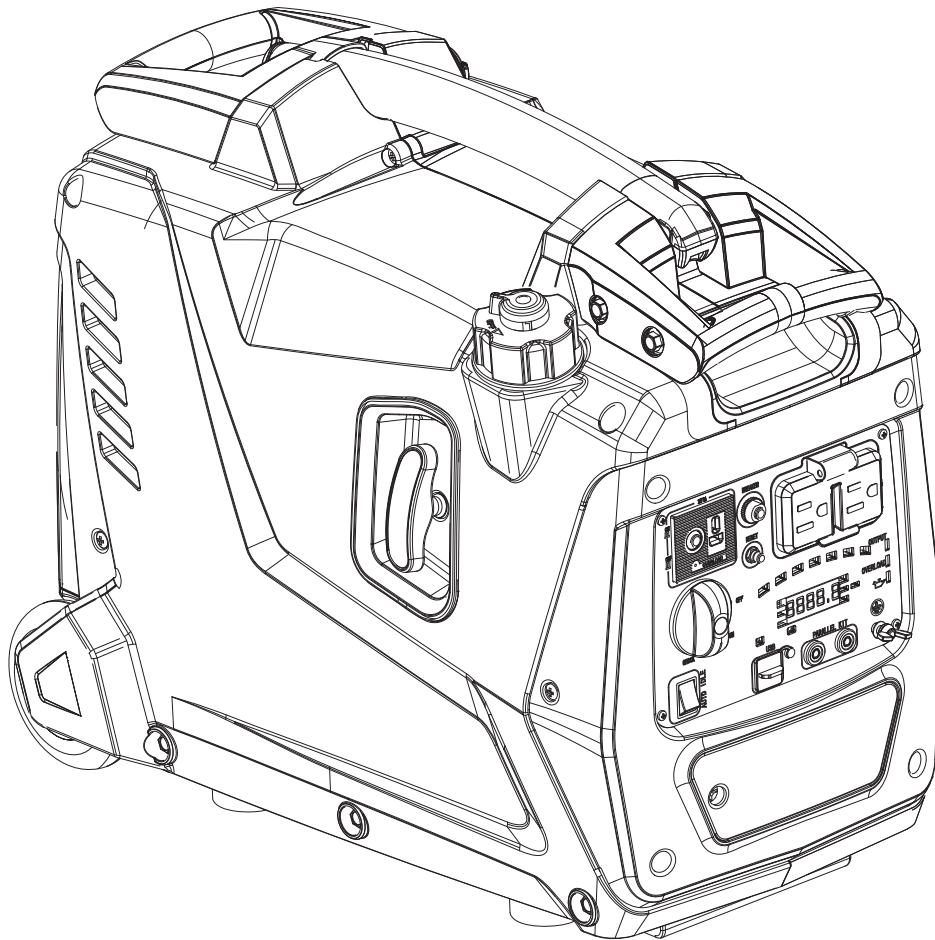


# ***POWERSMITH***™

## **2200W Digital Inverter Generator Operator's Manual**

**PGA2200i**



**TOLL-FREE  
HELP LINE: 888-552-8665**

**[WWW.POWERSMITHPRODUCTS.COM](http://WWW.POWERSMITHPRODUCTS.COM)**

**⚠ WARNING:** To reduce the risk of injury, user must read and understand this operator's manual before operating this product.

**SAVE THIS MANUAL FOR FUTURE REFERENCE**

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## **CALIFORNIA PROPOSITION 65 WARNING**

The engine exhaust from this product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

Certain components in this product and its related accessories contain chemicals known to the state of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling.

For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

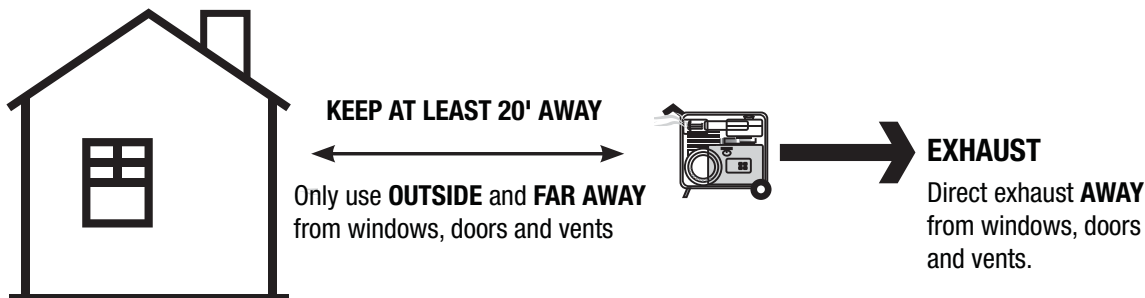
## IMPORTANT SAFETY RULES

### **! DANGER:**

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

LOCATE GENERATOR AT LEAST 20 FEET\* AWAY TO REDUCE THE RISK OF CARBON MONOXIDE GETTING INSIDE THE HOME.

\* Minimum distance as recommended by U.S. Department of Health and Human Services Centers for Disease Control and Prevention ([www.cdc.gov/co](http://www.cdc.gov/co)). Your specific home and/or wind conditions may require additional distance.



**WARNING:** ONLY USE UNLEADED GASOLINE CONTAINING UP TO 10% ETHANOL. Do not use E15 or E85 fuel in this product. It is a violation of federal law and will damage the unit and void your warranty.



**WARNING:** READ AND UNDERSTAND ALL INSTRUCTIONS. Failure to follow the instructions listed below could result in electrocution, fire, and/or carbon monoxide poisoning, which can cause death or serious injury.

## SAVE THESE INSTRUCTIONS

This manual covers the operation and maintenance of the model PGA2200i generator. This manual should be considered a permanent part of the generator and should remain with it if it is resold.

- **Keep children and pets at least 10 feet away** from the generator when it is in operation.
- **Fuel is combustible and easily ignited. Do not refuel during operation.** Do not refuel while smoking or near naked flames. Do not spill fuel. Always refuel in a well-ventilated location. Wipe up spilled gasoline at once.
- **Some parts of the internal combustion engine are hot and may cause burns.** Pay attention to the warnings on the generating set. The engine exhaust system will be heated during operation and remain hot immediately after stopping the engine. Be careful not to touch the muffler while it is hot. Let the engine cool before storing the generator indoors.
- **Engine exhaust gases are toxic. Be sure to provide adequate ventilation.** Do not operate the generating set in unventilated rooms. When installed in ventilated rooms, additional requirements for fire and explosion protection shall be observed.
- **Never use the generator under extreme environment conditions like those, during rain storms,** during lightning storms, or at any other times when weather conditions might make it unsafe to use this product. Do not let it get wet.
- **Always make a pre-operation inspection** before you start the engine. You may prevent an accident or equipment damage.

## IMPORTANT SAFETY RULES

- **Operate the generator on a level surface.** If the generator is tilted, fuel spillage may result.
- **Know how to stop the generator quickly and understand operation of all the controls.** Never permit anyone to operate the generator without proper instructions.
- **The generator produces enough electric power to cause a serious shock or electrocution when misused; do not operate with wet hands.**
- **Keep flammable materials away from the generator.** Don't use the generator at locations where the risk of fire may be high.
- **Loosen fuel cap slowly to release pressure and to keep fuel from escaping around the cap.**
- **Tighten the fuel cap securely after refueling.**
- **Never attempt to burn off spilled fuel under any circumstances.**
- **Do not remove the oil dipstick or the fuel tank cap** when the engine is running.
- **The generator operates best in temperatures between 23°F and 104°F** with a relative humidity of 90% or less.
- **Before storing, allow the engine to cool for 30 minutes and drain fuel from the unit.**
- **Store the generator in a well-ventilated area** with the fuel tank empty. Fuel should not be stored near the generator.
- **Before use, the generating set and its electrical equipment** (including lines and plug connections) should be checked to ensure that they are not defective.
- **The generating set shall not be connected to other power sources**, such as the power company supply mains.
- **Protection against electrical shock depends on circuit breakers specially matched to the generating set.** If the circuit breakers require replacement, they should be replaced with a circuit breaker having identical ratings and performances characteristics.
- **Due to high mechanical stresses, only tough rubber-sheathed flexible cable** (in accordance with IEC 60245-4) or the equivalent should be used.
- **When using extension lines or mobile distribution networks the resistance value shall not exceed 1,5 Ω.** For reference, the total length of lines for a cross section of 1,5 mm<sup>2</sup> should not exceed 60 m; for a cross section of 2,5 mm<sup>2</sup>, this should not exceed 100 m.
- **Ground terminal to earth securely before each start** when grounding is required.

















**WARNING:** Always conform to regulations of electrical safety applicable to the place where the generating sets are used.

**SAVE THESE INSTRUCTIONS**

## SYMBOLS / LABELS

Some of the following symbols may be used on this product. Please study them and learn their meaning. Proper interpretation of these symbols will allow you to operate the product better and safer.

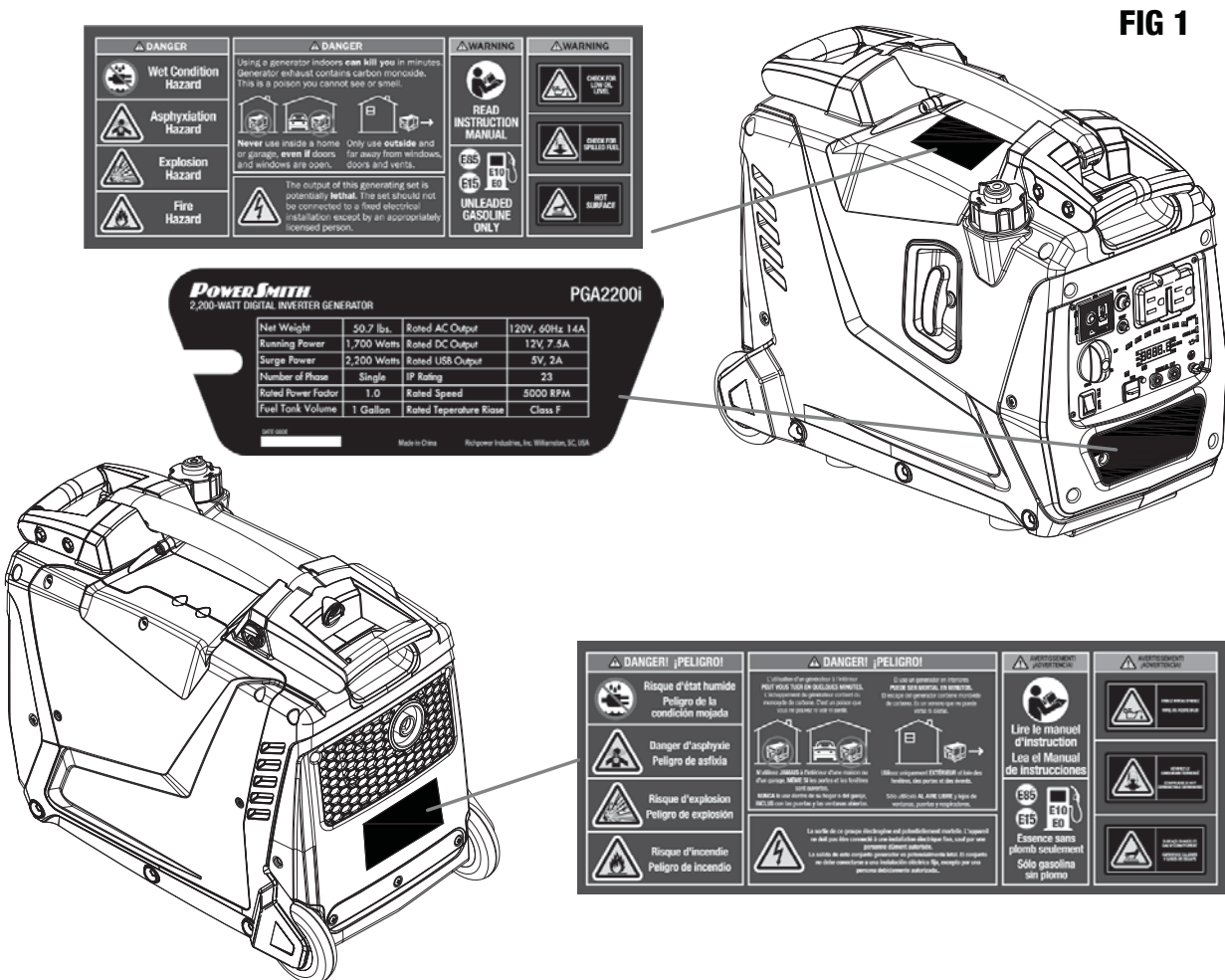
SYMBOL	NAME	EXPLANATION
V	Volts	Voltage
A	Amperes	Current
Hz	Herz	Frequency (cycles per second)
W	Watts	Power
RPM	Per Minute	Revolutions, strokes, surface speed, orbits etc., per minute
	Alternating Current	Type of current
	Direct Current	Type of characteristic of current
	Read the Operator's Manual	To reduce the risk of injury, the user must read and understand operator's manual before using this product.
	Safety Alert	Precautions that concern your safety.
	Electric Shock	Failure to use in dry conditions and to observe safe practices can result in electric shock.
	Fire Hazard	Fuel and its vapors are extremely flammable. Do not add fuel while the product is operating.
	Hot Surface/Exhaust Gases	To reduce the risk of injury or damage, avoid contact with any hot surface and do not place any body parts in the path of hot exhaust gases.
	Ground/Earth Terminal	Consult with local electrician to determine grounding requirements before operation.
	USB Socket	USB Socket
	Engine Oil Alarm	Add engine oil to full mark to start. Engine will not start or will shut off at low oil level.
	Asphyxiation Hazard	Exhaust contains poisonous carbon monoxide gas that can cause unconsciousness or DEATH. Operate in well ventilated, outdoor areas away from open windows or doors.
	Check for Spilled Fuel	Fuel and its vapors are extremely flammable. Check and clean up spilled fuel before operating.
	Explosion Hazard	Fuel and its vapors are extremely flammable and explosive. Fire or explosion can cause severe burns or death.
	Wet Conditions Alert	Do not expose to rain or use in damp locations.

# SYMBOLS / LABELS

The following signal words and meanings are intended to explain the levels of risk associated with this product.

SYMBOL	SIGNAL	MEANING
	DANGER	Indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.
	WARNING	Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.
	CAUTION	Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.
	CAUTION	(Without Safety Alert Symbol) Indicates important information not related to an injury hazard, such as a situation that may result in property damage.

- These labels warn you of potential hazards that can cause serious injury. Read the labels and safety notes and precautions described in this manual carefully.
- The basic technical specifications is given out by the nameplate.
- If a label comes off or becomes hard to READ, contact your dealer for a replacement.



# ELECTRICAL

## GUIDELINES FOR USING EXTENSION CORDS

- If you are using an extension cord outdoors, be sure it is marked with the suffix "W-A" ("W" in Canada) to indicate that it is acceptable for outdoor use.
- Be sure your extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified person before using it.
- Protect your extension cords from sharp objects, excessive heat, and damp or wet areas.

Recommended Minimum Wire Gauge for Extension Cords (120 Volt)						
Nameplate Amperes (At Full Load)	Extension Cord Length					
	25 Feet	50 Feet	75 Feet	100 Feet	150 Feet	200 Feet
0–2.0	18	18	18	18	16	16
2.1–3.4	18	18	18	16	14	14
3.5–5.0	18	18	16	14	12	12
5.1–7.0	18	16	14	12	12	10
7.1–12.0	18	14	12	10	8	8
12.1–16.0	14	12	10	10	8	6
16.1–20.0	12	10	8	8	6	6

## ELECTRIC MOTOR LOADS

It is characteristic of common electric motors in normal operation to draw up to six times their running current while starting. This table may be used to estimate the watts required to start electric motors; however, if an electric motor fails to start or reach running speed, turn off the appliance or tool immediately to avoid equipment damage. Always check the requirements of the tool or appliance being used compared to the rated output of the generator.

MOTOR SIZE	RUNNING WATTS	WATTS REQUIRED TO START MOTOR		
		UNIVERSAL	CAPACITOR	SPLIT PHASE
1/8	275	N/A	850	1200
1/6	275	600	850	2050
1/4	400	800	1050	2400
1/3	450	950	1350	2700
1/2	600	1000	1800	3600
3/4	850	1200	2600	--
1	1100	N/A	3300	--

**NOTE:** Operating voltage and frequency requirement of all electronic equipment should be checked before plugging them into this generator. It may damage the equipment if the equipment is not designed to operate within a +/- 10% voltage variation, and +/- 3 Herz frequency variation from the generator name plate ratings. To avoid damage, always have an additional load plugged into the generator if solid state equipment (such as a television set) is used. A power line conditioner is recommended for some solid state applications.

## GENERATOR CAPACITY

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

- Add up the total rated wattage of all electrical items to be connected at one time. This total should NOT be greater than generator's rated running wattage.



# ELECTRICAL

- Estimate how many surge (starting) watts you will need. Surge wattage is the short burst of power needed to start electric motor of tools or appliances such as electric drill or refrigerator. It lasts only a few seconds. Because not all motors start at the same time, total surge watts needed can be estimated by adding only the item with the highest surge watts to the total rated watts. The total surge watts needed should NOT be greater than the generator's surge wattage.

## MANAGING THE POWER

To prolong the life of the generator and connected devices, it is important to take correct steps when adding electrical loads to the generator. There should be no load before starting generator. The correct and safe way to manage generator power is to sequentially add loads as follows.

1. Start the generator with no load as described later in this manual.
2. Plug in the turn on the first load, preferably the largest load you have.
3. Allow time to let the generator to run smoothly and the attached to operate properly.
4. Connect and turn on the second load.
5. Again, allow time to let the generator to run smoothly.
6. Repeat step 4 and 5 for each additional load.

**NOTE:** Do not add more loads than generator capacity. Exceeding the generator's wattage/ampere capacity may damage the generator and/or devices connected to it.

Generator Wattage Reference:

APPLIANCE / EQUIPMENT	ESTIMATED RUNNING WATTS	ESTIMATED SURGE (STARTING) WATTS
Incandescent 60W Bulb	60	-
Refrigerator / Freezer	700	2200
Electric Water Heater	4000	-
Smart Phone Charger	25	-
Stereo	200	-
LED TV 42 in.	85	-
Laptop Computer	250	-
Radio	200	-
Inflator	50	150
Portable Fan	40	120
Space Heater	1300	-
Window AC (10,000 BTU)	1200	1800
RV AC	1010	1600
Microwave Oven (1000 Watts)	1000	-
Coffee Maker	1000	-
Toaster	850	-
Blender	400	850
Electric Drill 3/8"	440	600
Reciprocating Saw	960	960
Air Compressor (1/4 HP)	970	1600

**NOTE:** Wattages listed are approximate. Check tool or appliance for actual wattage.



## SPECIFICATIONS

Portable Generator	
Model #	PGA2200i
Surge Power	2200 Watts
Running Power	1700 Watts
Number of Phases	Single
Rated Power Factor	1.0
Rated Speed	5000 RPM
Rated AC Output	120V, 60Hz, 14.17A
Rated DC Output	12V, 7.5A
Rated USB Output	5.0V, 2A
IP Rating	23
Rated Ambient Temperature	68 °F
Rated Temperature Rise	Class F
Fuel Tank Capacity	1 Gallon
Net Weight	50.7 lb.
Engine	
Type	Single Cylinder, 4-Stroke, Air Cooled, OHV
Displacement	79.8 cc
Rated Speed	5000 RPM
No Load Speed	3000 RPM
Spark Plug	TORCH E6TC
Oil Tank Volume	400 CM <sup>3</sup>
Fuel	Unleaded Gasoline
Lubricate Oil	SAE 10W30 (above API SJ grade)

## UNPACKING & CONTENTS

**IMPORTANT!** Due to modern mass production techniques, it is unlikely the tool is faulty or that a part is missing. If you find anything wrong, do not operate the tool until the parts have been replaced or the fault has been rectified. Failure to do so could result in serious personal injury.

### CONTENTS IN PACKAGE

Description	Q'TY	Description	Q'TY
Generator	1	Engine Oil	1
Oil Funnel	1	DC Power Cable	1
Spark Plug Wrench	1	Screwdriver	1
Operator's Manual	1		

# KNOWING YOUR GENERATOR

CONTROL PANEL

FIG 2

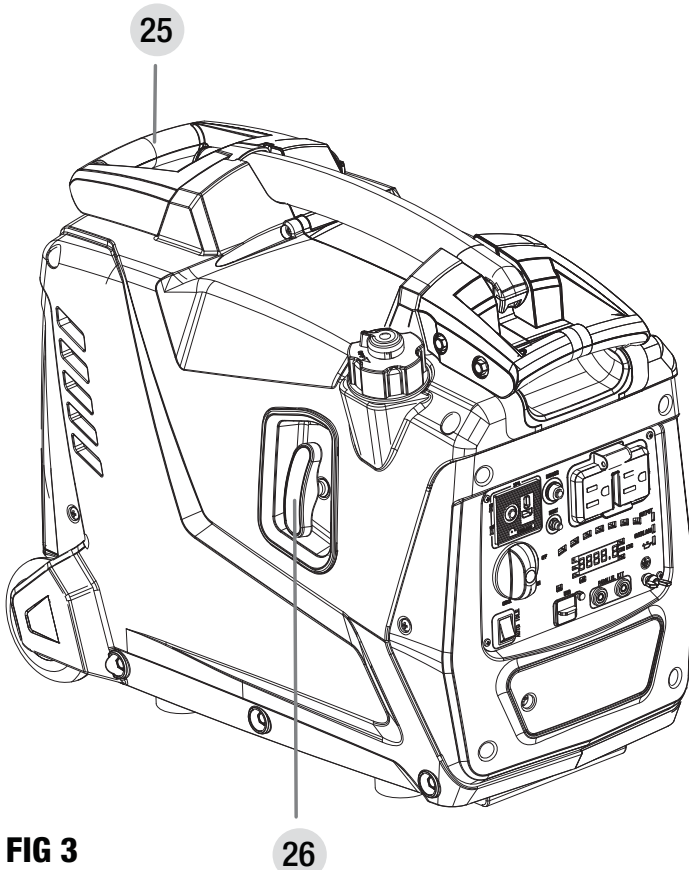
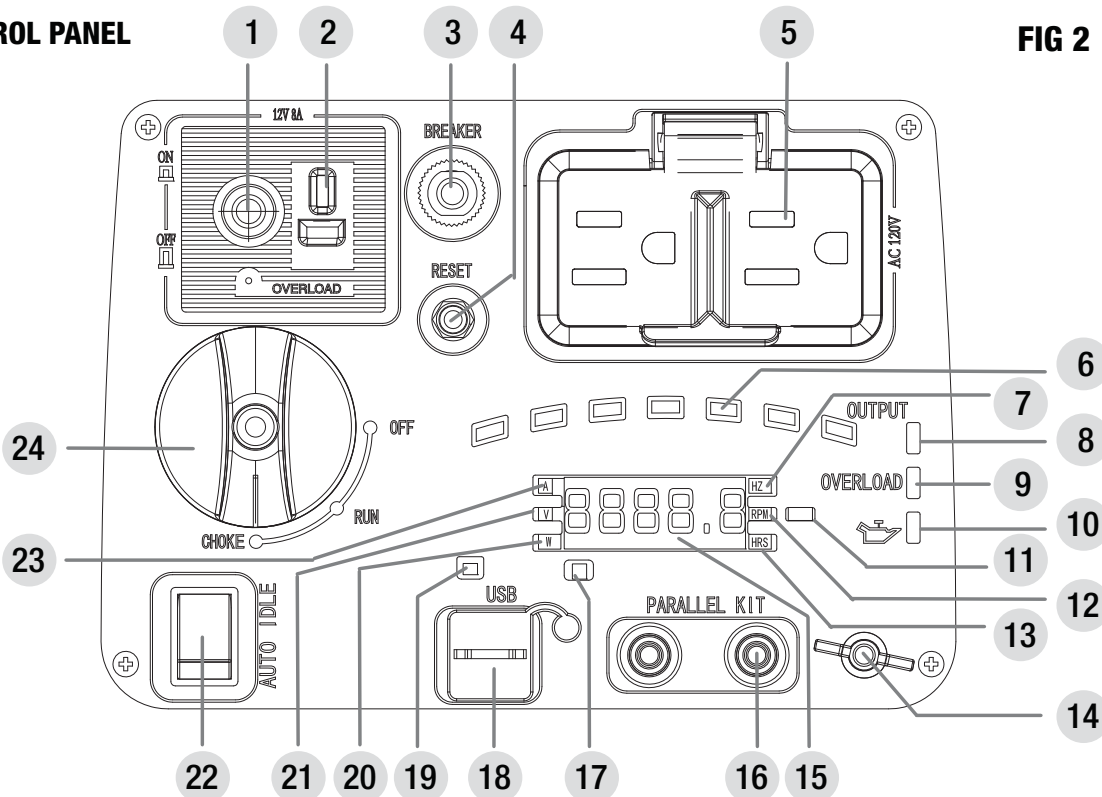
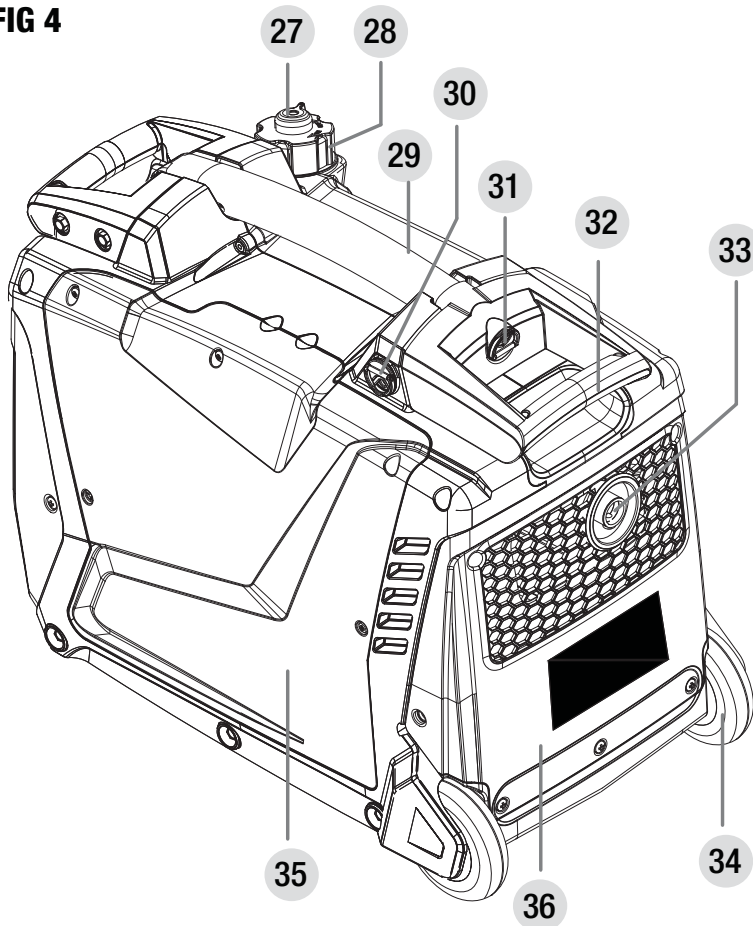


FIG 3

1. DC Current Breaker
2. DC Outlet
3. AC Current Breaker
4. Output Reset Button
5. AC Outlets
6. Fuel Level Indicator
7. Frequency Indicator
8. Output Indicator
9. Overload Indicator
10. Oil Alarm Indicator
11. Maintenance Indicator
12. Engine Revolution Speed
13. Running Cumulative Hours
14. Ground Terminal
15. Digital Display Screen
16. Parallel Connectors
17. Display Locking Button
18. USB Ports
19. Running Hours Reset Button
20. Wattage Indicator
21. AC Voltage Indicator
22. Auto Idle Switch
23. AC Amperes Indicator
24. Engine Switch (Choke)

# KNOWING YOUR GENERATOR

FIG 4



- 25. Lift Handle
- 26. Recoil Starter
- 27. Fuel Tank Vent
- 28. Fuel Tank Cap
- 29. Carrying Handle
- 30. Handle Locking Pin
- 31. Unfold Locking Pin
- 32. Transportation Handle
- 33. Spark Arrester
- 34. Transportation Wheel
- 35. Maintenance Cover
- 36. Muffler Shield
- 37. Spark Plug
- 38. Carburetor Drain Screw
- 39. Air Filter Cover
- 40. Engine Serial Number
- 41. Oil Dipstick

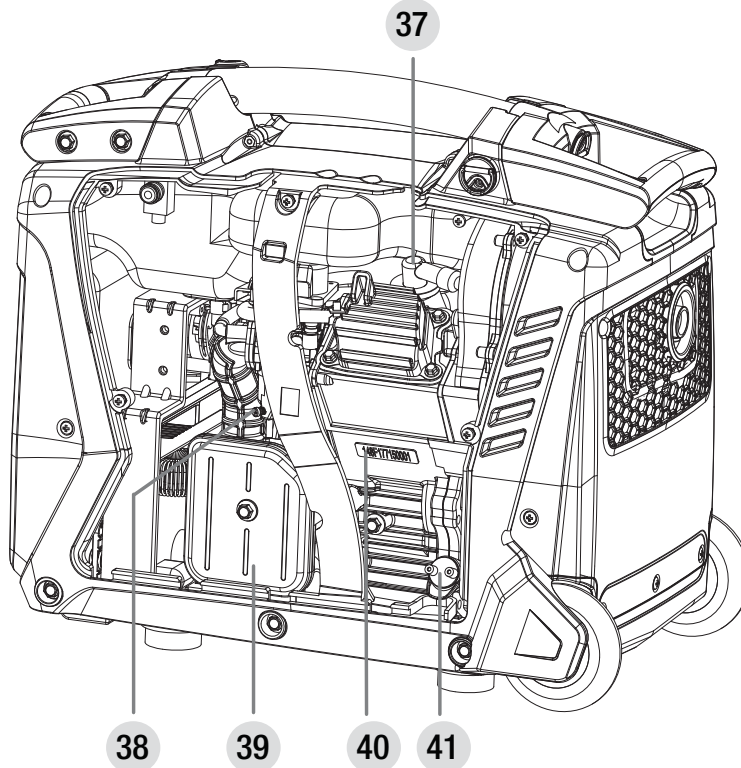


FIG 5

## KNOWING YOUR GENERATOR

**DC OUTLET** -- Provides 12V DC power up to 7.5A. The DC outlet should only be used for charging 12 volt automotive-type batteries.

**AC OUTLET** -- Your generator has two outlets that provide 120V, 60Hz AC power up to 14.17A. These can be used for operating the appliances, electrical lighting, tools, and other motor loads.

**USB PORT** -- The two 5V 2.0A USB charging ports will charge most USB-compatible devices.

**AUTO IDLE SWITCH** -- The auto idle switch is used to control the speed of the engine and conserve fuel. When Auto Idle is on and no appliances are connected to the unit, the engine will idle. If a device is added, the engine speed will increase to power the device. If the device is removed, the engine will return to idle.

**GROUND TERMINAL** -- The ground terminal is used to assist in properly grounding the generator to help protect against electrical shock. Consult with a qualified local electrician for grounding requirements in your area.

**ENGINE SWITCH** -- The engine switch is used when starting, stopping, and running the engine. It also controls the choke and the fuel valve.

**RECOIL STARTER** -- The recoil starter is used (along with the Engine Switch) to start the generator's engine.

**RESET BUTTON** -- The reset button is used to restore power if an overload occurs. To restore power, remove all loads and depress the reset button.

**PARALLEL KIT TERMINALS** -- The non-polarized parallel kit terminals are used with a parallel kit (Not included) that will allow generators to be linked together to increase power output.

**FUEL CAP** -- Remove the fuel cap to check and refill the fuel when needed.

**FUEL TANK VENT** -- Open vent to run the engine, and close the vent when the engine is off

**OIL CAP / DIPSTICK** -- Remove the oil fill cap to check and add engine oil to the generator when necessary.

**FUEL LEVEL INDICATOR** -- Indicates how much fuel remaining in the fuel tank.

**DIGITAL DISPLAY SCREEN** -- Displays the real time load and data, including Voltage, Frequency, Wattage, Running Hours, Amps, and Engine Revolution Speed.

**OUTPUT INDICATOR** -- Light turns green during normal operating conditions.

**OVERLOAD INDICATOR** -- Red or Red Flashing light indicates the loads are over the generator's capacity.

**OIL ALARM INDICATOR** -- Red light Indicates the engine oil level is below the safe limit. It is time to check and add engine oil.

**SPARK ARRESTER** -- The spark arrestor prevents sparks exiting from the muffler. It must be removed for servicing. Avoid contact until the engine is cooled down.

# OPERATION

## APPLICATIONS

This generator is designed to supply electrical power to electrical devices, including lights, appliances, tools, and etc.

## BEFORE STARTING THE GENERATOR

**! WARNING:** Read and understand the Important Safety Rules before starting the generator.

**Location Selection** – To avoid exhaust and location hazards, select location with following conditions.

- Outdoors and well ventilated.
- A level and solid surface on which to place the generator.
- At least 20 feet away from any building, other equipment or combustible material. If the generator is located close to a building, make sure it is not located near any windows, doors and/or vents.

**! 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 it in a home or garage, even if doors and windows are open. Only use OUTSIDE and FAR AWAY from windows, doors, and vents.

**! WARNING:** Always operate the generator on a level surface. Placing the generator on nonlevel surfaces can cause the generator to tip over, causing fuel and oil to spill. Spilled fuel can ignite if it comes in contact with an ignition source such as a very hot surface.

**Weather** – Never operate the generator outdoors during rain, snow or any combination of weather conditions that could lead to moisture collecting on, in or around the generator.

**No Attached Loads** – Make sure the generator has no attached loads before starting it. To ensure there are no attached loads, unplug any electrical extension cords that are plugged into the control panel outlets.

**CAUTION:** Starting the generator with loads already applied to it could result in damage to any appliance being powered off the generator during the brief start-up period.

**Grounding the Generator** – Consult with a qualified local electrician for grounding requirements in your area.

**! WARNING:** To prevent electrical shock from faulty appliances, the generator should be grounded. Connect a length of heavy wire between the generator's ground terminal and an external ground source.

## CHECKING / ADDING ENGINE OIL

Be sure to check the oil level before each use with the generator on a flat, level surface and the engine stopped.

**! WARNING:** Health studies have shown that chemical exposure may cause potential human health risks. Take care when handling oil. Avoid direct contact with skin. Wash contact areas with soap and water. When contacted with eye, flush thoroughly with water. If irritation occurs, get medical assistance.

Always use 4-stroke motor oil that meets or exceeds the requirements for API service classification SJ. 10W-30 is recommended for general, all-temperature use. Other viscosities show in the chart (FIG 6) may be used when the average temperature in your area is within the indicated range.

**CAUTION:** Do NOT use non-detergent oil or 2-stroke engine oil, it could shorten the engine's service life.

1. Placed the generator on the level surface.
2. Loosen the cover screws and remove the maintenance cover. See Fig 7.
3. Unscrew the oil cap/dipstick and remove. Wipe the dipstick clean.
4. Check the oil level by re-inserting the dipstick into the filler neck without screwing it in.
5. If the oil level is low, refill to the level between the minimum and maximum mark on the dipstick with the recommended oil.

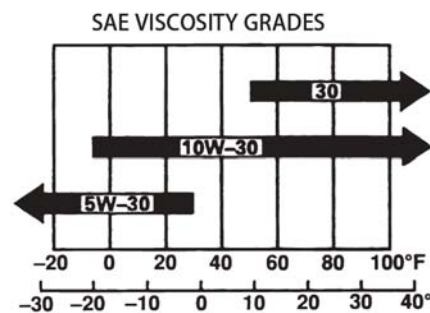


FIG 6

## OPERATION

6. Replace and secure the oil cap/dipstick securely.
7. Reinstall the maintenance cover and tighten the cover screws securely.

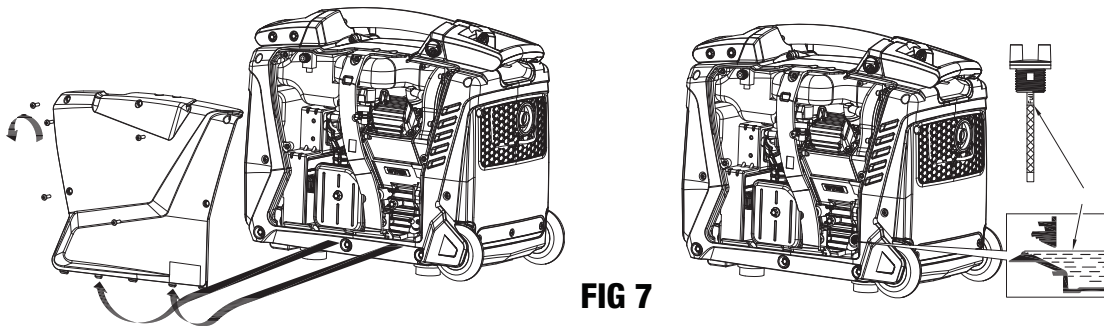


FIG 7

This engine comes with a feature that will shut off the engine when the oil level falls below the safe limit. The engine will not restart until an appropriate oil level is reached. To avoid the inconvenience of an unexpected shutdown, check the oil level regularly. Running the engine with insufficient oil can cause serious engine damage.

### CHECKING / ADDING FUEL

This engine is certified to operate on the regular unleaded gasoline with a pump octane rating of 86(RON97) or higher, maximum 10% ethanol.

**CAUTION:** Do not use E15 or E85 fuel in this product. It is a violation of federal law and will damage the unit and void your warranty. Never use stale or contaminated gasoline or an oil/gasoline mixture. Avoid getting the dirty and water in the fuel tank.

**! DANGER:** Risk of fire and serious burns: Never remove fuel cap when unit is running. Shut off engine and allow the unit to cool at least five minutes. Remove cap slowly.

**! WARNING:** Gasoline and its vapors are highly flammable and explosive. To prevent serious personal injury and property damage, handle gasoline with care. Keep away from ignition sources, handle outdoors only, do not smoke while adding fuel, and wipe up spills immediately.

When adding gas to the generator, make sure the unit is sitting on a flat, level surface. If the engine is hot, let the generator cool for five minutes before adding gasoline. ALWAYS fill the fuel tank outdoors with the engine turned off.

- Remove the fuel tank cap and check the fuel level. See FIG 8.
- Refill the fuel tank if the fuel level is low. See FIG 9.
- After refueling, tighten the fuel tank cap securely.

**! WARNING:** The fuel and fuel vapor may cause potential human health risks. Take care when handling fuel. Avoid direct contact with skin or inhale the fuel vapour. Wash contact areas with soap and water.

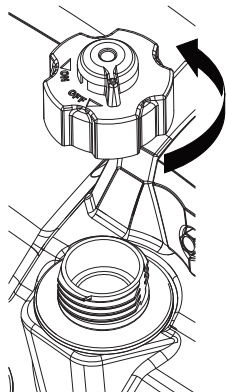


FIG 8

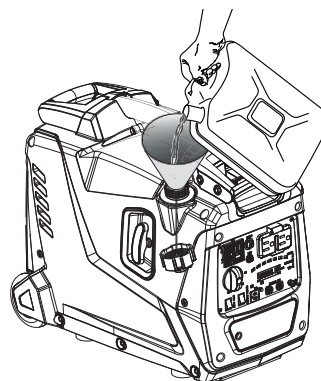


FIG 9



# OPERATION

**! WARNING:** Do not smoke or allow flames or sparks in the area where the engine is refueled or where gasoline is stored. Do not overfill the fuel tank (there should be no fuel above the upper limit mark). After refueling, make sure the tank cap is closed properly and securely. Using a funnel is recommended. Be careful not to spill fuel when refueling. Spilled fuel or fuel vapor may ignite, if any fuel is spilled, make sure the area is dry before starting the engine. KEEP OUT OF REACH OF CHILDREN.

## STARTING THE ENGINE (FIG 10)

On a level surface with the engine off, check the engine oil level before each use of the generator.

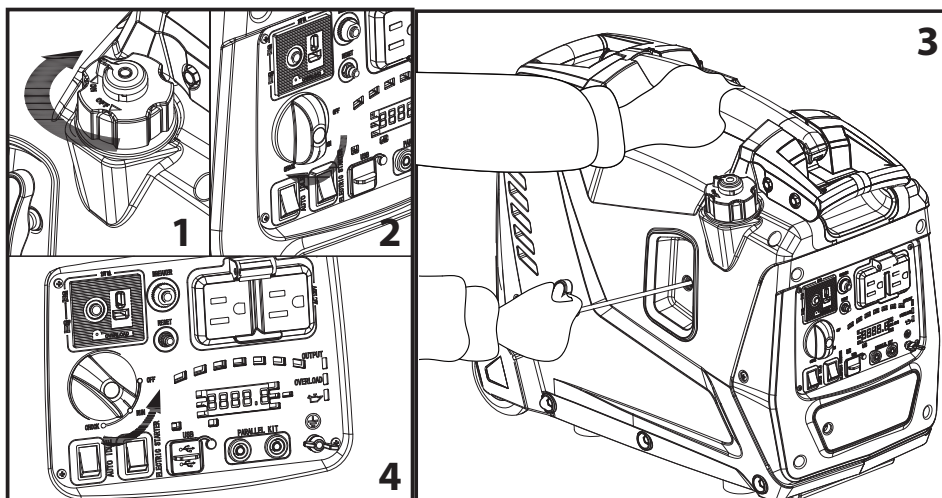
**NOTE:** If location of generator is not level, the unit may not start or may shut down during operation.

### To Cold Start the Engine

Before starting the engine, disconnect any loads from the AC and DC sockets.

1. Turn the fuel tank vent clockwise to the «ON» position.
2. Turn the engine switch (choke) to the «CHOKE» position.
3. Pull the recoil starter lightly until you feel resistance then pull briskly. Repeat pulling until engine starts.
4. Move the engine switch to the «RUN» position immediately as the engine warms up.
5. Turn the auto idle switch to the «ON» position after the engine has warmed up for 2-3 minutes, engine speed will decrease or increase according to the electric load, it can help to decrease the fuel consumption. If the auto idle switch is set in the «OFF» position, the engine will run at high speed all the time.

Do not allow the recoil starter to snap back against the engine, return it gently to prevent damage to the starter or housing. The output indicator will light green after the engine starting.



**FIG 10**

### To Warm Start the Engine

To restart a warm engine, leave the choke in the «RUN» position. Do not move the engine switch to the «CHOKE» position when the engine is warm or the air temperature is high, it may flood the engine.

## AUTO IDLE SYSTEM

With the Auto Idle Switch (22-FIG 1) in the ON position, Engine speed is kept at idle automatically when the electrical load is disconnected and returns to the proper speed to match the power of the electrical load when the load is reconnected. This position is recommended to minimize fuel consumption while in operation. In the OFF position, the auto idle system does not operate. Auto idle system does not operate effectively if the electrical appliance requires rapid cycling power. If the appliance or tool will be turned ON and OFF quickly, the auto idle switch should be in the OFF position.

When high electrical loads are connected simultaneously, turn the auto idle switch to the OFF position to reduce voltage fluctuation or shutdown. Appliances with large start-up power demands may not allow the engine to reach normal operating speed when they are connected to the generator.



# OPERATION

Turn the auto idle switch to the OFF position and connect the appliance to the generator. If the engine still will not reach normal operating speed, check that the appliance does not exceed the rated load capacity of the generator.

## USING THE GENERATOR

Before using the generator, be aware of the generator's capacity:

2200W: For short time (3 seconds) surge, do not exceed this rated surge power.

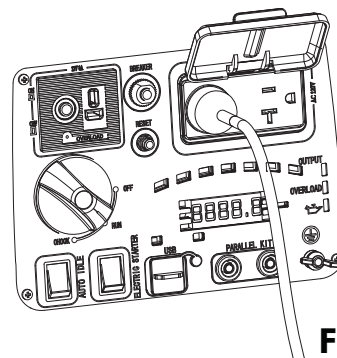
2000W: Maximum power for limit operation up to 30 minutes.

1700W: For continuous operation, do not exceed this rated running power.

In any case, the total wattage of all appliances connected must be considered. Most appliance motors require more than their rated wattage for startup. Refer to «GENERATOR CAPACITY»

- Do not exceed the current limit specified for the power outlets.
- Do not connect the generator to an automatic transfer switch. Severe damage to the generator and engine will result.
- Do not modify or use the generator for other purposes than it is intended for.
- Do not connect an extension to the exhaust pipe.
- When an extension cable is required, be sure to use a tough rubber sheathed flexible cable.
- Keep all cooling holes open and clear of debris, mud, water, etc. Cooling holes and air intake are located on the bottom cover. If the cooling holes and air intake are blocked, the generator may overheat, lack of output power and damage the engine, inverter, or windings.
- The DC socket can be used while the AC power is in use. If you use both at the same time, be sure not to exceed the total power for AC and DC.

1. Connect the ground terminal.
2. Start the engine according to «STARTING THE ENGINE». If the output indicator doesn't light green and the overload indicator lights red instead, press the reset button.
3. Confirm that the appliances to be used are switched off, and insert the plug of the AC appliances into the AC sockets.  
The DC socket should only be used for charging 12 volt automotive-type batteries, the zero load voltage is 14.2V.  
The USB socket should only be used for charging 5 volt mobile or digital equipment, e.g. mobile power bank.
4. Switch on the appliances to be used. Start with the appliance with the highest surge/starting power.



**FIG 11**

In case of overload or when trouble occurs for the appliances being used, the output indicator light (green) will go out, the overload indicator will turn red and no electrical power output.

### Using DC Socket

The DC socket should only be used for charging 12 volt automotive-type batteries, the zero load voltage is 14.2V.

1. Connect the charging cables to the DC outlet of the generator.
2. Connect the red lead of battery charging cable to the positive (+) battery terminal and the black lead to the negative (-) battery terminal.

To prevent the possibility of creating a spark near the battery, connect charging cable first to the generator, then to the battery. Disconnect cable first at the battery. Reconnect the vehicle's grounded battery cable after the charging cables are removed. This procedure will prevent the possibility of a short circuit and sparks if you make accidental contact between a battery terminal and the vehicle's frame or body.

Do not attempt to start an automobile engine with the generator still connected to the battery. The generator may be damaged. Connect the positive battery terminal to the positive charging cord. Do not reverse the charging cables, or serious damage to the generator and/or battery may occur.

**⚠ WARNING:** The battery gives off explosive gases; Keep sparks flames and cigarettes away. Provide adequate ventilation when charging.

# OPERATION

**! WARNING:** The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.  
 -If electrolyte gets on your skin, flush with water.  
 -If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician.  
 Battery posts, terminals and related accessories contain lead or lead components, wash hands after handling.  
 Electrolyte is poisonous. -If swallowed, drink large quantities of water or milk and follow with milk of magnesia or vegetable oil and call a physician. KEEP OUT OF REACH OF CHILDREN.

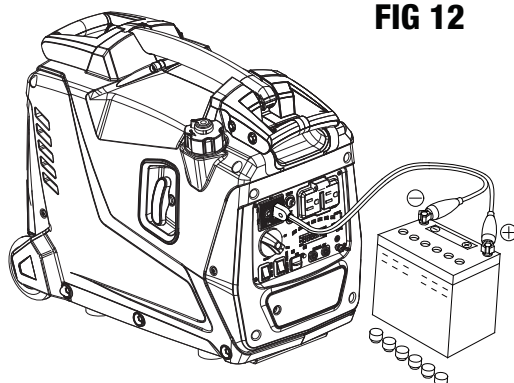
## 3. Start the engine.

The DC outlet may be used while the AC power is in use. An overload DC circuit, excessive current draw by the battery, or a wiring problem will trip the DC circuit protector (PUSH button extends out). If this happens, wait a few minutes before pushing in the circuit protector to resume operation.

In order to acquire both the best effect and the maximum service life of the generator, the new generator should run 20 hours under 50% loads, this may result in the generator reaching it's best performance.

Disconnect the battery charging cable

1. Stop the engine.
2. Disconnect the black lead of the battery charging cable from the negative (-) battery terminal.
3. Disconnect the red lead of the battery charging cable from the positive (+) battery terminal.
4. Disconnect the battery charging cable from the DC receptacle of the generator.
5. Connect the vehicle ground cable to the negative (-) battery terminal.



**FIG 12**

## OUTPUT AND OVERLOAD INDICATORS

The Output Indicator will light green during normal operating conditions.

If the generator is marginal overloading (in excess of 1700W), or if there is a short in the connected appliance, the overload indicator will flash red. If the generator is substantial overloading (in excess of 2200W), the overload indicator will light red, the output indicator light (green) will go off and output current of generator will be shut off.

If output current of the generator is shut off, disconnect all the appliances, and then press the reset button. Then, the overload indicator will go off, the output indicator lights (green) again.

## LOW OIL ALARM SYSTEM

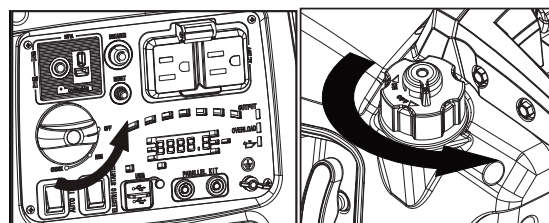
The Low Oil Alarm System is designed to prevent engine damage caused by an insufficient amount of oil in the crankcase. Before the oil level in the crankcase falls below the safe limit, the Low Oil Alarm System will automatically shut down the engine (the engine switch will remain in the RUN position). The Oil alarm indicator will flash red if you attempt to restart the engine.

## STOPPING THE ENGINE (FIG 13)

To stop the engine in an emergency, turn the engine switch to the OFF position.

Under normal conditions, use the following procedures:

1. Switch off all connected equipments and pull the inserted plug.
2. Turn the engine switch to the «OFF» position.
3. Allow the engine cool well, turn the fuel vent valve knob counter-clockwise to the «OFF» position.



**FIG 13**

**NOTE:** Be sure the fuel tank vent and the engine switch are «OFF» when stopping, transporting and/or storing the generator.

# MAINTENANCE

Good maintenance is essential for safe, economical and trouble-free operation. It will also help reduce air pollution. The purpose of the maintenance and adjustment schedule is to keep the generator in the best operating condition.

**! WARNING:** Read and understand the Important Safety Rules before starting the generator.

**! DANGER:** Shut off the engine before performing any maintenance. If the engine must be run, make sure the area is well ventilated. The exhaust contains poisonous carbon monoxide gas.

**! WARNING:** When servicing, use only recommended or equivalent replacement parts. Use of any other parts could create a hazard or cause product damage.

**! WARNING:** Allow hot components to cool to the touch prior to performing any maintenance procedure.

**! WARNING:** Internal pressure can build in the engine crankcase while the engine is running. Removing the oil fill plug/ dipstick while the engine is hot can cause extremely hot oil to spray out of the crankcase and can severely burn skin. Allow engine oil to cool for several minutes before removing the oil fill plug/dipstick.

**! WARNING:** Avoid skin contact with engine oil or gasoline. Prolonged skin contact with engine oil or gasoline can be harmful. Frequent and prolonged contact with engine oil may cause skin cancer. Take protective measures and wear protective clothing and equipment. Wash all exposed skin with soap and water.

**! WARNING:** Failure to perform periodic maintenance or not following maintenance procedures can cause the inverter to malfunction and could result in death or serious injury.

## MAINTENANCE SCHEDULE

REGULAR SERVICE PERIOD <sup>(1)</sup> Perform at every indicated month or operating hour interval, whichever occurs first.		Before each use	Every 10 hours	Every 4 months or 50 hours	Every year or 150 hours	Every two years or 300 hours
ITEM						
Complete machine	Visual inspection (condition, wear, leaks)	*				
	Clean			*		
Engine oil	Check		*			
	Change		*(2)	*		
Air filter	Check		*			
	Clean			*(3)		
Spark plug	Check			*		
	Change				*	
Fuel filter	Change				*(4)	
Carburettor	Check and clean					*(4)
Valve clearance	Check and adjustment					*(4)

(1) Log hours of operation to determine proper maintenance.

(2) The first changing of the engine oil shall be done on the first month or 10 hours, whichever is the earlier.

(3) Service more frequently when used in dusty areas.

(4) These items should be serviced by an authorized dealer unless the owner has the proper tools and is mechanically proficient.

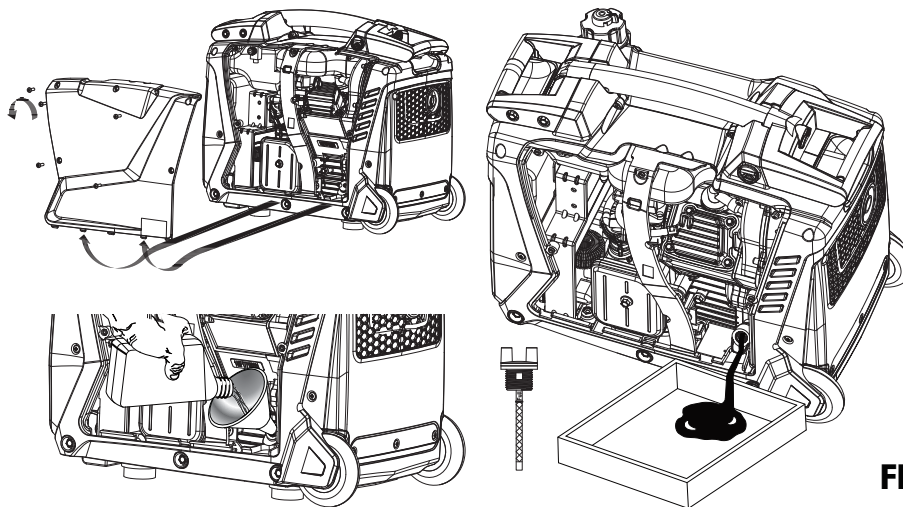
# MAINTENANCE

## CHANGING ENGINE OIL (FIG 14)

For best performance, engine oil should be changed after every 100 hours or 6 months of operation.

Drain the oil while the engine is still warm to assure rapid and complete draining.

1. Loosen the cover screws and remove the maintenance cover.
2. Remove the oil dipstick and wipe it clean.
3. Drain dirty oil into a container thoroughly.
4. Refill with the recommended oil, and check the oil level.
5. Screw in the oil dipstick securely.
6. Reinstall the maintenance cover and tighten the cover screws securely.



**FIG 14**

Wash your hands with soap and water after handling used oil.

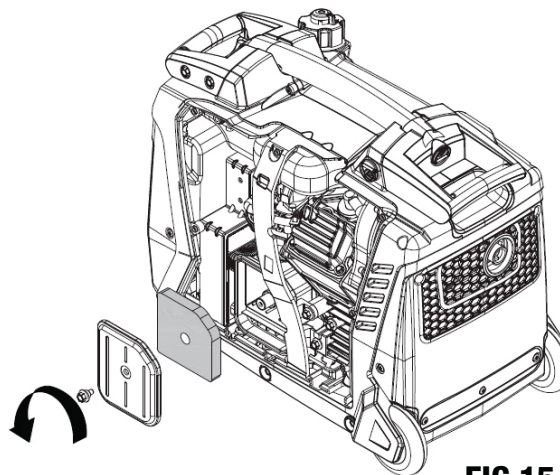
Improper disposal of engine oil can be harmful to the environment. If you change the oil by yourself, please dispose of it properly. Put it in a sealed container, and take it to a recycling center. Do not discard it in a trash bin, dump it on the ground, or pour it down a drain.

## CHECKING/CLEANING AIR FILTER (FIG 15)

A dirty air filter will restrict air flow to the carburetor. To prevent carburetor malfunction, service the air filter regularly. Service more frequently when operating the generator in dusty areas. For proper performance and long life, keep air filter clean.

**⚠ WARNING:** Do not use gasoline or low flash point solvents for cleaning. They are flammable and explosive under certain conditions.

1. Loosen the maintenance cover screws and remove the maintenance cover.
2. Loosen the air filter cover screw and remove the air cleaner cover.
3. Wash the filter element in a solution of household detergent and warm water, then rinse thoroughly or wash in nonflammable or high flash point solvent. Allow the filters to dry thoroughly.
4. Reinstall the air filter.
5. Reinstall the air filter cover, and tighten the air filter cover screw.
6. Reinstall the maintenance cover and tighten the cover screws securely.



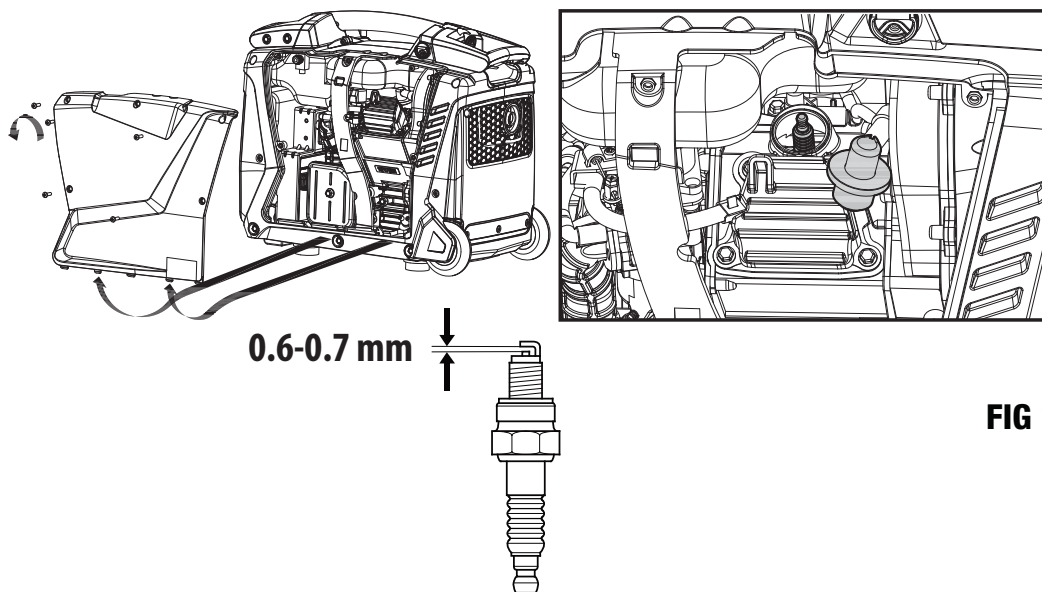
**FIG 15**

# MAINTENANCE

## SPARK PLUG REPLACEMENT (FIG 16)

To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.

1. Loosen the maintenance cover screws and remove the maintenance cover.
2. Remove the spark plug cap.
3. Clean any dirt from around the spark plug base.
4. Use the wrench to remove the spark plug.
5. Visually inspect the spark plug. Replace it if the electrode is worn, or if the insulator is cracked, chipped or fouled. Clean the spark plug with a wire brush if it is to be reused.
6. Measure the spark plug electrode gap with a wire-type feeler gauge. The gap should be 0.024-0.028in (0.6-0.7mm). Correct as necessary by carefully bending the side electrode.
7. Check the sealing washer is in good condition, and thread the spark plug in by hand to prevent cross-threading.
8. After a new spark plug has been seated by hand, it should be tightened 1/2 turn with a wrench to compress its washer. If a used plug is being reinstalled, it should only require 1/8 to 1/4 turn after being seated.
9. Reinstall the spark plug cap on the spark plug securely.
10. Reinstall the maintenance cover.



**FIG 16**

**CAUTION:** A loosen spark plug can overheat and damage the engine. Overheating the spark plug can damage the threads in the cylinder head. Never use a spark plug with an improper heat range.

## SPARK ARRESTOR (FIG 17)

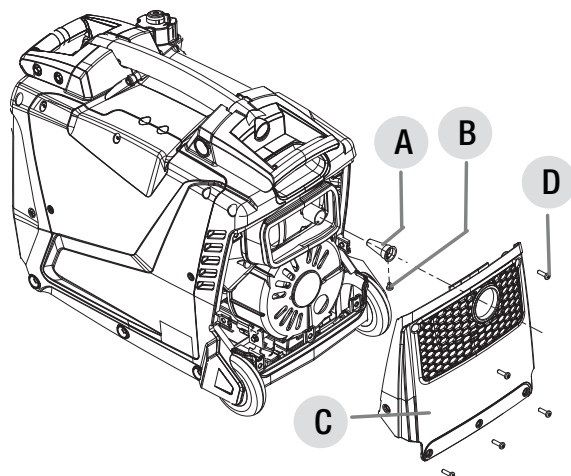
**NOTE:** This product is equipped with a spark arrestor that has been evaluated by the USDA Forest Service; however, product users must comply with Federal, State, and local fire prevention regulations. Check with appropriate authorities. Contact customer service or a qualified service center to purchase a replacement spark arrestor.

The spark arrestor must be cleaned or replaced every 50 hours or yearly to ensure proper performance of your product.

1. Allow the engine to cool completely before servicing the spark arrestor.
2. Remove the 5 screws and the muffler shield.
3. Remove the screw which retains the spark arrestor of the muffler.
4. Remove the spark arrestor screen, and carefully remove the carbon deposits from the spark arrestor screen with a wire brush.
5. Position the spark arrestor on the muffler and install the muffler shield by reversing the steps from above.



## MAINTENANCE

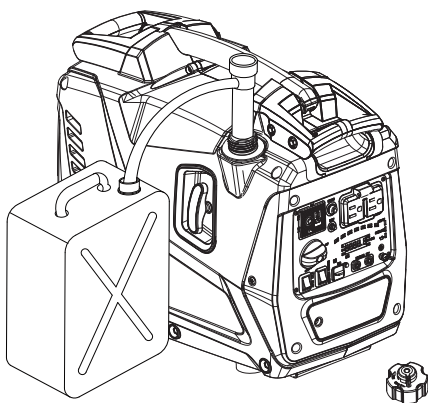


- A. Spark arrester
- B. Spark arrester screw
- C. Muffler shield
- D. Muffler shield screws

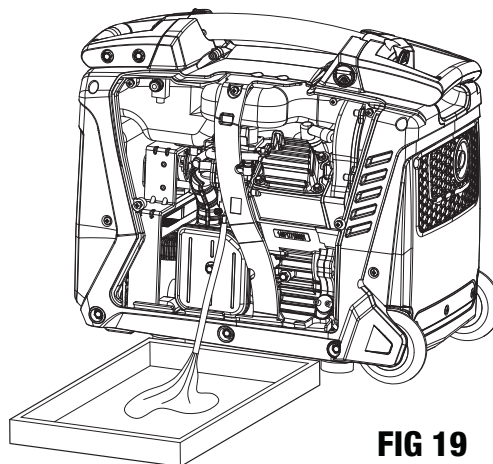
**FIG 17**

### DRAINING FUEL TANK/CARBURETOR (FIG 18,19)

- Unscrew the fuel tank cap, empty the fuel tank into an approved gasoline container using a commercially available hand siphon. Reinstall the fuel tank cap.
- Turn the engine switch to «RUN» position, loose the maintenance cover screws and remove the maintenance cover. Loosen the carburetor drain screw and drain the gasoline from the carburetor into a suitable container.
- Turn the engine switch to the OFF position, and tighten the carburetor drain screw securely.



**FIG 18**



**FIG 19**

## TRANSPORTING/STORAGE

To prevent fuel spillage when transporting or during temporary storage, the generator should be secured upright in its normal operating position with the engine switch «OFF». Turn the fuel tank vent fully counterclockwise to the «OFF» position.

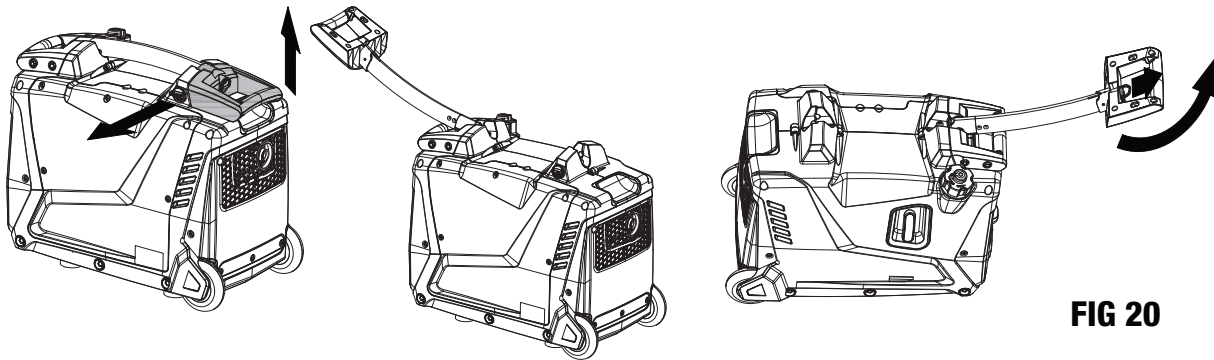
**⚠ WARNING:** Drain fuel completely before transporting in a vehicle. Do not operate the generator while it is in a vehicle. Take the generator out of the vehicle and use it in a well ventilated place. Avoid a location exposed to direct sunlight when putting the generator on a vehicle. If the generator is left in an enclosed vehicle for many hours, high temperature inside the vehicle could cause fuel to vaporize resulting in a possible explosion. Tie down the generator securely in an upright position while transporting.

## TRANSPORTING/STORAGE

### Transportation handle (FIG 20)

When carrying the generator set for a short distance, the transportation handle and transportation wheel could be used for easy transport.

1. Pull out the unfolded ring, and unfold the transportation handle until a CLICK sound.
2. Pull out the folded ring, and fold the transportation handle to the original position after transporting.



**FIG 20**

### Storage

Before storing the unit for an extended period:

- Be sure the storage area is free of excessive humidity and dust.
- Drain out the fuel completely.
- Remove the maintenance cover and change the engine oil.
- Remove the spark plug and pour about a tablespoon of clean engine oil into the cylinder. Crank the engine several revolutions to distribute the oil and then reinstall the spark plug.
- Reinstall the spark plug cap on the spark plug securely.
- Reinstall the maintenance cover.
- Slowly pull the recoil starter until resistance is felt, then return the recoil starter gently. At this point, the piston is coming up on its compression stroke and both the intake and exhaust valves are closed. Storing the engine in this position will help to protect it from internal corrosion.

**⚠ WARNING:** Gasoline and fuel vapors is extremely flammable and is explosive. Stop the engine and keep heat, sparks and flame away. Wipe up fuel spills immediately. Handle fuel in a well-ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the area where gasoline is stored.



# TROUBLESHOOTING

**⚠ WARNING: Risk of electric shock.** Before any troubleshooting, switch off the engine. Suspected malfunctions are often due to causes that users can fix themselves. Therefore check the product using this section. In most cases the problem can be solved quickly.

Problems	Probable Causes	Solutions
Engine does not start	The fuel tank is empty.	Refuel the fuel tank with proper fuel.
	The engine switch was set to OFF.	Set the engine switch to the «RUN» position.
	The oil was not enough.	Refill the oil to the recommended level.
	Spark plug is defective.	Clean the electrode or change with a new one.
	The engine is flooded.	Set the engine switch to the «RUN» position, remove the spark plug and wipe up the fuel, then pull out the starter rope 5-10 times to drain out the fuel in cylinder. Reinstall the spark plug.
	The fuel tube is broken.	Contact with the local service for repair.
Engine lack of power	Air filter is dirty .	Clean the air filter.
	Spark plug is dirty .	Clean it.
	Fuel filter was blocked.	Contact with the local service for repair.
	Valve tolerance is set incorrect.	Contact with the local service for help.
AC socket does not work	Overload warning.	Disconnect the appliances, and then press the output reset button.
	Circuit protector engaged.	Disconnect the appliances, press the AC breaker.
DC (USB) socket does not work	Overload warning.	Disconnect all the appliances, and then press the output reset button.
	Circuit protector engaged.	Disconnect the appliances, press the DC breaker.
Generator makes a "knock" noise	If the knocking or pinging occurs under normal load, the problem may be with the wrong gasoline being used.	Switch to a different brand of gasoline, making sure that the octane rating is 86 or higher. If problem continues, contact your nearest authorised service centre.

## WARRANTY

This product is warranted free from defects in material and workmanship for 3 years after date of purchase. This limited warranty does not cover normal wear and tear or damage from neglect or accident. The original purchaser is covered by this warranty and it is not transferable. Prior to returning your tool to store location of purchase, please call Toll-Free Help Line for possible solutions.

***THIS PRODUCT IS NOT WARRANTED IF USED FOR INDUSTRIAL OR COMMERCIAL PURPOSES.  
ACCESSORIES INCLUDED IN THIS KIT ARE NOT COVERED BY THE 3 YEAR WARRANTY.***

For questions about this or any other PowerSmith Product,

Please call Toll-Free: **888-552-8665**.

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