# 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 near the assembly diagram (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. 25f

# PREDATOR

## 10,000 WATT PORTABLE GENERATOR

**8,000 RUNNING WATTS**
**10,000 MAX STARTING WATTS**



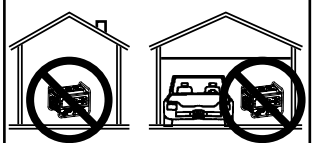

**Visit our website at: https://www.harborfreight.com**
**Email our Product Support at: productsupport@harborfreight.com**

**73256**

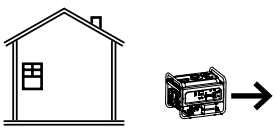
## ⚠ DANGER

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

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



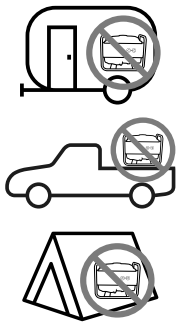
**NEVER use inside a home or garage, EVEN IF doors and windows are open.**



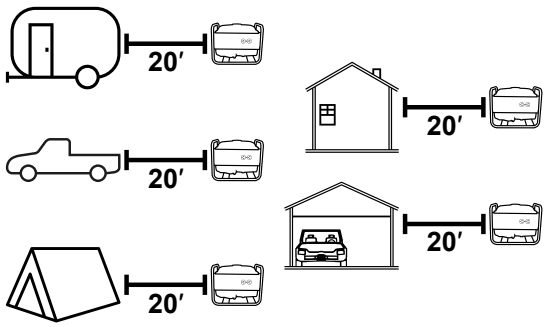
**Only use OUTSIDE and far away from windows, doors, and vents.**

## ⚠ 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.**




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 | Output | 120/240VAC, 60Hz, 1 Phase<br>66.7A at 120V; 33.3A at 240V<br>8,000W Running Watts<br>10,000W Maximum Starting Watts |
| | Receptacles | 4x 120VAC, 20A GFCI (NEMA 5-20R)<br>1x120VAC, 30A Twist Lock (NEMA L5-30R)<br>1x120/240VAC, 30A Twist Lock (NEMA L14-30R) |
| Displacement | | 420cc |
| Engine Type | | Horizontal Single Cylinder<br>4-stroke |
| Cooling System | | Forced air cooled |
| Fuel | Type | 87+ octane stabilizer-treated unleaded gasoline |
| | Capacity | 9.25 Gallon / 35.00 Liter |
| Engine Oil | Type SAE | 10W-30 above 32° F<br>5W30 at 32° F or below |
| | Capacity | 1.16 Quart |
| Run Time @ 50% Load with full tank | | 12.5 hr. |
| Sound Level at 23 feet @ 50% Load | | 77 dB |
| Rotation viewed from PTO (power takeoff - the output shaft) | | Counterclockwise |
| Spark Plug | Type | F6RTC |
| | Gap | 0.6mm - 0.8mm |
| Valve Clearance | Intake | 0.05mm - 0.1mm |
| | Exhaust | 0.05mm - 0.1mm |
| Speed | Idle | 2600 RPM (ECO-ON) ±<br>3600 RPM (ECO-OFF) |
| Electric Start Battery | | 12V, 14Ah, Lead-Acid Non-Spillable |
| Remote Control Battery | | 3V, CR2032 |
| Internal Battery | | 3V, CR2032<br>Contains non-replaceable battery. |
| Battery Charger | | Input: 100-240VAC, 50/60Hz, 0.5A Max<br>Output: 14VDC, 0.8A<br>Cable Length: 5.9’ |
| Available Accessories | | Wheel Kit (sold separately) |

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: 2BCTA-SA00004-1

| 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 |
|  | 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 marking concerning Risk of Hearing Loss. Wear hearing protection. |

| Symbol | Property or Statement |
|---|---|
|  | 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. |
|  | WARNING: Contains coin battery. |

# 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.**

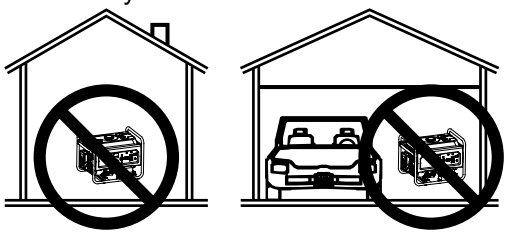
# Set up Precautions

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. Have multiple ABC class fire extinguishers nearby.
3. Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrestor may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.
4. Set up and use only on a flat, level, well-ventilated surface.
5. All connections and conduits from the Generator to the load must only be installed by trained and licensed electricians, and in compliance with all relevant local, state, and federal electrical codes and standards, and other regulations where applicable.
6. Connections for standby power to a building electrical system must be made by a qualified electrician. The connection must isolate the generator power from utility power, and must comply with all applicable laws and electrical codes.
7. A transfer switch should be installed by a licensed electrician in compliance with all applicable laws and electrical codes.
8. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during set up.
9. Use only lubricants and fuel recommended in the Specifications chart of this manual.
10. Improper connections to a building 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.
11. Do not operate the Generator before grounding. The Generator must be earth-grounded in accordance with all relevant electrical codes and standards before operation.
12. Install carbon monoxide alarm(s) with battery backup in nearby buildings according to manufacturer's instructions.

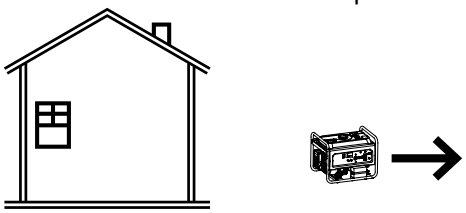
# Operating Precautions

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.



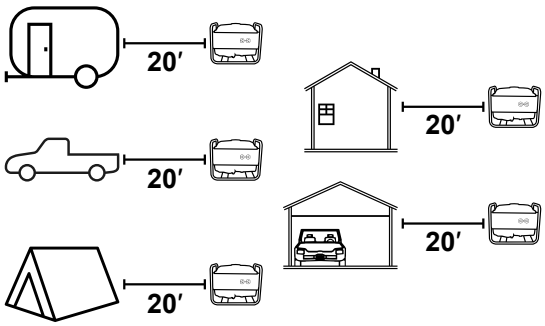
NEVER use inside a home or garage, EVEN IF doors and windows are open.



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. Engine will still produce carbon monoxide, even when burning other fuels.

**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.**

2. 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.
3. 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.
4. 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.
5. Keep children away from the equipment, especially while it is operating.
6. Keep all spectators <u>at least six feet</u> from the Engine during operation.
7. 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.
8. Do not touch engine during use. Let engine cool down after use.
9. Never store fuel or other flammable materials near the engine.

10. 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.
11. 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.
12. 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.
13. 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.
14. Do not attempt to connect or disconnect load connections while standing in water, or on wet or soggy ground.
15. 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.
16. 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.
17. GFCI PRECAUTIONS
    Test Ground Fault Circuit Interrupter (GFCI) receptacles (if equipped) before each use as follows:
    a. Disconnect all devices from the Generator.
    b. Start the engine.
    c. Press Test button on receptacle to trip the GFCI device.
    d. The Reset button should extend, cutting off electricity to the receptacle.
    e. If above test fails, do not use receptacle until it is repaired or replaced.
    f. Press Reset button in for use.
18. **The Generator must be grounded before use. An ungrounded Generator has an increased risk of electric shock.** Refer to *Grounding on page 10*.
19. Insulate all connections and disconnected wires.
20. 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.
21. Secure the generator on transport vehicles to prevent it from rolling, slipping, and tilting.
22. Industrial applications must follow OSHA requirements.
23. Do not leave the generator unattended when it is running. Turn off the generator (and remove safety keys, if available) before leaving the work area.
24. The generator can produce high noise levels. Prolonged exposure to noise levels above 85 dBA is hazardous to hearing. Wear ear protection when operating thegenerator or when working nearby while it is operating.
25. Wear ANSI-approved safety glasses, hearing protection, and NIOSH-approved dust mask/respirator during use.
26. 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.
27. 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.
28. 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.
29. 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.
30. 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.
31. Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.
32. Do not cover the generator during operation.
33. Keep the stop/start remote control away from children. Do not place in tight spaces with other objects that may actuate the remote buttons and send an undesired start signal to the generator.
34. Keep the engine, generator, and surrounding area clean at all times.
35. Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refuelling.
36. 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.
37. Do not operate the generator with known leaks in the engine's fuel system.

38. When spills of fuel or oil occur, they must be cleaned up immediately. Dispose of fluids and cleaning materials as per any local, state, or federal codes and regulations. Store oil rags in a bottom-ventilated, covered, metal container.
39. Keep hands and feet away from moving parts. Do not reach over or across equipment while operating.
40. Before use, check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the equipment's operation. **If damaged, have the generator serviced before using.** Many accidents are caused by poorly maintained equipment.
41. 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.
42. Extension Cord - Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized extension cord will cause a drop in line voltage resulting in loss of power and overheating.

    The table below shows the correct cord size to use depending on cord length and nameplate ampere rating. If 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)** | **Load @ 240V (WATTS)** | **20 ~ 50 ft** | **50 ~ 75 ft** | **75 ~ 100 ft** |
| 2 | 240 | 480 | 18 AWG | | |
| 4 | 480 | 960 | 18 AWG | | 16 AWG |
| 6 | 720 | 1440 | 18 AWG | 16 AWG | 14 AWG |
| 8 | 960 | 1920 | 16 AWG | | 12 AWG |
| 10 | 1200 | 2400 | 16 AWG | 14 AWG | 12 AWG |
| 15 | 1800 | 3600 | 14 AWG | 12 AWG | 10 AWG |
| 20 | 2400 | 4800 | 12 AWG | 10 AWG | |
| 25 | 3000 | 6000 | 12 AWG | 10 AWG | 8 AWG |
| 30 | 3600 | 7200 | 10 AWG | 8 AWG | |
| 35 | 4200 | 8400 | 8 AWG | 6 AWG | |
| 40 | 4800 | 9600 | 6 AWG | | |

**<u>Note:</u> Do not use extension cords less than 20 feet in length.**

## Included Battery Charger/Maintainer Precautions

1. Do not expose Battery Charger/Maintainer to rain or snow.
2. Use of an attachment not recommended or sold by the Battery Charger/Maintainer manufacturer may result in a risk of fire, electric shock, or injury to persons.
3. To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting Charger/Maintainer.
4. Do not operate Charger/Maintainer with damaged cord or plug – replace the cord or plug immediately.
5. Do not operate Charger/Maintainer if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified serviceman.
6. Do not disassemble Charger/Maintainer – take it to a qualified technician when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
7. To reduce risk of electric shock, unplug Charger/Maintainer from outlet before attempting any maintenance or cleaning.
8. Locate Charger/Maintainer as far away from Generator as power cord permits.
9. Maintain labels and nameplates on the Charger/Maintainer. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
10. Unplug the Battery Charger/Maintainer from its electrical outlet before connecting its power cord to the Generator, or performing any inspection, maintenance, or cleaning procedures.
11. Do not use Charger/Maintainer while tired or under the influence of drugs, alcohol or medication.

## 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

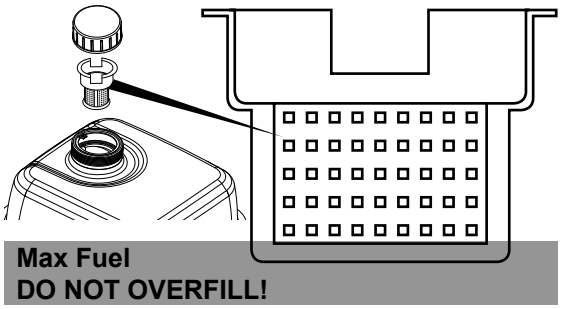
1. **Before service, maintenance, or cleaning:**
   a. **Unplug all devices from the generator.**
   b. **Push the Power Switch to its "STOP" position.**
   c. **Disconnect the battery.**
   d. **Allow the engine to completely cool.**
   e. **Then, remove the spark plug cap from the spark plug.**
2. 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.
3. Make sure the Power Switch is in its "OFF" position before moving the unit and before performing any service, maintenance, or cleaning procedures on the unit.
4. **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.
5. **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.**
6. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during service.
7. Maintain labels and nameplates on the equipment. These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
8. 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.
9. Store equipment out of the reach of children.
10. Follow scheduled engine and equipment maintenance.

**GFCI Protection:**

This Generator is equipped with two 3-Prong, duplex 120V ground fault circuit interrupter (GFCI) receptacles. These outlets provide additional protection from the risk of electric shock. Should replacement of the receptacles become necessary, use only identical replacement parts that include GFCI protection.

**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. **Do not fill fuel tank to the top.** Leave a little room for the fuel to expand as needed. **TO PREVENT FUEL LEAKAGE AND FIRE HAZARD, do not fill fuel above the bottom of fuel strainer.**




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, 14Ah 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.**

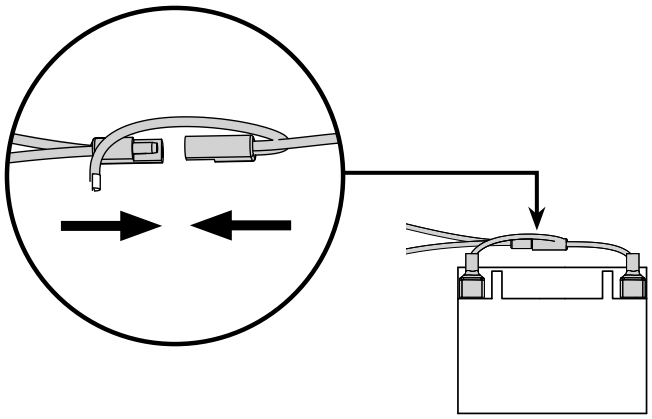
**Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrestor may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.**

**CAUTION! If you do not connect a battery to the positive battery cable, wrap cable terminal securely with electrical tape (sold separately).**

# Battery Setup Instructions

**IMPORTANT! For Electric and Remote Start, the included 12VDC Battery must be connected and charged.**

1. Push Power Switch to STOP (OFF) position.
2. Connect the two ends of the Battery Quick Connector together.



**Note:** The built-in charging circuit charges the Battery while the Engine is running. Turn the Power Switch off and use the Battery Charger/Maintainer to keep the Battery charged when the Generator is not in use or in storage. Refer to 12VDC Battery: in Storage on page 25.

**Note:** Wheel Kit #64788 (Sold Separately) can be used with this Generator.

# Grounding

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.

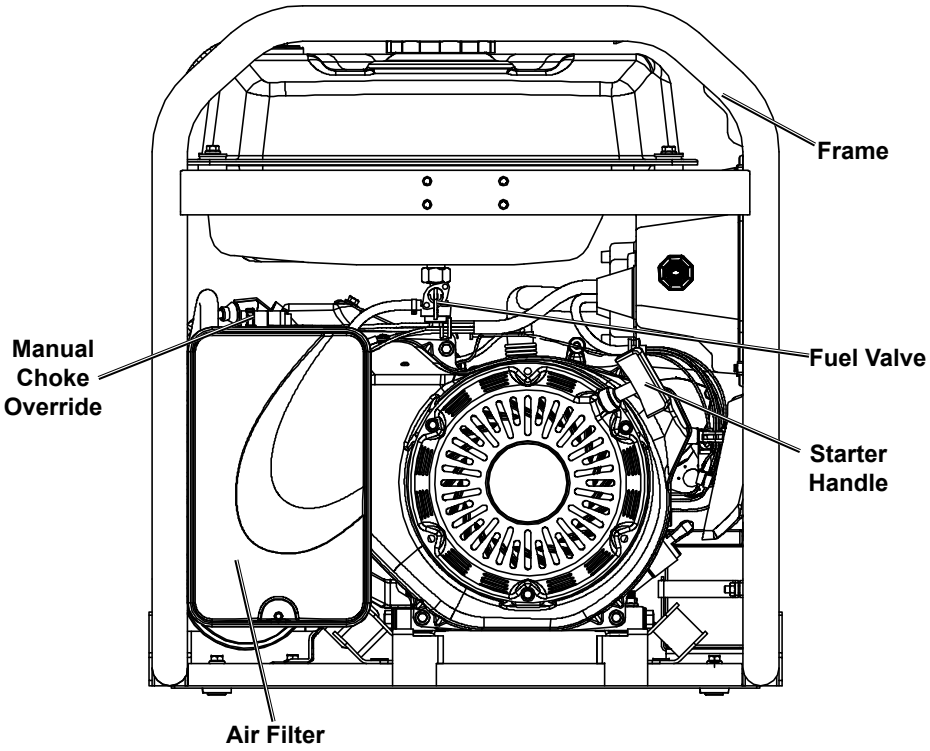
**Rod,** stainless steel or copper- or zinc-coated steel, minimum 5/8 in. diameter, minimum 8 ft. long.

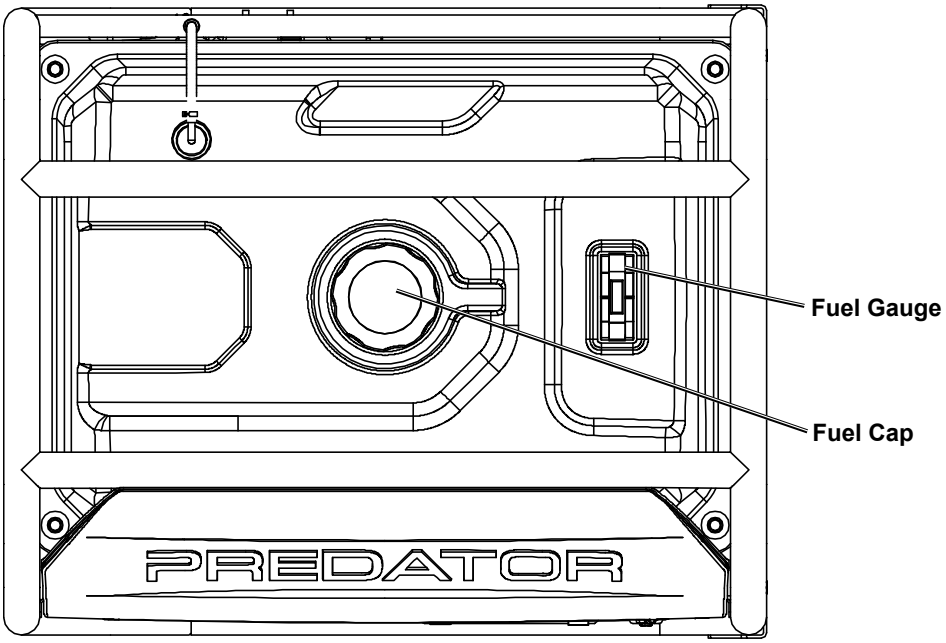
1. Drive electrode into the ground according to the requirements in the National Electrical Code.
2. Connect a #6 AWG grounding wire (not included) from the Grounding Terminal to the buried electrode.

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

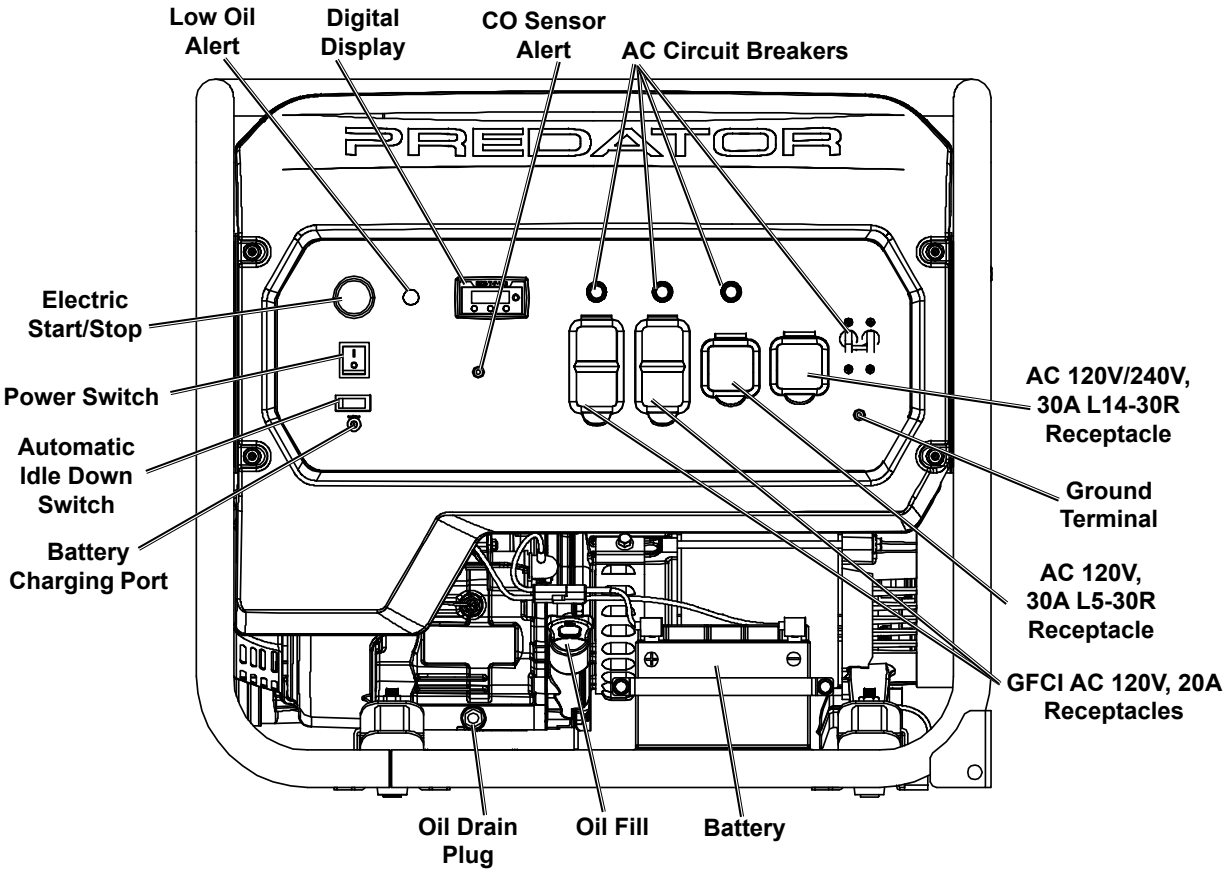
**Note:** There is a permanent conductor between the portable generator stator winding (Neutral Conductor) and the frame.

# Components and Controls



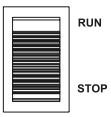



# Components and Controls




The following are descriptions of the controls on the Control Panel. Your Generator has sockets to power your products with circuit breakers to protect the voltage flow.

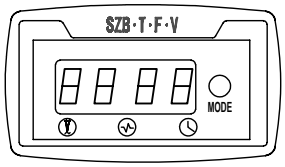
1. **Power Switch:** Push to RUN position to enable starting remotely, electrically, or manually.




2. **Engine Stop/Start Switch:** Used to start and stop the Engine.

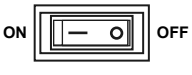



3. **Digital Display:** Press the Mode Button to cycle through the Display's functions:
   - Voltage
     (Displays U + voltage reading. Example: "U240")
   - Frequency
     (Displays F + frequency reading. Ex.: "F60")
   - Current session runtime
   - Total (accumulated) runtime




**Note:** Every 50 hours, a blinking maintenance reminder will appear on the screen (P050, P100, P150, etc.) See Page 123 for maintenance schedule. To clear a maintenance reminder, press and hold the Mode Button for 5 seconds.

4. **Automatic Idle Down Switch:** Used to turn the Engine Idle function ON or OFF. In ON position Engine speed (and frequency) is reduced when no load is detected. Engine runs at full speed (and frequency) when load above 75W is applied.

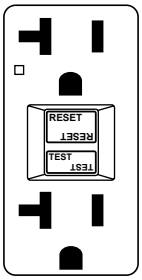



**Notice:** Turn Automatic Idle Switch OFF when connected load is less than 300W.

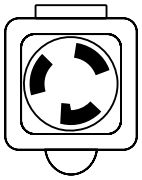
5. **CO Sensor Light:** Flashing red light indicates dangerous levels of carbon monoxide gas have built up. Flashing yellow light indicates a carbon monoxide sensor malfunction. Refer to *Carbon Monoxide Shutoff on page 18* for further information.



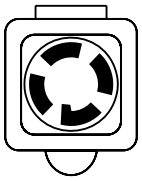
6. **AC Receptacles:** The Generator contains several AC Receptacles to power tools and equipment.




a. 3-Prong, duplex 120 volt GFCI receptacle (NEMA 5-20R)



b. 3-Prong, twistlock, 120 volt 30A receptacle (NEMA L5-30R)



c. 4-Prong, twistlock, 120/240 volt 30A receptacle (NEMA L14-30R)

**⚠WARNING! TO PREVENT SERIOUS INJURY:** Connect tools and equipment only to the Receptacle (120 volt or 240 volt) that is compatible with the electrical characteristics and rated capacities of the tools and equipment being used.

7. **Circuit Breakers:** The circuit breaker protects the Generator from overloading. The rating of the breaker and the load it protects are marked near the breaker. Should any of the Circuit Breakers trip, the Generator will stop the electricity output. If this happens, unplug all loads from the Generator. Then, turn the tripped Circuit Breaker to ON and re-attach loads gradually. **Note:** For push-type Circuit Breakers allow a few minutes for cool-down before resetting.




8. **Low Oil Alarm:** If the Engine oil level is too low, the LOW OIL ALARM light turns on and the Engine will automatically shut off.



9. **Grounding Terminal:** Prior to each use, set up the ground wire (not included) connection to the Grounding Terminal to properly ground the Generator. Refer to *Grounding on page 10* for instructions on grounding the Generator.



10. **Battery Charging Port:** Used to charge the 12VDC Generator Battery using the provided Battery Charger/Maintainer.



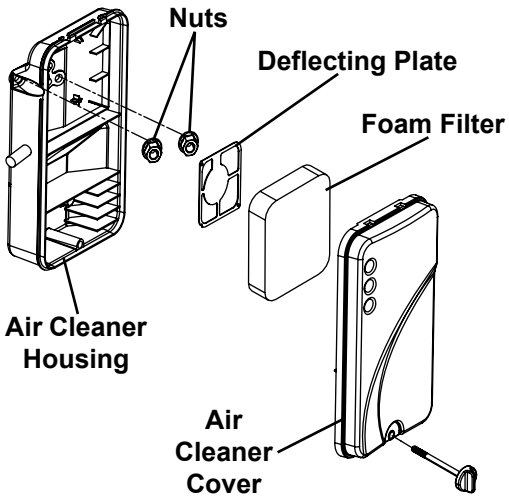
# High Altitude Operation Above 3000 feet

**⚠WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:**
Follow instructions 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 proceeding. Do not smoke.

**NOTICE:** Warranty void if necessary adjustments are not made for high altitude use.

At high altitudes, the engine's carburetor, governor (if so equipped), and any other parts that control the fuel-air ratio will need to be adjusted by a qualified mechanic to allow efficient high-altitude use and to prevent damage to the engine and any other devices used with this product. The fuel system on this engine may be influenced by operation at higher altitudes. Proper operation can be ensured by installing an altitude kit at altitudes higher than 3000 ft. above sea level. At elevations above 8000 ft, the engine may experience decreased performance, even with the proper main jet. Operating this engine without the proper altitude kit installed may increase the engine's emissions and decrease fuel economy and performance. The kit should be installed by a qualified mechanic.

1. Turn off the engine.
2. Close the fuel valve.
3. Move the air cleaner housing aside to allow access to the carburetor:
   a. Loosen the knob and remove air cleaner cover.
   b. Remove the foam filter and deflecting plate.
4. Remove the nuts to allow the air cleaner housing to be moved aside.
5. Place a bowl under the fuel cup to catch any spilled fuel.
6. Unthread the screws holding the solenoid in place.




**CAUTION! Carburetor bowl may have gas in it which will leak upon removing the solenoid/bolt.**

7. Disconnect the solenoid and solenoid seal from the bolt.
8. Unthread the bolt holding the fuel cup.
9. Remove the bolt, Bolt Seal, fuel cup, Fuel Cup Seal and Main Jet from the body of the carburetor assembly. A carburetor screwdriver (not included) is needed to remove and install the Main Jet.

**Note:** The mixing tube is held in place by the Main Jet and might fall out when it is removed. If it falls out, replace it in the same orientation before replacing the Main Jet.

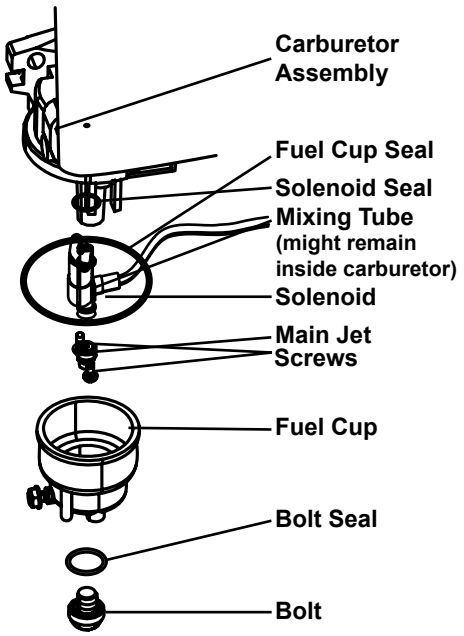
10. Replace the Main Jet with the replacement Main Jet needed for your altitude range (part 1a or 2a).

**Note:** The Fuel Cup Seal and Bolt Seal may be damaged during removal and should be replaced with the new ones from the kit.

11. Replace the Fuel Cup Seal (4a), fuel cup, Bolt Seal (3a), and bolt. Tighten in place.

**CAUTION:** Do not cross thread bolt when tightening. Finger tighten first and then use a wrench to make sure the bolt is properly threaded.

12. Replace the solenoid and Solenoid Seal (5a), and tighten in place with screws.
13. Reassemble the air cleaner and reattach all hoses to it.
14. 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.




### High Altitude Kit Parts List - A

| Part | Description | Qty |
|---|---|---|
| 1a | Main Jet 3000-6000 ft. | 1 |
| 2a | Main Jet 6000-8000 ft. | 1 |
| 3a | Bolt Seal | 1 |
| 4a | Fuel Cup Seal | 1 |
| 5a | Solenoid Seal | 1 |

**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.**

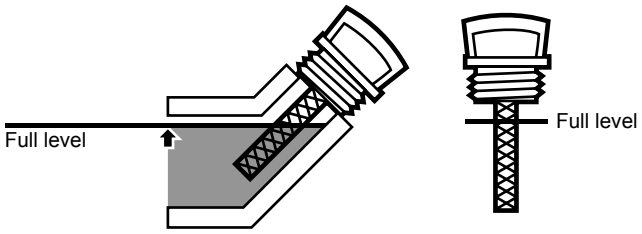
# Pre-Start Checks

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: Your Warranty is VOID if the engine's crankcase is not properly filled with oil before each use. 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. Close the Fuel Valve.
3. Clean the top of the Dipstick and the area around it. Remove the Dipstick by turning it counterclockwise, and wipe it off with a clean, lint free rag.




4. Reinsert the Dipstick without threading it in and remove it to check the oil level. The oil level should be up to the full level as shown above.
5. If the oil level is at or below the low mark 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 dipstick back in clockwise.

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

**Checking and Filling Fuel**



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

1. Clean the Fuel Cap and the area around it.
2. Unscrew and remove the Fuel Cap.
3. Remove the Strainer and remove any dirt and debris. Then replace the Strainer.

**Note: Do not use gasoline containing more than 10% ethanol (E10). Do not use E85 ethanol. Add fuel stabilizer to the gasoline or the Warranty is VOID.**

**Note: Do not use gasoline that has been stored in a metal fuel container or a dirty fuel container. It can cause particles to enter the Carburetor, affecting engine performance and/or causing damage.**

4. If needed, fill the Fuel Tank to about 1 inch under the fill neck of the Fuel Tank with 87 octane or higher unleaded gasoline that has been treated with a fuel stabilizer additive. 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.

# Starting the Engine

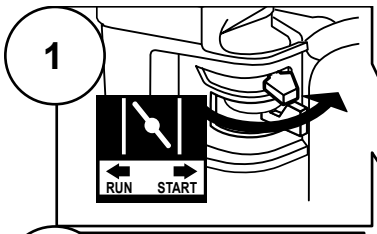
**Before Starting the Engine**

**Before starting the engine:**

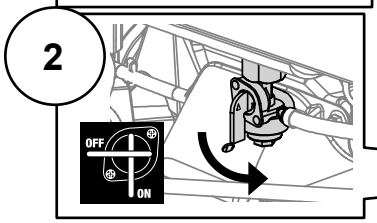
a. **Inspect the generator and engine.**
b. **Disconnect all electrical loads from the generator.**
c. **Fill the engine with the proper amount and type of both stabilizer-treated unleaded gasoline and oil.**
d. **Confirm the Battery is connected.**

## Manual Start

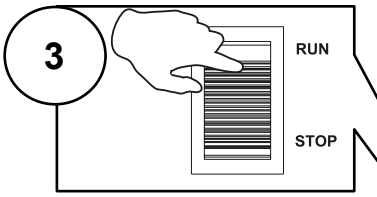
1. If Battery is dead, move the Choke to the right.

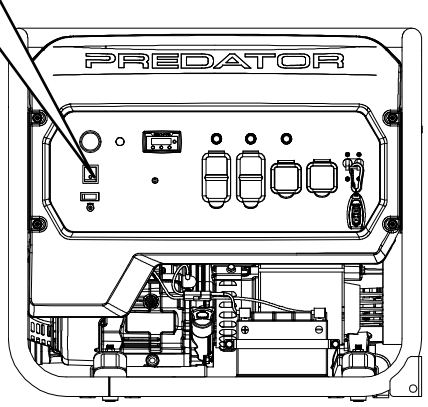



2. Open the Fuel Valve.

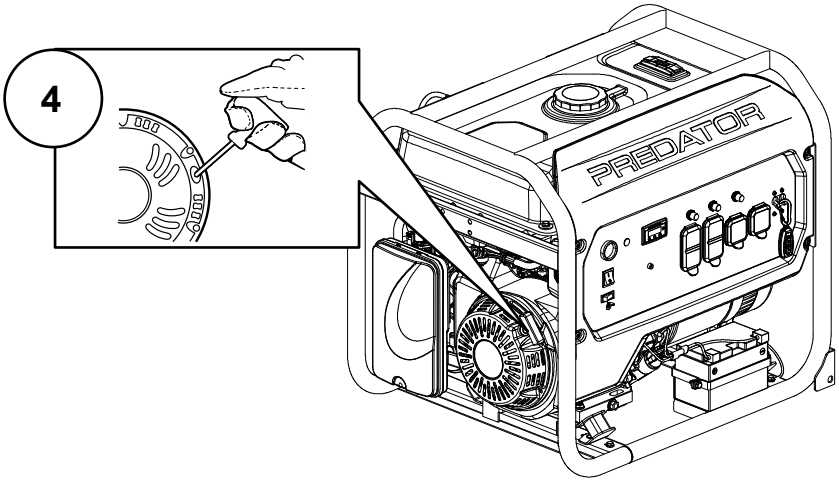



3. Push the Power Switch to the RUN position.




4. Grip the Starter Handle of the Engine loosely and pull it slowly several times to allow the gasoline to flow into the Engine's carburetor. Then pull the Starter Handle gently until resistance is felt. Allow Cable to retract fully and then pull it quickly. Repeat until the engine starts.




**Note:** Do not let the Starter Handle snap back against the housing. Hold it as it recoils so it doesn't hit the housing.

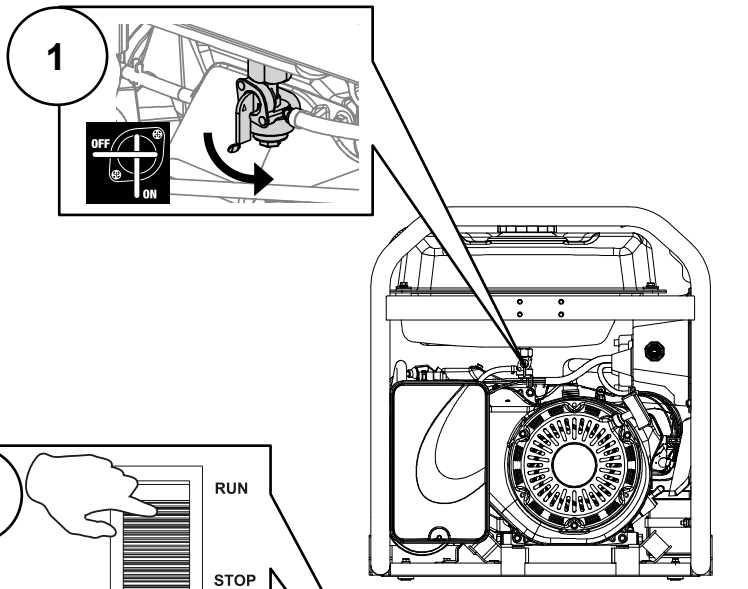
**Note: If engine does not start:**

- **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.

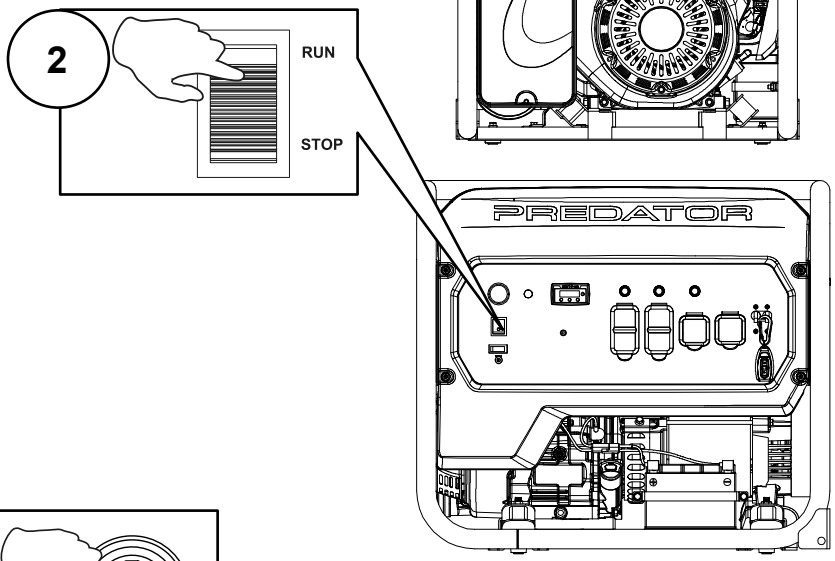
# Electric Start

1. Open the Fuel Valve.




2. Push the Power Switch to the RUN position.

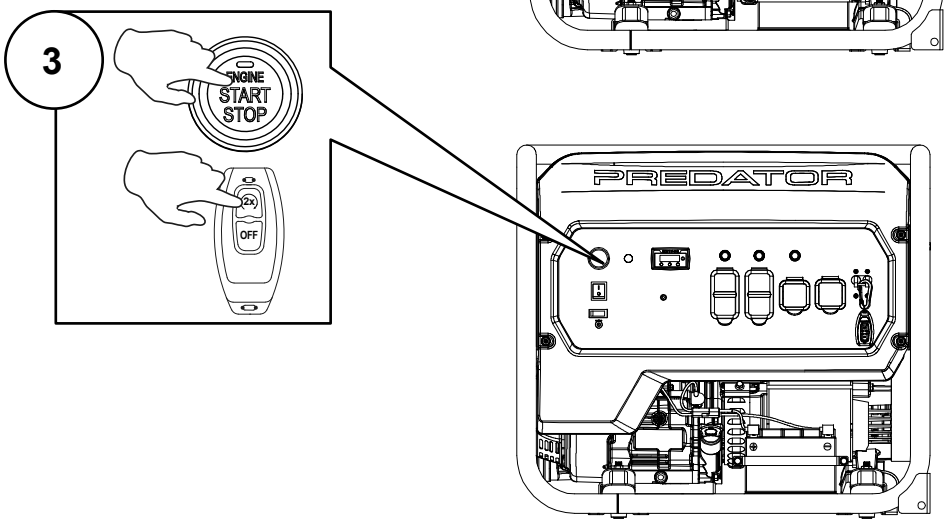
**Note:** If engine does not start, check engine oil level. Engine will not start with low or no engine oil.




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

   **OR**

   **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.**

**Note: 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.
- **Check 12VDC Battery.**
  Engine will not start using Electric/Remote Start if battery is low or disconnected.

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

## 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 on page 23.*

## 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.

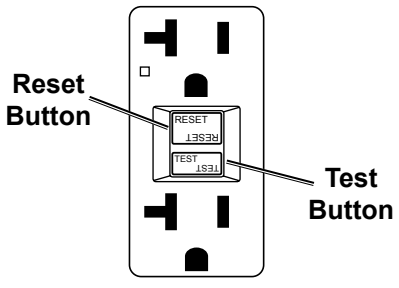
**NOTE: Yellow light flashes once after starting to indicate passing self-check and is functioning normally.**

**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. With the engine running, test GFCI receptacles before each use as follows:
   a. Press Test button on receptacle to trip the GFCI device.
   b. The Reset button should extend, cutting off electricity to the receptacle.
   c. If above test fails, do not use receptacle until it is repaired or replaced.
   d. Press Reset button in for use.




**120 Volt GFCI Receptacle**

4. Plug in products.
5. When finished using the Generator, disconnect all electrical loads.

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

6. Turn off the Engine.
7. 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.

# 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.

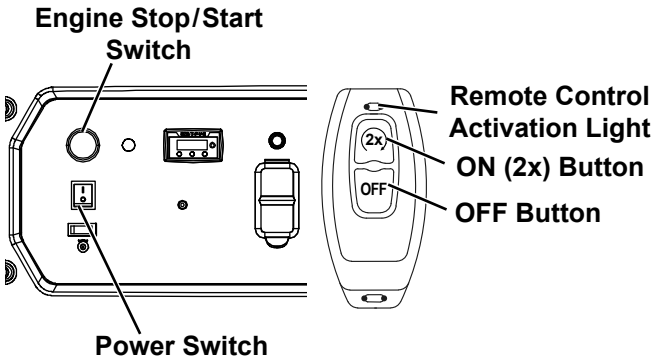
**Note:** The operational range of the Remote Control may decrease as the battery in the Remote becomes depleted.

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 (ON) position.
2. Push and hold the Engine Start/Stop Switch for up to 15 seconds until the Switch Indicator Light flashes green and red, 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 turn to green.



# Connecting Electrical Loads to the Generator

**Calculate Power Draw**

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

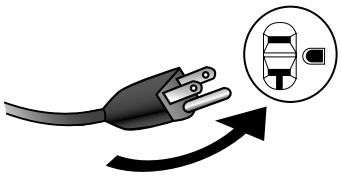
- The total combined load through the outlets on the Generator must not exceed the running power of the unit. Never exceed the running wattage for the Generator or any outlet amperage rating.
- Refer to appliance/tool owner's manuals to determine the wattage of electrical load devices.
- Long power cords 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 120/240 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.

c. Voltage sensitive appliances, tools, and equipment should be the last to be connected to the Generator. Plug voltage sensitive items such as TVs, DVD players, microwaves, and cordless telephones into a UL® Listed voltage surge protector (not included). Then, connect the surge protector into the Generator.

**IMPORTANT!** Failure to connect and operate appliances, tools, and equipment in this sequence can cause damage to the Generator, appliances, tools, and equipment and will **void** the Warranty of this Generator.

**Note: Do not allow the Generator to completely run out of fuel with devices attached.**
**A Generator's output may sharply spike as it runs out of fuel, causing damage to attached devices.**

**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.**

**Automatic Idle Down Switch**

1. Turn the Automatic Idle Switch ON to limit noise and fuel consumption for lighter generator loads. Engine speed (and frequency) are reduced when no load is detected. Engine runs at full speed (and frequency) when load above 75W is applied.

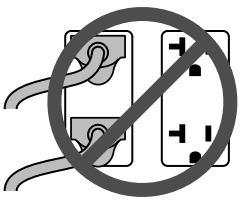
**Note:** Turn Automatic Idle Switch OFF when connected load is less than 300W.

2. Turn the Automatic Idle Switch OFF to operate Engine at full speed:
   a. when starting b. when a heavy load is applied

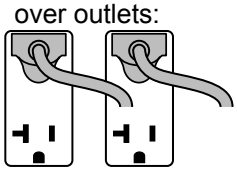
**IF ANY CIRCUIT BREAKERS TRIP CHECK THE FOLLOWING:**

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

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



Evenly distributed over outlets:



# 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 8,000 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 10,000 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 8,000)** | |
| **Largest Additional Start-up Watts** | |
| **Total Startup Watts needed for all loads (must be less than 10,000)** | |

**Example**

| Equipment | Running Watts |
|---|---|
| *Electric Water Heater (2,000 + 0)* | *2,000* |
| *Television (400 + 0)* | *400* |
| *Lawn Mower (1,200 + 1,200)* | *1,200* |
| *Hand Drill (600 + 600)* | *600* |
| | |
| | |
| | |
| **Total Running Watts (must be less than 8,000)** | *4,200* |
| **Largest Additional Start-up Watts** | *1,200* |
| **Total Startup Watts needed for all loads (must be less than 10,000)** | *5,400* |

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

**To Calculate Wattage:**
Volts and amps can be multiplied together to get watts (volts x amps = watts).

**To Calculate Additional Start-Up Watts (If They Are Not Listed)**
For equipment with a motor: Use the rated watts amount as an estimate of additional Start-up Watts.

For most lights or heaters: there are no additional start-up watts.

## Wattage Estimate Charts

**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 |

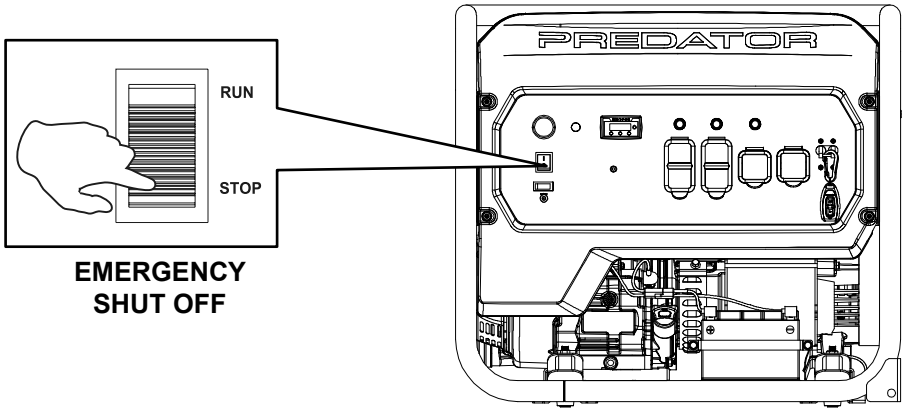
| HOUSEHOLD | | |
|---|---|---|
| **Device** | **Running Watts** | **Additional Start-up Watts** |
| Computer w/ Monitor | 800 | 0 |
| Electric Clothes Dryer | 5500 | 500 |
| Electric Range | 2100 | 0 |
| Electric Water Heater | 2000 | 0 |
| Light Bulb - 100 watts | 100 | 0 |
| Microwave - 1000 watts | 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.

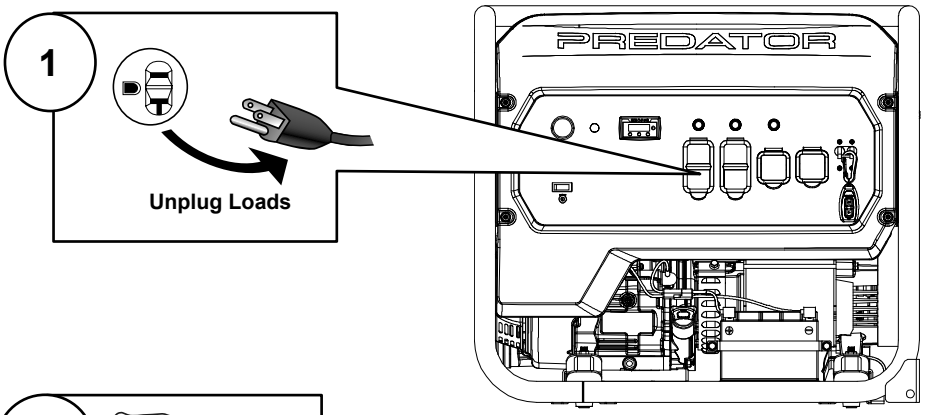



EMERGENCY SHUT OFF

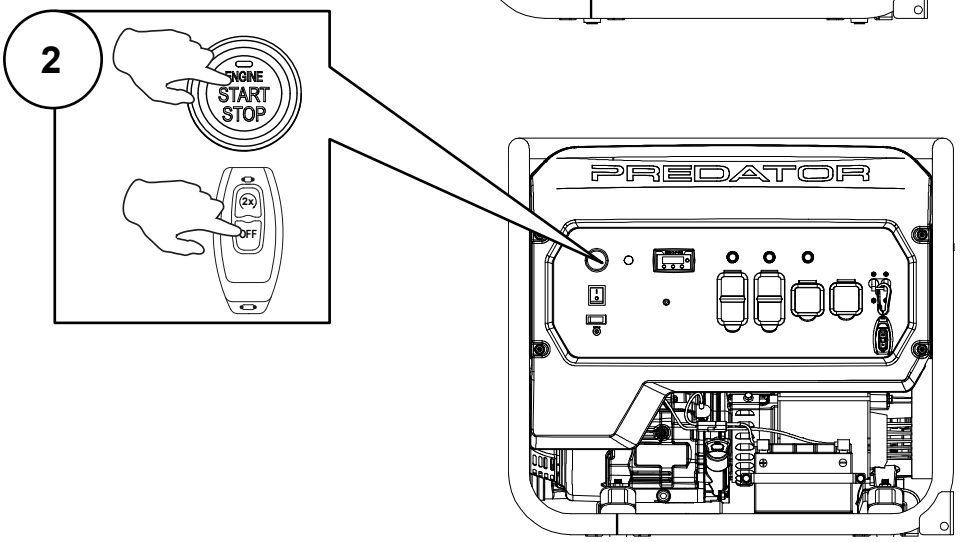
**NOTICE:** Generator shutoff under load may damage the Generator and attached equipment.

## Stopping the Engine Under Normal Conditions

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

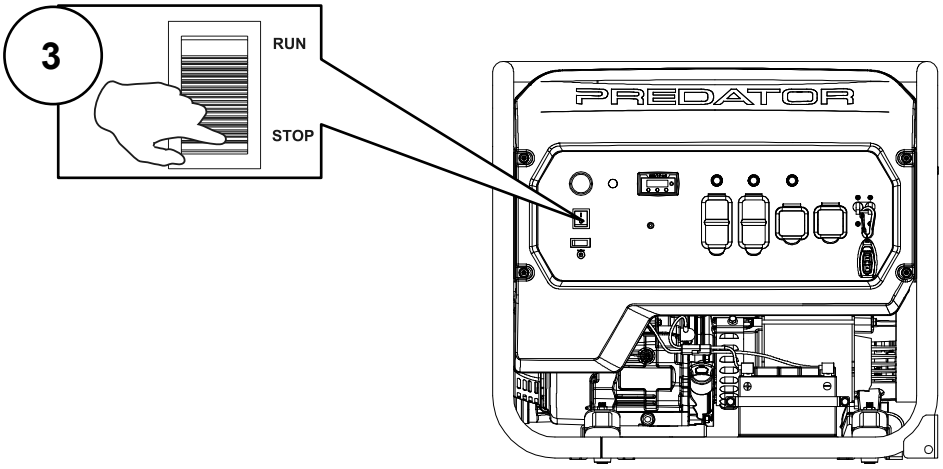



2. Slowly press and release the Engine Start/Stop Switch. Or slowly press and release the OFF button on the Stop/Start Remote Control.




**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 Engine/Battery Switch to STOP then RUN to reactivate standby mode.

3. Push the Power Switch to the STOP position.




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

4. Close the Fuel Valve.

## ⚠WARNING

**TO PREVENT SERIOUS INJURY FROM ACCIDENTAL STARTING:**
**Push the Power Switch of the equipment to its "STOP" position, wait for the engine to cool, and disconnect the spark plug cap before performing any inspection, maintenance, or cleaning procedures.**

**TO PREVENT SERIOUS INJURY FROM EQUIPMENT FAILURE:**
**Do not use damaged equipment. If abnormal noise, vibration, or excess smoking occurs, have the problem corrected before further use.**

**Follow all service instructions in this manual. The engine may fail critically if not serviced properly.**



**Many maintenance procedures, including any not detailed in this manual, will need to be performed by a qualified technician for safety. If you have any doubts about your ability to safely service the equipment or engine, have a qualified technician service the equipment instead.**

# Cleaning, Maintenance, and Lubrication Schedule

**Note:** This maintenance schedule is intended solely as a general guide. If performance decreases or if equipment operates unusually, check systems immediately. The maintenance needs of each piece of equipment will differ depending on factors such as duty cycle, temperature, air quality, fuel quality, and other factors.

**Note:** The following procedures are in addition to the regular checks and maintenance explained as part of the regular operation of the engine and equipment.

| Procedure | Before Each Use | Monthly or every 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. | Page |
|---|---|---|---|---|---|---|---|
| Brush off outside of engine | ✓ | | | | | | 13 |
| Check engine oil level | ✓ | | | | | | 13 |
| Check air cleaner | ✓ | | | | | | 13 |
| Change engine oil | | | | ✓ | | | 25 |
| Clean/replace air cleaner | | | ✓* | | | | 25 |
| Clean Spark Arrestor | | | | ✓ | | | 26 |
| Check and clean spark plug | | | | ✓ | | | 25 |
| Check/adjust valve clearance<br>Clean fuel tank and strainer | | | | | ✓** | | - |
| Clean carbon build-up from combustion chamber | | | | | | ✓** | - |
| Replace fuel line if necessary | | | | | | ✓** | - |

*Service more frequently when used in dusty areas.

**These items should be serviced by a qualified technician.

## Checking and Filling Fuel



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

1. Clean the Fuel Cap and the area around it.
2. Unscrew and remove the Fuel Cap.

**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.**

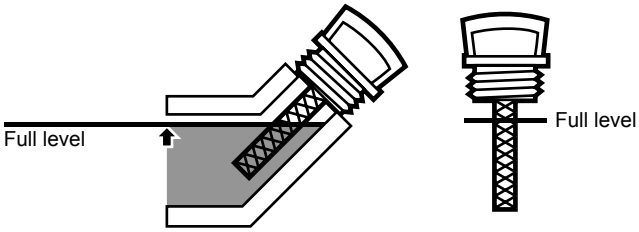
**Note: Do not use gasoline that has been stored in a metal fuel container or a dirty fuel container. It can cause particles to enter the Carburetor, affecting engine performance and/or causing damage.**

3. 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.
4. Then replace the Fuel Cap.
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.

## Engine Oil Change

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

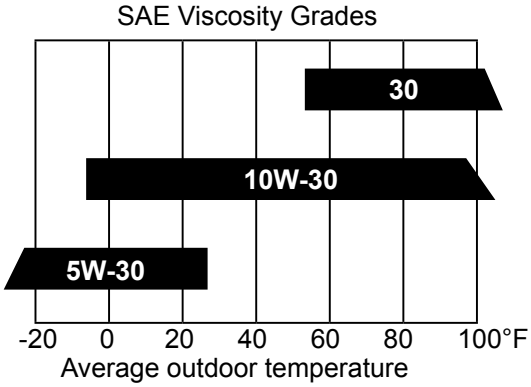
1. Make sure the engine is stopped and is level.
2. Close the Fuel Valve.
3. Place a drain pan (not included) underneath the crankcase's drain plug.
4. Remove the drain plug and, if possible, tilt the crankcase slightly to help drain the oil out. Recycle used oil.
5. Replace the drain plug and tighten it.
6. Clean the top of the Dipstick and the area around it. Remove the Dipstick by turning it counterclockwise, and wipe it off with a clean, lint free rag.




7. 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:** Do not thread the dipstick in when checking the oil level.

The SAE Viscosity Grade chart shows other viscosities to use in different average temperatures.

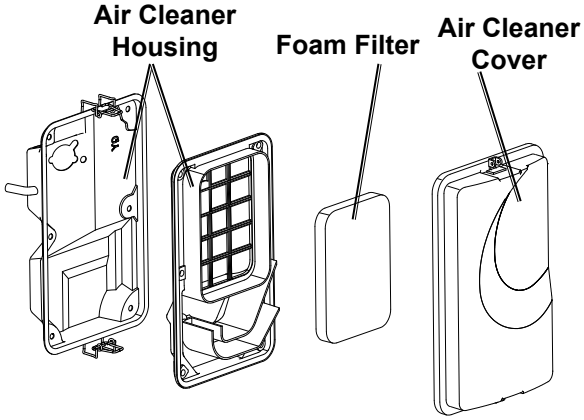



8. Thread the dipstick back in clockwise.

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

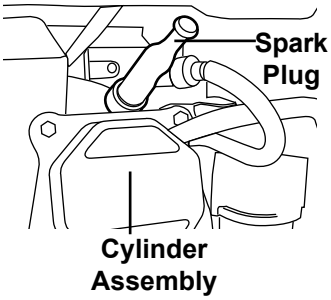
## Air Filter Maintenance

1. Remove the Air Filter Cover and the air filter(s) and check for dirt. Clean as described below.
2. **Cleaning:**
   - For paper filters:
     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 filter.
   - For foam filters:
     Wash the filter 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.
3. Install the cleaned filter(s). Secure the Air Filter Cover before use.




## Spark Plug Maintenance

1. Disconnect spark plug cap from end of plug. Clean out debris from around spark plug.
2. Using a spark plug wrench, remove the spark plug.




3. 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.

| Recommended Spark Plugs | |
|---|---|
| LG® / TORCH® | F6RTC |

**NOTICE:** Using an incorrect spark plug may damage the engine.

4. 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.
5. 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.

6. Apply dielectric spark plug boot protector (not included) to the end of the spark plug and reattach the cap securely.

**Spark Arrestor Maintenance**

## ⚠WARNING

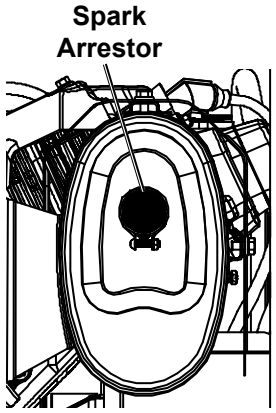
**TO PREVENT SERIOUS INJURY AND FIRE: Operate only with proper spark arrestor installed.**



**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. Wait for Engine and Muffler to cool completely.
2. Remove Spark Arrestor from end of exhaust.
3. Clean the Spark Arrestor using a stiff 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.**



# 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.
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 24*.

   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.**

   **Draining the Carburetor**

   **⚠WARNING! To prevent serious injury from fire:**
   **Close the Fuel Valve before draining the Carburetor.**

   After closing the Fuel Valve, place an appropriate container under the Carburetor and carefully remove the Drain Bolt from the bottom of the Carburetor Bowl, allowing the fuel to drain completely. Replace the Drain Bolt after draining.
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:**

   When Generator is not in use or will be stored for extended periods, use a Battery Charger/Maintainer to maintain the Battery:

   a. Plug the Charger/Maintainer power cord into the Battery Charging Port on the Generator.

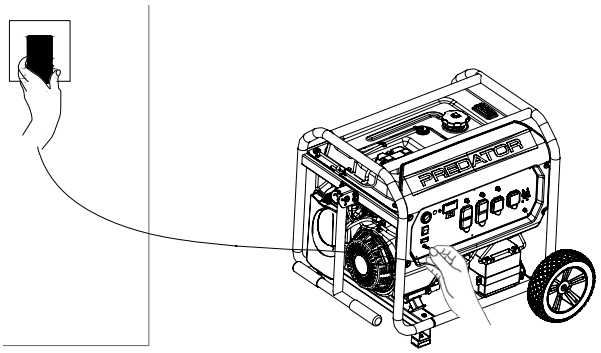
   b. Plug the Charger/Maintainer into an electrical outlet.

   c. Disconnect the Charger/Maintainer before using the Generator.

   If a Battery charger maintainer is unavailable:

   a. Disconnect battery cables (if equipped).

   b. Recharge batteries monthly while in storage.




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.

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. Choke not in START position, cold engine. | 2. Move Choke to START position. |
| | 3. Gasoline with more than 10% ethanol used. (E15, E20, E85, etc.) | 3. Clean out ethanol rich gasoline from fuel system. Replace components damaged by ethanol. Use fresh 87+ octane stabilizer-treated unleaded gasoline only. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).** |
| | 4. Low quality or deteriorated, old gasoline. | 4. Use fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).** |
| | 5. Carburetor not primed. | 5. Pull on Starter Handle to prime. |
| | 6. Dirty fuel passageways. | 6. Clean out passageways using fuel additive. Heavy deposits may require further cleaning. |
| | 7. Carburetor needle stuck. Fuel can be smelled in the air. | 7. **Gently** tap side of carburetor float chamber with screwdriver handle. |
| | 8. Too much fuel in chamber. This can be caused by the carburetor needle sticking. | 8. Turn Choke to RUN position. Remove spark plug and pull the start handle several times to air out the chamber. Reinstall spark plug and set Choke to START position. |
| | 9. Clogged Fuel Filter. | 9. Replace Fuel Filter. |
| | IGNITION (SPARK) RELATED: | IGNITION (SPARK) RELATED: |
| | 1. 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. Push Power Switch to RUN. |
| | 6. Circuit Breaker tripped. | 6. Reset Circuit Breaker. Check wiring and starter motor if breaker continues to trip. |
| | 7. Incorrect spark timing or faulty ignition system. | 7. Have qualified technician diagnose/ repair ignition system. |
| | COMPRESSION RELATED: | COMPRESSION RELATED: |
| | 1. Cylinder not lubricated. Problem after long storage periods. | 1. Pour tablespoon of oil into spark plug hole. Crank engine a few times and try to start again. |
| | 2. Loose or broken spark plug. (Hissing noise will occur when trying to start.) | 2. Tighten spark plug. If that does not work, replace spark plug. If problem persists, may have head gasket problem, see #3. |
| | 3. Loose cylinder head or damaged head gasket. (Hissing noise will occur when trying to start.) | 3. Tighten head. If that does not remedy problem, replace head gasket. |
| | 4. Engine valves or tappets mis-adjusted or stuck. | 4. Have qualified technician adjust/ repair valves and tappets. |
| | ENGINE OIL RELATED: | ENGINE OIL RELATED: |
| | 1. Low engine oil. | 1. Fill engine oil to proper level. Check engine oil before EVERY use. |
| | 2. Engine is over filled with oil. | 2. Remove excess oil. Fill engine oil to proper level. See Checking and Filling Engine Oil on page 15. |
| | 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.<br>2. No Battery or defective Battery installed.<br>3. Engine Start/Stop Switch flashes red - Battery is low.<br>4. Electric Start fuse is blown.<br>5. Start/Stop Remote Control is not paired with Generator.<br>6. Generator is not picking up Stop/Start Remote Control signal consistently.<br>7. Engine not restarting remotely after CO shutdown event. | 1. Clean and replace Spark Arrestor.<br>2. Install new Battery<br>3. Charge Battery with Battery Charger/ Maintainer or start Generator manually and allow to run for 5 hours.<br>4. Replace fuse with similar size fuse.<br>5. Pair Remote Control to Generator. See Reprogramming the Start/Stop Remote Control on page 19<br>6. Replace the Remote Control Battery; press on Remote Button longer; stay within operational range of Remote.<br>7. 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.<br>2. Incorrect spark plug gap or damaged spark plug.<br>3. Defective spark plug cap.<br>4. Old or low quality gasoline.<br>5. Incorrect compression. | 1. Check cap and wire connections.<br>2. Re-gap or replace spark plug.<br>3. Replace spark plug cap.<br>4. Use only fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**<br>5. Diagnose and repair compression. (Use **Engine will not start: COMPRESSION RELATED** section.) |
| Engine stops suddenly | 1. Faulty magneto.<br>2. Carbon monoxide level high. Red light on Carbon Monoxide Sensor illuminates.<br>3. CO Sensor Alarm flashes yellow continually shortly after starting.<br>4. CO Sensor Alarm flashes yellow continually after longer period of operation.<br>5. Fuel tank empty or full of impure or low quality gasoline.<br>6. Low oil shutdown.<br>7. Defective tank vent system creating vacuum, preventing proper fuel flow.<br>8. Disconnected or improperly connected spark plug cap. | 1. Have qualified technician service magneto.<br>2. Leave area immediately and allow area to ventilate thoroughly.<br>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.<br>4. Make sure to operate Generator within rated ambient temperature; maintain minimum 5 ft. clearance from all sides.<br>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.).**<br>6. Fill engine oil to proper level. Check engine oil before EVERY use.<br>7. Test/replace fuel tank cap.<br>8. Secure spark plug cap. |
| Engine stops when under heavy load | 1. Dirty air filter<br>2. Engine running cold. | 1. Clean element.<br>2. Allow engine to warm up prior to operating equipment. |
| Engine knocks | 1. Old or low quality gasoline.<br>2. Engine overloaded.<br>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.).**<br>2. Do not exceed equipment's load rating.<br>3. Have qualified technician diagnose and service engine. |

| Problem | Possible Causes | Probable Solutions |
|---|---|---|
| Engine backfires | 1. Impure or low quality gasoline. | 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. Engine too cold. | 2. Use cold weather fuel and oil additives to prevent backfiring. |
| | 3. Intake valve stuck or overheated engine. | 3. Have qualified technician diagnose and service engine. |
| | 4. Incorrect timing. | 4. Check engine timing. |
| Attached device begins to operate abnormally | 1. Problem with device. | 1. Immediately unplug device. Have device repaired by a qualified technician, or replace device. |
| | 2. Rated load capacity exceeded. | 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. | 1. Turn off and unplug device, then plug it back in again and turn on. |
| | 2. Circuit Breaker tripped. | 2. Turn off and unplug device, reset Circuit Breaker, plug in device and turn on. |
| | 3. GFCI activated. | 3. Turn off and unplug product. Test GFCI receptacle. If functioning property reset GFCI, plug in product and turn on. |
| | 4. Product needs service. | 4. Have product repaired. |



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

# 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

**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 193175571878 when ordering parts.

# Parts List

| Part | Description | Qty. |
|---|---|---|
| 1 | Clamp | 2 |
| 2 | Cylinder Head Cover Outer | 1 |
| 3 | Limited Plate | 1 |
| 4 | Breather Tube | 1 |
| 5 | Gasket, Cylinder Head Inner | 1 |
| 6 | Bolt, M6x20 | 4 |
| 7 | Cover Subassembly, Cylinder Head | 1 |
| 8 | Cylinder Head Cover Gasket | 1 |
| 9 | Cross-Recessed Pan Head Screw, Spring Washer & Flat Washer Assy | 1 |
| 10 | Plate, Cylinder Head Cover Breather Stopper | 1 |
| 11 | Cylinder Head Cover Breather | 1 |
| 12 | Cover Plate | 1 |
| 13 | Gasket, Breather | 1 |
| 14 | Bolt, M6x12 | 15 |
| 15 | Cylinder Head Bolt | 4 |
| 16 | Spark Plug | 1 |
| 17 | Cylinder Head Subassembly | 1 |
| 18 | Stud Bolt | 2 |
| 19 | Gasket, Inlet | 1 |
| 20 | Carburetor Insulator Plate | 1 |
| 21 | Carburetor Gasket Seal | 1 |
| 22 | ECU Assembly | 1 |
| 23 | Clamp | 2 |
| 24 | Fuel Pipe | 1 |
| 25 | Bolt, M6x28 | 2 |
| 26 | Air Cleaner Gasket Seal | 1 |
| 27 | Air Cleaner | 1 |
| 28 | Nut with Flange M6 | 2 |
| 29 | Gasket, Cylinder Head | 1 |
| 30 | Position Pin - Type A | 2 |
| 31 | Valve Rocker Subassembly | 2 |
| 32 | Rocker Shaft Subassembly | 2 |
| 33 | Cylinder Head Cover Pin Limit Plate | 1 |
| 34 | Valve Lifter Subassembly | 2 |
| 35 | Valve Tappet | 2 |
| 36 | Valve Rotator | 2 |
| 37 | Seat, Valve Spring | 2 |
| 38 | Clamp, Valve Lock | 4 |
| 39 | Valve Spring | 2 |
| 40 | Guide, Seal | 1 |
| 41 | Valves Set | 1 |
| 42 | Piston Ring Assy | 1 |
| 43 | Piston | 1 |
| 44 | Piston Pin | 1 |
| 45 | Piston Pin Clip | 2 |
| 46 | Connecting Rod | 1 |
| 47 | Bolt, M6x28 | 4 |
| 48 | Ignition Coil | 1 |
| 49 | Crankcase Subassembly. | 1 |

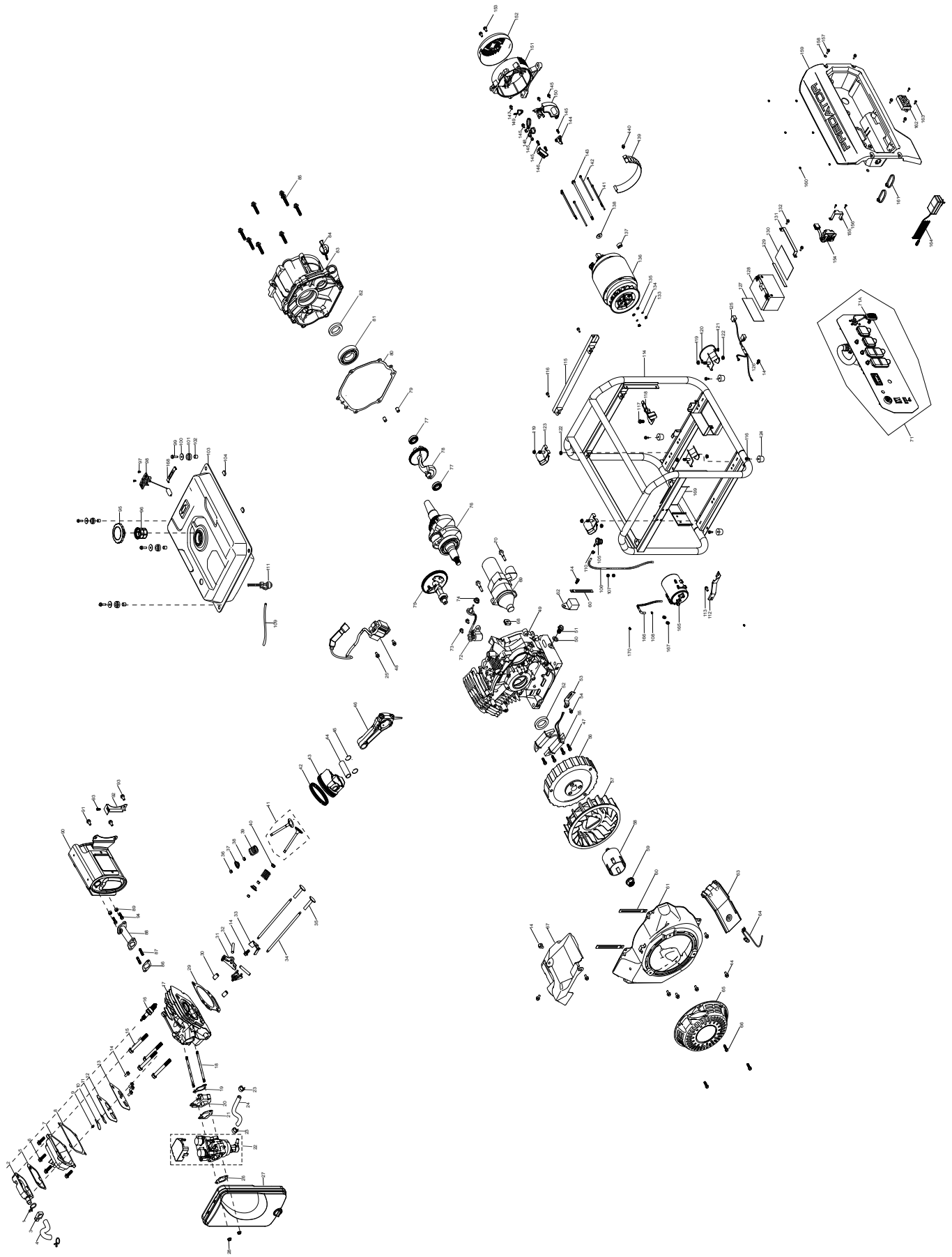
| Part | Description | Qty. |
|---|---|---|
| 50 | Flat Washer | 2 |
| 51 | Drain Plug Bolt | 2 |
| 52 | Oil Seal | 1 |
| 53 | Clamp, Charge Coil | 1 |
| 54 | Bolt, M6x10 | 1 |
| 55 | Charge Coil Subassembly | 1 |
| 56 | Flywheel Subassembly | 1 |
| 57 | Impeller | 1 |
| 58 | Starter Pulley | 1 |
| 59 | Flywheel Nut | 1 |
| 60 | Wire Clip | 3 |
| 61 | Shroud | 1 |
| 62 | Oil Cover | 1 |
| 63 | Cylinder Body Shroud | 1 |
| 64 | Temperature Sensor | 1 |
| 65 | Starter Assy, Recoil | 1 |
| 66 | Bolt, M6x8 | 3 |
| 67 | Cylinder Body Shroud | 1 |
| 68 | Rubber Plug | 1 |
| 69 | Starting Motor Assembly | 1 |
| 70 | Bolt, M8x35 | 2 |
| 71 | Control Panel Subassembly | 1 |
| 71A | Remote | 1 |
| 72 | Sensor, Engine Oil | 1 |
| 73 | Bolt, M6x16 | 2 |
| 74 | Nut with Flange M10 | 1 |
| 75 | Camshaft Assy. | 1 |
| 76 | Crankshaft Assy. | 1 |
| 77 | Deep Groove Ball Bearing - P53 | 2 |
| 78 | Balancing Shaft Assy | 1 |
| 79 | Position Pin - Type A | 2 |
| 80 | Gasket, Crankcase | 1 |
| 81 | Deep Groove Ball Bearing - P53 | 1 |
| 82 | Oil Seal | 1 |
| 83 | Crankcase Cover | 1 |
| 84 | Oil Dipstick Subassembly | 1 |
| 85 | Bolt, M8x40 | 7 |
| 86 | Gasket, Exhaust Outlet | 2 |
| 87 | Stud Bolt | 2 |
| 88 | Exhaust Pipe | 1 |
| 89 | Nut M8 | 2 |
| 90 | Muffler Assy. | 1 |
| 91 | Bolt, M8x16 | 2 |
| 92 | Muffler Support | 1 |
| 93 | Bolt, M8x16 | 2 |
| 94 | Bolt, M8x25 | 2 |
| 95 | Fuel Tank Cover | 1 |
| 96 | Fuel Strainer | 1 |
| 97 | Cross Recessed Countersunk Head Screw (Grade 4.8) | 2 |
| 98 | Oil Leveler Assy | 1 |
| 99 | Bolt, M6x25 | 4 |

# Parts List (continued)

| Part | Description | Qty. |
|---|---|---|
| 100 | Flat Washer - Grade A | 4 |
| 101 | Fuel Tank Rubber Sleeve | 4 |
| 102 | Bush | 4 |
| 103 | Fuel Tank | 1 |
| 104 | Buffering Pad Support | 2 |
| 105 | Valve, One Way | 1 |
| 106 | Hose, Fuel Steam Rubber | 1 |
| 107 | Protective Rubber Sleeve | 2 |
| 108 | Pipe Clamp | 1 |
| 109 | Rubber Sheath | 1 |
| 110 | Clamp | 1 |
| 111 | Fuel Switch Assembly | 1 |
| 112 | Air Cleaner Support | 1 |
| 113 | Bolt, M6x12 | 1 |
| 114 | Engine Frame Assy | 1 |
| 115 | Crosspiece Subassembly | 1 |
| 116 | Bolt, M6x12 | 6 |
| 117 | Bolt, M8x16 | 1 |
| 118 | Baffle Plate | 1 |
| 119 | Nut with Flange M10 | 4 |
| 120 | Grounding | 1 |
| 121 | External Teeth Serrated Lock Washer | 1 |
| 122 | Nut with Flange M8 | 4 |
| 123 | Engine Frame Cushion | 4 |
| 124 | Seat, Engine Frame Shock Absorption | 4 |
| 125 | Wire, Anode | 1 |
| 126 | Wire, Cathode | 1 |
| 127 | Thermal Baffle | 1 |
| 128 | Battery | 1 |
| 129 | Thermal Baffle | 1 |
| 130 | Thermal Baffle | 1 |
| 131 | Clamp, Battery | 1 |
| 132 | Bolt, M6x16 | 2 |
| 133 | Stator Nut | 2 |
| 134 | Standard Spring Washer | 2 |
| 135 | Flat Washer - Grade A | 2 |
| 136 | Motor Assy. | 1 |

| Part | Description | Qty. |
|---|---|---|
| 137 | Stopper, Motor Right Cover | 1 |
| 138 | Flat Washer - Grade A | 1 |
| 139 | Shroud, Motor | 1 |
| 140 | Bolt, M5x10 | 1 |
| 141 | Stator Bolt | 2 |
| 142 | Stator Bolt | 4 |
| 143 | Rotor Bolt | 1 |
| 144 | Brush, Carbon | 1 |
| 145 | Bolt, M5x16 | 7 |
| 146 | Terminal Block | 1 |
| 147 | Bolt, M5x12 | 1 |
| 148 | Band | 2 |
| 149 | Grounding | 1 |
| 150 | Voltage Regulator | 1 |
| 151 | Motor Support | 1 |
| 152 | Motor Tail Cover | 1 |
| 153 | Bolt, M5x12 | 2 |
| 154 | Carbon Monoxide Alarm | 1 |
| 155 | Pressure Plate | 1 |
| 156 | Hex Lobular Pan Head Self-Tapping Screws | 2 |
| 157 | Cross-Recessed Pan Head Screw | 4 |
| 158 | Flat Washer - Grade A | 4 |
| 159 | Side Panel | 1 |
| 160 | Nut with Flange M4 | 6 |
| 161 | Band | 2 |
| 162 | Control Module | 1 |
| 163 | Cross-Recessed Pan Head Self-Tapping Screw | 2 |
| 164 | Charger Module | 1 |
| 165 | Carbon Canister | 1 |
| 166 | Air Cleaner Hose | 1 |
| 167 | Nut with Flange | 2 |
| 168 | Oil Lever Plate | 1 |
| 169 | Stopper | 1 |
| 170 | Pipe Clamp | 1 |

# 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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