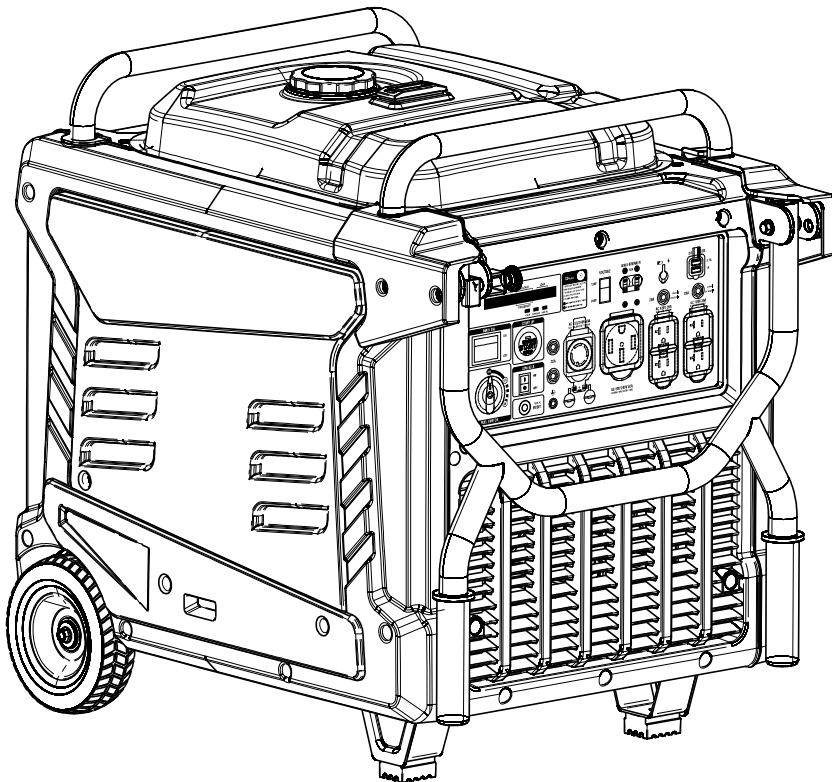


TOMAHAWK

TG9000i
INVERTER GENERATOR

Operation Manual



WARNING: SAVE THIS MANUAL FOR FUTURE REFERENCE



This manual contains important information regarding 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.

INTRODUCTION

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SAFETY

SAFETY

SAFETY DEFINITIONS

The words DANGER, WARNING, CAUTION, and NOTICE are used throughout this manual to highlight important information. Make sure that the meanings 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 attention, become alert, your safety is involved! Please read and abide by the message that follows the safety alerts symbol.

⚠ 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
Indicates a situation which can cause damage to the generator, personal property, and/or the environment, or cause the equipment to operate improperly.

⚠ WARNING
Connection of the product to a building's electrical system is not applicable.

Note: Indicates a procedure, practice or condition that should be followed for the generator to function in the manner intended.



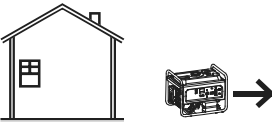
SAFETY SYMBOLS

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

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 operation.

SAFETY

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.

- If you start to feel sick, dizzy or weak while using the portable generator, you may have carbon monoxide poisoning. Get out side to fresh air immediately and call 103 for emergency medical attention. Very high levels of CO can rapidly cause victims to lose consciousness before they can rescue themselves. **DO NOT** attempt to shut off the generator before moving to fresh air. Entering an enclosed space where a generator is or has been running may put you at greater risk of CO poisoning.

⚠ WARNING

POISONOUS GAS HAZARD.



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

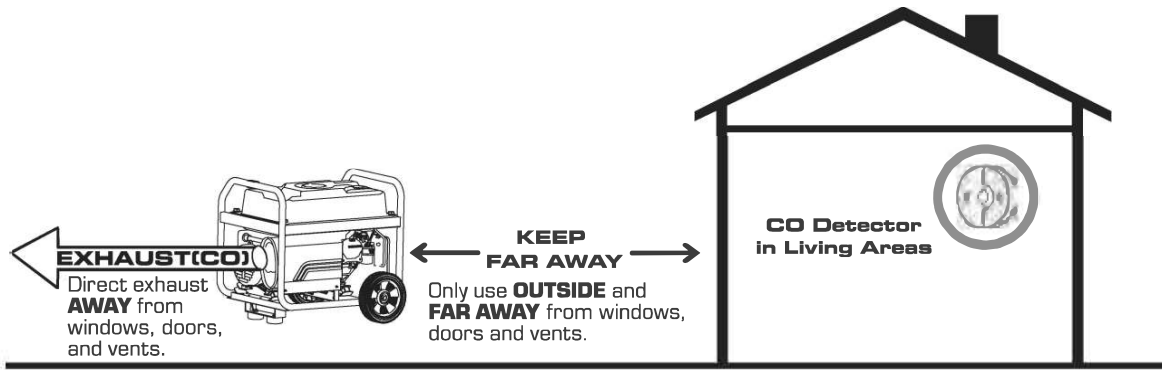
- Operate this product **ONLY** outside far away from windows, doors and vents to reduce the risk of carbon monoxide gas from accumulating and potentially being drawn towards occupied spaces.
- **Install** battery-operated carbon monoxide alarms or plug-in carbon monoxide alarms with battery back-up according to the manufacturer's instructions. 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 **RIGHT AWAY**. See a doctor. You may have carbon monoxide poisoning.

SAFETY

CORRECT USAGE

Example location to reduce risk of carbon monoxide poisoning

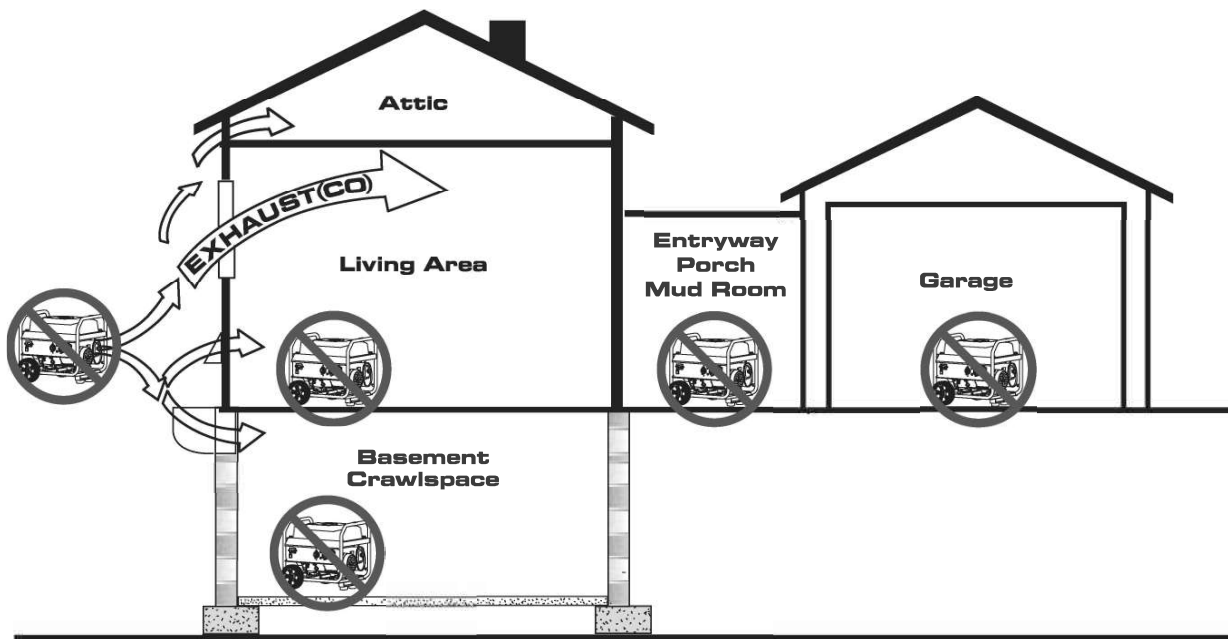
- ONLY use outside and downwind, far away from windows, doors and vents.
- Keep direct exhaust away from occupied spaces.



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
- Mudroom



SAFETY

⚠ WARNING



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

- When starting engine, pull cord slowly until resistance is felt and then pull rapidly to avoid kickback.
- NEVER start or stop engine with electrical devices plugged in and turned on.

⚠ WARNING



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 FUEL

- Turn generator engine OFF and let it cool at least 2 minutes before removing fuel cap. Loosen cap slowly to relieve pressure in tank.
- Fill or drain fuel tank outdoors.
- **DO NOT** overfill tank. Allow space for fuel expansion.
- If fuel spills, wait until it evaporates before starting engine.
- Keep fuel away from sparks, open flames, pilot lights, 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.

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 equipment, marine applications, or enclosure.
- **DO NOT** tip engine or equipment at angle which causes fuel to spill.
- **DO NOT** stop engine by moving choke control to "Start" position.

WHEN TRANSPORTING, MOVING OR REPAIRING EQUIPMENT

- Transport/move/repair with fuel tank EMPTY or with fuel shutoff valve OFF.
- **DO NOT** tip engine or equipment at angle which causes fuel to spill.
- Disconnect spark plug wire.

WHEN STORING FUEL OR EQUIPMENT WITH FUEL IN TANK

- Store away from furnaces, stoves, water heaters, clothes dryers, or other appliances that have pilot light or other ignition source because they could ignite fuel vapors.

⚠ WARNING



Generator voltage could cause electrical shock or burn resulting in death or serious injury.

- Use approved transfer equipment, suitable for the intended use, to prevent backfeed by isolating generator from electric utility workers.
- When using generator for backup power, notify utility company.
- Use a ground fault circuit interrupter (GFCI) in any damp or highly conductive area, such as metal decking or steel work.
- **DO NOT** touch bare wires or receptacles.
- **DO NOT** use generator with electrical cords which are worn, frayed, bare or otherwise damaged.
- **DO NOT** operate generator in the rain or wet weather.
- **DO NOT** handle generator or electrical cords while standing in water, while barefoot, or while hands or feet are wet.
- **DO NOT** allow unqualified persons or children to operate or service generator.

⚠ WARNING



Exhaust heat/gases could ignite combustibles, structures or damage fuel tank causing a fire, resulting in death or serious injury and/or property damage.
Contact with muffler area could cause burns resulting in serious injury.

SAFETY

- **DO NOT** touch hot parts and **AVOID** hot exhaust gases.
- Allow equipment to cool before touching.
- Replacement parts must be the same and installed in the same position as the original parts.

⚠ WARNING



Unintentional sparking could cause fire or electric shock resulting in death or serious injury.

WHEN ADJUSTING OR MAKING REPAIRS TO YOUR GENERATOR

- Disconnect the spark plug wire from the spark plug and place the wire where it cannot contact spark plug.

WHEN TESTING FOR ENGINE SPARK

- Use approved spark plug tester.
- **DO NOT** check for spark with spark plug removed.

⚠ WARNING



Starter and other rotating parts could entangle hands, hair, clothing, or accessories resulting in serious injury.

- **NEVER** operate generator without protective housing or covers.
- **DO NOT** wear loose clothing, jewelry or anything that could be caught in the starter or other rotating parts.
- Tie up long hair and remove jewelry.

⚠ CAUTION

Excessively high operating speeds could result in minor injury. Excessively low operating speeds impose a heavy load.

- **DO NOT** tamper with governor spring, links or other parts to increase engine speed. Generator supplies correct rated frequency and voltage when running at governed speed.
- **DO NOT** modify generator in any way.

NOTE:

Exceeding generators wattage/amperage capacity could damage generator and/or electrical devices connected to it.

- **DO NOT** exceed the generator's wattage amperage capacity.
- Start generator and let engine stabilize before connecting electrical loads.
- Connect electrical loads in OFF position, then turn ON for operation.
- Turn electrical loads OFF and disconnect from generator before stopping generator.

NOTE:

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

- Use generator only for intended uses.
- If you have questions about intended use, ask dealer or contact local service center.
- Operate generator only on level surfaces.
- **DO NOT** expose 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 generator.
- Shut off generator if:
 - Electrical output is lost.
 - Equipment sparks, smokes, or emits flames.
 - Unit vibrates excessively.

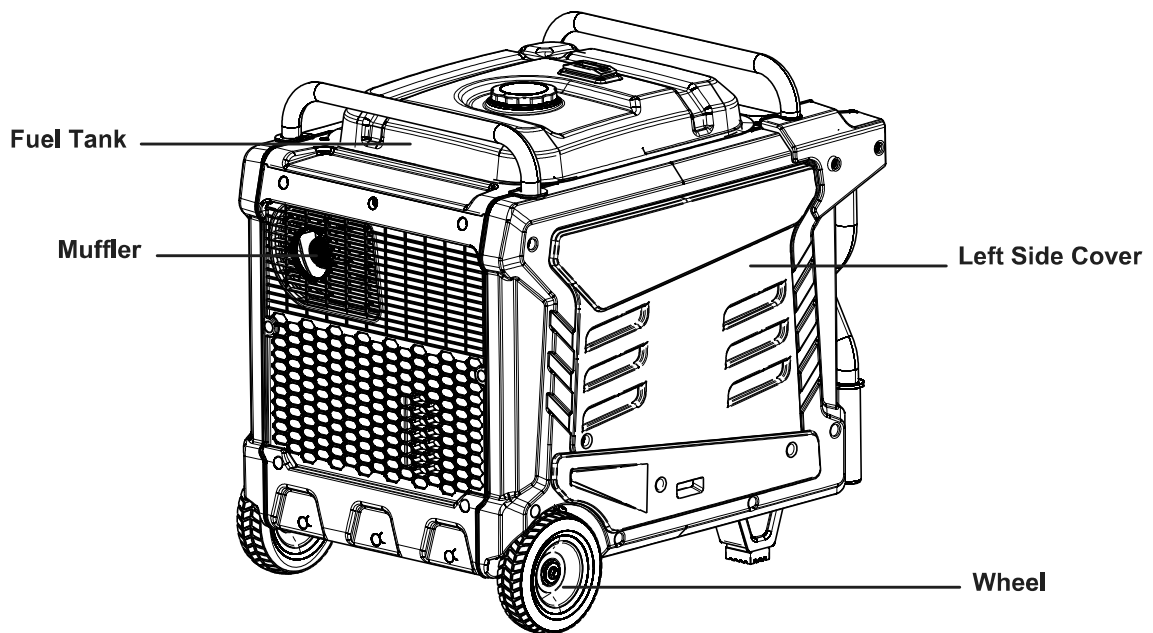
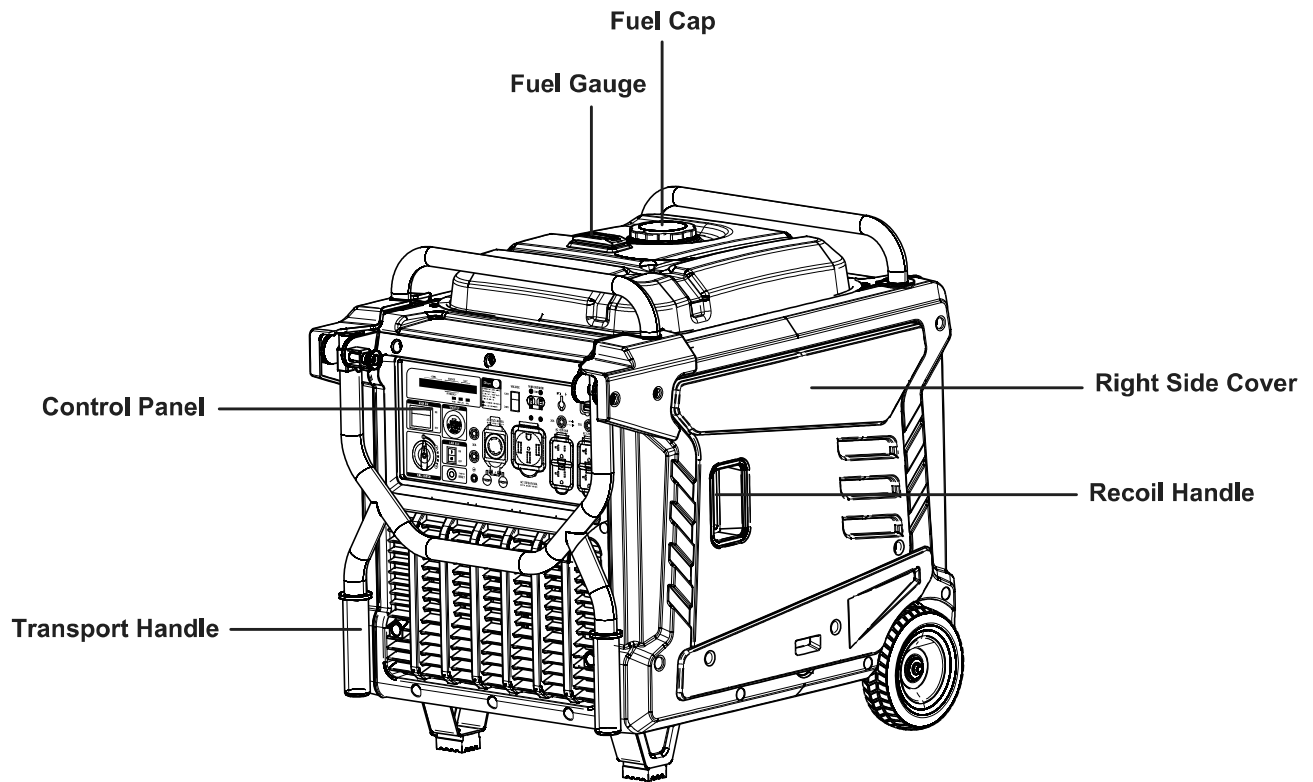
Parallel Kit Precautions

⚠ WARNING

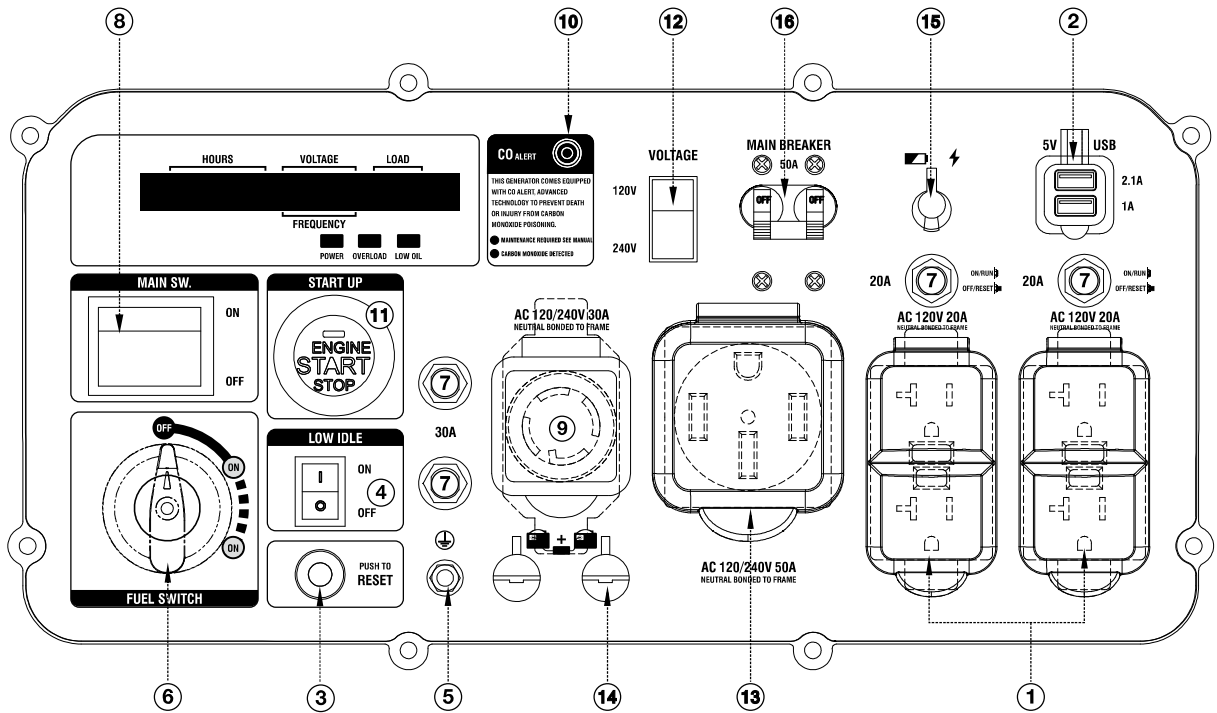
TO PREVENT SERIOUS INJURY, DEATH, AND GENERATOR AND/OR EQUIPMENT DAMAGE FROM ELECTRIC SHOCK AND FIRE:

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

CONTROLS AND FEATURES



CONTROL PANEL



① **120V AC 20A 5-20R Outlet:** The outlet is capable of carrying a maximum of 20 amps.

② **USB Duplex:** 5V DC that come in 1 amps and 2.1 amps.

③ **Reset:** If the inverter is overloaded, the reset breaker will trip. The engine will continue to run, but there will be no output from the inverter. Unplug the devices and reduce the load. Push in the reset breaker to reset it.

④ **Low Idle:** When turned to the ON position, the engine will sense the load needed and run at a slower RPM to save fuel.

⑤ **Ground Terminal:** The ground terminal is used to externally ground the inverter.

⑥ **Fuel Switch:** Open the fuel.

⑦ **AC Breaker:** If the inverter is overloaded, the reset breaker will trip to block current.

⑧ **Main Switch:** Manage battery power and shutdown.

⑨ **120/240V AC 30A L14-30R Outlet:** The outlet is capable of

carrying a maximum of 30 amps.

⑩ **CO Alarm:** Shuts down the engine in the event of CO buildup.

⑪ **One Push Start:** Press this button, the engine can start and stop.

⑫ **Voltage Switch:** Switch between 120V and 240V voltage as required.

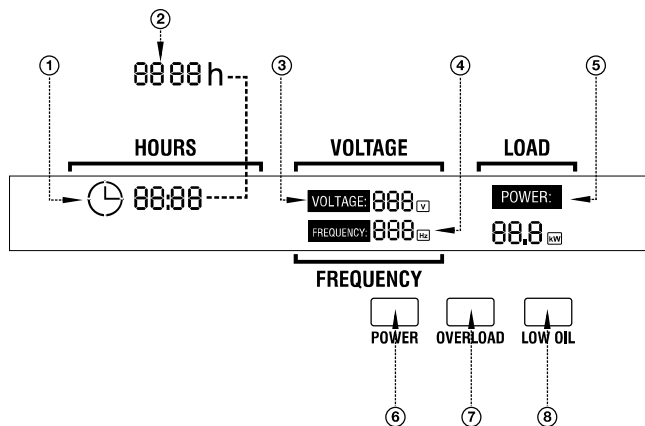
⑬ **120/240V AC 50A 14-50R Outlet:** Receptacle can supply a maximum of 50 Amps.

⑭ **Parallel Connectors:** To increase AC power output, connect two generators of the same type using a parallel kit. Connector sockets are only used to connect two inverter generators. They cannot be used for AC power output. Special parallel kits need to be purchased separately and approved by a certification body.

⑮ **Battery Charging Port:** Charge the generator battery.

⑯ **Circuit Breaker:** A circuit breaker interrupts the current when the whole circuit is overloaded.

DIGITAL DISPLAY CENTER



① **8888 :** Represents single run time, goes from 0 at each startup.

② **8888 h :** Represents total operation time of the generator. (Tip: The total operation time shall start to accumulate after the generator runs for one hour. It will not be displayed when the generator runs for less than one hour. The total operation time shall be accumulated by hours.) The two factors ① and ② are displayed alternately every 8 seconds.

③ **VOLTAGE:** Voltage display: 120V and 240V switch every 16 seconds.

④ **FREQUENCY:** Frequency display.

⑤ **LOAD:** Load power display.

⑥ **POWER:** Green light means normal operation.

⑦ **OVERLOAD:** Red light means the machine overload.

⑧ **LOW OIL:** Red light means the amount of oil is too low.

SPECIFICATIONS

Engine	Engine Model	192F/P-2
	Engine Type	Single Cylinder, Four Stroke, Air Cooled, Overhead Valve, Gasoline Engine Cylinder Center Inclined 25 °
	Cylinder Diameter×Stroke (mm)	92x69
	Displacement(cc)	458cc
	Compression Ratio	8.5±0.2
	Gas Distribution Mode	OHV
	Cooling Mode	Forced Cold Air
	Output Power(kW/r/min)	10.5/3600
	Starting Mode	Manual Recoil Starting / Electric Starting
	Fuel Tank Capacity(L)	26L
	Type And Grade Of Fuel	Unleaded Gasoline For Vehicles
	Lubricating Oil Capacity(L)	1.1L
	Lubricating Oil Model	SAE 10W/30
	Lubrication Way	Forced lubrication+ Splash Lubrication
Generator	Noise dB(7m)	62
	Rated Power(kW)	8.5
	Max Power(kW)	10.5
	Rated Voltage(V)	120/240
	Rated Frequency(Hz)	60
	Power Factor	1.0
	Number of Phase	Single phase
	DC Output	5V 1A/2.1A
Configure	Electric Machinery	Permanent Magnet
	Voltage Regulation	Controller Regulation
	Frequency regulation	Controller Regulation
Dimensions(mm)		785x575x745
Net Weight(kg)		106

ASSEMBLY

ASSEMBLY

Your generator requires some assembly. This unit ships from our factory without oil. It must be properly serviced with fuel and 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

⚠ CAUTION

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 as a result of failing to follow these instructions will void your warranty.

NOTICE

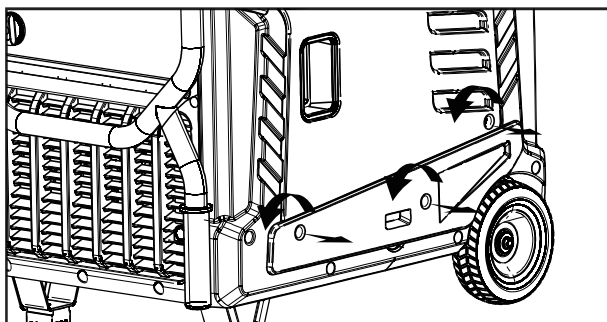
The generator rotor has a sealed, pre-lubricated ball bearing that requires no additional lubrication for the life of the bearing.

NOTICE

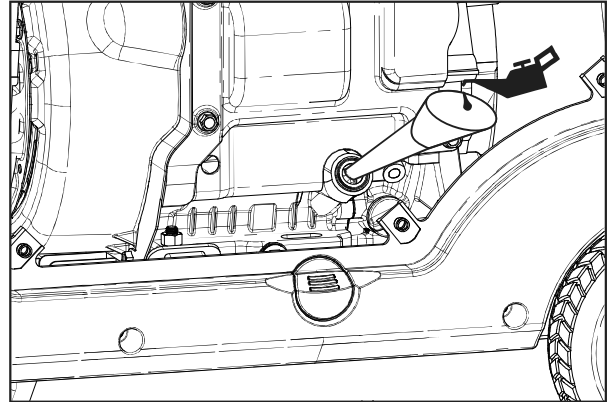
The recommended oil type for typical use is 10W-30 automotive oil. If running generator in extreme temperatures, refer to the following chart for recommended oil type.

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	

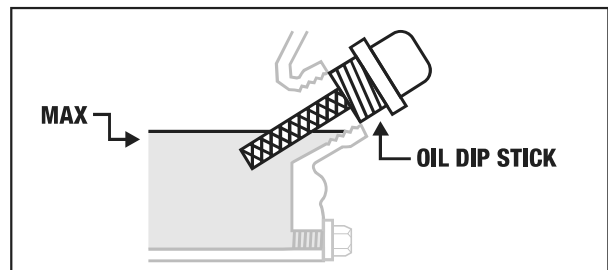
1. Place the generator on a flat, level surface.
2. On the right side of the Generator, loosen the Screw and remove the Oil Fill Access Door



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.



NOTICE

Once 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 oil level, DO NOT screw in the dipstick while checking.

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 the threshold 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.

ASSEMBLY

NOTICE

Synthetic oil may be used after the 5 hour initial break-in period. Using synthetic oil does not decrease the recommended oil change interval. Full synthetic 5W-30 oil will aid in starting in cold ambient < 41° F (5° C) temperatures.

ADD GASOLINE

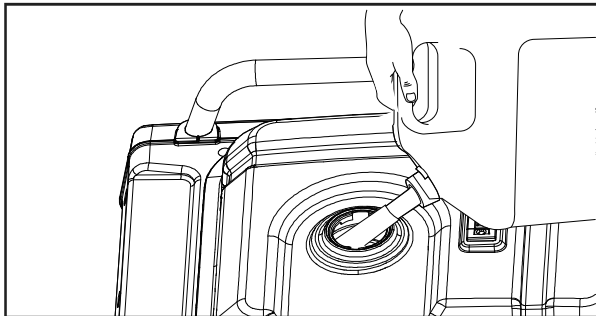
⚠ WARNING



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. Make sure the generator is on a level surface.
2. Unscrew gas cap and set aside (NOTE: the gas cap may be tight and hard to unscrew).
3. Slowly add unleaded gasoline to the fuel tank. Be careful not to overfill. The fuel gauge on the top of the gas tank indicates how much gasoline is in the generator gas tank.



4. Replace fuel cap and wipe up any spilled gasoline with a dry cloth.

⚠ DANGER

DO NOT OVERFILL THE GAS TANK
OVERFILLING CAN RESULT IN A FIRE,
EXPLOSION, OR DEATH.

⚠ WARNING

Gas can expand. Do not fill the gas tank to the very top. Leave a minimum of 1.5 in open space. Gasoline and gas fumes are highly flammable. Do not fill the tank near an open flame. Always check for fuel spills.

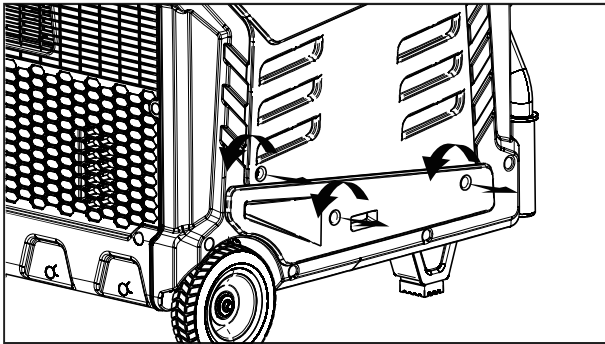
IMPORTANT:

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

ASSEMBLY

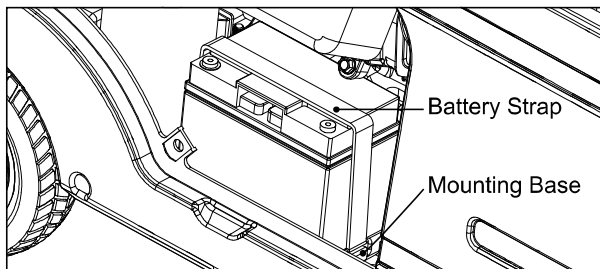
CONNECT THE BATTERY

1. On the left side of the Generator, loosen the Screw and remove the Cover

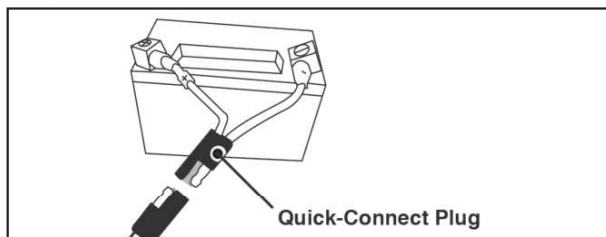


2. Verify that the rubber battery strap is firmly securing the battery in place. If loose, pull on the strap and hook it onto the mounting base.

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.



3. A quick-connect battery plug is pre-installed on the battery. Remove the cable tie securing the plugs 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 charge will slowly recharge the battery.

GROUNDING THE GENERATOR

Attach grounding wire

- Ground the generator by tightening the grounding nut against a grounding wire.
- Connect the other end to a copper or brass grounding rod that's driven into the earth.

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.

⚠ WARNING

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, enclosure or compartment, including a 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 in any other location that will not allow for adequate cooling of the generator or for the proper exit of the exhaust flow from the muffler system.

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.

In some state's generators may be required to be registered with the local utility company when used at construction sites and may be subject to additional rules and regulations, consult your local municipal authority.

Generators should always be operated on a flat, level surface at all times (even when not in operation).

Generators must have a minimum of 5 feet (1.5 m) of clearance from all combustible material. Generators must also have a minimum of 3 feet (91.4 cm) of air flow clearance on all sides to allow for adequate performance cooling, maintenance and servicing.

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 generator.

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

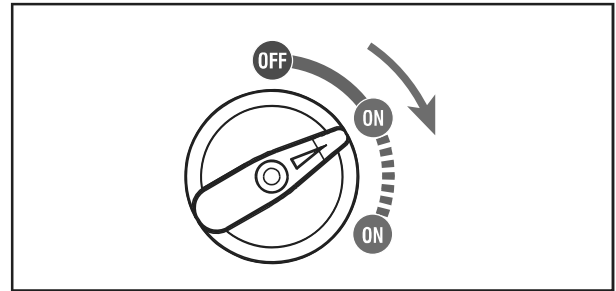
Failure to follow proper safety precautions may result in personal injury, damage to the generator and void the manufacturer's warranty.

⚠ WARNING

During operation the muffler and exhaust fumes will become hot. If adequate cooling and breathing space are not supplied, or if the generator is blocked or enclosed, temperatures can become extremely heated and may lead to fire.

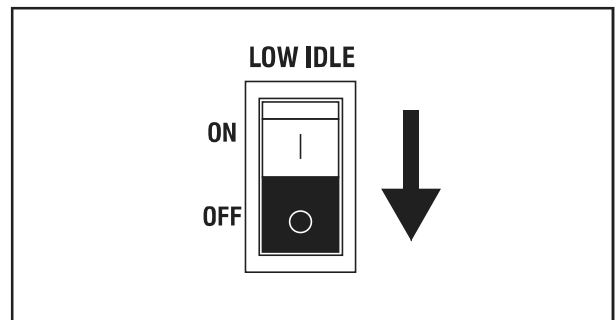
STARTING THE GENERATOR

1. Make certain the generator is on a flat, level surface.
2. Disconnect all electrical loads from the generator. Never start or stop the generator with electrical devices plugged in or turned on.
3. Turn the fuel switch to the ON.



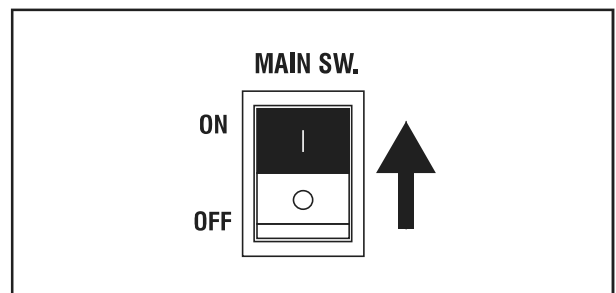
4. Turn low idle off

The low idle is located on the left side of the front power panel, next to the fuel selection switch. Flip the switch down to disable low idle when starting the generator.



5. Turn main switch on

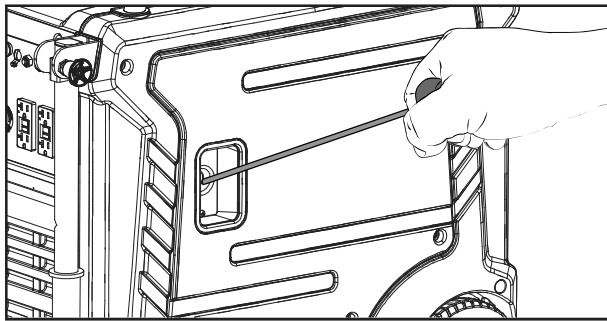
Press the main switch up to the start position to all the generator to start.



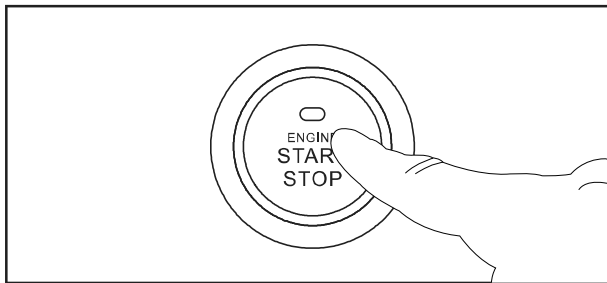
OPERATION

6. Choose the starting method

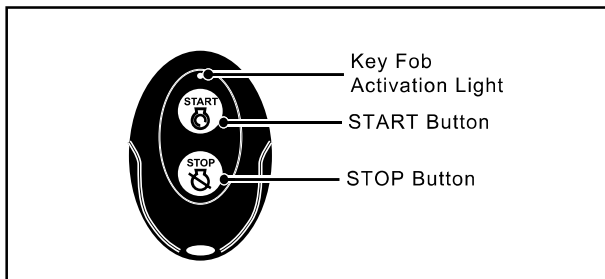
a. Recoil Start: Firmly grasp and pull the recoil handle slowly until you feel increased resistance, then pull rapidly.



b. Push-Button Start: Press the start up button down for 1 - 3 seconds to start the generator.

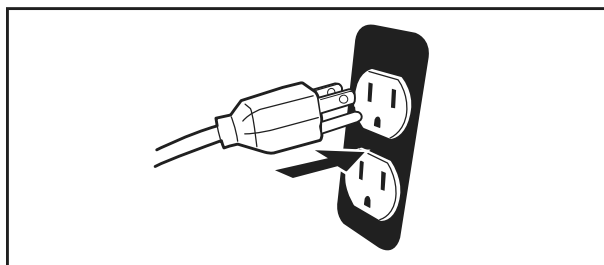


c. Remote Start: Push and hold the ON button on the remote start key fob for one second.



7. Plug in devices

Plug in devices to the appropriate receptacle. Placing more load on one side of the circuit will reduce the breaker trip period.



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

⚠ CAUTION

Disconnect all electrical loads from the generator before attempting to start!

⚠ WARNING

Operating the starter motor for more than 5 seconds can damage the motor. If the engine fails to start, release the switch and wait 10 seconds before operating the starter again.

OPERATION

BREAK-IN PERIOD

- Breaking-in the Engine will help to ensure proper equipment and Engine operation.
- The break-in period will last about 30 hours of use. DO NOT exceed 75% of the Generator's running wattage during this period.

Change the engine oil after this period.

Under normal operating conditions subsequent maintenance follows the schedule explained in the maintenance section.

Nominal 12V DC Output

1. Move the Low idle Switch to the OFF position.
2. Only use the 12V DC receptacle to charge a 12 volt lead-acid type battery using an appropriate charge controller. (Battery and controller not included.) The 12V DC output is not regulated.
3. Do not connect any device to the 12V DC terminal that draws more than 8 amps.
4. If this 12V DC circuit protection is tripped, reduce the load, and press the Reset Button next to the outlet.

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 up. This is normal for loads approaching the capacity of this Generator.

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

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.

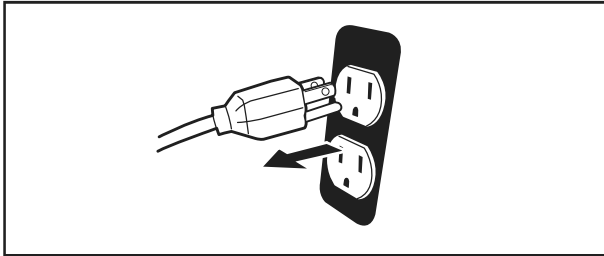
LOW IDLE SWITCH

1. Turn the low idle Switch ON to limit noise and fuel consumption for lighter generator loads.
2. Turn the low idle Switch OFF to operate engine at full speed:
 - when starting
 - when a heavy load is applied
 - when using the 12V DC output

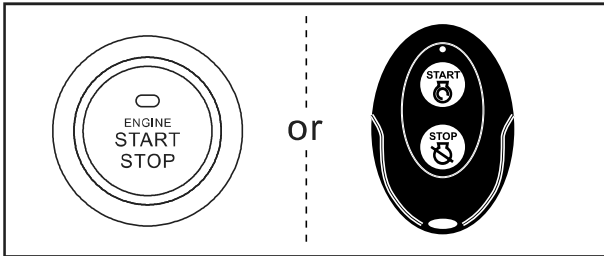
OPERATION

STOP THE ENGINE

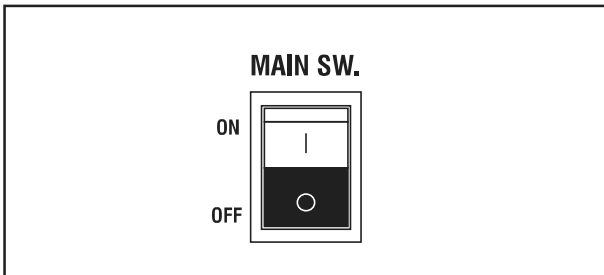
1. Turn off and unplug all connected electrical loads. Never start or stop the generator with electrical devices plugged in or turned on.



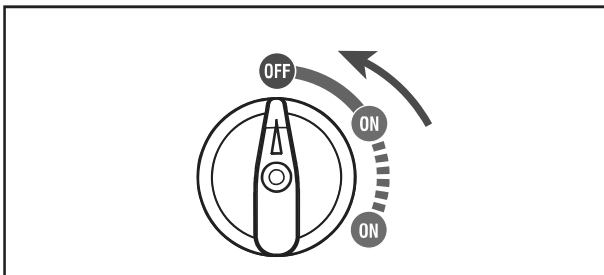
2. Push and hold the ON/OFF button for one second or push STOP on the remote start key fob for one second.



3. Turn the main switch to off position.



4. Turn the fuel switch to off position.



GENERATOR CAPACITY

NOTICE

Do not overload the generator's capacity. Exceeding the generator's wattage/ampere 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. Because 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 (11,000 BTU)	1010	1600
TV (Tube Type)	300	0
RV Refrigerator	180	600
Radio	200	0
Light (75 Watts)	300	0
Coffee Maker	600	0
	2590 Total Running Watts*	1600 Highest Starting Watts*

Total Running Watts 2590

Highest Starting Watts+ 1600

Total Starting Watts Needed 4190

*Wattages listed are approximate. Verify actual wattage.

OPERATION

POWER MANAGEMENT

To prolong the life of the generator and attached devices, use care when adding electrical loads to the generator. There should be nothing connected to the generator outlets before starting the engine. The correct and safe way to manage generator power is to sequentially add loads as follows:

1. With nothing connected to the generator, start the engine as described in this manual.
2. Plug in and turn on the first load, preferably the largest load you have.
3. Permit the generator output to stabilize (engine runs smoothly and attached device operates properly).
4. Plug in and turn on the next load.
5. Again, permit the generator to stabilize.
6. Repeat steps 4 and 5 for each additional load.

Wattage Reference

Tool or Appliance	Estimated Running Watts*	Estimated Starting Watts*
Incandescent Lights (4 Quantity x 75 Watts)	300	0
TV (Tube Type)	300	0
Sump Pump (1/3 hp)	800	1300
Refrigerator or Freezer	700	2200
Well Pump (1/3 hp)	1000	2000
Furnace (1/2 hp)	800	2350
Radio	200	0
Drill (3/8", 4 amps)	440	600
Circular Saw (Heavy Duty, 7-1/4")	1400	2300
Miter Saw (10")	1800	1800
Table Saw (10")	2000	2000

*Wattages listed are approximate. Verify actual wattage.

MAINTENANCE

⚠ WARNING

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

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

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



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

Cleaning, Maintenance, and Lubrication Schedule

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

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

Procedure	Before Each Use	Monthly or every 8 hr. of use	Every 3 mo. or 50 hr. of use	Every 6 mo. or 100 hr. of use	Yearly or every 300 hr. of use	Every 2 Years	Page
1. Brush off outside of engine 2. Check engine oil level 3. Check air filter	✓						
Change engine oil				✓			17
Clean/replace air cleaner			✓*				18
1. Check and clean spark plug 2. Check and clean spark arrestor				✓			18
1. Check/adjust idle speed 2. Check/adjust valve clearance 3. Clean fuel tank, strainer and carburetor 4. Clean carbon build-up from combustion chamber					✓**		—
Replace fuel line if necessary						✓**	—

*Service more frequently when used in dusty areas.

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

MAINTENANCE

CHECKING AND FILLING FUEL

⚠ WARNING



TO PREVENT SERIOUS INJURY FROM FIRE:

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

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

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

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

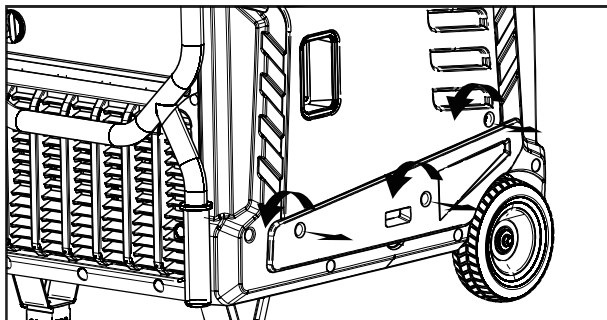
4. If needed, fill the Fuel Tank to about 1 inch under the fill neck of the Fuel Tank with 87 octane or higher unleaded gasoline that has been treated with a fuel stabilizer additive. Follow fuel stabilizer manufacturer's recommendations for use.
5. Replace the Fuel Cap.
6. Wipe up any spilled fuel and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

ENGINE OIL CHANGE

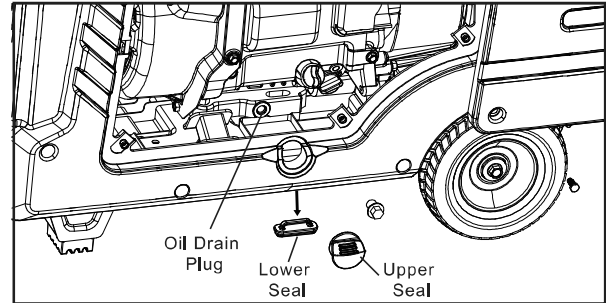
⚠ CAUTION

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

1. Make sure the Engine is stopped and is level.
2. On the right side of the Generator, loosen the 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 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 Generator is level when adding oil to prevent overfilling which could cause engine damage.
10. Check the oil level. The oil level should be up to the edge of the hole as shown.
 11. Thread the Oil Fill Cap / Dipstick back in clockwise and replace the Oil Fill Access Door.

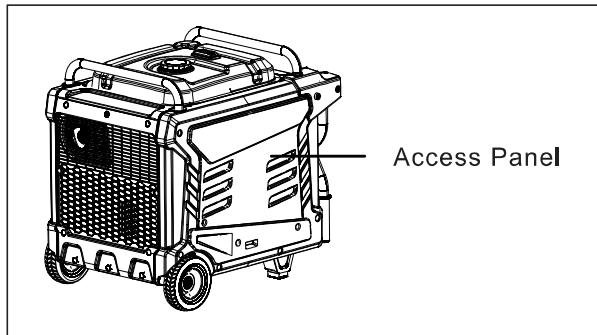
NOTICE

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

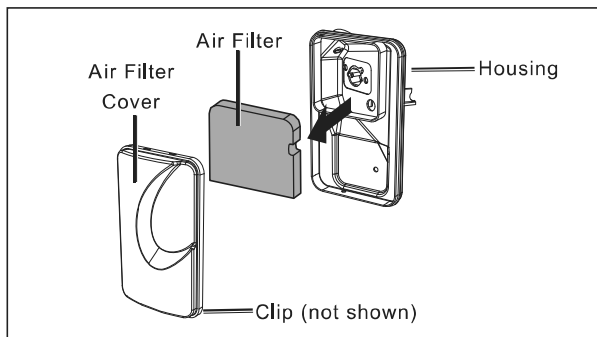
MAINTENANCE

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 figure below.
3. Remove Air Filter.



Spark Arrestor Maintenance

⚠ WARNING

TO PREVENT SERIOUS INJURY AND FIRE:

Operate only with proper spark arrestor installed.



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

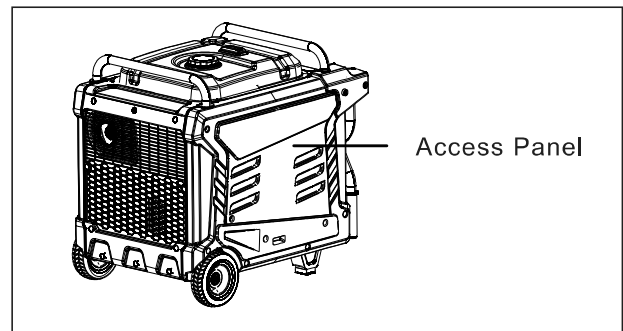
1. Allow the Generator to cool completely.
2. Remove the Screws from the back of the Generator.
3. Remove the Tail Pipe and Spark Arrestor.
4. Clean the Spark Arrestor using a wire brush (sold separately). Replace arrestor if damaged.

⚠ WARNING

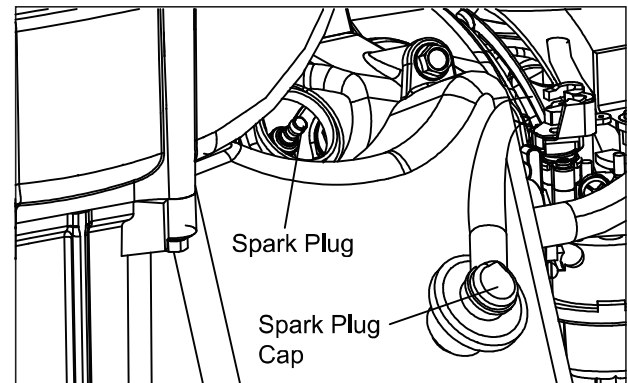
TO PREVENT SERIOUS INJURY FROM ACCIDENTAL BRUSH FIRE, secure Spark Arrestor back in place immediately after cleaning and before further operation.

Spark Plug Maintenance

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



2. Disconnect Spark Plug Cap from 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, polish it using emery paper. If the white insulator is cracked or chipped, the spark plug needs to be replaced.

NOTICE

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

5. When installing a new spark plug, adjust the plug's gap to the specification on the Specifications chart. Do not pry against the electrode, the spark plug can be damaged.
6. Apply anti-seize material to Spark Plug threads. Install the new spark plug or the cleaned spark plug into the engine.

MAINTENANCE

- **Gasket-style:**

Finger-tighten until the gasket contacts the cylinder head, then tighten about 1/2-2/3 turn more.

- **Non-gasket-style:**

Finger-tighten until the plug contacts the cylinder head, then tighten about 1/16 turn more.

NOTICE

Tighten the Spark Plug properly. If loose, the Spark Plug will cause the engine to overheat.

If overtightened, the threads in the engine block will be damaged.

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

8. Replace 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:

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 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.

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

⚠ WARNING



TO PREVENT SERIOUS INJURY FROM FIRE:

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.

⚠ WARNING

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

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. 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.

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.

5. AFTER STORAGE:

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

TROUBLESHOOTING

Problem	Possible Causes	Probable Solutions
Engine will not start	FUEL RELATED: 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 chamber. This can be caused by the carburetor needle sticking. 9. Clogged Fuel Filter.	FUEL RELATED: 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 fuel system. Replace components damaged by ethanol. Use fresh 87+ octane stabilizer-treated unleaded gasoline only. Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.). 4. Use fresh 87+ octane stabilizer-treated unleaded gasoline. Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.). 5. Pull on Starter Handle to prime. 6. Clean out passageways using fuel additive. Heavy deposits may require further cleaning. 7. Gently tap side of carburetor float chamber with screwdriver handle. 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. Replace Fuel Filter.
	IGNITION (SPARK) RELATED: 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 broken. 6. Circuit breaker tripped (electric start models only). 7. Incorrect spark timing or faulty ignition system.	IGNITION (SPARK) RELATED: 1. Turn Power Switch to ON. 2. Connect spark plug cap properly. 3. Clean spark plug. 4. Correct spark plug gap. 5. Replace spark plug cap. 6. Reset circuit breaker. Check wiring and starter motor if breaker continues to trip. 7. Have qualified technician diagnose/repair ignition system.
	COMPRESSION RELATED: 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 mis-adjusted or stuck.	COMPRESSION RELATED: 1. Pour tablespoon of oil into spark plug hole. Crank engine a few times and try to start again. 2. Tighten spark plug. If that does not work, replace spark plug. If problem persists, may have head gasket problem, see #3. 3. Tighten head. If that does not remedy problem, replace head gasket. 4. Have qualified technician adjust/repair valves and tappets.
	ENGINE OIL RELATED: 1. Low engine oil. 2. Engine mounted on slope, triggering low oil shutdown.	ENGINE OIL RELATED: 1. Fill engine oil to proper level. Check engine oil before EVERY use. 2. Operate engine on level surface. Check engine oil level.
	SPARK ARRESTOR RELATED: 1. Spark Arrestor clogged with soot.	SPARK ARRESTOR RELATED: 1. Clean and replace Spark Arrestor.



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

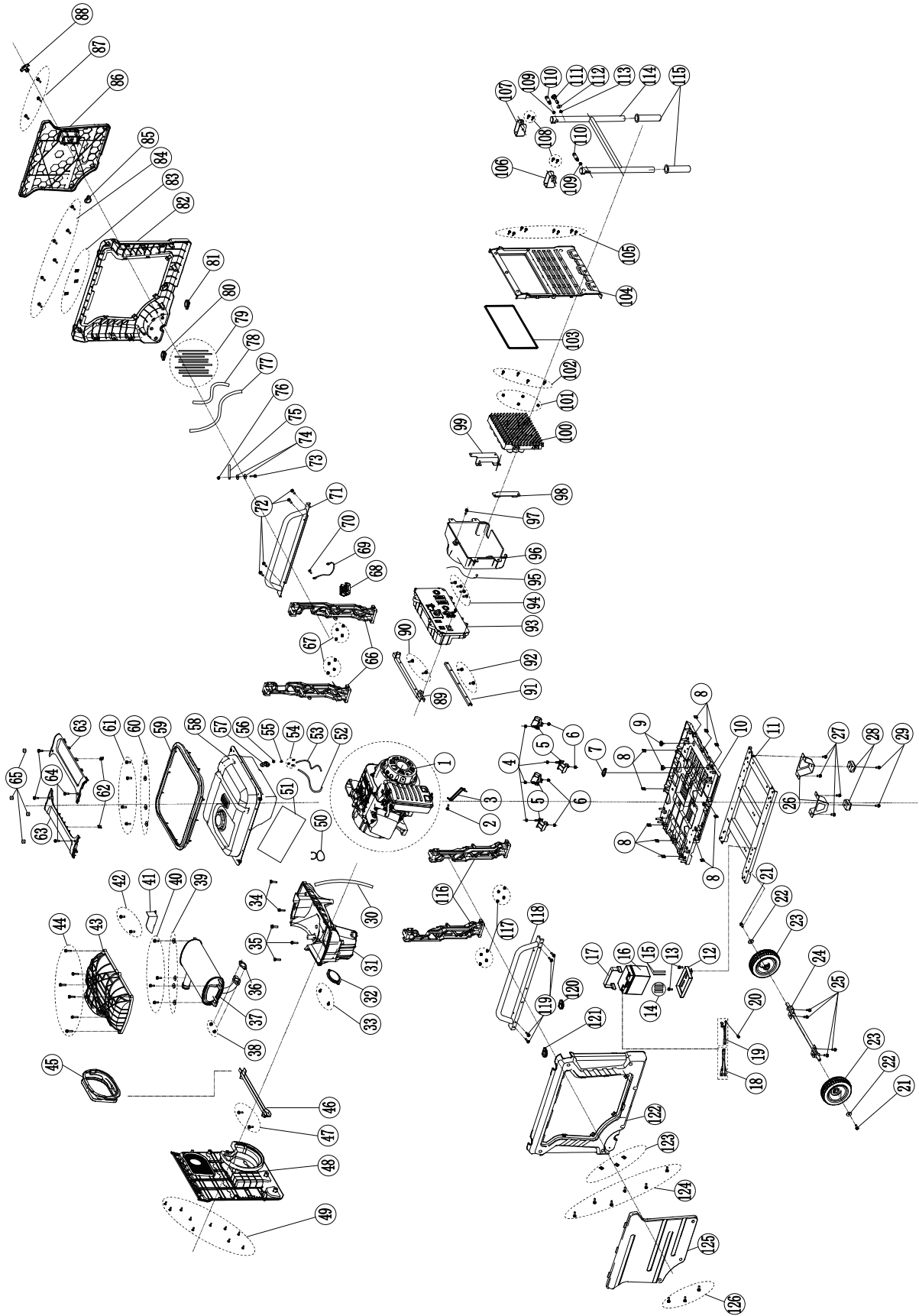
TROUBLESHOOTING

Problem	Possible Causes	Probable Solutions
Engine misfires	<ol style="list-style-type: none"> 1. Spark plug cap loose. 2. Incorrect spark plug gap or damaged spark plug. 3. Defective spark plug cap. 4. Old or low quality gasoline. 5. Incorrect compression. 	<ol style="list-style-type: none"> 1. Check cap and wire connections. 2. Re-gap or replace spark plug. 3. Replace spark plug cap. 4. Use only fresh 87+ octane stabilizer-treated unleaded gasoline. Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.). 5. Diagnose and repair compression, (Use Engine will not start: COMPRESSION RELATED section.)
Engine stops suddenly	<ol style="list-style-type: none"> 1. Low oil shutdown. 2. Fuel tank empty or full of impure or low quality gasoline. 3. Defective fuel tank cap creating vacuum, preventing proper fuel flow. 4. Faulty magneto. 5. Disconnected or improperly connected spark plug cap. 	<ol style="list-style-type: none"> 1. Fill engine oil to proper level. Check engine oil before EVERY use. 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 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 equipment's load rating. 3. Have qualified technician diagnose and service engine.
Engine backfires	<ol style="list-style-type: none"> 1. Impure or low quality gasoline. 2. Engine too cold. 3. Intake valve stuck or 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 qualified technician diagnose and service engine. 4. Check engine timing.
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 on. 2. Turn off and unplug device, reset Circuit Breaker, plug in device and turn on. 3. Have product repaired.
Attached device begins to operate abnormally	<ol style="list-style-type: none"> 1. Problem with device. 2. Rated load capacity exceeded. 	<ol style="list-style-type: none"> 1. Immediately unplug device. Have device repaired by a qualified technician, or replace device. 2. Lower the number of items plugged into the generator to stay within the rated capacity, or use a more powerful generator.



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

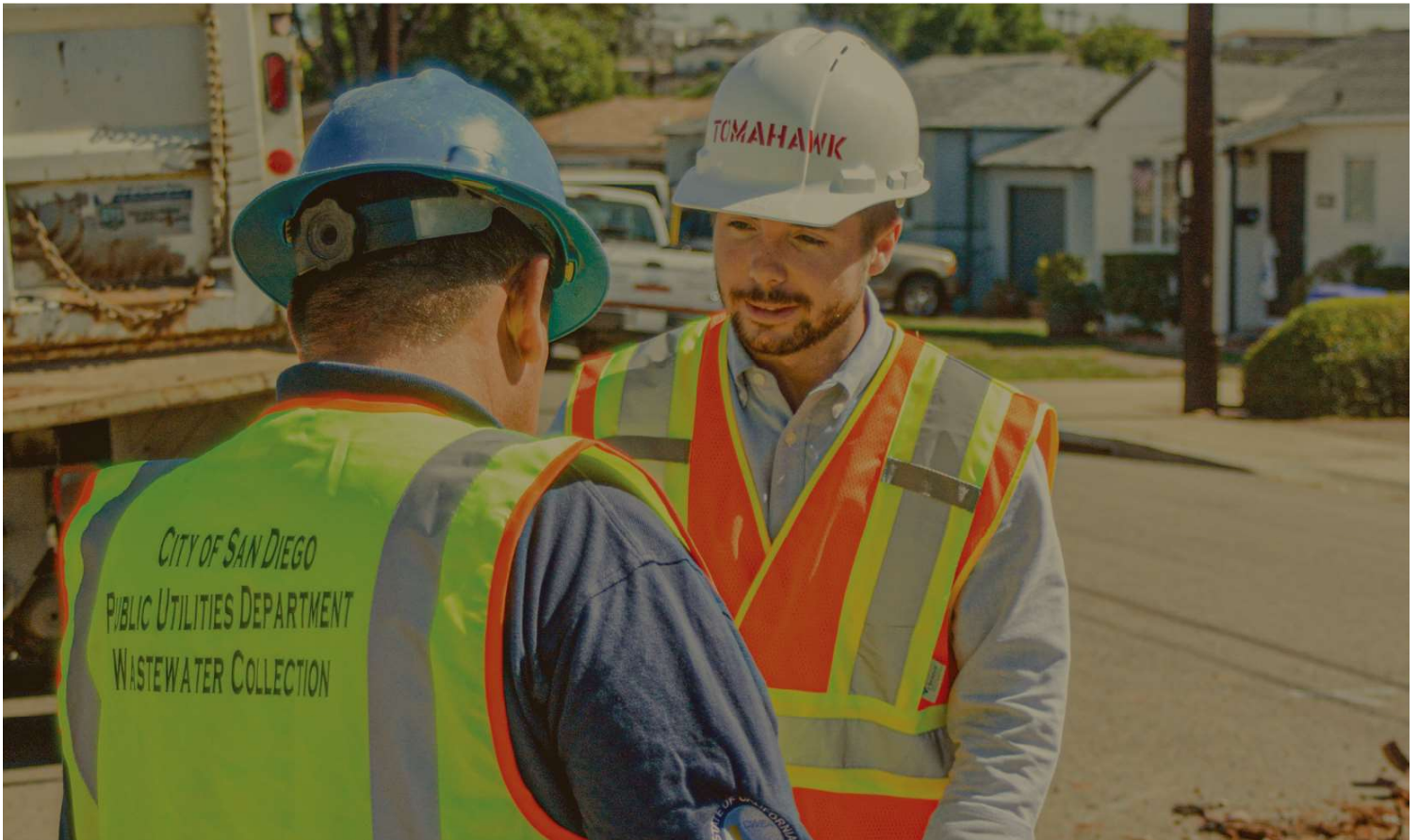
ASSEMBLY DIAGRAM



PARTS LIST

Part	Description	Qty
1	Engine	1
2	Bolt	1
3	Air filter bracket	1
4	Locking nut with disc	4
5	Absorber A	4
6	Locking nut with disc	4
7	Plug	1
8	Clip nut	10
9	Plug	2
10	Base plate	1
11	Base plate	1
12	Battery box	1
13	Bolt	2
14	Battery protection pad A	4
15	Battery protection pad B	2
16	Battery	1
17	Battery strap	1
18	Battery wire	1
19	Battery wire	1
20	Bolt	1
21	Bolt	2
22	Washer	2
23	7 inch solid wheel	2
24	Axle	1
25	Bolt	4
26	Support	2
27	Bolt	4
28	Cushion	2
29	Bolt	2
30	Tin foil	1
31	Muffler exhaust lower cover assembly	1
32	Muffler lower cover	1
33	Bolt	2
34	Hexagon flange bolt	2
35	Bolt	3
36	Exhaust gasket	1
37	Muffler	1
38	Hexagon flange bolt	2
39	Flat washer	4
40	Hexagon flange bolt	4
41	Muffler cover partition	1

Part	Description	Qty
42	Bolt	2
43	Muffler exhaust upper cover assembly	1
44	Bolt	6
45	Muffler wind deflector	1
46	Upper front and rear beams	1
47	Bolt	2
48	Motor cover plate assembly	1
49	Bolt	10
50	Plastic twist ring	1
51	Tin foil	1
52	Oil tube	1
53	Fuel evaporation collection pipe	1
54	Tubing clamp	3
55	Tubing clamp	1
56	Tubing clamp	1
57	Oil switch	1
58	Fuel tank	1
59	Fuel tank rubber strip	1
60	Flat washer	4
61	Bolt	4
62	Clip nut	2
63	Upper cover assembly	2
64	Bolt	4
65	Plug	4
66	Holder	2
67	Locking nut with disc	8
68	Voltage regulating rectifier	1
69	Ground wire	1
70	Bolt	1
71	Left and right beams	1
72	Bolt	4
73	Bolt	1
74	Washer	2
75	Crimping board	1
76	Locking nut with disc	1
77	Bellows	1
78	Bellows	1
79	Nylon cable tie	10
80	Plug	1
81	Plug	1
82	Right shell	1



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Tomahawk Power, LLC
San Diego, CA

Sales Support
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sales@tomahawk-power.com

Equipment Support
(866) 577-4476
support@tomahawk-power.com

www.tomahawk-power.com



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