPECT CO IS PRESENT, ACT IMMEDIATELY!

1. If you or a family member shows physical symptoms of CO poisoning, get everyone out of the building and call 911 or your local fire department.
2. If it is safe to do so, open windows to allow entry of fresh air, and turn off any appliances you suspect may be releasing CO.
3. If no one has symptoms, but you suspect that CO is present, call your propane retailer or a qualified service technician to check CO levels and your propane equipment.

CO DETECTORS CAN IMPROVE SAFETY. For an extra measure of safety, consider installing a CO detector (not included) listed by UL on each level of your home.

TO HELP REDUCE THE RISK OF CO POISONING:

- Have a qualified service technician check your propane appliances and venting systems annually, preferably before the heating season.
- Install UL-listed CO detectors on every level of your home.
- Never use a gas oven or range-top burners to provide space heating.
- **DO NOT USE THE GENERATOR INDOORS OR IN ANY ENCLOSED SPACE OR IN ANY OTHER AREA OR SITUATION THAT WILL ALLOW CARBON MONOXIDE TO ACCUMULATE.**
- Never use a barbecue grill (propane or charcoal) indoors for cooking or heating.
- Regularly check your appliance exhaust vents for blockage.

RUNNING OUT OF GAS

DON'T RUN OUT OF GAS. SERIOUS SAFETY HAZARDS, INCLUDING FIRE OR EXPLOSION, CAN RESULT.

- If an appliance valve or a gas line is left open, a leak could occur when the system is recharged with propane.
- If your propane tank runs out of gas, any pilot lights on your appliances will go out. This can be extremely dangerous.
- **A LEAK CHECK IS REQUIRED.** In many states, a propane retailer or a qualified service technician must perform a leak check of your propane system before turning on the gas.

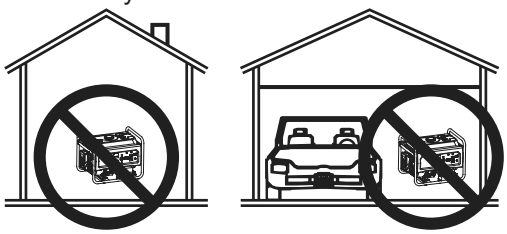
Set up Precautions

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. Fire and explosion hazard. Never use a gas container, LPG/propane connector hose, LPG/propane tank or any other fuel item that appears to be damaged.
3. Fire and explosion hazard. Only use approved LPG/propane tanks with an Overfilling Prevention Device (OPD) valve. Keep the tank in a vertical position with the valve on top and placed at ground level on a flat surface. Do not allow tanks to be near any heat source. When transporting and storing, turn the propane tank valve to the fully closed position and disconnect the tank. Make sure to always cover the generator inlet and tank outlet with protective plastic caps.
4. Connect LPG/propane tank using provided attachment kit only. Kit includes 1.5 meter (4.9 ft) hose. Place tank as far away from Generator as hose allows and away from engine exhaust. Do not place tank above Generator.
5. Fire and explosion hazard. If there is a strong smell of propane while operating the generator, fully close the LPG/propane tank valve immediately. Once the propane is off, use soapy water to check for leaks on the hose and connections on the tank valve and the generator. Do not smoke or light a cigarette or check for leaks using any open flame source such as a match or lighter. If a leak is found, contact a qualified technician to inspect and repair the LPG/propane system before using the generator.
6. Have multiple ABC class fire extinguishers nearby.
7. 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.
8. Set up and use only on a flat, level, well-ventilated surface.
9. 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.
10. Connections for standby power to a building 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.
11. A transfer switch should be installed by a licensed electrician in compliance with all applicable laws and electrical codes.
12. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during set up.
13. Use only lubricants and fuel recommended in the Specifications chart of this manual.
14. Improper connections to a building electrical system can allow electrical current from the generator to backfeed into the utility lines. Such backfeed 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 back up power.
15. Do not operate the Generator before grounding. The Generator must be earth-grounded in accordance with all relevant electrical codes and standards before operation.
16. Install carbon monoxide alarm(s) with battery backup in nearby buildings according to manufacturer's instructions.

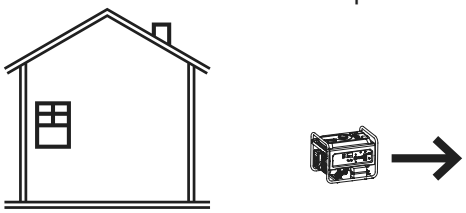
Operating Precautions

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.



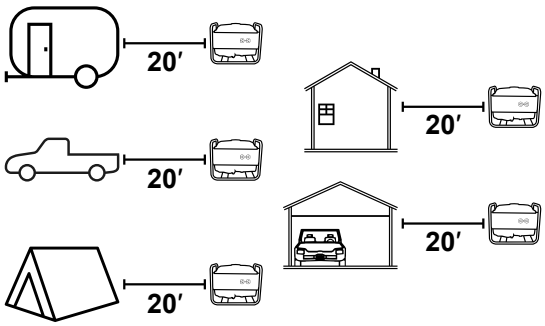
NEVER use inside a home or garage, EVEN IF doors and windows are open.



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



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



Use at least 20 feet away from people, animals, and structures with exhaust pointed away. Generator will still produce carbon monoxide, even when burning propane

2. **CARBON MONOXIDE SHUTOFF**

DANGER! TO PREVENT SERIOUS INJURY AND DEATH FROM CARBON MONOXIDE INHALATION:
The Carbon Monoxide sensor is <u>an additional layer of protection</u> 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 generator will shutoff. Leave immediately until area has aired out. Move Generator to 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 1-800-444-3353.

<u>NOTE:</u> Yellow light flashes once after starting to indicate passing self-check and is functioning normally.

Carbon Monoxide sensor must only be serviced by qualified technician to restore it to 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. LPG/Propane is highly flammable and explosive.
7. Flammable gas under pressure can cause a fire or explosion if ignited.
8. LPG/Propane can settle in low places because it is heavier than air.
9. LPG/Propane has a distinctive odor added to help detect potential leaks. This odor can diminish over time or due to other factors.
10. Keep LPG/Propane tanks in an upright position.
11. Connect LPG/propane tank using provided attachment kit only. Kit includes 1.5 meter (4.9 ft) hose. Place tank as far away from Generator as hose allows and away from engine exhaust. Do not place tank above Generator.

12. When exchanging LPG/propane tanks, be sure the tank valve is the same type.
13. In case of a LPG/propane fire, do not attempt to extinguish unless the fuel supply can be shut off safely.
14. LPG/propane will burn the skin. Prevent skin contact at all times.
15. Keep the propane tank away from the generator exhaust.
16. Keep children away from the equipment, especially while it is operating.
17. Keep all spectators at least six feet from the Engine during operation.
18. Fire Hazard! Do not fill fuel tank while engine is running. Do not operate if gasoline has been spilled. Clean spilled gasoline before starting engine. Do not operate near pilot light or open flame.
19. Do not touch engine during use. Let engine cool down after use.
20. Never store fuel or other flammable materials near the engine.
21. 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.
22. 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.
23. Do not exceed the maximum power rating of the generator. Make sure that the total electrical rating of the 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.
24. 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.
25. Do not attempt to connect or disconnect load connections while standing in water, or on wet or soggy ground.
26. 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.
27. Connect the Generator only to a load or electrical system (120 volt or 240 volt) that is compatible with the electrical characteristics and rated capacities of the Generator.
28. **The Generator must be grounded before use. An ungrounded Generator has an increased risk of electric shock.** Refer to *Grounding* on page 12.
29. Insulate all connections and disconnected wires.
30. Guard against electric shock. Prevent body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerators.

    Only use a suitable means of transport and lifting devices with sufficient weight bearing capacity when transporting the generator.
31. Secure the generator on transport vehicles to prevent it from rolling, slipping, and tilting.
32. Industrial applications must follow OSHA requirements.
33. Do not leave the generator unattended when it is running. Turn off the generator (and remove safety keys, if available) before leaving the work area.
34. 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.
35. Wear ANSI-approved safety glasses, hearing protection, and NIOSH-approved dust mask/respirator during use.
36. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to a heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near the engine's magneto or recoil starter.
37. 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.
38. Do not operate in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. Gasoline-powered engines may ignite the dust or fumes.
39. 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.
40. 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.
41. Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.
42. Do not cover the generator during operation.
43. Keep the engine, generator, and surrounding area clean at all times.
44. Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refuelling.

45. Use the generator, accessories, etc., in accordance 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.
46. Do not operate the generator with known leaks in the engine's fuel system.
47. 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.
48. Keep hands and feet away from moving parts. Do not reach over or across equipment while operating.
49. 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 generator serviced before using.** Many accidents are caused by poorly maintained equipment.
50. Use the correct generator for the application. Do not modify the generator or its engine, and do not use the generator for a purpose for which it is not intended.
51. 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 in doubt, use 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)**	**20 ~ 50 ft**	**50 ~ 75 ft**	**75 ~ 100 ft**
2	240	18 AWG		
4	480	18 AWG		16 AWG
6	720	18 AWG	16 AWG	14 AWG
8	960	16 AWG		12 AWG
10	1200	16 AWG	14 AWG	12 AWG
15	1800	14 AWG	12 AWG	10 AWG
20	2400	12 AWG	10 AWG	
25	3000	12 AWG	10 AWG	8 AWG
30	3600	10 AWG	8 AWG	
40	4800	6 AWG		

Note: Do not use extension cords less than 20 feet in length.

Parallel Kit Precautions

⚠WARNING

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

1. Follow Parallel Kit instructions provided with Kit for connection and use of a Parallel Kit.
2. Only connect two identical Generators together 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.

Button/Coin Battery Safety

⚠WARNING

- **INGESTION HAZARD:** This product contains a button cell or coin battery.
- **DEATH** or serious injury can occur if ingested.
- A swallowed button cell or coin battery can cause **Internal Chemical Burns** in as little as **2 hours**.
- **KEEP** new and used batteries **OUT OF REACH OF CHILDREN**
- **Seek immediate medical attention** if a battery is suspected to be swallowed or inserted inside any part of the body.



This symbol means:
INGESTION HAZARD: This product contains a button cell or coin battery.

1. Remove and immediately recycle or dispose of used batteries according to local regulations and keep away from children. Do NOT dispose of batteries in household trash or incinerate.
2. Even used batteries may cause severe injury or death.
3. Call a local poison control center for treatment information.
4. Non-rechargeable batteries are not to be recharged.
5. Do not force discharge, recharge, disassemble, heat above 140° Fahrenheit or incinerate. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.
6. Ensure the batteries are installed correctly according to polarity (+ and -).
7. Do not mix old and new batteries, different brands or types of batteries, such as alkaline, carbon-zinc, or rechargeable batteries.
8. Remove and immediately recycle or dispose of batteries from equipment not used for an extended period of time according to local regulations.
9. Always completely secure the battery compartment. If the battery compartment does not close securely, stop using the product, remove the batteries, and keep them away from children.

Service Precautions

1. **Before service, maintenance, or cleaning:**
   a. **Unplug all devices from the generator.**
   b. **Push the Power Switch to its "STOP" position.**
   c. **Disconnect the battery.**
   d. **Allow the engine to completely cool.**
   e. **Then, remove the spark plug cap from the spark plug.**
   f. **Properly ground Engine/Equipment.** See *Grounding on page 12*.

WARNING! TO PREVENT SERIOUS INJURY FROM INJECTION, FIRE, AND EXPLOSION: Depressurize fuel system before servicing it. Remove ignition sources from area. Seek medical attention immediately after injection injury.

2. Depressurize fuel system before servicing it, Refer to *Depressurize Fuel System on page 29.*
3. Keep all safety guards in place and in proper working order. Safety guards include muffler, air cleaner, mechanical guards, and heat shields, among other guards.
4. Make sure the Power Switch is in its "STOP" position before moving the unit and before performing any service, maintenance, or cleaning procedures on the unit.
5. **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.
6. **Do not alter or adjust any part of the equipment 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.**
7. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during service.
8. Maintain labels and nameplates on the equipment. These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
9. 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.
10. Store equipment out of the reach of children.
11. 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 refuelling.
3. **TO PREVENT FUEL LEAKAGE AND FIRE HAZARD, do not overfill with fuel.** Follow the maximum fill indicator if available or 1 inch under the fill neck.
4. Refuel in a well-ventilated area only.
5. Wipe up any spilled fuel and allow excess to evaporate before starting engine. **To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.**

Starting Battery Service:

1. Starting battery service must be performed only by a qualified technician. Keep other people away from battery.
2. When replacing battery, use the following type battery: 12V, 6.5Ah sealed, lead-acid type.
3. Do not dispose of battery in a fire. The battery can explode.
4. Do not open or mutilate the battery. Battery contains acid which can cause blindness, burns, and is toxic.
5. Battery may explode or cause fire if shorted. When working around batteries:
   a. Remove watches, rings, or other metal objects,
   b. Use tools with insulated handles, and
   c. Do not lay tools or metal parts on top of batteries.

SAVE THESE INSTRUCTIONS.

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

⚠WARNING

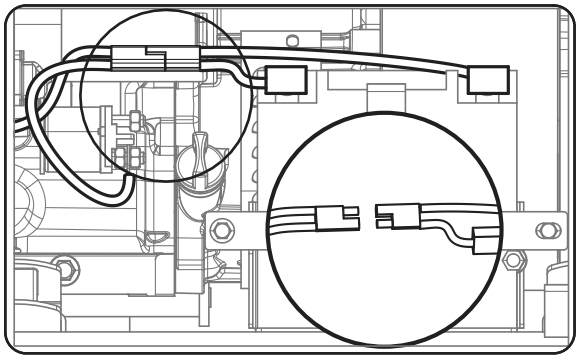
TO PREVENT SERIOUS INJURY:
Operate only with proper spark arrestor installed.

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.

Electric Starter Battery Connection

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

1. Turn Power Switch to “STOP” position.
2. Remove the Battery and Oil Fill Access Panel.
3. Locate the Battery Pigtail and connect to the mating connector.
4. Make sure the battery harness is secured and routed properly.
5. Replace the Battery and Oil Fill Access Panel.



Note: The built-in charging circuit charges the Battery while the Engine is running.
Turn the Power Switch to “STOP” when the Generator is not is use to prevent draining the Battery.

Grounding

WARNING! TO PREVENT SERIOUS INJURY: Properly ground Engine/Equipment before servicing fuel system.

The Generator must be properly grounded in accordance with 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 anti-corrosion coating.

Rod, stainless steel or copper- or zinc-coated steel, minimum 5/8 in. diameter, minimum 8 ft. long.

1. Drive electrode into the ground according to the requirements in the National Electrical Code.
2. Connect a #6 AWG grounding wire (not included) from the Grounding Terminal to the buried electrode.

For additional information on grounding methods, please see the National Electrical Code.

Note: The portable generator Neutral conductor is isolated from the frame and from the AC receptacle ground pin. Electrical devices that require a connection between one conductor pin and the grounded receptacle pin may not function properly.

Components and Controls

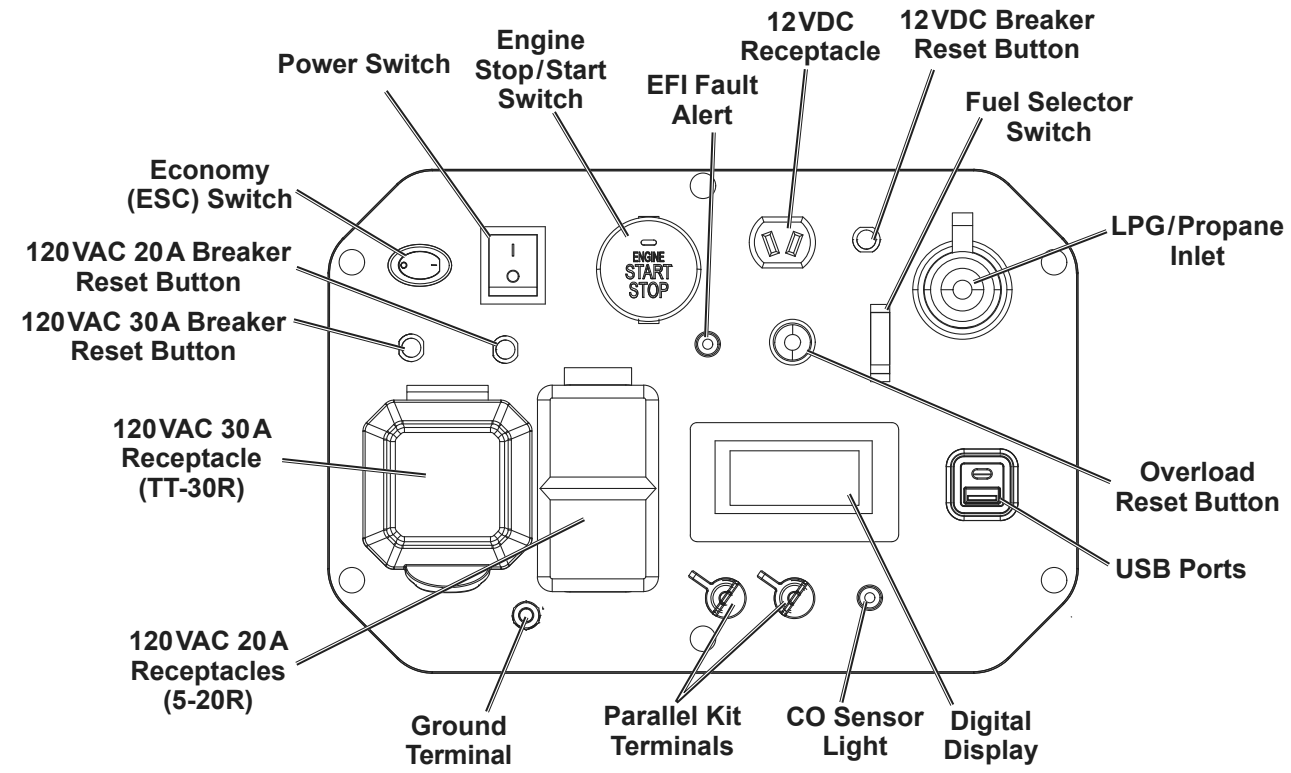


Figure A: Control Panel

WARNING! **TO PREVENT SERIOUS INJURY: Follow Parallel Kit instructions for connection and use of a Parallel Kit (Parallel Kit and instructions sold separately).**

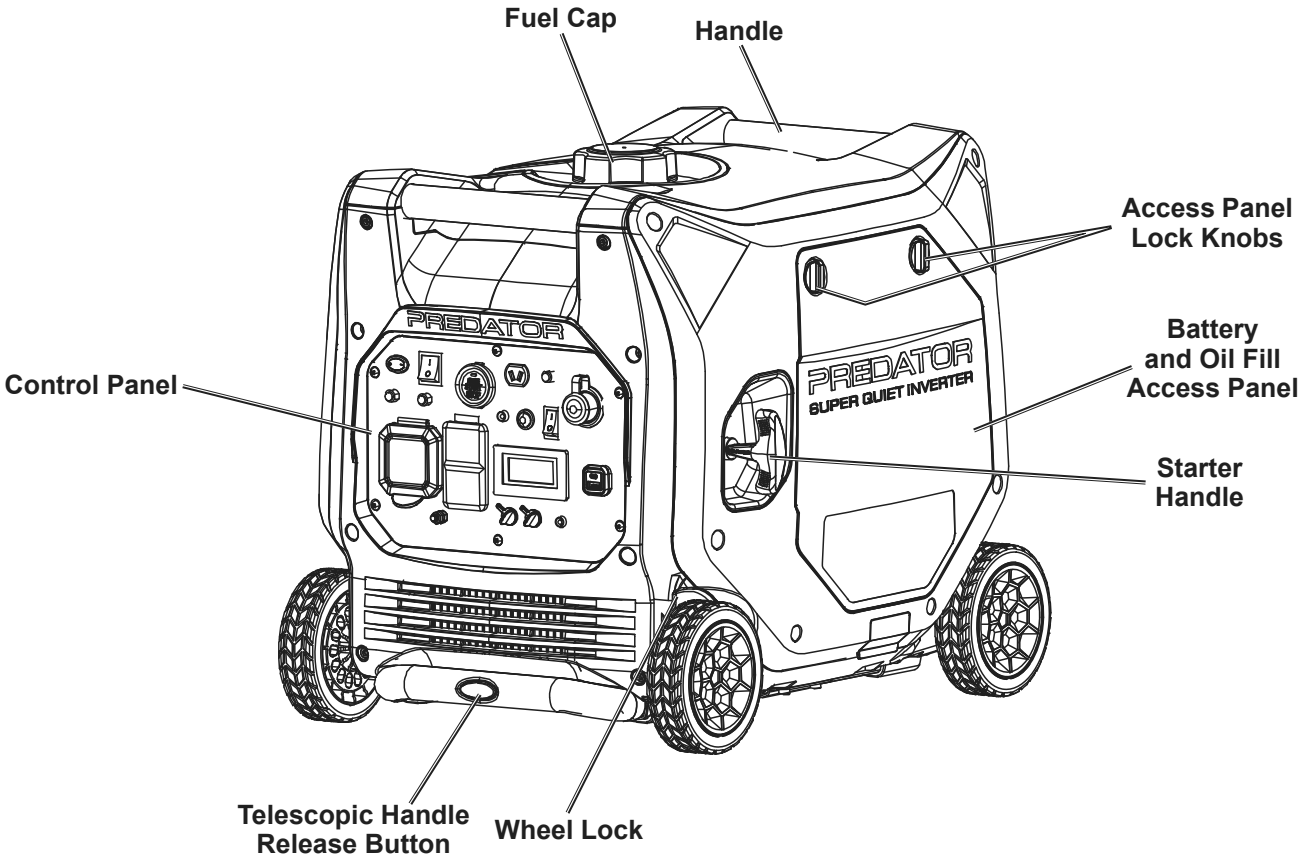


Figure B: Generator Front

Components and Controls (continued)

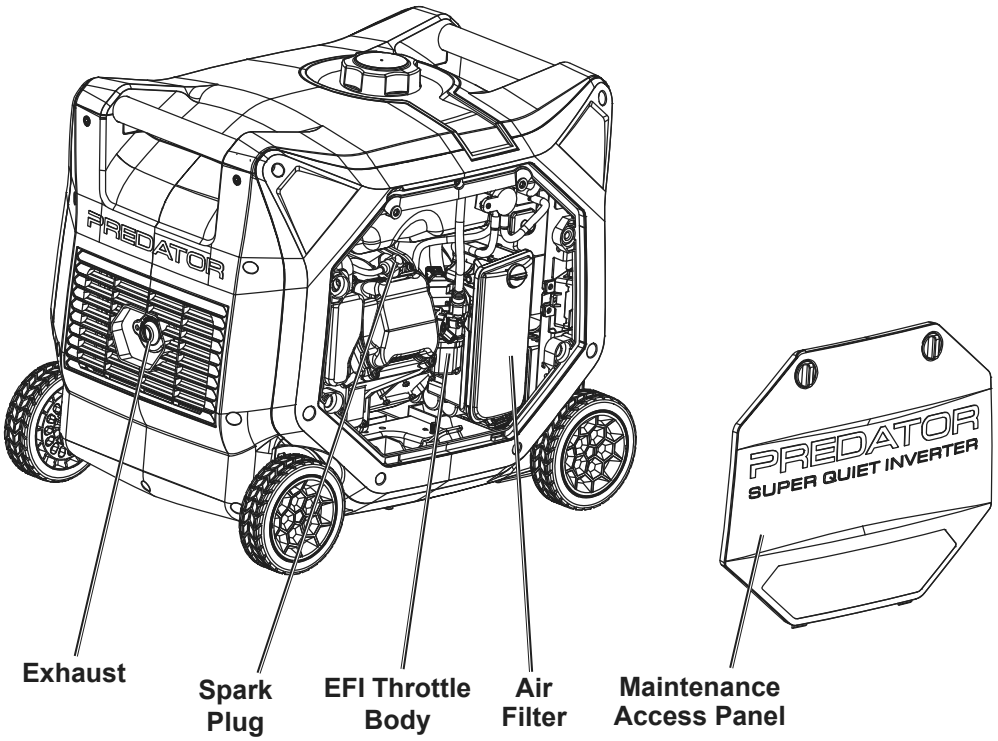
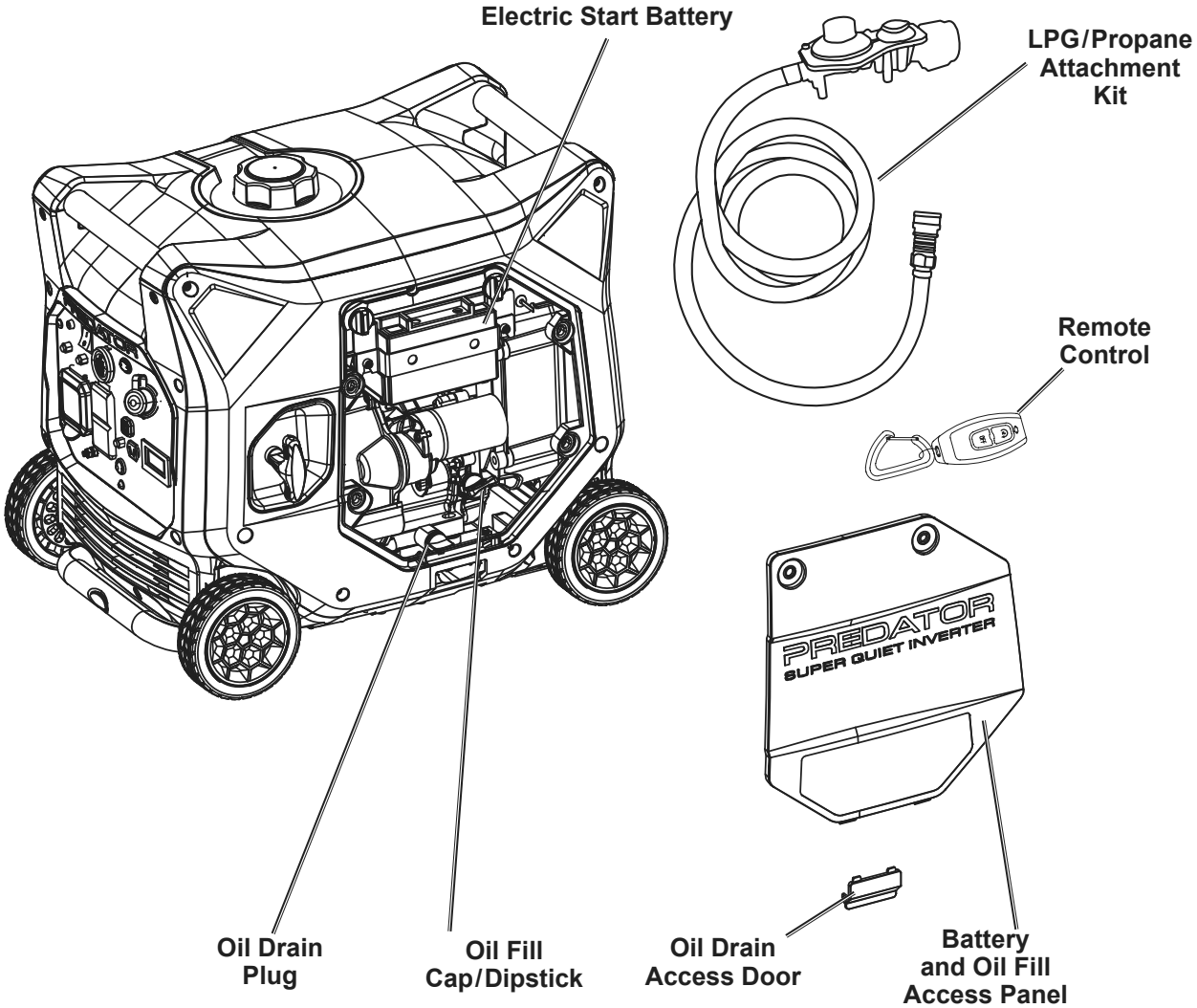
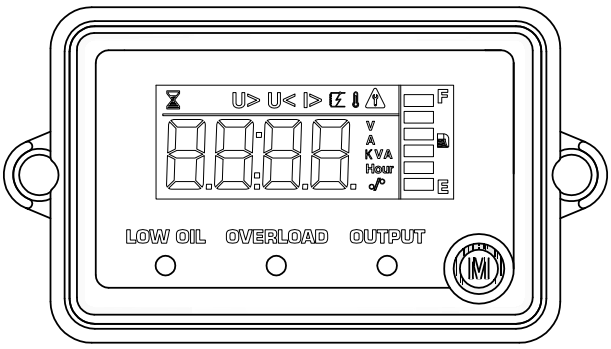


Figure C: Generator Rear and Interior



Components and Controls (Continued)



Digital Display Screen

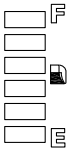
The Display Screen can be used to monitor the operating status of the Generator. Use the Display Control Button to toggle through the following indicators:

- V – Voltage
- A – Amperage
- VA – Volt Amps/Watts
- Hour – current run time and accumulative run time
- Estimated Remaining Run Time - Based on drawn power and remaining fuel in tank.

Fuel Gauge Display - Always shown on screen

Note: To check Fuel Level or Accumulative Run Hours when Generator is off, press the Display Control Button.

Figure D: Display Screen Symbology

Symbol	Meaning
	Normal
U >	AC Overvoltage
U <	AC Undervoltage
I >	Generator Output Overcurrent
	Generator Output Short Circuit
	Inverter Overheating
	Maintenance Time
	Fuel Gauge F: Full E: Empty

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

Pre-Start Checks

Only operate the generator outside and at least 20 feet away from people, animals, and structures, with exhaust pointed away. Keep generator maintenance access panels in place and secured during operation.

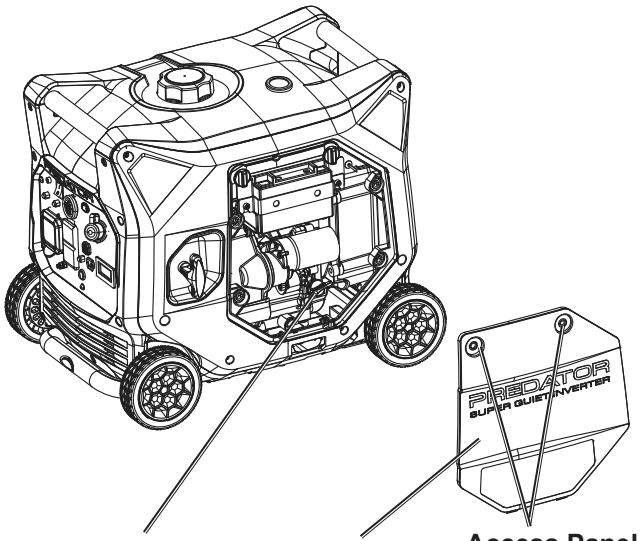
1. Inspect engine and equipment, looking for damaged, loose, and missing parts before set up and starting. If any problems are found, do not use equipment until fixed properly.
2. Brush off outside of Generator.
3. Remove the air filter cover and the air filter elements and check for dirt. Clean as needed and replace them.
4. Install carbon monoxide alarm(s) with battery backup in all nearby buildings according to alarm manufacturer's instructions.

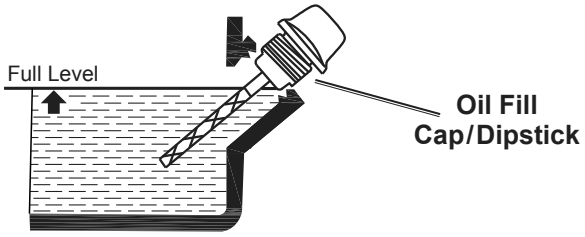
Checking and Filling Engine Oil

NOTICE: Generator is shipped without engine oil. 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 first use and before each use thereafter. Before each use, check the oil level. Engine will not start with low or no engine oil.

1. Make sure the Engine is stopped and is level.
2. On the right side of the Generator, loosen the Access Panel Lock Knobs and remove the Battery and Oil Fill Access Panel, as shown to the right.
3. Clean the top of the Oil Fill Cap/Dipstick and the area around it. Remove the Cap/Dipstick, turning it counterclockwise.
4. Check the oil level. The oil level should be up to the edge of the hole as shown.
5. 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.
6. Thread the Oil Fill Cap/Dipstick back in clockwise and replace the Battery and Oil Fill Access Panel.

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





For Gasoline Operation: 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. Follow fuel stabilizer manufacturer's recommendations for use.
5. Replace the Fuel Cap.
6. Wipe up any spilled fuel and allow excess to evaporate before starting engine. To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.

For LPG Operation: Connecting LPG/Propane Tank

a. **LPG/Propane system must be installed and used in strict conformance with NFPA 58 (Liquefied Petroleum Gas Code), NFPA 54 (National Fuel Gas Code), manufacturer's recommendations, and all relevant local, state, and federal codes and regulations.**

b. **The LPG/Propane tank must have a minimum capacity of 20lb or larger to avoid tank freezing during use. Tank must confirm to the standard as listed in Setup Precaution section.**

c. **The LPG/Propane tank must conform to the standard as listed in Setup Precautions section.**

d. **Propane tanks that use a liquid withdrawal system cannot be used with this Generator.**

e. **Verify the re-qualification date on the tank has not expired.**

f. **Connect LPG/Propane tank using provided attachment kit only. Kit includes 1.5 meter (4.9 ft) Hose. Place tank as far away from Generator as Hose allows and away from engine exhaust. Do not place tank above Generator. Do not use included LPG/Propane Hose with any other appliances.**

g. **All new tanks or used tanks that have not been plugged or kept closed must be purged of air and moisture by a propane supplier prior to filling.**

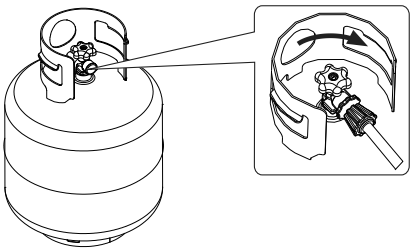
h. **Position the tank so the connection between the tank valve and the LPG/Propane Inlet will not cause sharp bends or kinks in the Hose.**

i. **Inspect the LPG/Propane Hose before every use. Do not use damaged equipment. If damage is detected, have the problem corrected before further use.**

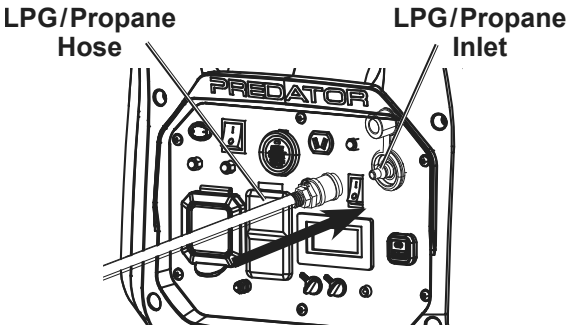


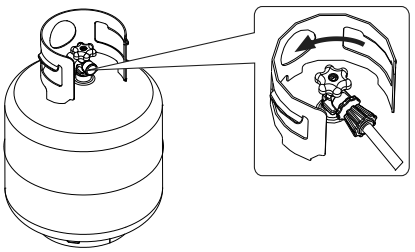
⚠WARNING! EXPLOSION HAZARD.
TO PREVENT SERIOUS INJURY:
Do not start the engine if the smell of LPG/Propane hangs in the air. Close the propane tank valve and disconnect the LPG/Propane hose from the Generator when not in use.

1. Turn the Generator OFF and place on a flat surface in a well ventilated area.
2. Verify that the propane tank valve is in the fully closed position.
3. Remove the cover on the LPG/Propane Inlet.
4. Align the finger on the female hose fitting on the LPG/Propane Hose with the slot next to the male coupling on the Generator.
5. Insert the female hose fitting into the coupling and push in until it clicks into place.
6. Remove the safety plug or cap from the propane tank valve.
7. Attach the other end of the Hose to the LPG/Propane connector on the tank. Hand tighten clockwise to a positive stop. To prevent damage, do not use a wrench or tool to tighten the connector.
8. Turn the propane tank valve to the fully open position. Check for leaks by applying soapy water to all connections. Look for bubbles. If bubbles are present at connections, close the propane tank valve and tighten connections. Open the valve and recheck connections. If a leak continues or is not at a connection do not use the Generator. Have the problem corrected before further use.



Close Tank Valve





Open Tank Valve

Remote Start

The Start/Stop Remote Control will operate up to approximately 100 feet in distance from the Generator. The distance at which the Remote will function may be adversely affected by obstructions between the Generator and the Remote Control.

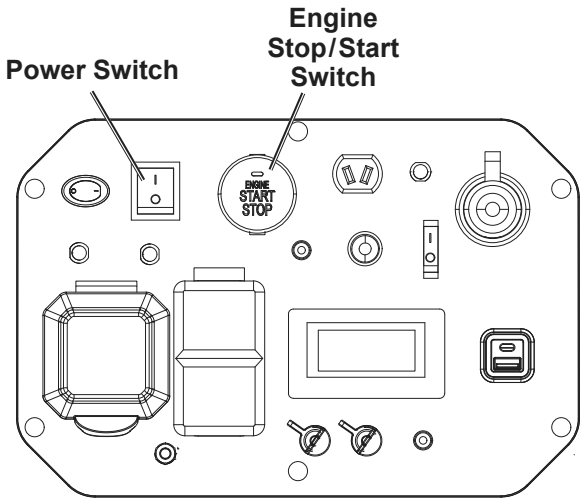
Note: The operational range of the Remote Control may decrease as the battery in the Remote become depleted.

Remote replacement battery: CR2032

Reprogramming the Start/Stop Remote Control

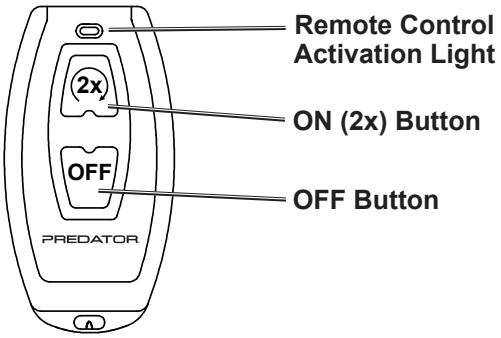
If the Start/Stop Remote Control is replaced or needs to be paired to the generator, follow this procedure:

1. Push the Power Switch to the RUN position.



2. Push and hold the Engine Start/Stop Switch until the Switch Indicator Light flashes green and red (hold for 10~15 seconds), then release the Switch.

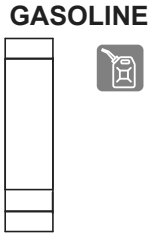
3. Push the 2x button on the Stop/Start Remote Control. It will pair with Generator and the Switch Indicator Light on the Generator will stop flashing.



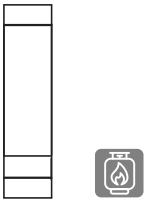
Fuel Selector Switch

Push the Fuel Selector Switch on the Control Panel to the desired fuel setting.

1. To operate the Generator on gasoline push the Fuel Selector Switch to the GASOLINE setting.



2. To operate the Generator on LPG/Propane push the Fuel Selector Switch to the PROPANE setting.



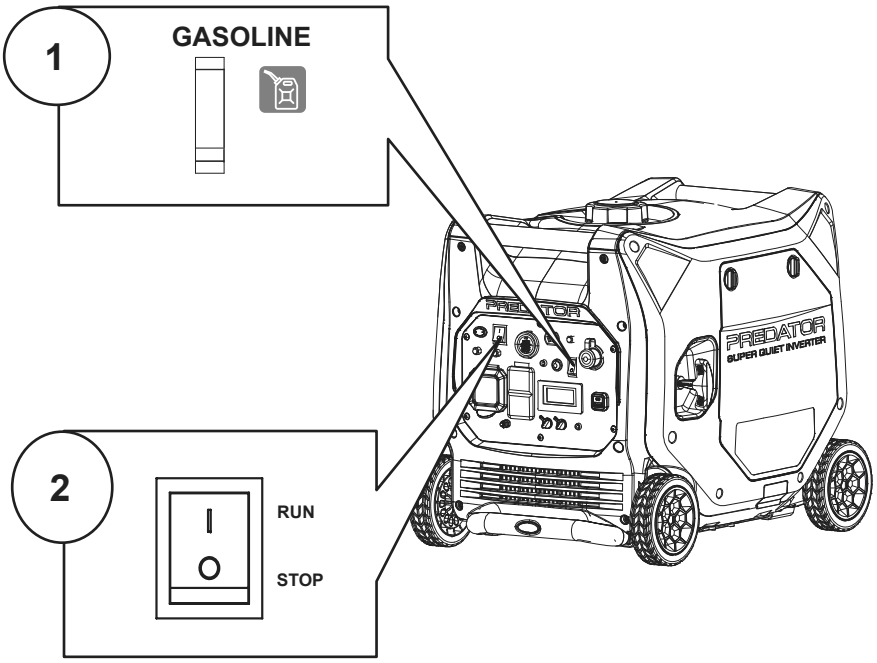
Starting the Engine – Gasoline Operation

Before Starting the Engine

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

1. Push the Fuel Selector Switch to the GASOLINE setting.

2. Push the Power Switch to the RUN position.



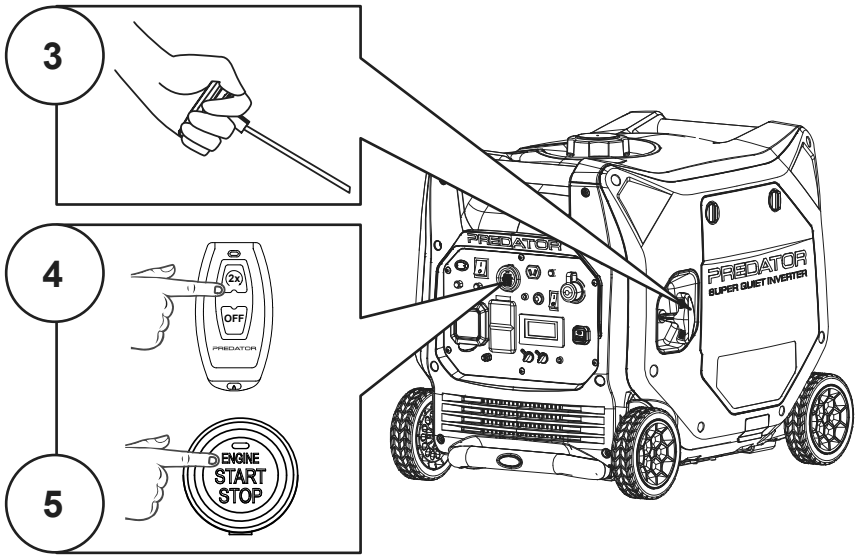
Select a starting method:

3. **Manual Start:** Pull the Starter Handle gently until resistance is felt. Allow 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.

Note: Manual Start will be easier with the Battery charged and connected.

4. **Remote Start:** Slowly press and release the 2x Button on the Stop/Start Remote Control twice. **Note:** If a CO shutoff event has occurred the remote start capability will be disabled until the Generator Engine has been restarted by another method.

5. **Electric Start:** Slowly press and release the Engine Start/Stop Switch twice.



If engine does not start:

- **Check engine oil level**. Engine will not start with low or no engine oil.
- **Check spark arrestor cleanliness**. Engine will not start if spark arrestor is clogged.

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

Starting the Engine – LPG/Propane Operation

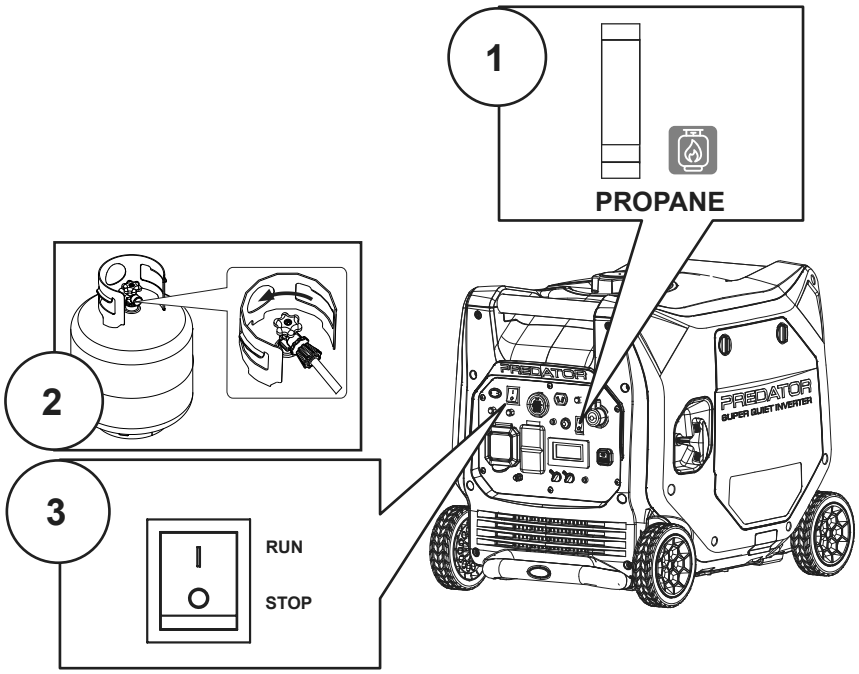
Before Starting the Engine

a. **Inspect the generator and engine.**
b. **Disconnect all electrical loads from the generator.**
c. **Make sure the LPG/Propane hose is correctly connected to the generator and propane tank.**

1. Push the Fuel Selector Switch to the PROPANE setting.

2. Fully open the valve on the LPG/Propane tank.

3. Push the Power Switch to the RUN position.



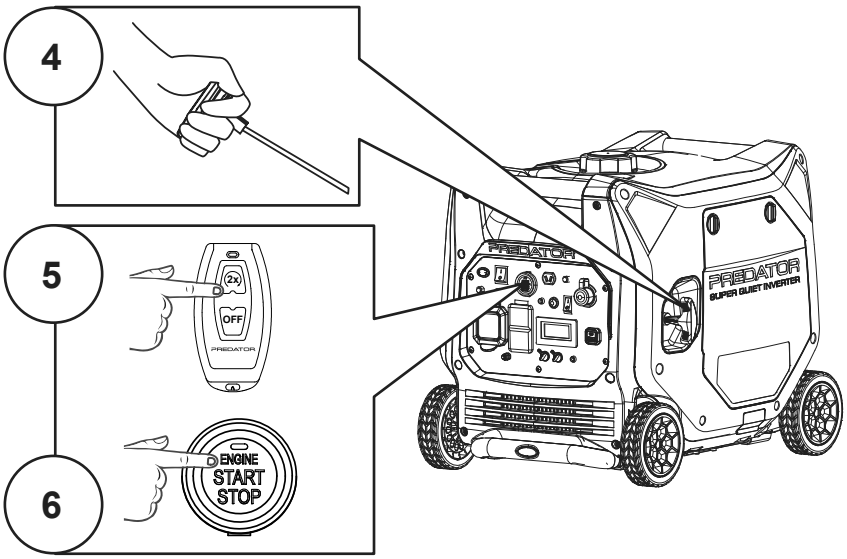
Select a starting method:

4. **Manual Start:** Pull the Starter Handle gently until resistance is felt. Allow 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.

Note: Manual Start will be easier with the Battery charged and connected.

5. **Remote Start:** Slowly press and release the 2x Button on the Stop/Start Remote Control twice. **Note:** If a CO shutoff event has occurred the remote start capability will be disabled until the Generator Engine has been restarted by another method.

6. **Electric Start:** Slowly press and release the Engine Start/Stop Switch twice.



If engine does not start:

- **Check engine oil level**.
  Engine will not start with low or no engine oil.
- **Check spark arrestor cleanliness**.
  Engine will not start if spark arrestor is clogged.

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

Switching Fuel Sources

Fire and explosion hazard. DO NOT add gasoline to the fuel tank or connect LPG/Propane Hose to the generator while the generator is in operation.

The fuel source can be switched while the Engine is running if a propane tank is connected to the Generator BEFORE operation.

Switching from Gasoline to LPG/Propane

1. **IMPORTANT: Disconnect all electrical loads from the Generator before switching from one fuel type to another.**
2. Fully open the valve on the LPG/Propane tank.
3. Push the Fuel Selector Button to the PROPANE setting.

Note: When switching from gasoline to LPG/Propane operation the Engine may run rough for a few seconds while it gets the engine speed stabilized. If the Engine stops when switching fuel sources, the unit may be restarted using either fuel source.

Switching from LPG/Propane to Gasoline

1. **IMPORTANT: Disconnect all electrical loads from the Generator before switching from one fuel type to another.**
2. Push the Fuel Selector Button to the GASOLINE setting.
3. Turn the LPG/Propane tank valve to the fully closed position.

Break-in Period:

1. Breaking-in the engine will help to ensure proper equipment and engine operation.
2. The break-in period will last about 30 hours of use. DO NOT exceed 75% of the Generator's rated capacity during this period.
   - Change the engine oil after this period.

   Under normal operating conditions subsequent maintenance follows the schedule explained in the *Maintenance* section on *page 28*

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 area has aired out. Move Generator to well-ventilated area before operation.
- **FLASHING YELLOW LIGHT:** Carbon Monoxide Sensor malfunction. Sensor needs service. Call 1-800-444-3353 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.

Carbon Monoxide Sensor must only be serviced by qualified technician to restore it to 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.

Before Using the Generator

Basic Generator Use Procedure - See following pages for specific instructions

1. Check that the Generator can handle the wattage needed to power your products.
2. Start the Engine, and allow the Engine and Generator to run and warm up for five minutes after starting with no electrical load.
3. Plug in products.
4. When finished using the Generator, disconnect all electrical loads.

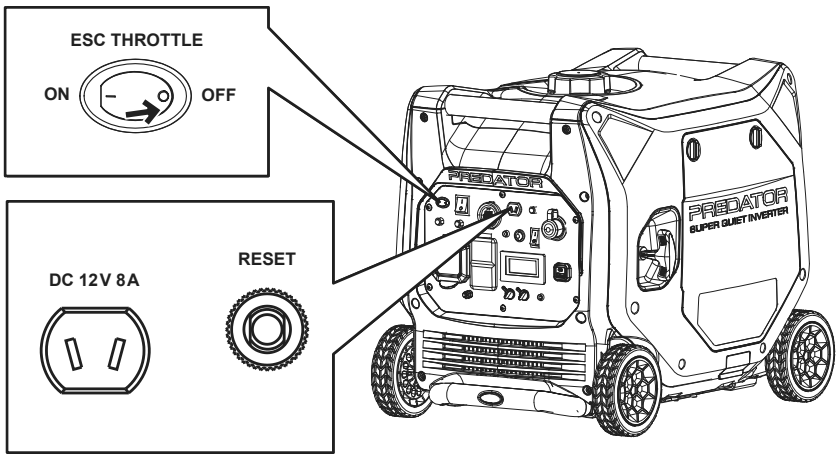
Note: Do not allow Generator to run out of fuel with loads attached.

5. Turn off the Engine.
6. Allow the Generator and its Engine to completely cool. Then store the unit in a clean, dry, safe location out of reach of children and other unauthorized people.

IMPORTANT: After starting the engine, allow it to run at no load for five minutes with no load after each start-up so that the engine can stabilize.

Nominal 12VDC Output

1. Move the Economy (ESC) Switch to the OFF position.
2. Only use the 12VDC receptacle and provided charging cable with clamps to charge a 12 volt lead-acid type battery. Do not overcharge.
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.



Connecting Electrical Loads to the Generator

Calculate Power Draw

Power draw can be calculated by multiplying *volts* and *amps*. The resulting number is *wattage*.

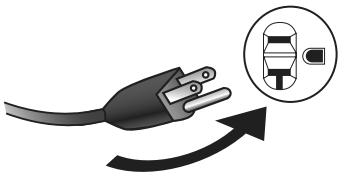
- The total combined load through the outlets on the Generator must not exceed the running power of the unit. Never exceed the running wattage for the Generator or any outlet amperage rating.
- Refer to appliance/tool owner's manuals to determine the wattage of electrical load devices.
- Long power cords and extension cords draw additional power. Keep cord length at a minimum.

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.

Wattage Estimates

Refer to your device documentation for start-up and running wattage requirements. Check nameplate wattages on all loads before connecting to Generator.

Plug the power cord of the 120 volt appliance/tool into the appropriate Outlet on the Generator. Plug in appliances from largest to smallest load.



Plug Load In

Connect the items that require the most wattage first.

a. Connect "inductive" load appliances, tools, and equipment next. Inductive loads are small hand tools and some small appliances.

b. Connect any lights next.

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.

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 outlet on the Generator must not exceed the running power of the unit.
2. When approaching maximum running power, the OVERLOAD light will blink. If the OVERLOAD light turns on continuously and the Generator stops producing power, it has been overloaded.
3. Turn off and disconnect all electrical devices. Compare device requirements to Generator rating and reduce the total wattage of connected devices if necessary. Move anything that may be limiting Generator ventilation away.
4. Check if any circuit breakers have tripped and make sure that ALL circuit breakers are reset.
5. Press the OVERLOAD RESET button to restore Generator power output and reconnect devices while being careful to not overload Generator.

Low Oil Indicator

1. If the Engine oil level is too low, the LOW OIL ALARM 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. Engine will shut off if engine oil level is too low.

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 engine at a higher speed:

   a. when starting b. when a heavy load is applied c. when using the 12VDC output

Calculating 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 the 3900 (Gasoline) or 3600 (LPG/Propane) running wattage of the Generator.
3. Find the single highest starting watts for the selected items and add to the total.
4. Make sure that this total is under the 5000 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 3900 Gasoline and 3600 LPG/Propane)	
Largest Additional Start-up Watts	
Total Startup Watts needed for all loads (must be less than 5000)	

Example

Equipment	Running Watts
Electric Water Heater (2,000 + 0)	*2,000*
Television (400 + 0)	*400*
Hand Drill (600 + 600)	*600*
Total Running Watts (must be less than 3900 Gasoline and 3600 LPG/Propane)	*3,000*
Largest Additional Start-up Watts	*600*
Total Startup Watts needed for all loads (must be less than 5000)	*3,600*

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

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

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
Recipricating 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

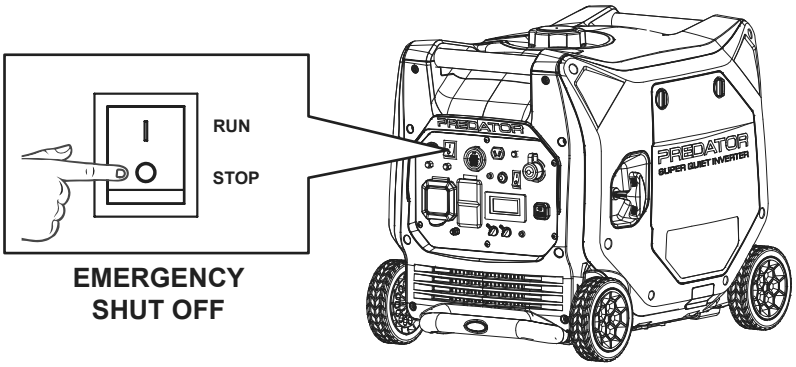
LAWN & GARDEN		
Device	**Running Watts**	**Additional Start-up Watts**
Hedge Trimmer	400	400
Pressure Washer	1200	1200
Lawn Mower	1200	1200
Edger	1000	1000

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

Stopping the Engine in an Emergency

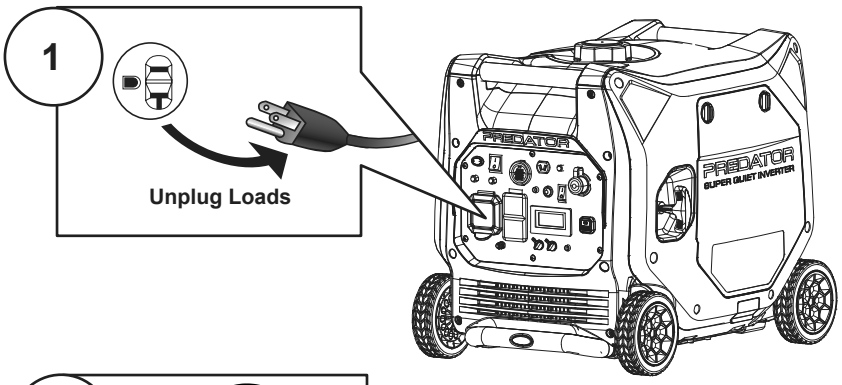
To stop the Engine in an emergency, push the Power Switch to STOP.

NOTICE: Generator shutoff under load may damage the Generator and attached equipment.



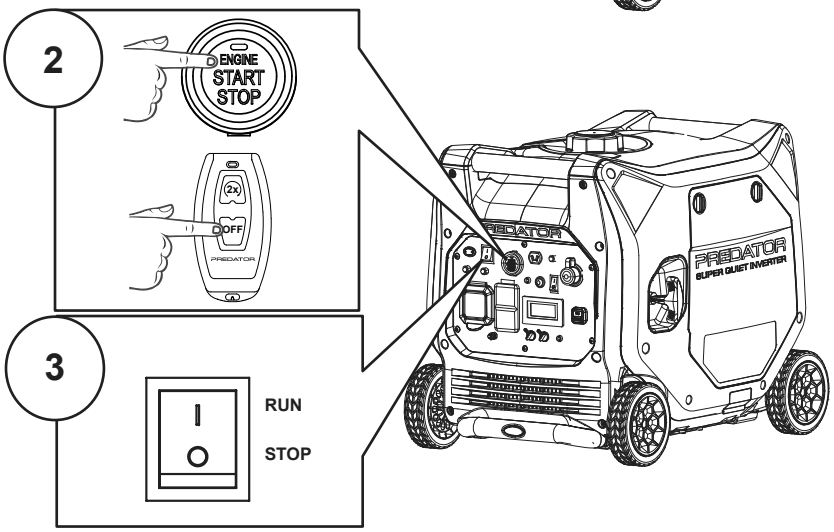
Stopping the Engine Under Normal Conditions

1. Turn all electrical load devices off and unplug them from the Generator.



2. Slowly press and release the Engine Start/Stop Switch. Or slowly press and release the OFF button on the Stop/Start Remote Control.

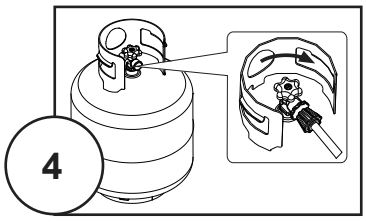
Note: When the Generator is turned OFF using the Stop/Start Switch or Remote Control, the Generator enters standby mode and can be restarted remotely using procedures indicated in starting section. If Generator is not started within 12 hours the Controller shuts down completely to save the battery. Push the Power Switch to STOP then RUN to reactivate standby mode.



3. Push the Power Switch to the STOP position.

Note: Turn the Power Switch off when the Generator is not in use to prevent draining the Battery.

4. If operating on LPG/Propane, turn the propane tank valve to the fully closed position.



⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL STARTING:
Turn the Power Switch of 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

WARNING! TO PREVENT SERIOUS INJURY FROM INJECTION, FIRE, AND EXPLOSION: Depressurize fuel system before servicing it. Remove ignition sources from area. Seek medical attention after injection injury.

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 20 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 or 1,000 hr.
Brush off outside of engine	✓					
Check engine oil level	✓					
Check air cleaner	✓					
Check LPG/Propane hose assembly	✓					
Check sediment cup		✓				
Change engine oil				✓		
Clean/replace air filter			✓*			
1. Check and clean spark plug 2. Check and clean spark arrestor.				✓		
1. Check/adjust valve clearance 2. Clean fuel tank and strainer 3. Clean carbon build-up from combustion chamber					✓**	
Replace fuel line if necessary						✓**
Change Fuel Filter at Fuel Pump						✓**

*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 Fuel Injector, 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. Follow fuel stabilizer manufacturer's recommendations for use.
5. Then replace the Fuel Cap.
6. Wipe up any spilled fuel and allow excess to evaporate before starting engine. To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.

Depressurize Fuel System

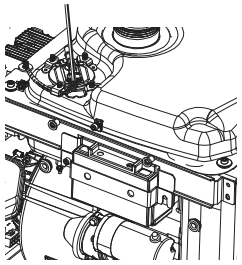
WARNING! TO PREVENT SERIOUS INJURY FROM INJECTION, FIRE, AND EXPLOSION:
Depressurize fuel system before servicing it. Remove ignition sources from area. Seek medical attention immediately after injection injury.



⚠WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:
Service fuel system 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 servicing. Do not smoke. Have a dry chemical (class B) fire extinguisher nearby.

1. Turn engine off.
2. Unplug all devices from the generator.
3. Turn the Power Switch to its "STOP" position.
4. Allow the engine to completely cool.
5. **Properly ground Engine/Equipment.** See *Grounding on page 12*.
6. **Fuel pump located on top, under cover. Qualified technician service only.**
7. Disconnect fuel pump power connector only. **DO NOT DISCONNECT FUEL LINE YET.**

Power Connector



8. Turn Power Switch to its "RUN" position.
9. Try to start Engine. See *Starting the Engine – Gasoline Operation on page 20*. Engine may start briefly. Fuel System is now depressurized.

Note: Engine will shutdown immediately if started. EFI Alert indicator may indicate an error.

10. Turn Power Switch to its "STOP" position.
11. Service fuel system as needed.
12. After service:
    a. Connect Fuel Pump Power Connector.
    b. Replace Cover and reassemble.

WARNING! TO PREVENT SERIOUS INJURY:
Assemble fully before use.

Engine Oil Change

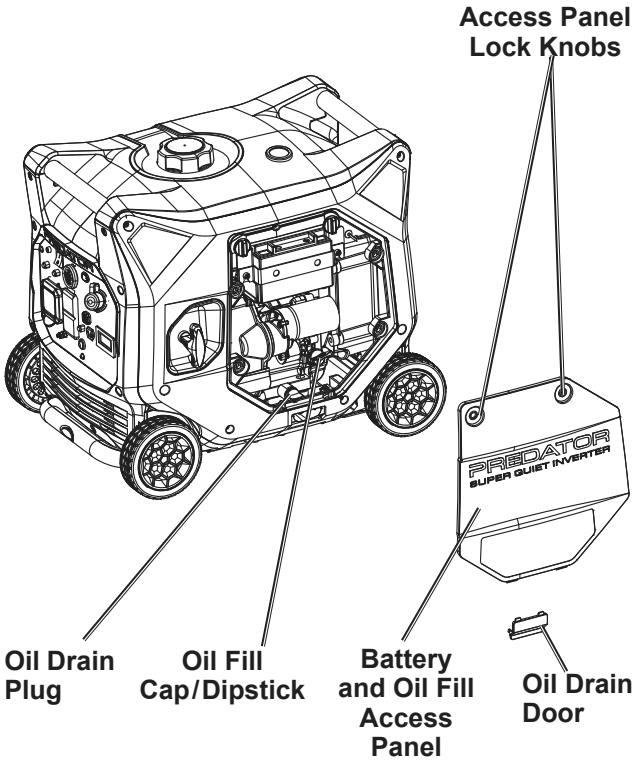
⚠**CAUTION!** Oil is very hot during operation and can cause burns. Wait for engine to cool before changing oil.

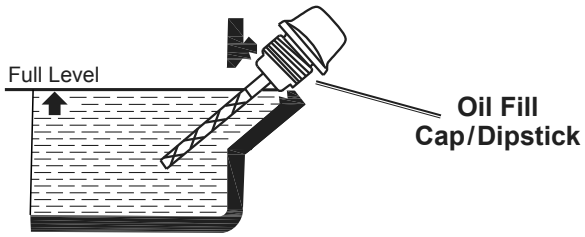
1. Make sure the Engine is stopped and is level.
2. On the right side of the Generator, loosen the Lock Knobs and remove the Access Panel and Oil Drain Door, as shown to the right.
3. Clean the top of the Oil Fill Cap/Dipstick and the area around it. Remove the Cap/Dipstick, turning it counterclockwise.
4. Place an oil drain pan under the Generator and center under the Oil Drain Door opening. Remove the Oil Drain Plug, tilt the Generator slightly to facilitate drainage and wait for oil to drain completely. Recycle used oil.
5. Tilt the Generator and replace the Oil Drain Plug, then set the Generator back down on a level surface.
6. Add the appropriate type of oil until the oil level is at the full level. SAE 10W-30 oil is recommended for general use.

Note: Make sure Generator is level when adding oil to prevent overfilling which could cause engine damage.

7. Check the oil level. The oil level should be up to the edge of the hole as shown.
8. Thread the Oil Fill Cap/Dipstick back in clockwise and replace the Access Panel and Oil Drain Door.

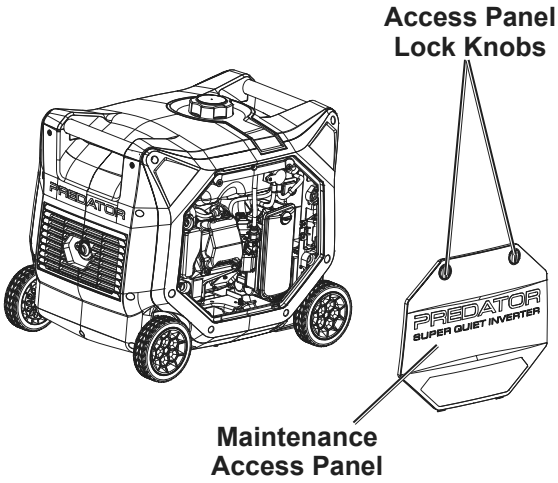
NOTICE: Do not run the engine with too little oil. Engine will not start with low or no engine oil.



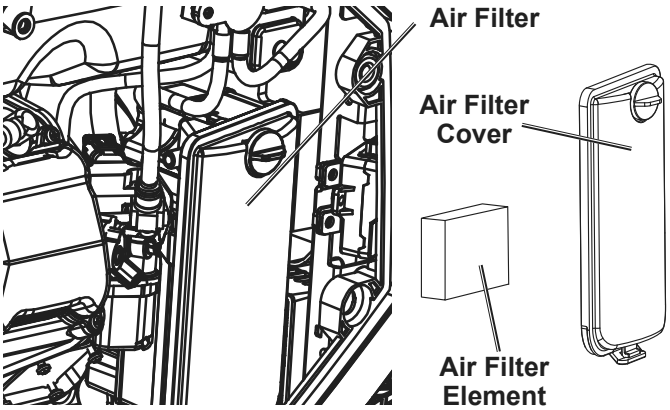


Air Filter Element Maintenance

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



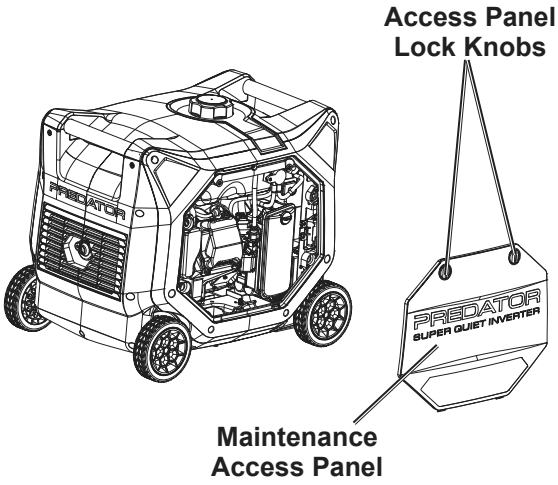
2. Remove the Air Filter Cover and the air filter elements and check for dirt. Clean as described below.



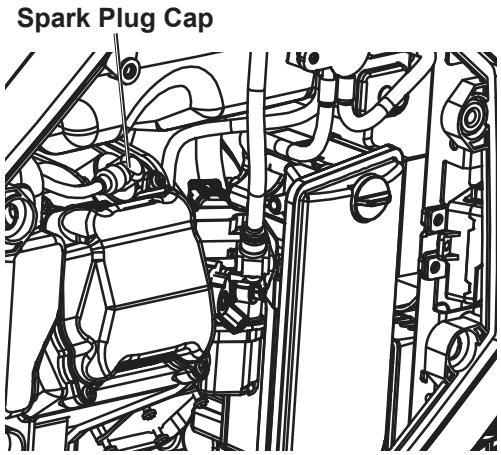
3. **Cleaning:**
   - For “paper” filter elements: To prevent injury from dust and debris, wear ANSI-approved safety goggles, NIOSH-approved dust mask/respirator, and heavy-duty work gloves. In a well-ventilated area away from bystanders, use pressurized air to blow dust out of the air filter.
   - For 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.
4. Install the cleaned filter.
5. Secure the Air Filter Cover and replace the Maintenance Access Panel before us.

Spark plug Maintenance

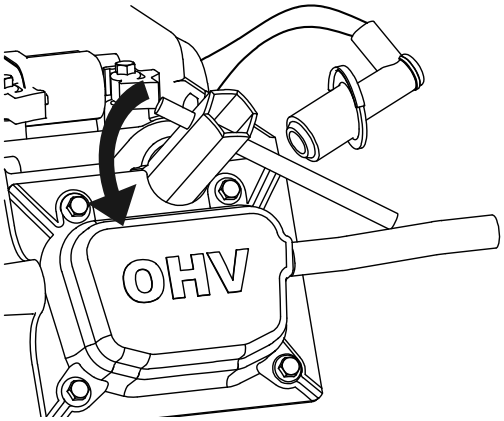
1. Loosen the Maintenance Access Panel Lock Knobs and remove the Access Panel on the left side of the Generator.



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



3. Use the included spark plug wrench to 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 F7RTC (LG) 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 on 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 dielectric spark plug boot protector (not included) to the end of the spark plug and reattach the cap securely.
8. Replace the Maintenance Access Panel before use.

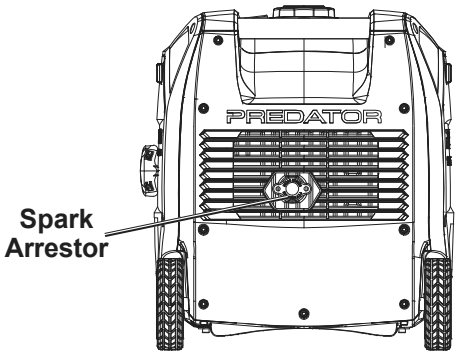
Spark Arrestor Maintenance

⚠WARNING

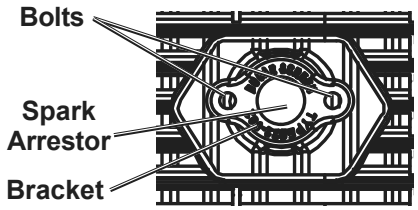
TO PREVENT SERIOUS INJURY AND FIRE: Operate only with proper spark arrestor installed.

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 two Bolts holding the Spark Arrestor Bracket in place.



3. Clean the Spark Arrestor using a wire brush (sold separately). Replace Arrestor if damaged.



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

Remote Control Battery Replacement

1. To replace battery, remove screw(s) and open battery compartment.
2. Install new CR2032 battery in correct polarity, close compartment and replace screw(s).

Note: Remove and immediately recycle or dispose of used batteries according to local regulations and keep away from children. Do NOT dispose of batteries in household trash or incinerate.

Note: Always completely secure the battery compartment. If the battery compartment does not close securely, stop using the product, remove the batteries, and keep them away from children.

Storage

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

1. **CLEANING**:
   Wait for Engine to cool, then clean Engine with dry cloth. **NOTICE: Do not clean using water.** The water will gradually enter the Engine and cause corrosion damage. Apply a thin coat of corrosion preventive oil to all metal parts.

Note: Cover the LPG/Propane Inlet with the provided cap during cleaning and storage.

2. **FUEL:**
   Gasoline Treatment

   To protect the fuel tank during storage, fill the tank with fresh gasoline that has been treated with a fuel stabilizer additive. Follow fuel stabilizer manufacturer's recommendations for use. Refer to *Checking and Filling Fuel on page 29*.

   Aged gasoline that has not been treated with stabilizer ahead of time must be safely drained away and not run through the engine.

   Draining the Fuel Tank



⚠WARNING! To prevent serious injury from fire:
Drain 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 draining fuel. Do not smoke.

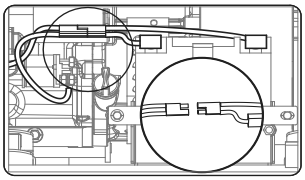
Warning! Wear ANSI-approved safety goggles and heavy-duty, chemical resistant work gloves before setting up transfer pump.

   a. You will need a gasoline-safe transfer pump - sold separately.
   b. Insert the suction tube to the deepest point of the Generator's Fuel Tank.
   c. Place the delivery hose into a gasoline-safe container (not included) in which to pump fuel. Do not place receiving container higher than the pump location. Do not overfill container.

Note: Know and obey city and state laws for proper disposal of oil and gasoline. Dispose of properly in accordance with all local laws and regulations.

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

4. **12V BATTERY:**
   Disconnect the Battery Cable during extended storage periods to help prevent draining the Battery.



NOTICE: During extended storage periods recharge the Battery every 3 months. (Charger not included.)

5. **STORAGE AREA:**
   Cover and store in a dry, level, well-ventilated area out of reach of children. Storage area should also be away from ignition sources, such as water heaters, clothes dryers, and furnaces.

Prevent Generator damage and malfunction! Do not stand Generator on its end. Fuel and oil can run into Generator components ruining Generator.

6. 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.

7. **AFTER STORAGE:**
   Before starting the Engine during or 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 time period, or if the Engine does not start.

Troubleshooting

Problem	Possible Causes	Probable Solutions
Engine will not start	FUEL RELATED:	FUEL RELATED:
	1. No fuel in tank or fuel valve closed.	1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline and open fuel valve. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	2. No fuel flow	2. Push Fuel Selector Switch to desired fuel type. For LPG,Propane fuel, make sure valve on LPG/Propane tank is fully open.
	3. Gasoline with more than 10% ethanol used. (E15, E20, E85, etc.)	3. Clean out ethanol rich gasoline from fuel system. Replace components damaged by ethanol. Use fresh 87+ octane stabilizer-treated unleaded gasoline only. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	4. Low quality or deteriorated, old gasoline.	4. Use fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	5. Dirty fuel passageways.	5. Clean out passageways using fuel additive. Heavy deposits may require further cleaning.
	6. Clogged Fuel Filter.	6. Replace Fuel Filter.
	IGNITION (SPARK) RELATED:	IGNITION (SPARK) RELATED:
	1. Spark plug cap not connected securely.	1. Connect spark plug cap properly.
	2. Spark plug electrode wet or dirty.	2. Clean spark plug.
	3. Incorrect spark plug gap.	3. Correct spark plug gap.
	4. Spark plug cap broken.	4. Replace spark plug cap.
	5. Power Switch at STOP position.	5. Turn Power Switch to RUN.
	6. Incorrect spark timing or faulty ignition system.	6. Have qualified technician diagnose/ repair ignition system.
	COMPRESSION RELATED:	COMPRESSION RELATED:
	1. Cylinder not lubricated. Problem after long storage periods.	1. Pour tablespoon of oil into spark plug hole. Crank engine a few times and try to start again.
	2. Loose or broken spark plug. (Hissing noise will occur when trying to start.)	2. Tighten spark plug. If that does not work, replace spark plug. If problem persists, may have head gasket problem, see #3.
	3. Loose cylinder head or damaged head gasket. (Hissing noise will occur when trying to start.)	3. Tighten head. If that does not remedy problem, replace head gasket.
	4. Engine valves or tappets mis-adjusted or stuck.	4. Have qualified technician adjust/ repair valves and tappets.
	ENGINE OIL RELATED:	ENGINE OIL RELATED:
	1. Low engine oil.	1. Fill engine oil to proper level. Check engine oil before EVERY use.
	2. Engine is over filled with oil.	2. Remove excess oil. Fill engine oil to proper level. See Checking and Filling Engine Oil on page 16
	3. Engine mounted on slope, triggering low oil shutdown.	3. Operate engine on level surface. Check engine oil level.

Problem	Possible Causes	Probable Solutions
Engine will not start (continued)	1. Spark Arrestor clogged with soot.	1. Clean and replace Spark Arrestor. See Spark Arrestor Maintenance on page 33
	2. EFI Alert Indicator flashes.	2. See EFI Alert Indicator light pattern. EFI Fault Indicator Codes on page 38
	3. No Battery or defective Battery installed.	3. Install new Battery
	4. Engine Start/Stop Switch flashes red - Battery is low.	4. Charge Battery with Battery Charger/ Maintainer or start Generator manually and allow to run for 5 hours.
	5. Electric Start fuse is blown.	5. Replace fuse with similar size fuse.
	6. Start/Stop Remote Control is not paired with Generator.	6. Pair Remote Control to Generator. See Reprogramming the Start/Stop Remote Control on page 19.
	7. Generator is not picking up Stop/Start Remote Control signal consistently.	7. Replace the Remote Control Battery; press on Remote Button longer; stay within operational range of Remote.
	8. Engine not restarting remotely after CO shutdown event.	8. After a CO shutdown event, the remote start capability will be disabled until the Engine has been first started non-remotely.
Engine misfires	1. Spark plug cap loose.	1. Check cap and wire connections.
	2. Incorrect spark plug gap or damaged spark plug.	2. Re-gap or replace spark plug.
	3. Defective spark plug cap.	3. Replace spark plug cap.
	4. Old or low quality gasoline.	4. Use only fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	5. Incorrect compression.	5. Diagnose and repair compression. (Use **Engine will not start: COMPRESSION RELATED** section.)
Engine stops suddenly	1. Faulty magneto.	1. Have qualified technician service magneto.
	2. Carbon monoxide level high. Red light on Carbon Monoxide Sensor illuminates.	2. Leave area immediately and allow area to ventilate thoroughly.
	3. CO Sensor Alarm flashes yellow continually shortly after starting.	3. Carbon monoxide sensor malfunction. Sensor needs service. Call 1-800-444-3353 as soon as possible. Do not use the Generator until the sensor is working properly.
	4. CO Sensor Alarm flashes yellow continually after longer period of operation.	4. Make sure to operate Generator within rated ambient temperature; maintain minimum 5 ft. clearance from all sides.
	5. Fuel tank empty or full of impure or low quality gasoline.	5. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	6. Low oil shutdown.	6. Fill engine oil to proper level. Check engine oil before EVERY use.
	7. Defective fuel tank cap creating vacuum, preventing proper fuel flow.	7. Test/replace fuel tank cap.
	8. EFI Alert Indicator flashes.	8. See EFI Alert Indicator light pattern table to identify the root cause.
	9. Disconnected or improperly connected spark plug cap.	9. Secure spark plug cap.
	10. If using LPG/Propane: LPG tank empty or LPG tank to small.	10. Replace empty LPG tank with full tank. Replace small LPG tank with correct tank size.

Problem	Possible Causes	Probable Solutions
Engine stops when under heavy load	1. Dirty air filter 2. Engine running cold.	1. Clean element. 2. Allow engine to warm up prior to operating equipment.
Engine knocks	1. Old or low quality gasoline. 2. Engine overloaded. 3. Incorrect spark timing, deposit buildup, worn engine, or other mechanical problems.	1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).** 2. Do not exceed equipment's load rating. 3. Have qualified technician diagnose and service engine.
Engine backfires	1. Impure or low quality gasoline. 2. Engine too cold. 3. Intake valve stuck or overheated engine. 4. Incorrect timing.	1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).** 2. Use cold weather fuel and oil additives to prevent backfiring. 3. Have qualified technician diagnose and service engine. 4. Check engine timing.
Attached device begins to operate abnormally	1. Problem with device. 2. Rated load capacity exceeded.	1. Immediately unplug device. Have device repaired by a qualified technician, or replace device. 2. Lower the number of items plugged into the generator to stay within the rated capacity, or use a more powerful generator.
Generator overloads below stated rated output	All loads are connected to one output circuit.	Distribute the loads among output circuits of the generator.
Attached device doesn't have power	1. Device not plugged in properly. 2. Circuit Breaker tripped. 3. Product needs service.	1. Turn off and unplug device, then plug it back in again and turn on. 2. Turn off and unplug device, reset Circuit Breaker, plug in device and turn on. 3. Have product repaired.

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

EFI Fault Indicator Codes

The EFI Alarm Light flashes indicating a fault with the engine. The Fault Code can be identified by the flashing frequency of the EFI Alarm Light. The following table describes the Blink Pattern of a Fault Code:

Note: The EFI Alarm Light turns ON 4 seconds and OFF 2 seconds before and after displaying the Fault Code(s) Blink Pattern.

Note: "·" indicates short blink (0.25 seconds) and "-" indicates long blink (1.2 seconds).

Note: For multiple faults, a 2 second pause occurs between codes.

Blink Pattern	Fault Code	Fault Description
· ·	2	TPS (Throttle Position Sensor) Error.
· · ·	3	Hall (Engine Position and Speed) Sensor Error.
· · · · · ·	6	EFI System voltage is too high.
- ·	11	Fuel Injector Error.
- · · ·	13	Fuel Pump Error.
- · · · · ·	15	Ignition Module Error.
- · · · · · · ·	17	Oxygen Sensor Error.
- - · · · · · · ·	27	Throttle Stepper Motor Error.

For additional support, please call 1-800-444-3353.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

FCC STATEMENT FOR THE REMOTE

Caution: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user‘s authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Record Product’s Date Code Here:_____

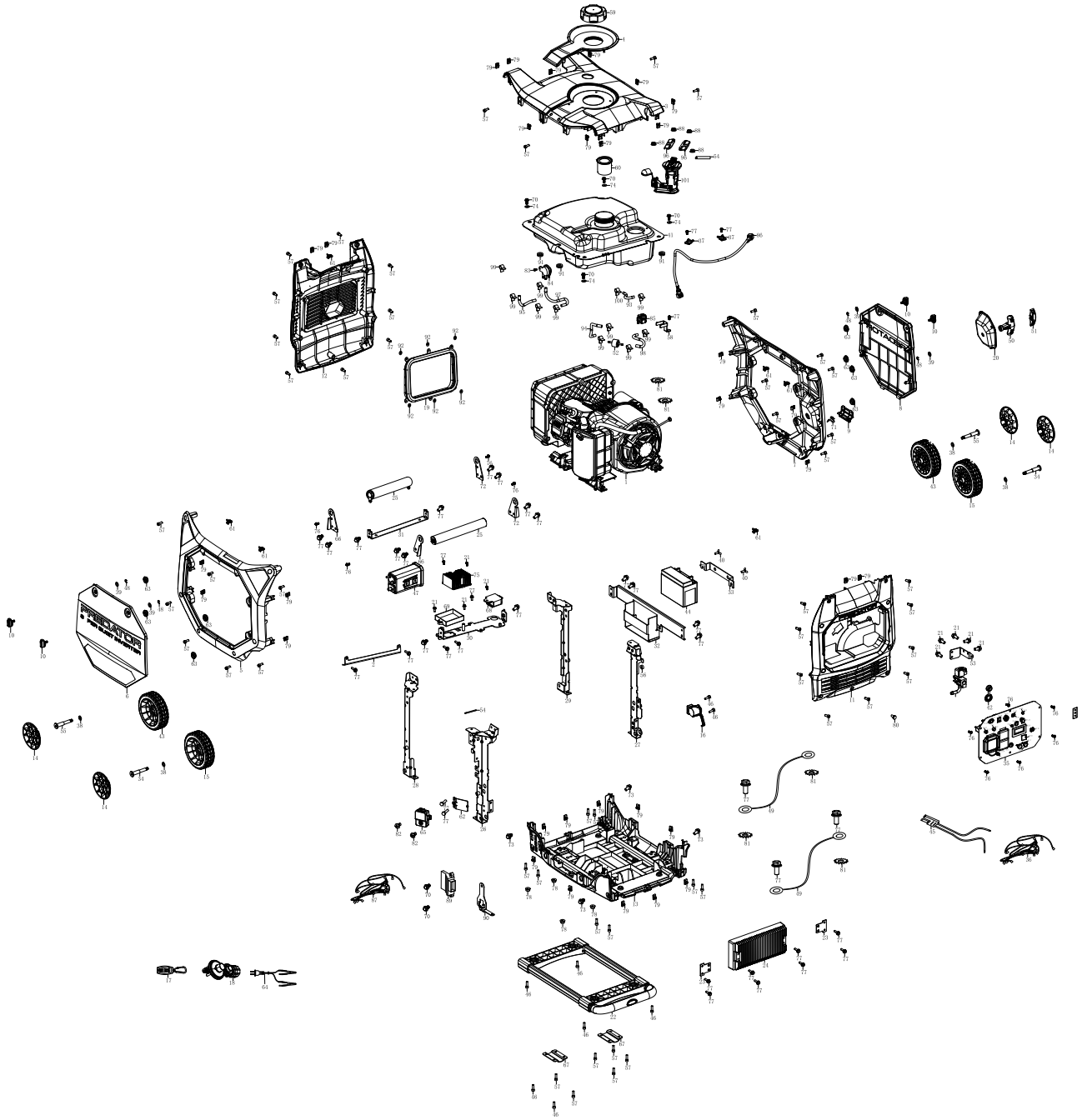
Note: If product has no date code, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts. Specify UPC 193175548153 when ordering parts.

Generator Parts List

Part	Description	Qty
1	Engine Assembly	1
2	Fuel Tank Lower Beam Bracket	1
3	Decorative Board	1
4	Sealing Ring	1
5	Left Housing	1
6	Left Access Panel	1
7	Right Housing	1
8	Battery and Oil Fill Access Panel	1
9	Cover	1
10	Side Cover Knob	4
11	Panel Rear Cover	1
12	Muffler Baffle	1
13	Engine Bottom Board	1
14	Hub Cap	2
15	Wheel	4
16	Brake Assembly	1
17	Remote Key	1
18	Primary Pressure Reducing Valve	1
19	Exhaust Sealant	1
20	Handle Decoration Block	1
21	Bolt, M5x12	9
22	Rod Assembly	1
23	Inverter Bracket	2
24	Inverter Module	1
25	Handle	2
26	Left Front Pillar	1
27	Right Front Pillar	1
28	Left Rear Pillar	1
29	Right Rear Pillar	1
30	Tank Front Bracket	1
31	Tank Back Bracket	1
32	Tank Right Support	1
33	Battery Holder	1
34	Axle	2
35	Panel Assembly	1
35.1	Waterproof Cover	1
35.2	Thermal Protector	1
35.3	Grounding Bolt	1
35.4	Dust Cover	1
35.5	GFCI Receptacle	1
35.6	Waterproof Cap	2
35.7	Parallel Outlet	2
35.8	Detector Switch	1
35.9	Digital Meter	1
35.10	USB	1
35.11	EFI Fault Indicator	1
35.12	Overload Reset	1
35.13	Fuel Selector Switch	1
35.14	Waterproof Cover	1
35.15	Thermal Protector	1
35.16	Waterproof Cap	1
35.17	DC 12V Receptacle	1
35.18	Engine Start/Stop Switch	1
35.19	Engine/Battery Switch	1
35.20	Waterproof Cap	1
35.21	ESC Switch	1
35.22	Waterproof Cover	1
35.23	Thermal Protector	1
36	Wiring Harness	1
37	Bracket	2
38	Flat Gasket 10x20x2	4
39	Flat Gasket 8	4
40	Butterfly Bolt, M6x12	2
41	Fuel Tank	1
42	Plug	1
43	Wheel	2
44	Battery	1
45	Battery Wiring Assembly	1
46	Bolt, M6x25	8
47	Carbon Canister Assembly	1
48	Circlip	4
49	Ground Wire	2
50	Starter Handle	1
51	Cover, Starter Handle	1
52	Double Way Valve Assembly	1
53	Solenoid Valve Bracket	1
54	Clip, Wiring Harness	2
55	Axle	2
56	Case	1
57	Bolt, M6x16	50
58	Single Valve Bracket	1
59	Fuel Tank Cap Assembly	1
60	Fuel Filter	1
61	Clip	6
62	CO Bracket	1
63	Rubber Gasket	8
64	DC Line	1
65	CO Module	1
66	Right Handle Bracket	2
67	Pull Rod Pressing Plate	2
68	DC Voltage Regulator	1
69	Control Module	1
70	Bolt, M6x20	6
71	Adhesive Strip	1
72	Left Handle Bracket	2
73	Bolt, M6x16	4
74	Gasket, Rotor Bolt	4
75	Power Module	1
76	Screw, M5x12	11
77	Bolt, M6x12	33
78	Nut, M8	4
79	Locking Clip	33
80	Wire Sleeve	1
81	Tooth Washer	5
82	Inner Hex Tooth Tamper Proof Bolt	2
83	Screw, M4x16	1
84	Secondary Pressure Valve	1
85	One-Way Valve Assembly	1
86	Fuel Line	1
87	Harness	1
88	Nut, M6	4
89	EFI ECU	1
90	ECU Bracket	1
91	Protective Rubber Sleeve	3
92	Ball Bearing	6
93	Breather Tube	1
94	Breather Tube	1
95	Breather Tube	1
96	Oil Pump Bracket	2
97	Breather Tube	1
98	Breather Tube	1
99	Clip, Fuel Line	10
100	Clip, Fuel Line	1
101	Fuel Pump Assembly	1

Generator Assembly Diagram



Engine Parts List

Part	Description	Qty
1A	Crankcase	1
2A	Bearing	2
3A	Crankcase Oil Seal	1
4A	Connecting Rod	1
5A	Piston Pin	1
6A	Piston	1
7A	Piston Pin Ring	2
8A	Piston Ring Assembly	1
9A	Camshaft Assembly	1
10A	Valve Lifter	2
11A	Push Rod	2
12A	Crankcase Locating Pin	2
13A	Crankcase Gasket	1
14A	Crankshaft	1
15A	Crankshaft Cover	1
16A	Rubber Sleeve	1
17A	Dipstick Assembly	1
18A	Bolt, M8x30	6
19A	Muffler Back Cover	1
20A	Bolt, M6x12	5
21A	Muffler	1
22A	Oxygen Sensor	1
23A	Bolt, M8x16	4
24A	Cylinder Head Locating Pin	2
25A	Cylinder Head Gasket	1
26A	Bolt, M8x60	4
27A	Intake Valve	1
28A	Exhaust Valve	1
29A	Valve Seal	1
30A	Valve Spring	2
31A	Valve Spring Retainer	2
32A	Valve Lock Clip	4
33A	Top Cap	2
34A	Valve Retainer Assembly	1
35A	Rocking Arm with Tight Bolt Assembly	2
36A	Rocking Arm	2
37A	Cylinder Head Air Duct Panel	1
38A	Bolt, M4x6	2
39A	Air Duct Panel	1
40A	Bolt, M6x16	18
41A	Rubber Sleeve	1
42A	Screw St 4.8x16	16
43A	Cylinder Head Cover Gasket	1
44A	Bolt, M5x12	2
45A	Cylinder Head Internal Cover	1
46A	Polyurethane Screen	3
47A	Cylinder Head Cover	1
48A	Exhaust Pipe	1
49A	Fuel Line Clamp 012	1
50A	Rubber Sleeve	1
51A	Metal Clip	4
52A	Cylinder Head Cover	1

Part	Description	Qty
53A	Bolt, M6x20	5
54A	Trigger	1
55A	Breather Hose	1
56A	Stator	1
57A	Bolt, M6x55	3
58A	Rotor	1
59A	Flywheel Nut	1
60A	Impeller	1
61A	Starter Pulley	1
62A	Bolt	1
63A	Recoil Starter Assembly	1
64A	Bolt, M8x25	4
65A	Adhesive Strip	2
66A	Bottom Air Duct Panel	1
67A	Left Engine Bottom Panel	1
68A	Right Bottom Panel	1
69A	Isolation Pad	4
70A	Nut, M8	8
71A	Rubber Sleeve	1
72A	Fuel Line Clamp	1
73A	Catalytic	1
74A	Oil Sensor	1
75A	Double End Bolt	2
76A	Spring Washer	2
77A	Nut, M8	2
78A	Cylinder Head	1
79A	Double End Bolt	2
80A	Intake Gasket	1
81A	Throttle Connector	1
82A	Gasket	1
83A	Throttle Body Assembly	1
84A	Steel Washer	1
85A	Air Filter Assembly	1
85.1A	Air Filter	1
86A	Nut, M6	2
87A	Oil Plug Assembly	1
88A	Ignition Coil	1
89A	Screw St 4.8x25mm	2
90A	Air Duct Panel	1
91A	Patch Cord	1
92A	Location Pin	1
93A	Starting Motor Assembly	1
94A	Bolt, M8x35	2
95A	Rubber Sleeve	1
96A	Low Pressure Hose	1
97A	Low Pressure Hose Clamp	2
98A	Rubber Sleeve	1
99A	Temperature Sensor	1
100A	Exhaust Gasket	1
101A	Spark Plug	1
102A	Stepper Motor	1
103A	Fuel Controller Assembly	1

When ordering replacement parts from this list, the “A” suffix must be included in order to get the correct part.

Engine Assembly Diagram



Limited 90 Day Warranty (Retail)

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS, EXCEPT FOR THE EMISSIONS CONTROL SYSTEM WARRANTY BELOW.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. HFT also warrants that the emissions control system on your engine is designed, built, and equipped so that it conforms to the United States Environmental Protection Agency's (EPA) emissions requirements in effect at the time of manufacture.

Emissions Control System Warranty

The California Air Resources Board and Harbor Freight Tools (HFT) are pleased to explain the emissions control system warranty on your 2025 Small Off-Road Engine and engine powered equipment. In California, new equipment that uses Small Off-Road Engine must be designed, built, and equipped to meet the State's stringent anti-smog standards. HFT must warrant that the emissions control system on your Small Off-Road Engine and engine powered equipment will be free from defects in material and workmanship for two (2) years, provided there has been no abuse, neglect, or improper maintenance of your Small Off-Road Engine or engine powered equipment. HFT also warrants that the emissions control system on your engine is designed, built, and equipped so that it conforms to the United States Environmental Protection Agency's (EPA) emissions requirements in effect at the time of manufacture.

Your emissions control system may include parts such as: carburetor or fuel-injection system, the ignition system, catalytic converter, fuel lines, fuel tanks, fuel caps, valves, canisters, filters, hoses, belts, clamps, connectors, and other emission-related assemblies or components.

Where a warrantable condition exists, HFT will repair or replace, at our option, your engine at no cost to you, including diagnosis, parts and labor.

MANUFACTURER'S WARRANTY COVERAGE

This emissions control system is warranted for two years. If any emission-related part on your engine is defective, the part will be repaired or replaced by HFT.

OWNER'S WARRANTY RESPONSIBILITIES

As the Small Off-Road Engine and engine powered equipment owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual. HFT recommends that you retain all receipts covering maintenance on your Small Off-Road Engine/equipment, but HFT cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the Small Off-Road Engine and engine powered equipment owner, you should however be aware that HFT may deny you warranty coverage if your Small Off-Road Engine or engine powered equipment or a part has failed due to abuse (including failure to follow the fuel use instructions contained in this manual), neglect, improper maintenance, or unapproved modifications.

You are responsible for presenting your Small Off-Road Engine or engine powered equipment to HFT as soon as the problem exists. To obtain warranty repair or replacement, either: (a) contact HFT Product Support at 1-800-444-3353 or productsupport@harborfreight.com or (b) bring the Small Off-Road Engine or engine powered equipment to your nearest Harbor Freight Tools retail store. The nearest Harbor Freight Tools retail store can be found on the internet at https://www.harborfreight.com. The warranty repairs or replacement should be completed in a reasonable amount of time, not to exceed 30 days.

If you have a question regarding your warranty coverage, you should contact HFT Product Support at 1-800-444-3353 or productsupport@harborfreight.com.

GENERAL EMISSIONS WARRANTY COVERAGE

a) The warranty period begins on the date the engine or equipment is delivered to an ultimate purchaser. The warranty period is two years.

b) HFT warrants to the ultimate purchaser and each subsequent owner that the engine is:
   1. Designed, built, and equipped so as to conform with the applicable United States Environmental Protection Agency's (EPA) emissions requirements in effect at the time of manufacture and all applicable regulations adopted by the California Air Resources Board; and
   2. Free from defects in materials and workmanship that cause the failure of a warranted part to be identical in all material respects to the part as described in the engine manufacturer's application for certification for a period of two years.

c) The warranty on emissions-related parts is as follows:
   1. Any warranted part that is not scheduled for replacement as required maintenance in the written instructions provided is warranted for the warranty period stated above. If any such part fails during the period of warranty coverage, it will be repaired or replaced by HFT. Any such part repaired or replaced under the warranty will be warranted for the remaining warranty period.
   2. Any warranted part that is scheduled only for regular inspection in the written instructions is warranted for the warranty period stated above. A statement in the written instructions to the effect of "repair or replace as necessary" does not reduce the period of warranty coverage. Any such part repaired or replaced under warranty will be warranted for the remaining warranty period.
   3. Any warranted part that is scheduled for replacement as required maintenance in the written instructions will be warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part will be repaired or replaced by HFT. Any such part repaired or replaced under warranty will be warranted for the remainder of the period prior to the first scheduled replacement point for the part.
   4. At no charge to the owner, repair or replacement of any warranted part under the warranty will be performed at a retail store or by HFT shipping the product for repair.
   5. Notwithstanding the provisions herein, warranty services or repairs will be provided at all retail stores or by contacting HFT Product Support at 1-800-444-3353 or productsupport@harborfreight.com.
   6. The owner will not be charged for diagnostic labor that leads to the determination that a warranted part is in fact defective, provided that such diagnostic work is performed at a retail store.
   7. HFT is liable for damages to other engine components proximately caused by a failure under warranty of any warranted part.
   8. Throughout the engine's and emission control system's warranty period stated above, HFT will maintain a supply of warranted parts sufficient to meet the expected demand for such parts and will obtain additional parts if that supply is exhausted.
   9. Any replacement part may be used in the performance of any warranty maintenance or repairs and will be provided without charge to the owner. Manufacturer-approved replacement parts that do not increase emissions will be used in the performance of any warranty maintenance or repairs and will be provided without charge to the owner. Such use will not reduce the warranty obligations of HFT.
   10. Add-on or modified parts that are not exempted by the California Air Resources Board may not be used. The use of any non-exempted add-on or modified parts will be grounds for disallowing a warranty claim. HFT is not liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.
   11. HFT will provide any documents that describe its warranty procedures or policies upon request of the Executive Officer.

d) Emission Warranty Parts List.

1. Fuel Metering System
    a. Carburetor and its internal parts (and/or pressure regulator or fuel injection system).
    b. Fuel tank.
    c. Cold start enrichment system.
    d. Air/fuel ratio feedback and control system.
2. Air Induction System
    a. Controlled hot air intake system.
    b. Intake manifold.
    c. Air filter.
3. Ignition System
    a. Spark plugs.
    b. Magneto ignition system.
    c. Spark advance/retard system.
4. Catalyst System (if so equipped)
    a. Exhaust pipe stud/exhaust manifold.
    b. Thermal reactor.
    c. Catalytic converter (if so equipped).
5. Particulate Controls
    a. Traps, filters, precipitators, and any other device used to capture particulate emissions.
6. Miscellaneous Items Used in Above Systems
    a. Vacuum, temperature and time sensitive valves and switches.
    b. Hoses, belts, connectors, and assemblies.
7. Evaporative Emission Control System
    a. Fuel tank.
    b. Fuel caps, valves, canisters, filters, vapor hoses, clamps, connectors, belts, and assemblies.
8. Air Injection System (if so equipped)
    a. Air pump or pulse valve.
    b. Valves affecting distribution of flow.
    c. Distribution manifold.

HFT provides with each product written instructions for the maintenance and use of the product by the owner.

PREDATOR®

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