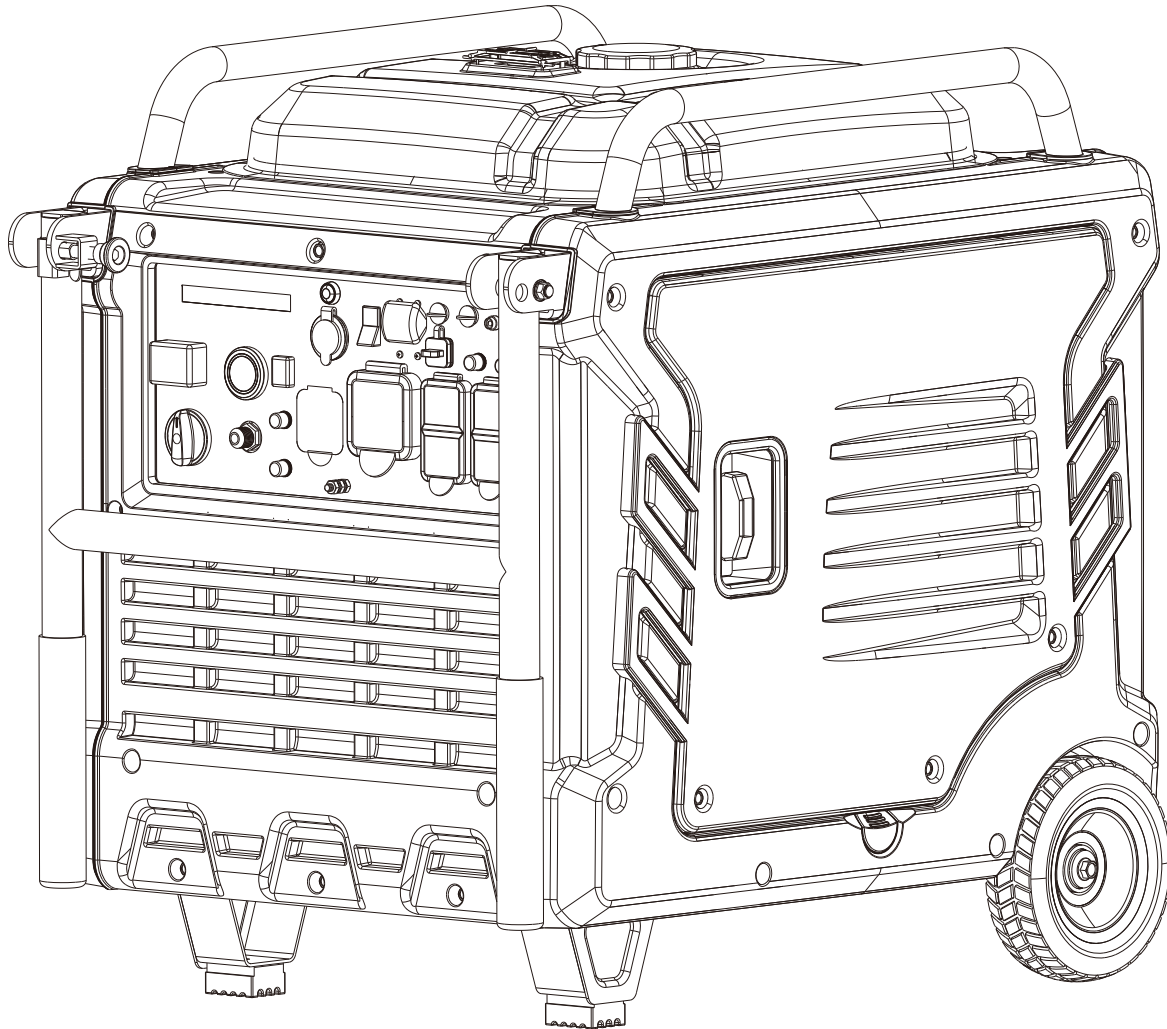




Model: PGD105TiSCO

10500 Watt Tri-Fuel Inverter Generator
OPERATOR'S MANUAL



Warning: The Engine Exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.



DO NOT RETURN TO STORE!

HAVE QUESTIONS OR NEED SERVICE?



866-591-8921



support@pulsar-products.com

Table of Contents

Safety Warnings	1	Connecting LPG Tank	9
Safety Instructions	2	Connect the Natural Gas (NG) Supply Line.....	10
CO Sentry	4	Battery	11
Names of Components	5	Operation	13
Control Panel	6	Maintenance	17
Specifications	7	Troubleshooting	21
Preparation	8	Electrical Schematic	24
Adding Engine Oil	8		

Introduction

Thank you for choosing Pulsar Products!
This manual provides instruction on how to operate and use your generator safely and correctly; be sure to read and understand this manual before using your generator. If you have ANY questions, please phone 866.591.8921 M-F or email support@pulsar-products.com BEFORE using your generator.

All details and images in this Manual are believed to be accurate at the time of publication.

Pulsar Products reserves the right to make updates to this manual at any time.

Please contact Pulsar Support at 866.591.8921 or email support@pulsar-products.com for the latest updates.

This manual is a permanent part of the generator set. If the generator is resold, kindly include this manual with the generator.

Safety Warnings and Notices

WARNING: Save This Manual For Future Reference

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

Safety Definitions

The words DANGER, WARNING, CAUTION, and NOTICE are used throughout this manual to highlight important information. Make sure that the meaning of this safety information is known to all who operate, perform maintenance on, or are near the generator.

 This safety alert symbol appears with most safety statements. It means to pay attention and be alert, your safety is involved! Please read and abide by the message that follows the safety alerts symbol.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE


Failure to follow the instruction may result in the damage to your generator and other property.

Safety Instructions

Safety Symbols

Follow all safety information contained in this manual and on the generator.

Before operating your generator, you must read and understand the manual and familiarize yourself with the safe operation practices.

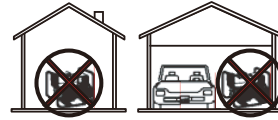
SYMBOL	DESCRIPTION
	Safety Alert Symbol
	Electrocution Hazard
	Asphyxiation Hazard
	Burn Hazard. DO NOT touch hot surfaces.
	Electrical Shock Hazard
	Fire Hazard
	Maintain Safe Distance
	Lifting Hazard
	Read Manufacturer's Instructions
	DO NOT Operate in Wet Conditions
	Ground. Consult with electrician to determine grounding requirements before

Safety Precautions

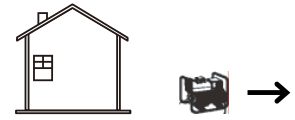
DANGER

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.

WARNING

POISONOUS GAS HAZARD: Engine exhaust contains carbon monoxide, a poisonous gas that could kill you in minutes. You **CAN NOT** smell it, see it, or taste it. Even if you do not smell exhaust fumes, you could still be exposed to carbon monoxide gas.

Operate this product **ONLY** outside far away from windows, doors, and vents to reduce the risk of carbon monoxide gas from accumulating and potentially being drawn towards occupied spaces.

Install battery-operated carbon monoxide alarms or plug-in carbon monoxide alarms with battery backup according to the manufacturer's instructions. Most smoke alarms cannot detect carbon monoxide gas.

DO NOT run this product inside homes, garages, basements, crawlspaces, sheds, or other partially enclosed spaces even if using fans or opening doors and windows for ventilation. Carbon monoxide can quickly build up in these spaces and can linger for hours, even after this product has shut off.

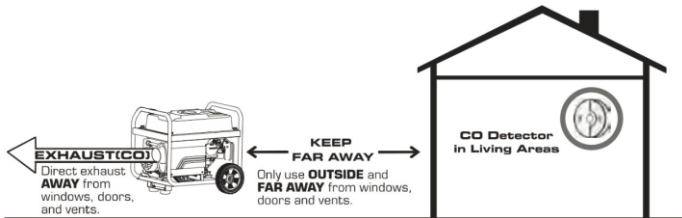
ALWAYS place this product downwind and point the engine exhaust away from occupied spaces. If you start to feel sick, dizzy, or weak while using this product, shut it off and get to fresh air **IMMEDIATELY** - then see a doctor; you may have carbon monoxide poisoning.

Safety Instructions

Correct Usage

Example location to reduce risk of carbon monoxide poisoning

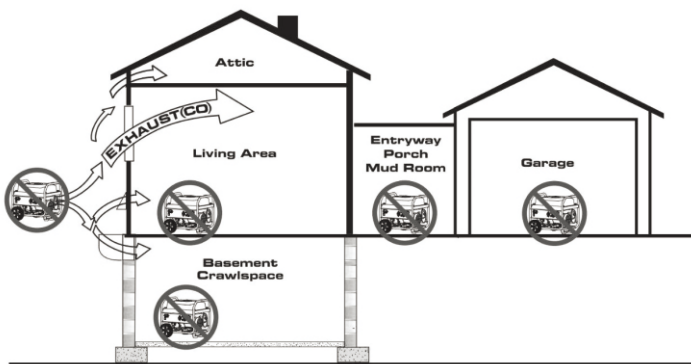
- ONLY use outside and downwind, far away from windows, doors, and vents.
- Direct exhaust away from occupied spaces.



Incorrect Usage

Do not operate in any of the following locations:

- Near any Door, Window, or Vent
- Garage
- Basement
- Crawl Space
- Living Area
- Attic
- Entry Way
- Porch
- Mud Room



Starter cord kickback (rapid retraction) could pull hand and arm toward the engine faster than you can let go which could cause broken bones, fractures, bruises, sprains, or other serious injuries.



Fuel and its vapors are extremely flammable and explosive which could cause burns, fire, or explosion resulting in death or serious injury and/or property damage.

When Adding Or Draining Gasoline

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

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

When Starting Equipment

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

When Operating Equipment

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

Safety Instructions

NOTE

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

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

Shut off the generator if:

- Electrical output is lost.
- Equipment sparks, smokes, or emits flames.
- Unit vibrates excessively.

Parallel Kit Precautions



To prevent serious injury, death, and generator and/or equipment damage from electric shock and fire:

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

Carbon Monoxide Safety

Carbon Monoxide

Generators are very convenient, but they can also be very dangerous. All fuel-burning appliances and equipment release a poisonous gas called carbon monoxide. Carbon monoxide (also known as CO) can be dangerous for humans and pets, even in small amounts, because it blocks oxygen from getting into your body. Carbon monoxide poisoning can lead to death in a very short time. It is odorless, tasteless and invisible, so you may be exposed without knowing it. That is why carbon monoxide is sometimes called "the silent killer".

CO Sentry

The CO Sentry system was created to protect from dangerous carbon monoxide. Just like the detector for your home the CO Sentry tests the air for dangerous levels of carbon monoxide. If dangerous levels of carbon monoxide are detected this generator will automatically shutoff.



Automatic shutoff accompanied with a flashing RED light in the CO Sentry portion of the control panel is an indication that the generator was improperly located. If you start to feel sick, dizzy, weak, or carbon monoxide detectors in your home indicate an alarm, get to fresh air immediately. Call emergency services. You may have carbon monoxide poisoning.

CO Sentry Indicator Lights

RED

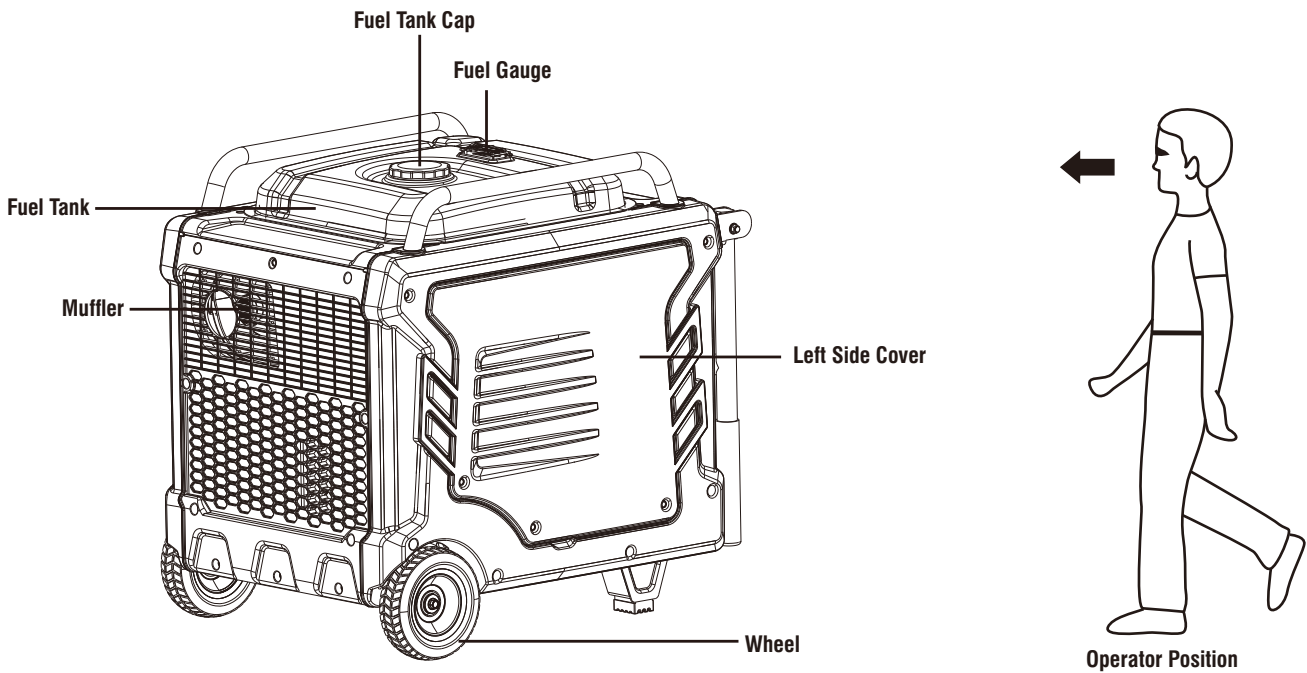
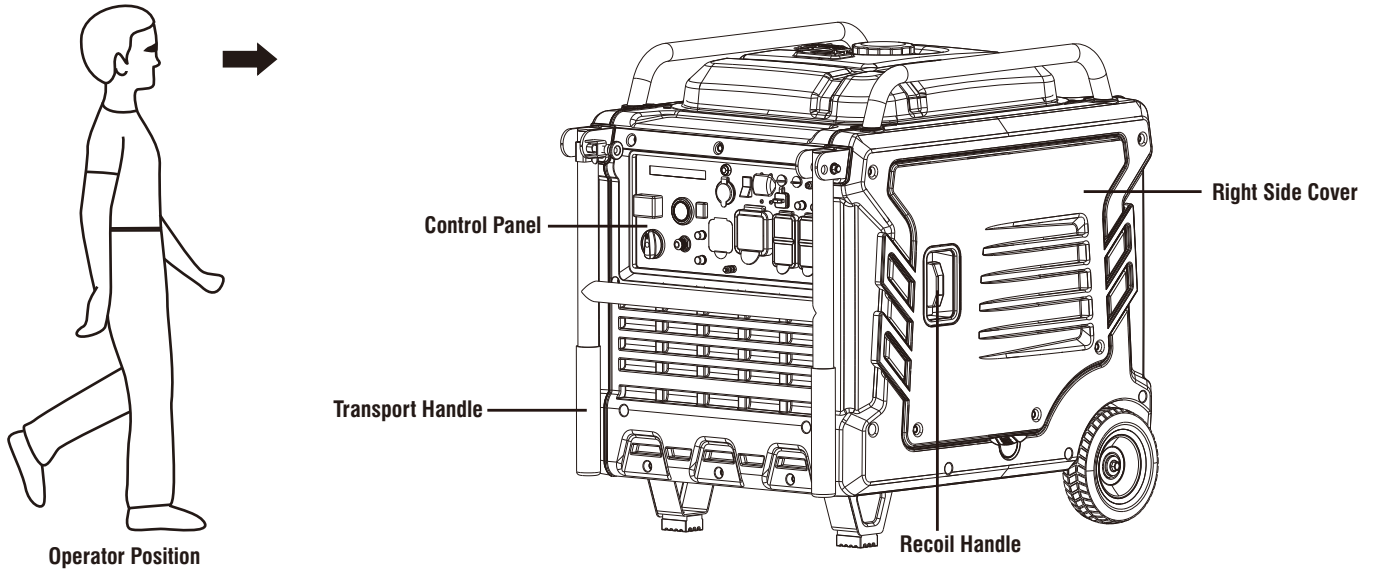
Carbon monoxide has accumulated around the generator. After shut-off, the RED indicator light in the CO Sentry area of the control panel will flash to provide notification that the generator was shutoff due to an accumulating CO hazard. The RED light will flash for at least five minutes after a CO shut-off. Move the generator to an open, outdoor area far away from occupied spaces with exhaust pointed away. Once relocated to a safe area, the generator can be restarted. Introduce fresh air and ventilate the area where the generator had shut down.

YELLOW

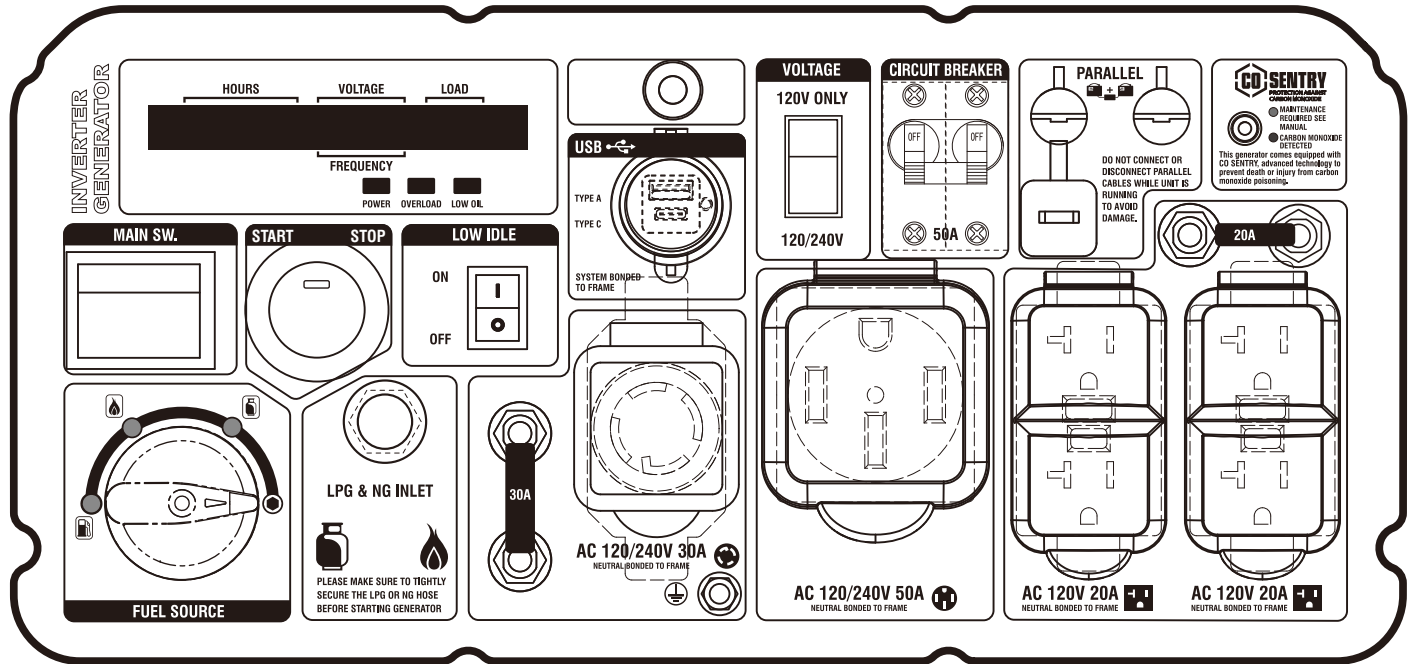
A CO Sentry system fault occurred. When a system fault occurs, the generator is automatically shut down and the YELLOW indicator light in the CO auto-shutoff area of the control panel will flash to provide notification that a fault has occurred. The YELLOW light will flash for at least five minutes after a fault. The generator can be re-started, but may continue to shutoff.

Components

Before operating your generator, you must read and understand the manual and familiarize yourself with the safe operation practices.



Control Panel



Specifications

Engine	Engine Model	192F/P-2
	Engine Type	Single Cylinder, Four Stroke, Air Cooled, Overhead Valve
	Cylinder Diameter×Stroke (mm)	92x69
	Displacement(cc)	458
	Compression Ratio	8.5±1
	Gas Distribution Mode	OHV
	Cooling Mode	Forced Cold Air
	Output Power(kW/r/min)	10.5/3600
	Starting Mode	Electric and Manual Recoil
	Fuel Tank Capacity(US gallon)	6.9 (26L)
	Type And Grade Of Fuel	Unleaded Gasoline or LPG(Propane)
	Lubricating Oil Capacity(L)	1.1 (37 fl oz)
	Lubricating Oil Type	SAE 10w30, API index 'SJ' or better
	Lubrication Way	Sling/Splash Lubrication
Generator	Noise dB(7m@50% load)	62
	Rated Watts	8500W(Gasoline) 8000W(Propane) 6800W(Methane)
	Peak Watts	10500W(Gasoline) 9500W(Propane) 8400W(Methane)
	Rated Voltage(V)	120/240
	Rated Frequency(Hz)	60
	Power Factor	1.0
	Number of Phase	Single phase
	DC Output	5V/3A
Configure	Electric Machinery	Permanent Magnet
	Voltage Regulation	Controller Regulation
	Frequency regulation	Controller Regulation
Dimensions	32.9"x24.6"x31.9" (785×575x745mm)	
Net Weight	112kg (246.9lbs.)	

Preparation

Preparation

Your generator requires some assembly. This unit ships from our factory without oil; it must be properly filled with oil before operation.

Unpacking

1. Set the shipping carton on a solid, flat surface.
2. Remove everything from the carton except the generator.
3. Using the carrying handles of the unit, carefully remove the generator from the box (two people lifting is recommended).

Add Engine Oil



DO NOT attempt to crank or start the engine before it has been properly filled with the recommended type and amount of oil. Damage to the generator because of failing to follow these instructions will void your warranty.

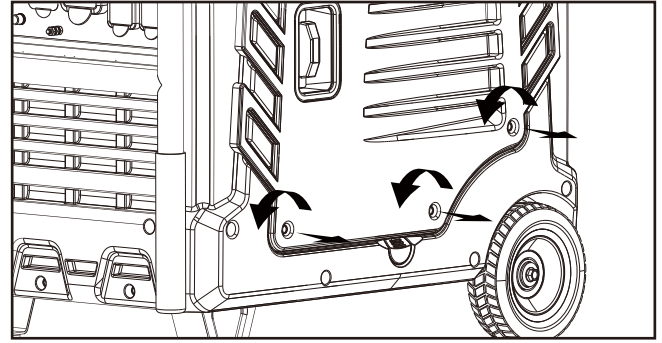


Failure to follow the instruction may result in the damage to your generator and other property.

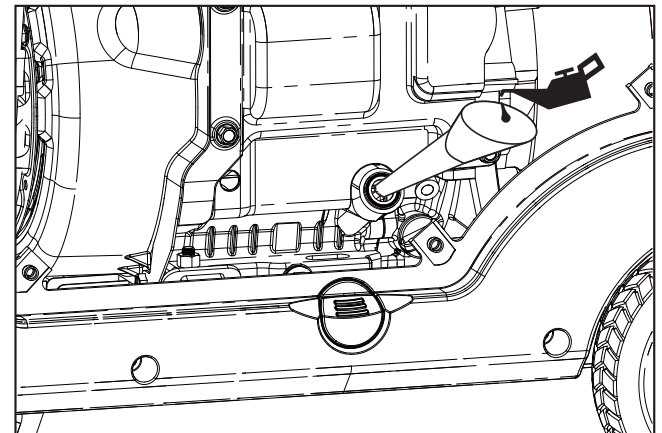
If running the generator in extreme temperatures, refer to the following chart for recommended oil type.

Recommended Engine Oil Type	
10W-30	→
5W-30	←
10W-40	→
5W-30 Full Synthetic	←
°F	-20 0 20 40 60 80 100 120
°C	-28.9 -17.8 -6.7 4.4 15.6 26.7 37.8 48.9
Ambient temperature	

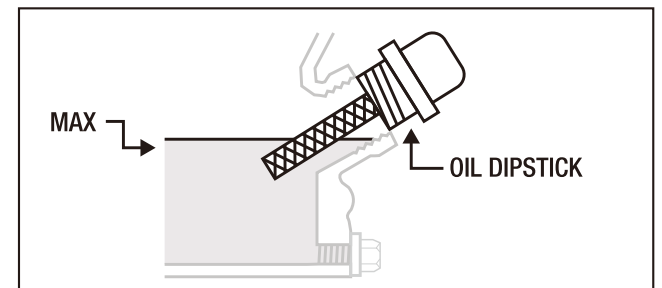
1. Place the generator on a solid, flat, level surface.
2. On the left side of the generator, loosen the screws and remove the maintenance cover.



3. Remove oil fill cap/dipstick to add oil.
4. Using a funnel, as needed, add the appropriate type of oil until the oil level is at the proper level. SAE 10W-30 oil is recommended for general use. DO NOT OVERFILL. Replace oil fill cap/dipstick and secure maintenance cover.



5. Check engine oil level daily and add as needed.



Once the oil has been added, a visual check should show oil about 1-2 threads from running out of the fill hole. When using the dipstick to check the oil level, DO NOT screw in the dipstick while checking.

Preparation

NOTICE

Check oil level often during the break-in period. Refer to the Maintenance section for recommended service intervals.

CAUTION

This engine is equipped with a low oil shut-off and will stop when the oil level in the crankcase falls below a critical level.

NOTICE

The first 5 hours of run time are the break-in period for the unit. During the break-in period stay at or below 50% of the running watt rating and vary the load occasionally to allow stator windings to heat and cool. Adjusting the load will also cause engine speed to vary slightly and help seat piston rings. After the 5-hour break-in period, change the oil.

NOTICE

Synthetic oil may be used after the 5-hour initial break-in period. Using synthetic oil does not extend the recommended oil change interval. Full synthetic 5W-30 oil will aid in starting in cold ambient <math><41^{\circ}\text{F}</math> (5°C) temperatures.

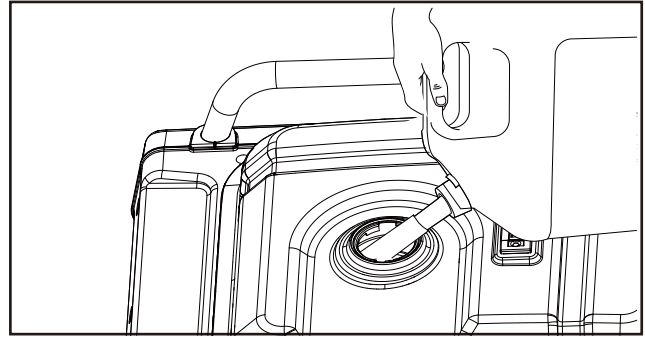
Add Gasoline

WARNING



TO PREVENT SERIOUS INJURY FROM FIRE: Fill the gasoline 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 gasoline. Do not smoke.

1. Make sure the generator is on a solid, flat, level surface.
2. Unscrew the fuel cap and set it aside.
3. Slowly add gasoline to the fuel tank. Be careful not to overfill. The fuel gauge on the top of the fuel tank indicates how much gasoline is in the generator fuel tank.



4. Replace the fuel cap and wipe up any spilled gasoline with a dry cloth then remove the cloth from the area.

DANGER

Do not overfill the gasoline the tank. Overfilling can result in a fire, explosion, or death.

WARNING

Gasoline can expand. Do not fill the gasoline tank to the top. Leave a minimum of 1.5 inches open space. Gasoline fumes are highly flammable. Do not fill the tank near an open flame. Always check for gasoline spills.

- To ensure that the generator runs smoothly use only FRESH, UNLEADED GASOLINE WITH AN OCTANE RATING OF 87 OR HIGHER.
- Never use an oil/gasoline mixture. Never use old gasoline.
- Avoid getting dirt or water in the gasoline tank.
- Gasoline can age in the tank and make it hard to start the generator in the future.
- Never store generator for extended periods of time with gasoline in the tank.

Connecting an LPG Tank

NOTICE

- Propane tanks that use liquid withdrawal system can not be used on these models.
- Confirm that the re-qualification date on the tank has not expired.
- DO NOT use included LPG hose for any other appliances.

Preparation

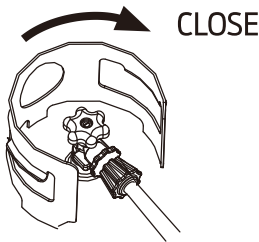
NOTICE

- All new propane tanks must be purged of air and moisture prior to filling. Used propane tanks that have not been plugged or kept closed must also be purged. The purging process should be done by a propane tank supplier (propane tanks from an exchange supplier should have been purged and filled properly).
- ALWAYS position the propane tank so the connection between the valve and the gas inlet will not cause sharp bends or kinks in the hose.

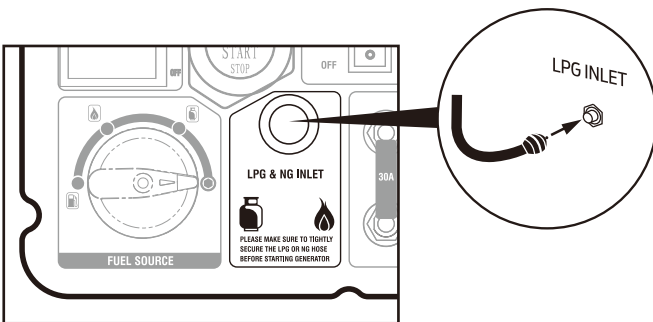
WARNING

Explosion hazard. DO NOT start generator if you smell propane. ALWAYS fully close the propane tank valve and disconnect the LPG hose from the generator when not in use.

1. Turn the generator OFF and place on a flat surface in a well ventilated area.
2. Verify that the propane tank valve is in the fully closed position.



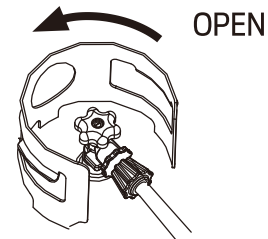
3. Remove the cover on the generator propane/natural gas inlet.
4. Use your fingers to hand thread the LPG hose (included) to the propane inlet on the generator.



IMPORTANT: DO NOT use thread seal tape or any other type of sealant to seal the LPG hose connection.

5. Tighten the LPG hose connector with an adjustable wrench until it is snug. DO NOT over tighten.

6. Remove the safety plug or cap from the propane tank valve and attach the other end of the hose to the LPG connector on the tank. hand-tighten.
7. Turn the propane tank valve to the fully open position. Check all connections for leaks by wetting the fittings with a solution of soap and water. Bubbles which appear or bubbles which grow indicate that a leak exists. If a leak exists at a fitting, turn the propane tank valve to the fully closed position and tighten the fitting. Open the propane tank valve and recheck the fitting with the soap and water solution. If the leak continues or if the leak is not at a fitting then DO NOT use the generator and contact an authorized Pulsar service center.



Connect the Natural Gas (NG) Supply Line

DANGER

Fire and explosion hazard. Never connect or disconnect the natural gas hose while the engine is running. Do not smoke or create sparks while handling natural gas. Always turn the engine off and allow the generator to cool for at least five minutes before connecting to natural gas.

WARNING

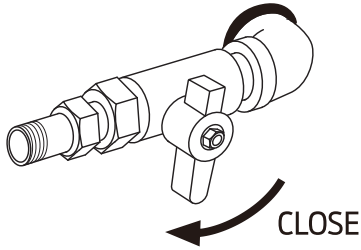
Never use a natural gas supply line, natural gas hose, or any other fuel item that appears to be damaged.

WARNING

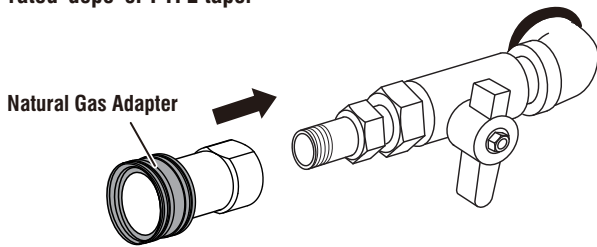
- To reduce the risk of injury, perform a leak test any time the natural gas hose is disconnected and reconnected.
- Explosion hazard. If you smell methane, do not start the generator. Always completely close natural gas supply line valve and disconnect natural gas (NG) hose from generator when not in use.

1. Turn the generator off and allow the engine to cool for at least five minutes.
2. Verify that the gas is turned off at the natural gas supply line.

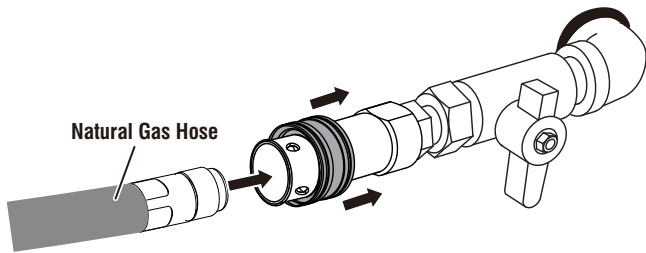
Preparation



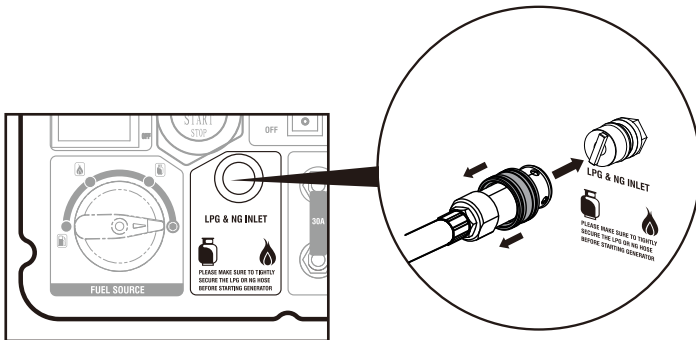
3. Completely unwrap and straighten the natural gas hose to prevent kinks.
4. Contact your local gas company for guidance on accessory connection to a natural gas line. Your qualified contractor must minimally ensure the pipe supply line threads are clean and in good condition. Pipe connections must be made using a gas rated 'dope' or PTFE tape.



5. Pull the quick connect collet rearward, insert the natural gas hose nipple, then release the collet; ensure a solid connection is made.

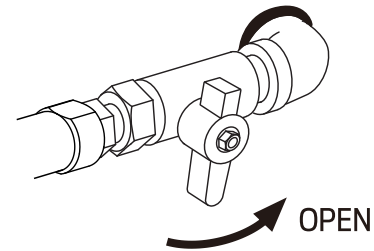


6. Push back the quick connector collet of the natural gas hose, insert it into the generator propane/methane inlet, loosen the quick connector sleeve, and make the sleeve clamp the propane/methane inlet.



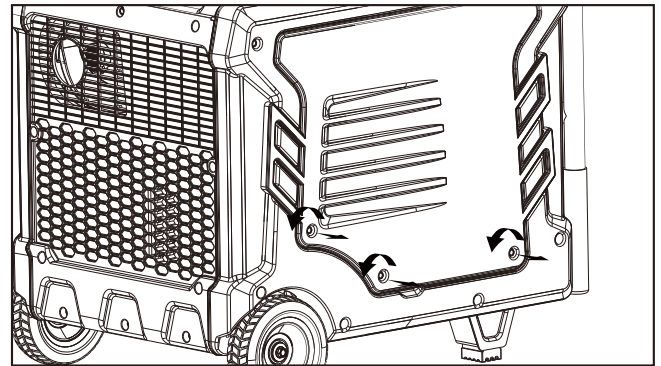
IMPORTANT: DO NOT use thread seal tape or any other type of sealant to seal the natural gas hose connection.

7. Turn the natural gas (NG) supply line valve to the fully open position. Check all connections for leaks by wetting the fittings with a solution of soap and water. Bubbles which appear or bubbles which grow indicate that a leak exists. If a leak exists at a fitting, turn the natural gas (NG) supply line valve to the fully closed position and tighten the fitting. Open the natural gas (NG) supply line valve and recheck the fitting with the soap and water solution. If the leak continues or if the leak is not at a fitting then **DO NOT** use the generator and contact an authorized Pulsar service center.



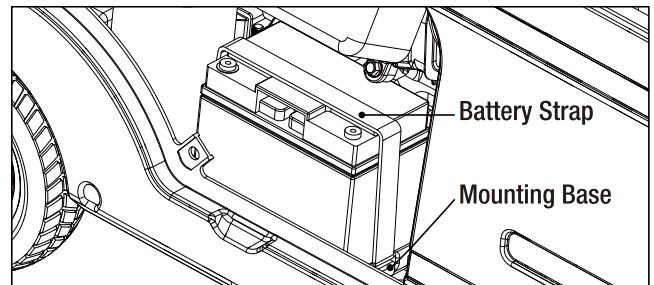
Connecting The Battery

1. On the left side of the generator, loosen the screws and remove the cover.



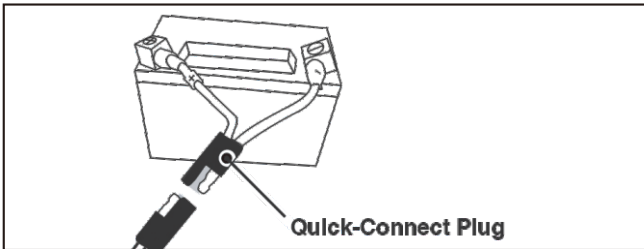
2. Verify that the rubber battery strap is firmly securing the battery in place. If loose, pull on the strap and hook it onto the mounting base.

Note: If the strap is loose behind the battery, remove the battery, reconnect the strap, replace the battery, then thread the strap under the battery quick-connect cables.



Preparation

3. A quick-connect battery plug is pre-installed on the battery. Remove the cable tie securing the plugs, align colors, then push firmly to connect them.



4. Align the tabs on the bottom of the battery access cover with the generator case then push to reinstall the cover.

Note: The generator is equipped with a battery charging feature. Once the engine is running, a small current will slowly recharge the battery.

Grounding The Generator

Attach grounding wire (if required by code)

- Ground the generator by tightening the grounding nut against a grounding wire.
- Connect the other end to a suitable copper grounding rod that is driven into the earth at the correct depth, per local code.

A generally acceptable grounding wire is a No. 12 AWG (American Wire Gauge) stranded copper wire.

Grounding codes can vary by location. Please contact a local electrician to check the grounding regulations for your area.



Failure to properly ground the generator can result in electrocution.

Operation

Generator Location

! WARNING

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

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

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

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

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

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

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

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

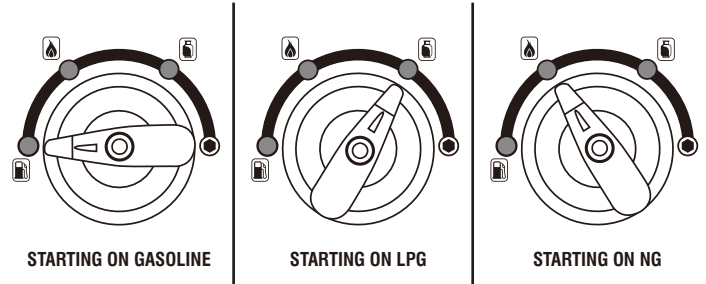
Failure to follow proper safety precautions may result in personal injury, damage to the generator, and void your warranty.

! WARNING

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

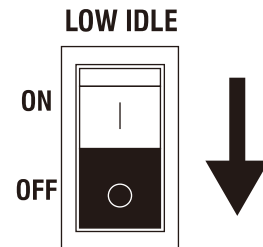
Starting The Generator

1. Make sure the generator is on a solid, flat, level surface.
2. Disconnect all electrical loads from the generator. Never start or stop the generator with electrical loads connected.
3. Turn the Fuel Switch to desired fuel source. When the Fuel Switch is in the Gasoline position, the generator is ready to start with Gasoline. When the Fuel Switch is in the LPG position, the generator is ready to start with propane. When the Fuel Switch is in the Natural Gas(NG) position, the generator is ready to start with methane.



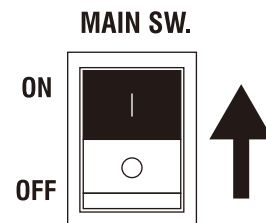
4. Turn off Low Idle Switch

The Low Idle Switch is located next to the push start button on the panel. Flip the Low Idle Switch down to disable low idle when starting the generator.



5. Turn the Main Switch ON

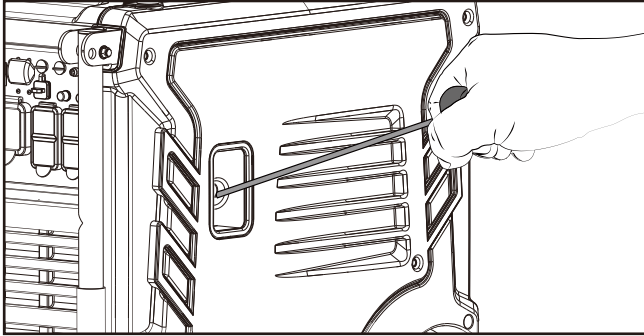
Press the Main Switch up to the start position to start the generator.



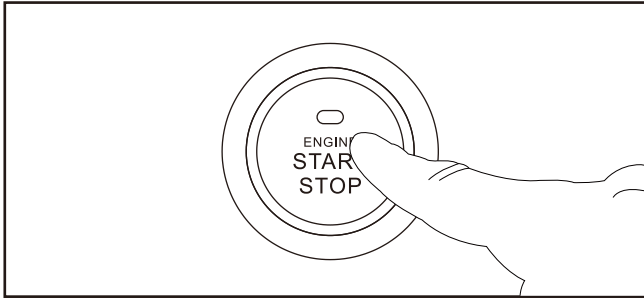
Operation

6. Choose the starting method

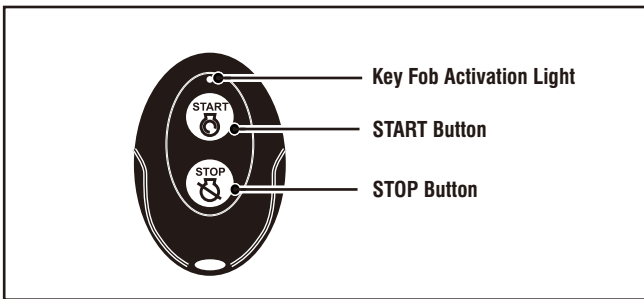
Recoil Start: Firmly grasp and pull the recoil handle slowly until you feel resistance, let it retract then pull swiftly.



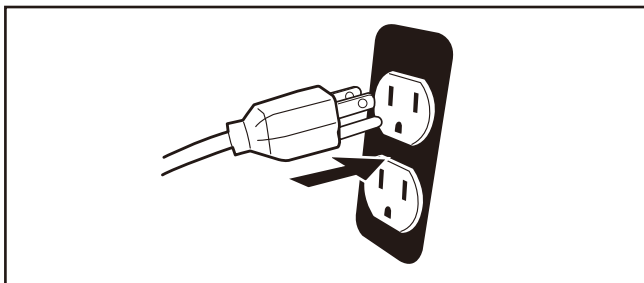
Push Button Start: Press the start button for 1-3 seconds, then release, to start the generator.



Remote Start: Press the **START** button on the remote FOB for 1 second, then release, to start the generator.



7. Plug in devices.



⚠ DANGER

Fire and explosion hazard. Always turn the propane tank valve to the fully closed position if not running the generator on propane.

⚠ WARNING

When using the generator with propane, make sure there is no possible ignition source close to the generator.

Gasoline to LPG/NG

IMPORTANT: Load capacity is reduced when running on LPG/NG. Make sure the generator can supply enough (running) and surge (starting) watts for the items you are powering before switching to LPG/NG.

1. Turn the LPG tank valve(natural gas supply line valve) to the fully open position.
2. Turn the fuel selector switch to LPG/NG operation.

LPG/NG to Gasoline

1. Turn the fuel selector switch to gasoline operation.
2. Turn the LPG tank valve(natural gas supply line valve) to the fully closed position.

NOTE: When switching to LPG/NG operation the engine may run rough for a few seconds while it purges gasoline from the carburetor.

If the engine stops when switching fuel sources, disconnect all loads then restart the unit on the fuel source of choice.

Parallel Operation

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

Overload Indicator

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

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

Operation

2. If the OVERLOAD light turns on and the generator stops producing power, it has been overloaded.
3. Turn off and disconnect all electrical devices and stop the engine. Compare device requirements to generator rating and reduce the total wattage of connected devices if necessary. Move anything that may be limiting generator ventilation away.
4. Check if any circuit breakers have tripped and make sure that ALL circuit breakers are reset before starting the generator again.
5. Restart the engine and reconnect devices while being careful to not overload the generator.
6. Any generator will produce less power at high altitudes and/or in hot weather. Please contact Pulsar Support at 866.591.8921 for details.

Low Oil Indicator

1. If the engine oil level is too low, the LOW OIL light turns on and the engine will automatically shut off.
2. The engine cannot be restarted until the proper amount of oil has been added. Add the appropriate type of oil until the oil level is at the proper level. SAE 10w-30 oil is recommended for general use.

NOTICE

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

Low Idle Switch

1. Turn the Low Idle Switch ON to limit noise and fuel consumption for lighter generator loads.
2. The Low Idle Switch to OFF to operate engine at full speed when:
 - Starting the generator
 - A heavy load is applied

Voltage Selector

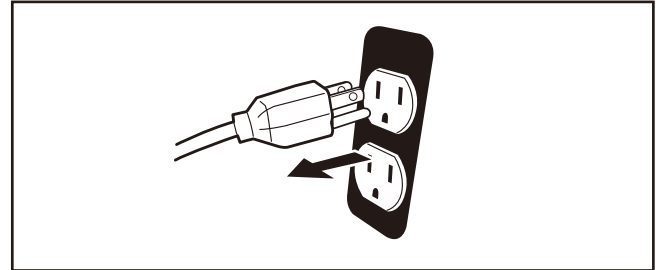
The Voltage Selector allows more current to be available at 120V outlets if 240V output is not required:

- Switch to 120V only: 120V sockets and 120V/240V dual voltage sockets can be used, but 120V/240V dual voltage sockets can only output 120V.
- Switch to 120V/240V: Both 120V and 240V outlets can be used.

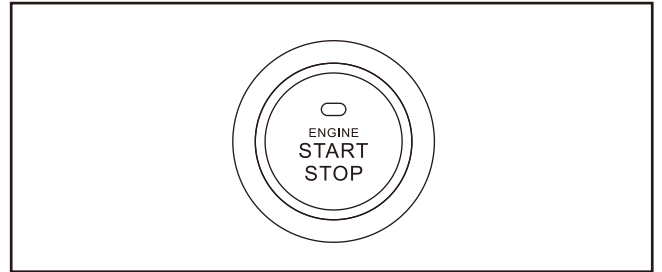
NOTE: Do not change the switch while under load. For parallel function, switch position must be at 120/240V.

Stop The Engine

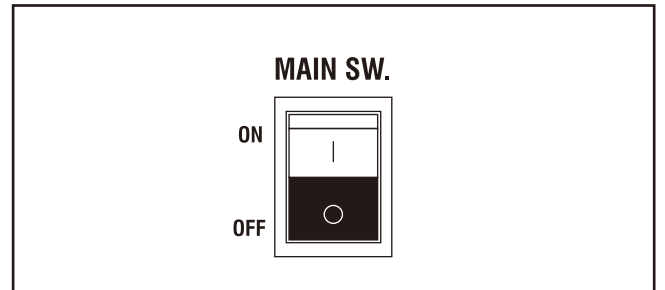
1. Turn off and unplug all connected electrical loads. Never start or stop the generator with electrical devices plugged in or turned on.



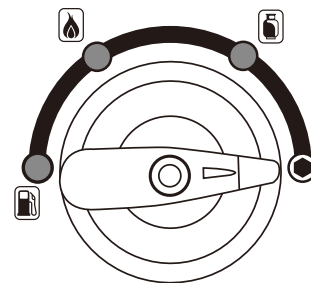
2. Push and hold the START/STOP button for 1-3 second or push STOP on the remote start key fob for 1-3 second.



3. Main Switch down to OFF position.



4. Turn the fuel selector knob to the off position.



Operation

Generator Capacity

NOTICE

Do not overload the generator's capacity. Exceeding your generator's wattage capacity can damage the generator and/or electrical devices connected to it.

Make sure the generator can supply enough continuous (running) and surge (starting) watts for the items you will power at the same time.

The total power requirements (Volts x Amps = Watts) of all appliances connected must be considered. Appliance and power tool manufacturers usually list rating information near the model or serial number. To determine power requirements:

1. Select the items you will power at the same time.
2. Total the continuous (running) watts of these items. This is the amount of power the generator must produce to keep the items running. See the wattage reference chart on the next page.
3. Estimate how many surge (starting) watts you will need. Surge wattage is the short burst of power needed to start electric motor-driven tools or appliances such as a circular saw or refrigerator. Not all motors start at the same time, total surge watts can be estimated by adding only the item(s) with the highest additional surge watts to the total rated watts from step 2.

Example:

Tool or Appliance	Running Watts*	Starting Watts*
RV Air Conditioner (13,000 BTU)	1100	1800
TV (Flat Screen)	150	150
RV Refrigerator	180	600
Radio	50	50
Light (75 Watts)	75	75
Coffee Maker	600	600
	2155 Total Running Watts*	3275 Highest Starting Watts*

*Wattages listed are approximate. Verify actual wattage.

Maintenance



ACCIDENTAL STARTING: Turn the fuel selector to the "OFF" position, wait for the engine to cool, and disconnect the spark plug cable before performing any inspection, maintenance, or cleaning procedures.

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

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.

Power

Cleaning, Maintenance, and Lubrication Schedule

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

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

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

Maintenance

Checking and Filling Fuel



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 a 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.

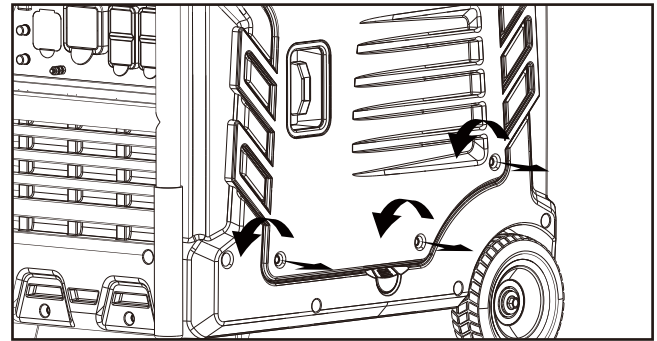
4. If needed, fill the Fuel Tank to about 1 inch under the fill neck with 87 octane unleaded gasoline that has been treated with a fuel stabilizer additive. Follow fuel stabilizer manufacturer's recommendations for use.
5. Replace the Fuel Cap.
6. Wipe up any spilled fuel and allow excess to evaporate before starting the engine. To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.

Engine Oil Change

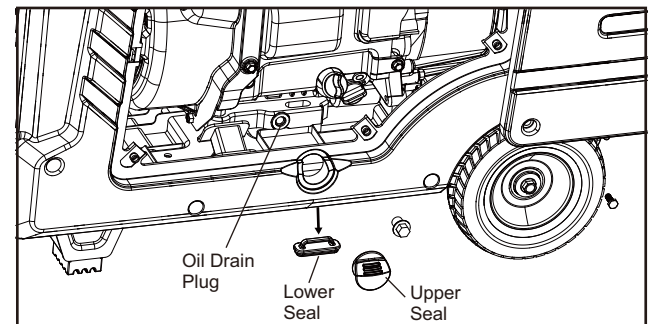


Oil is very hot during operation and can cause burns. Wait for the engine to cool before changing the oil.

1. Make sure the engine is stopped and is level.
2. On the left side of the generator, loosen the screws and remove the Oil Fill Access Door.



3. Remove the lower Rubber Seal from underneath the generator.



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

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

10. Check the oil level. The oil level should be just below the edge of the hole as shown.
11. Thread the Oil Fill Cap/Dipstick back in clockwise and replace the Oil Fill Access Door.

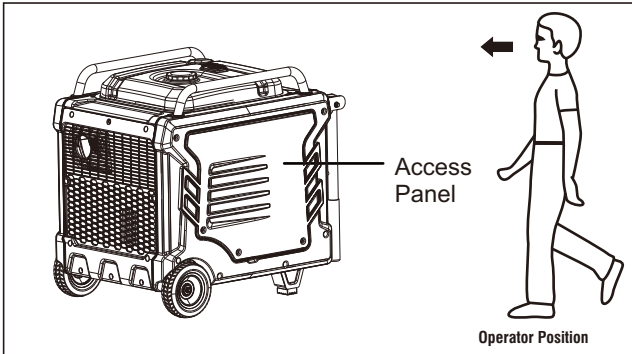


Do not attempt to run the engine with too little oil. The engine will not start with low or no engine oil.

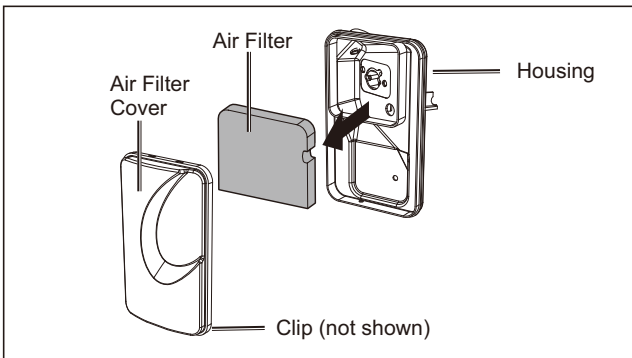
Maintenance

Air Filter Element Maintenance

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



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



Spark Arrestor Maintenance

⚠ WARNING

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

⚠ WARNING

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

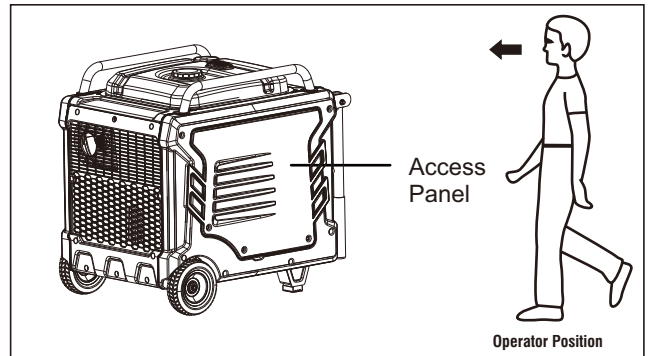
1. Allow the generator to cool completely.
2. Remove the Screws from the back of the generator.
3. Remove the Tail Pipe and Spark Arrestor.
4. Clean the Spark Arrestor using a wire brush (sold separately). Replace the arrestor if damaged.

⚠ WARNING

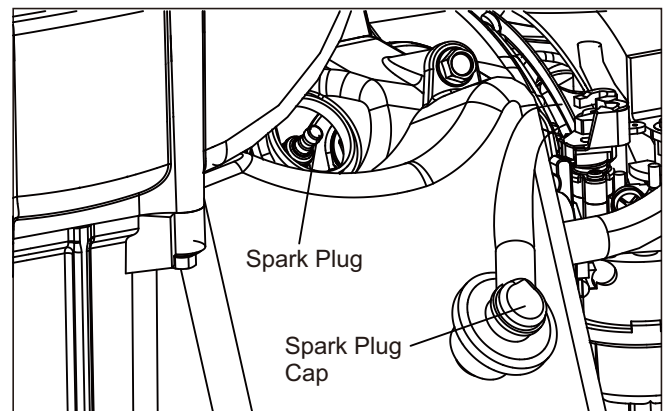
TO PREVENT SERIOUS INJURY FROM ACCIDENTAL BRUSH FIRE, secure Spark Arrestor back in place immediately after cleaning and before further operation.

Spark Plug Maintenance

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



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



3. Using the Spark Plug Wrench, remove the Spark Plug.
4. Inspect the Spark Plug: If the electrode is oily, clean it using a clean, dry rag. If the electrode has deposits on it, clean it with a brass wire brush. If the white insulator is cracked or chipped, replace the spark plug.

Maintenance

NOTICE

Use only BPR6ES (NGK) type spark plug or equivalent. Using an incorrect spark plug may damage the engine.

- When installing a new spark plug, adjust the plug's gap to the specification on the Specifications Chart. Do not pry against the center electrode, the spark plug can be damaged.
 - Apply anti-seize material to Spark Plug threads. Install the new spark plug or the cleaned spark plug into the engine.
- Finger-tighten until the gasket contacts the cylinder head, then tighten about 3/4 turn more.

NOTICE

Tighten the Spark Plug properly. If loose, the Spark Plug will cause the engine to overheat. If over tightened, the threads in the engine block will get damaged.

- Apply dielectric spark plug boot protector (not included) to the end of the spark plug and reattach the boot securely.
- Replace Spark Plug Access Cover and Access Panel.

Storage

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

- CLEANING:**
Wait for the engine to cool, then clean the engine with a dry cloth.

NOTICE

Do not clean using water. The water will gradually enter the engine and cause damage.

2. FUEL:

Gasoline Treatment/Draining the Fuel Tank

To protect the fuel tank during storage, fill the tank with fresh gasoline that has been treated with a fuel stabilizer additive. Follow fuel stabilizer manufacturer's recommendations for use.

WARNING

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

Draining the Carburetor

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

Aged gasoline that has not been treated with stabilizer ahead of time must be safely drained and disposed of, never run old gasoline through the engine.

WARNING

To prevent serious injury and fire, close the Fuel Valve before draining the Carburetor.

3. LUBRICATION:

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

4. STORAGE AREA:

Cover and store in a dry, level, well-ventilated area out of reach of children. The storage area should also be away from ignition sources, such as water heaters, clothes dryers, and furnaces.

NOTICE

During extended storage periods the engine must be started every 3 months and allowed to run for 15-20 minutes.

5. AFTER STORAGE:

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 stored beyond the fuel stabilizer's recommended time, or if the engine does not start.

Troubleshooting

Problem	Possible Causes	Probable Solutions
<p>THE ENGINE WILL NOT START</p>	<p>FUEL RELATED:</p> <ol style="list-style-type: none"> 1. No fuel in tank or fuel valve closed. 2. Choke not in START position, cold engine. 3. Gasoline with more than 10% ethanol used. (E15,E20,E85,etc.) 4. Low quality or deteriorated, old gasoline. 5. Carburetor not primed. 6. Dirty fuel passageways. 7. Carburetor needle stuck. Fuel can be smelled in the air. 8. Too much fuel in the chamber. This can be caused by the carburetor needle sticking. 9. Clogged Fuel Filter. 	<p>FUEL RELATED:</p> <ol style="list-style-type: none"> 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. Move Choke to START position. 3. Clean out ethanol-rich gasoline from the fuel system. Replace components damaged by ethanol. Use fresh 87+ octane stabilizer-treated unleaded gasoline only. Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.). 4. Use fresh 87+octane stabilizer-treated unleaded gasoline. Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.). 5. Pull on Starter Handle to prime. 6. Clean out passageways using a fuel additive. Heavy deposits may require further cleaning. chamber with a screwdriver handle. 7. Gently tap the side of the carburetor float chamber with a screwdriver handle. 8. Shut off the fuel valve, move the generator to a safe, outdoor location and contact a certified Pulsar Service Center before using the generator again. 9. Replace Fuel Filter.
	<p>IGNITION (SPARK) RELATED:</p> <ol style="list-style-type: none"> 1. Power Switch at OFF position. 2. Spark plug cap not connected securely. 3. Spark plug electrode wet or dirty. 4. Incorrect spark plug gap. 5. Spark plug cap is broken. 6. Circuit breaker tripped (electric start models only). 7. Incorrect spark timing or faulty ignition system. 	<p>IGNITION(SPARK)RELATED:</p> <ol style="list-style-type: none"> 1. Turn the Power Switch to ON. 2. Connect the spark plug cap properly. 3. Clean spark plug. 4. Correct spark plug gap. 5. Replace the spark plug cap. 6. Reset circuit breaker. Check wiring and starter motor if the breaker continues to trip. 7. Have qualified technician diagnose/ repair ignition system.

Troubleshooting

Problem	Possible Causes	Probable Solutions
<p>THE ENGINE WILL NOT START</p>	<p>COMPRESSION RELATED:</p> <ol style="list-style-type: none"> 1. Cylinder not lubricated. Problem after long storage periods. 2. Loose or broken spark plug.(Hissing noise will occur when trying to start.) 3.Loose cylinder head or damaged head gasket.(Hissing noise will occur when trying to start.) 4.Engine valves or tappets misadjusted or stuck. 	<p>COMPRESSION RELATED:</p> <ol style="list-style-type: none"> 1. Pour a tablespoon of oil into the spark plug hole. Crank the engine a few times and try to start again. 2. Tighten spark plug. If that does not work, replace the spark plug. If the problem persists, may have a head gasket problem. 3. Have a qualified technician service the cylinder head 4. Have a qualified technician adjust/ repair valves and tappets.
	<p>ENGINE OIL RELATED:</p> <ol style="list-style-type: none"> 1.Low engine oil. 2. Engine mounted on a slope, triggering low oil shutdown. 	<p>ENGINE OIL RELATED:</p> <ol style="list-style-type: none"> 1. Fill engine oil to the proper level. Check engine oil before EVERY use. 2. Operate the engine on a level surface. Check engine oil level.
	<p>SPARK ARRESTOR RELATED:</p> <ol style="list-style-type: none"> 1. Spark Arrestor clogged with soot. 	<p>SPARK ARRESTOR RELATED:</p> <ol style="list-style-type: none"> 1. Clean and replace Spark Arrestor.
<p>ENGINE MISFIRES</p>	<ol style="list-style-type: none"> 1. The spark plug cap is loose. 2. Incorrect spark plug gap or damaged spark plug. 3. Defective spark plug cap. 4. Old or low-quality gasoline. 5. Incorrect compression. 	<ol style="list-style-type: none"> 1. Check cap and wire connections. 2. Re-gap or replace the spark plug. 3. Replace the spark plug cap. 4. Use only fresh 87 +octane stabilizer-treatedunleaded gasoline. Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.). 5. Diagnose and repair compression.(Use Engine will not start: COMPRESSION RELATED section.)
<p>ENGINE STOPS SUDDENLY</p>	<ol style="list-style-type: none"> 1.Low oil shutdown. 	<ol style="list-style-type: none"> 1. Fill engine oil to the proper level. Check engine oil before EVERY use.

Troubleshooting

Problem	Possible Causes	Probable Solutions
ENGINE STOPS SUDDENLY	<ol style="list-style-type: none"> 2. Fuel tank empty or full of impure or low-quality gasoline. 3. Defective fuel tank cap creates a vacuum and prevents proper fuel flow. 4. Faulty magneto. 5. Disconnected or improperly connected spark plug cap. 	<ol style="list-style-type: none"> 2. Fill fuel tank with fresh 87+ octane stabilizer treated unleaded gasoline. Do not use gasoline with more than 10% ethanol(E15, E20,E85,etc.). 3. Test/replace fuel tank cap. 4. Have qualified technician service magneto. 5. Secure spark plug cap.
ENGINE STOPS WHEN UNDER HEAVY LOAD	<ol style="list-style-type: none"> 1. Dirty air filter 2. Engine running cold. 	<ol style="list-style-type: none"> 1. Clean element. 2. Allow the engine to warm up prior to operating equipment.
ENGINE KNOCKS	<ol style="list-style-type: none"> 1. Old or low-quality gasoline. 2. Engine overloaded. 3. Incorrect spark timing, deposit buildup, worn engine, or other mechanical problems. 	<ol style="list-style-type: none"> 1. Fill fuel tank with fresh 87+octane stabilizer-treated unleaded gasoline. Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.). 2. Do not exceed the equipment's load rating. 3. Have a qualified technician diagnose and service the engine.
ENGINE BACKFIRES	<ol style="list-style-type: none"> 1. Impure or low-quality gasoline. 2. Engine too cold. 3. Intake valve stuck or an overheated engine. 4. Incorrect timing. 	<ol style="list-style-type: none"> 1. Fill fuel tank with fresh 87+ octane stabilizer treated unleaded gasoline. Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.). 2. Use cold weather fuel and oil additives to prevent backfiring. 3. Have a qualified technician diagnose and service the engine. 4. Check engine timing.
THE ATTACHED DEVICE DOESN'T HAVE POWER	<ol style="list-style-type: none"> 1. Device not plugged in properly. 2. Circuit Breaker tripped. 3. Product needs service. 	<ol style="list-style-type: none"> 1. Turn off and unplug the device, then plug it back in again and turn it on. 2. Turn off and unplug the device, reset the Circuit Breaker, plug in the device and turn on. 3. Have the product repaired.



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

Electrical Schematic

120/240V, 60Hz Electrical Schematic

