

# FIRMAN®

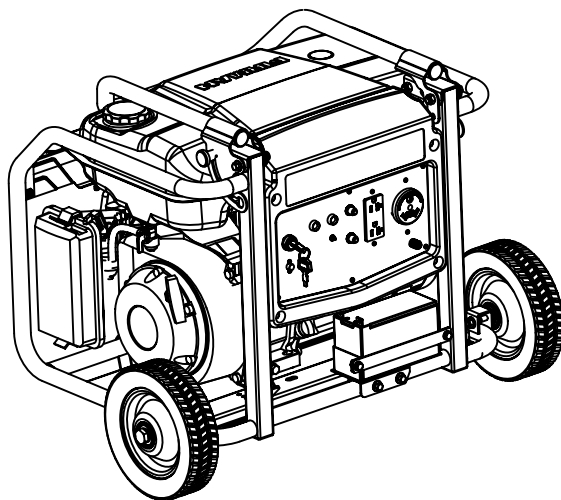
## OWNER'S MANUAL PORTABLE GENERATOR

Premium series:

ECO4000, ECO4000RE

ECO7000, ECO7000RE

ECO8000, ECO9000E, ECO9000RE



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**IMPORTANT:** Read all safety precautions and instructions carefully before operating equipment.  
Ensure engine is stopped and level before performing any maintenance or service.

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Record product information to reference when ordering parts or obtaining warranty coverage.

Specification \_\_\_\_\_  
Serial Number \_\_\_\_\_  
Purchase Date \_\_\_\_\_

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Thank you for purchasing a FIRMAN generator.

This manual covers operation and maintenance of the FIRMAN generators. All information in this publication is based on the latest production information available at the time of approval for printing.

Pay special attention to statements preceded by the following words:

 **WARNING**

Indicates a strong possibility of severe personal injury, loss of life and equipment damage if instructions are not followed.

**CAUTION**

Indicates a possibility of personal injury, or equipment damage if instructions are not followed.

**NOTE:**

Gives helpful information.

If a problem should arise, or if you have any questions about the generator, consult a dealer selling FIRMAN generators.

 **WARNING**

- The generator is designed to give safe and dependable service if operated according to instructions.
- Do not operate the generator before you have read and understood the instructions. Failure to do so could result in personal injury or equipment damage.

# Safe Operation Checklist

Safe operation of the portable generator requires the completion of the following tasks:

## Carbon Monoxide (CO) Alarm

- Carbon monoxide (CO) alarm(s) in working order.

## Smoke Alarm

- Smoke alarm (s) in working order.

## Generator Location

- Generator placed in a Carbon Monoxide (CO) safe zone. See **Generator Location to reduce the Risk of Carbon Monoxide Poisoning.**
- Generator placed in a fire safe zone. See **Generator Location to reduce the Risk of Fire.**
- Generator located on flat and level surface.

## Oil and Fuel

- Engine filled to proper oil level. See **Add Engine Oil.**
- Fuel tank filled at or below baffle. See **Add Fuel.**
- Inspect fuel lines, tank, cap and fittings each time before using generator. DO NOT use if fuel leak or damage is found.

## Electrical

- When connecting to a buildings electrical system, install listed transfer equipment. See **Connecting to a Building Electrical System.**
- Electrical cords are rated for intended loads. See **Cord Sets and Receptacles.**
- Electrical cords do not run through doorways, windows, holes in ceilings, walls or floors.
- Inspect electrical cords thoroughly before each use. DO NOT use if damaged.
- All labeled electrical cord safeties are understood and being followed.

## Operation

- Start engine. See **Starting the Engine.**

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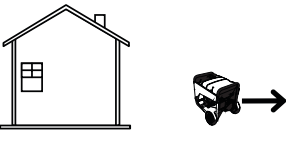
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# 1. SAFETY PRECAUTIONS

**⚠ DANGER**

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

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

 <p style="text-align: center;"><b>NEVER use inside a home or garage, EVEN IF doors and windows are open.</b></p>	 <p style="text-align: center;"><b>Only use OUTSIDE and far away from windows, doors, and vents.</b></p>
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## ⚠ 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.

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**⚠ 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.

**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 “Choke” position (|X|)

**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.

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**⚠ WARNING**

- This generator does not meet U. S. Coast Guard Regulation 33CFR-183 and should not be used on marine applications.
- Failure to use the appropriate U. S. Coast Guard approved generator could result in death or serious injury.

**⚠ WARNING**



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

- Use listed 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.

Contact with muffler area could cause burns resulting in serious injury.

- **DO NOT** touch hot parts and **AVOID** hot exhaust gases.
- Allow equipment to cool before touching.
- Keep at least 5 feet (1.5 m) of clearance on all sides of generator including overhead.
- It is a violation of California Public Resource Code, Section 4442, to use or operate the engine on any forest-covered, brush-covered, or grass-covered land unless the exhaust system is equipped with a spark arrester, as defined in Section 4442, maintained in effective working order. Other states or federal jurisdictions may have similar laws. Contact the original equipment manufacturer, retailer, or dealer to obtain a spark arrester designed for the exhaust system installed on this engine.
- Replacement parts must be the same and installed in the same position as the original parts.

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**⚠ 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:**

- 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.
- 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.



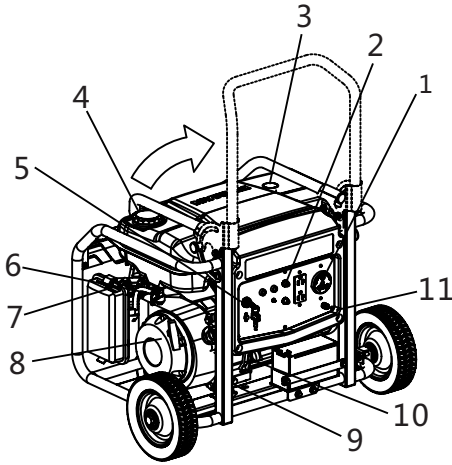
## 2. SPECIFICATIONS

Model		ECO 4000	ECO 4000RE
Generator	Starting Watts	4000Watts@60Hz	
	Running Watts	3500Watts@60Hz	
	Rated AC Voltage	120V	
	Phase	Single Phase	
	Voltage regulator	AVR	
	Power Factor	1	
	Alternator Type	Brush	
Engine	Engine Model	ST168FD-2-A7	ST168FDE-2-A7
	Engine Type	Single Cylinder, 4-Stroke OHV Air Cooled	
	Displacement	193cc	
	Maximum output	6.5HP	
	Ignition System	Breakless Ignition Type, Flywheel Magneto	
	Starting System	Recoil	Recoil/Electric
	Fuel	Unleaded Automotive Gasoline	
	Capacity Fuel Tank	4 Gallon	
	Lubricating Oil Capacity	21 oz	
	Carburetor Type	Float	
	Air Cleaner	Polyurethane Type	
	P.T.O. shaft rotation	Counter Clockwise (Facing P.T.O.)	
Dimension	L X W X H	24 X 19 X 20 in.	
	Dry Weight	106 lbs	113 lbs

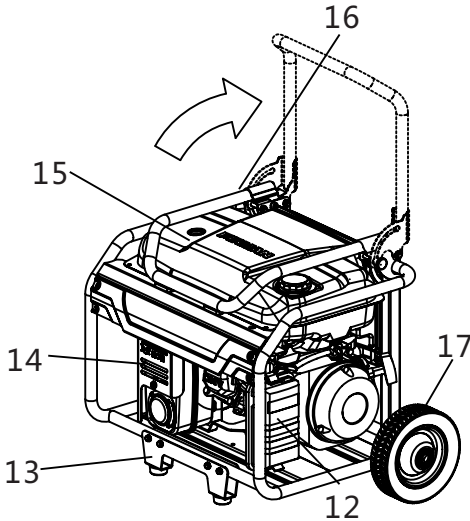
Model		ECO 7000	ECO 7000RE
Generator	Starting Watts	7000Watts@60Hz	
	Running Watts	5500Watts@60Hz	
	Rated AC Voltage	120/240V	
	Phase	Single Phase	
	Voltage regulator	AVR	
	Power Factor	1	
	Alternator Type	Brush	
Engine	Engine Model	ST188FD-A6	ST188FDE-A6
	Engine Type	Single Cylinder, 4-Stroke OHV Air Cooled	
	Displacement	389cc	
	Maximum output	13HP	
	Ignition System	Breakless Ignition Type, Flywheel Magneto	
	Starting System	Recoil	Recoil/Electric
	Fuel	Unleaded Automotive Gasoline	
	Capacity Fuel Tank	7 Gallon	
	Lubricating Oil Capacity	38 oz	
	Carburetor Type	Float	
	Air Cleaner	Polyurethane Type	
	P.T.O. shaft rotation	Counter Clockwise (Facing P.T.O.)	
Dimension	L X W X H	30 X 22 X 24 in.	
	Dry Weight	197 lbs	212 lbs

Model		ECO 8000	ECO 9000E	ECO 9000RE
Generator	Starting Watts	8000Watts@60Hz	9000Watts@60Hz	
	Running Watts	6000Watts@60Hz	7000Watts@60Hz	
	Rated AC Voltage	120/240V		
	Phase	Single Phase		
	Voltage regulator	AVR		
	Power Factor	1		
	Alternator Type	Brush		
Engine	Engine Model	ST188FD-A6	ST188FDE-A6	
	Engine Type	Single Cylinder, 4-Stroke OHV Air Cooled		
	Displacement	439cc		
	Maximum output	15HP		
	Ignition System	Breakless Ignition Type, Flywheel Magneto		
	Starting System	Recoil	Recoil/Electric	
	Fuel	Unleaded Automotive Gasoline		
	Capacity Fuel Tank	7 Gallon		
	Lubricating Oil Capacity	32 oz		
	Carburetor Type	Float		
	Air Cleaner	Polyurethane Type		
	P.T.O. shaft rotation	Counter Clockwise (Facing P.T.O.)		
Dimension	L X W X H	30 X 22 X 24 in.		
	Dry Weight	219 lbs	239 lbs	243 lbs

### 3. COMPONENTS



1. SOCKET
2. CIRCUIT BREAKER
3. FUEL GAUGE
4. FUEL TANK CAP
5. ENGINE SWITCH
6. FUEL VALVE
7. CHOKE LEVER
8. RECOIL STARTER
9. OIL DRAIN PLUG
10. OIL FILLER CAP
11. GROUND TERMINAL
12. AIR CLEANER
13. SUPPORTING LEGS
14. MUFFLER
15. FUEL TANK
16. HANDLE FRAME
17. WHEELS



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## 4. PRE-OPERATION CHECKS

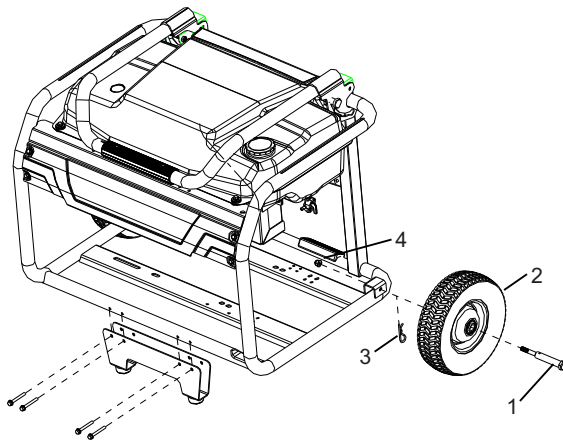
### Remove the Generator from the Shipping Carton

1. Set the shipping carton on a solid, flat surface.
2. Remove everything from the carton except the generator.
3. Carefully cut each corner of the box from top to bottom. Fold each side flat on the ground to provide a surface area to install the wheel kit and support leg.

### Install the Wheel Kit

#### **[CAUTION]**

The wheel kit is not intended for over-the-road use.



You will need the following tools to install the wheels:

- 21mm wrench or adjustable wrench (not included)
- Socket wrench with a 13mm socket (not included)
- Pliers (not included)

1. Before adding fuel and oil, tip the generator on its side.
2. Slide the wheel bolt (1) through the wheel, the mount point on the frame, washer(if have).
3. Press the pin(3) into the bolt (1)
4. Fasten securely with the nut (4).
5. Repeat steps 2-4 to attach the second wheel.

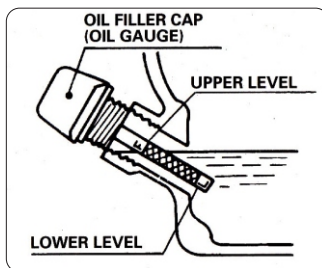
### Install the Support Leg

1. Attach the support leg to the generator frame with cap screws and nuts.
2. Tip the generator slowly so that it rests on the wheels and support leg.

## CHECK ENGINE OIL

Before checking or refilling oil, be sure the generator is put on a stable and level surface with engine stopped.

- Remove oil filter cap and check the engine oil level.
- If oil level is below the lower level line, refill with suitable oil (see table below) to upper level line. Do not screw in the oil filler cap when checking oil level.
- Change oil if contaminated. (See "HOW-TO" MAINTENANCE)
- Oil capacity:  
 Model.....Upper level  
 ECO4000/ECO4000RE.....20 oz  
 ECO7000/ECO7000RE.....38 oz  
 ECO8000/ECO9000RE.....38 oz



Single grade	5W							
		10W						
			20W					
				#20				
					#30			
						#40		
Multigrade		10W-30						
		10W-40						
Ambient temperature	-20	-10	0	10	20	30	40°C	
	-4	14	32	50	68	86	104 °F	

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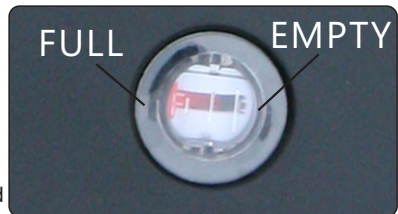
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## CHECK ENGINE FUEL

### WARNING

Do not refuel while smoking or near open flame or other such potential fire hazards. Otherwise a fire accident could occur.

- Check fuel level at fuel gauge.
- If fuel level is low, refill with unleaded automotive gasoline.
- Be sure to use the fuel filter screen on the fuel filter neck.
- Fuel tank capacity:  
ECO4000/ECO4000RE.....4 Gallon  
ECO7000/ECO7000RE.....7 Gallon  
ECO8000/ECO9000RE.....7 Gallon
- Fuel must meet these requirements:
  - Clean, fresh, unleaded gasoline.
  - Octane rating of 86(R+M)/2 or higher.
  - Research Octane Number(ROn)91 octane minimum.
  - Gasoline up to 10% ethyl alcohol,90% unleaded is acceptable.
  - Methyl Tertiary Butyl Ether(MTBE) and unleaded gasoline blend(max 15% MTBE by volume)are approved.
  - Do not add oil to gasoline.
  - Do not overfill fuel tank.
  - Do not use gasoline older than 30 days.



**NOTE:** E15, E20 and E85 are NOT approved and should NOT be used, effects of old, stale or contaminated fuel are not warrantable.

### WARNING

Make sure you review each warning in order to prevent fire hazard.

- Do not refill tank while engine is running or hot.
- Close fuel lever before refueling with fuel.
- Be careful not to admit dust, dirt, water or other foreign objects into fuel
- Wipe off spilt fuel thoroughly before starting engine.
- Keep away from open flames.

## CHECKING COMPONENTS

Check following items before starting engine:

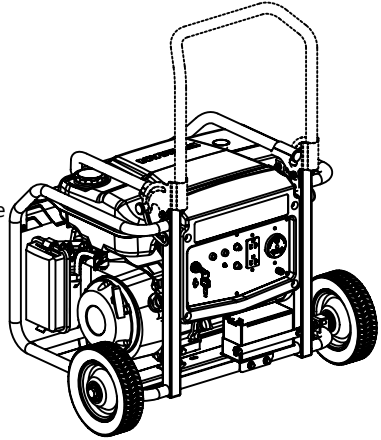
- Fuel leakage from fuel hose, etc.
- Tighten any loose bolts or nuts.
- Check components for damage or breakage.

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## CHECKING GENERATOR SURROUNDINGS

Move the generator to the desired location. The generator is very easy to move, take the handle up and then use your leg to make a fulcrum, it does not require great strength to make the generator tilt. Two wheels help you to move the generator very easily.



### **WARNING**

Make sure you review each warning in order to prevent fire hazard.

- Keep area clear of inflammables or other hazardous materials.
  - Keep generator at least 3 feet (1 meter) away from buildings or other structures.
  - Only operate generator in a dry, well ventilated area.
  - Keep exhaust pipe clear of foreign objects.
  - Keep generator away from open flame.
  - Keep generator on a stable and level surface.
- Do not block generator air vents with paper or other material.

## CHECKING GROUND TERMINAL

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

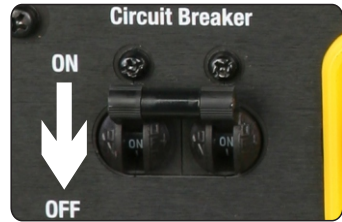
THERE IS A PERMANENT CONDUCTOR BETWEEN THE GENERATOR (STATOR WINDING) AND THE FRAME.



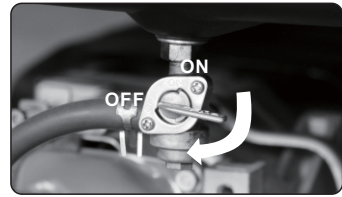
## 5. OPERATING PROCEDURES

### STARTING THE ENGINE

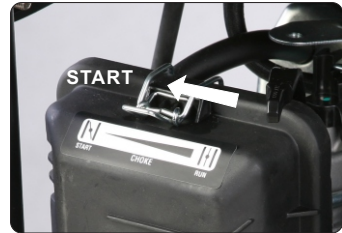
(a) Make sure the AC circuit breaker is in the OFF position. The generator may be difficult to start if a load is connected.



(b) Open the fuel switch.



(c) Set the choke lever to the "START" (arrow mark) position. Not necessary if the engine is warm.



(d) Turn the engine switch to the START position and hold it there for 4-5 seconds or until the engine starts.



(e) After the engine started, return the choke lever gradually to "RUN" position.



(f) Warm up the engine without load for a few minutes.

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## USING ELECTRIC POWER

(a) Check the digital display for proper voltage.

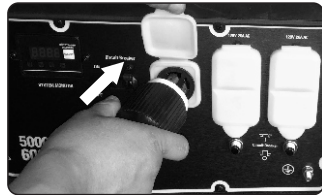
- This generator is thoroughly tested and adjusted in the factory. If the generator does not produce the specified voltage, consult your nearest FIRMAN Generator dealer.

(b) Turn off the switch(es) of the electrical appliance(s) before connecting to the generator.

(c) Insert the plug(s) of the electrical appliance(s) into the receptacle.

(d) Check the amperage of the socket, and be sure not to take a current exceed the exceed the specified amperage.

- Be sure that the total wattage of all appliances does not exceed the rated output of the generator.



### **WARNING**

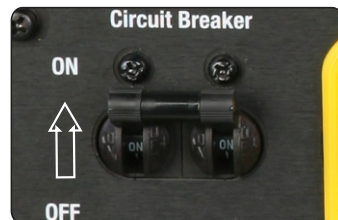
### **NOTE:**

Be sure to ground the generator if the connected electrical equipment is grounded.

When the circuit breaker or no-fuse breaker turns off during operation, the generator is overloaded or the appliance is defective.

Stop the generator immediately, check the appliance and /or generator for overloading or defect and repair as necessary.

(e) Make sure the AC CIRCUIT BREAKER is "ON". If the breaker is "OFF", set the breaker "ON".



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## Operation at High Altitude

The density of air at high altitude is lower than at sea level. Engine power is reduced as the air mass and air-fuel ratio decrease. Engine power and generator output will be reduced approximately 3% for every 1000 feet of elevation above sea level. This is a natural trend and cannot be changed by adjusting the engine. At high altitudes increased exhaust emissions can also result due to the increased enrichment of the air fuel ratio.

Other high altitude issues can include hard starting, increased fuel consumption and spark plug fouling. To alleviate high altitude issues other than the natural power loss, **FIRMAN** can provide a high altitude carburetor main jet. The alternative main jet and installation instructions can be obtained by contacting Customer Support. Installation instructions are also available in the Technical Bulletin area of the FIRMAN internet site.

The part number and recommended minimum altitude for the application of the high altitude carburetor main jet is listed in the table below.

In order to select the correct high altitude main jet it is necessary to identify the carburetor model. For this purpose, a code is stamped on the side of the carburetor. Select the correct main jet part number corresponding to the carburetor code found on your particular carburetor.

	196cc	389cc	193cc	Altitude
Standard main jet	468.131017.07	188.131017.04	468.131017.03	0-3000Feet
Altitude main jet 1	468.131017.08	188.131017.05	490.131017.04	3000-6000Feet
Altitude main jet 2	468.131017.09	188.131017.06	490.131017.05	6000-8000Feet

### **WARNING**

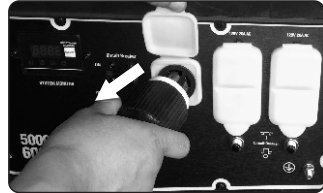
Operation using the alternative main jet at elevations lower than the recommended minimum altitude can damage the engine. For operation at lower elevations, the standard main jet must be used. Operating the engine with the wrong engine configuration at a given altitude may increase its emissions and decrease fuel efficiency and performance.

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## STOPPING THE GENERATOR

(a) Turn off the power switch of the electric equipment or unplug the cord from receptacle of the generator.

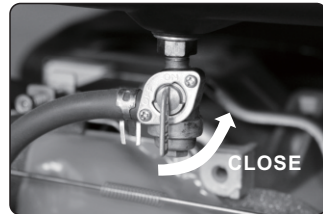


(b) Allow the engine about 3 minutes to cool down at no-load before stopping.



(c) Set the engine switch to "OFF" position.

(d) Close (stop) the fuel lever.



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## 6. SERVICING THE GENERATOR

### MAINTENANCE SCHEDULE

Daily	<ul style="list-style-type: none"><li>● Check the air cleaner</li><li>● Check oil level and refill to the upper level before starting the engine.</li><li>● Check all the points indicated in "PRE-OPERATION CHECKS".</li></ul>
50 hours(Weekly)	<ul style="list-style-type: none"><li>● Clean and wash air-cleaner element. More often if used in dirty or dusty environments.</li><li>● Change engine oil.(The initial oil change must be conducted after the 25 hours operation.)</li><li>● Check spark plug, and clean and adjust if necessary.</li><li>● Check and clean the fuel shut-off valve.</li></ul>
100 hours	<ul style="list-style-type: none"><li>● Replace spark plug.</li><li>● Replace air-cleaner element.</li><li>○ Decarbonize cylinder head, valves and piston.</li><li>○ Check and replace carbon brushes.</li></ul>
300 hours or every year	<ul style="list-style-type: none"><li>○ Inspect control panel components.</li><li>○ Check rotor and stator.</li></ul>
3 years	<ul style="list-style-type: none"><li>○ Replace engine mount rubber.</li><li>○ Overhaul engine.</li><li>● Change fuel lines.</li></ul>

#### NOTE:

Initial oil change should performed after first 5 hours of use. Thereafter change oil every 50 hours. Before changing oil, check for a suitable way to dispose of the old oil. Do not pour it down into sewage drains, onto garden soil or into open streams. Your local zoning environmental regulations will give you more detailed instructions on proper disposal. Items marked with a "O" required advanced skill and tools, so they should be done by the distributor.

#### SERVICING WORK

Servicing work should only be carried out by personnel qualified for this purpose. All the works listed in the service plan are to be carried out in accordance with the operating and service instructions for the motor. We recommend that these works be carried out by an authorized service station.

#### CHECKING ELECTRICAL SAFETY

The electrical safety may only be checked by personnel authorized for this task.

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## 7. "HOW-TO" MAINTENANCE

### ENGINE OIL CHANGE

Change engine oil every 50 hours.  
(for a new engine, change oil after 5 hours.)

(a) Drain oil by removing the drain plug and the oil filler cap while the engine is warm.

**NOTE:**

Please use a container to dump the used oil for protecting the environment.

(b) Reinstall the drain plug and fill the engine with oil until it reaches the upper level on the oil filler cap.

- Use fresh and high quality lubricating oil to the specified quantity. If contaminated or deteriorated oil is used or the quantity of the engine oil is not sufficient, the engine damage will result and its life will be greatly shortened.



### SERVICING THE AIR CLEANER

Maintaining an air cleaner in proper condition is very important. Dirt induced through improperly installed, improperly serviced, or inadequate elements damages and wears out engines.

Always keep the element clean.

(a) Take out the air cleaner, clean it well in kerosene and dry it.

(b) After wetting the element by clean engine oil squeeze it tight by hand.

(c) Lastly, put the element in the case and install it securely.



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## CLEANING AND ADJUSTING THE SPARK PLUG

(a) If the plug is contaminated with carbon, using a plug cleaner and wire brush.

(b) Adjust the electrode gap to 0.7 to 0.8 mm (0.028" to 0.031").

SPARK PLUG: NGK BPR6HS equivalent.



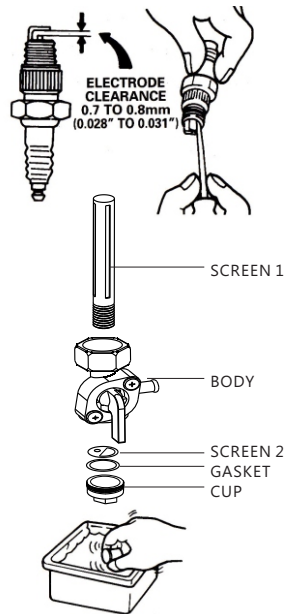
## CLEANING FUEL STRAINER

Dirt and water in the fuel are removed by the fuel strainer.

(a) Remove the strainer cup and throw away water and dirt.

(b) Clean the screens and strainer cup with gasoline.

(c) Tightly fasten the cup to main body, making sure to avoid fuel leak.



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## Inspect Muffler and Spark Arrester

Inspect the muffler for cracks, corrosion, or other damage. Remove the spark arrester, if equipped, and inspect for damage or carbon blockage. If replacement parts are required, make sure to use only original equipment replacement parts.

### **WARNING**

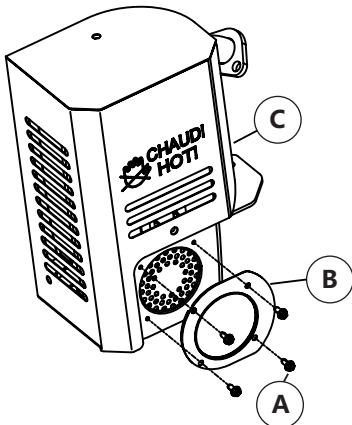


Exhaust heat/gases could ignite combustibles, structures or damage fuel tank causing a fire, resulting in death or serious injury.  
Contact with muffler area could cause burns resulting in serious injury.

- DO NOT touch hot parts and **AVOID** hot exhaust gases.
- Allow equipment to cool before touching.
- Keep at least 5 feet (1.5 m) of clearance on all sides of generator including overhead.
- Contact the original equipment manufacturer, retailer, or dealer to obtain a spark arrester designed for the exhaust system installed on this engine.
- Replacement parts must be the same and installed in the same position as the original parts.

## Clean or replace spark arrester as follows:

1. Allow the engine to cool completely before servicing the spark arrester.
2. Remove the screw(A) holding the spark arrester(B) to the muffler(C).



3. Remove the spark arrester screen.
4. Carefully remove the carbon deposits from the spark arrester screen with a wire brush.
5. Replace the spark arrester if it is damaged.
6. Position the spark arrester in the muffler and attach with the screws. .



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## 8. STORAGE

The following procedures should be followed prior to storage of your generator for periods of 3 months or longer.

- Drain fuel from fuel tank carefully. Gasoline left in the fuel tank will eventually deteriorate making engine-starting difficult.
- Loosen the drain screw on the bottom of the carburetor float chamber, and drain the fuel completely.
- Change engine oil.
- Check for loose bolts and screws, tighten them if necessary.
- Clean generator thoroughly with oiled cloth. Spray with preservative if available.

### **NEVER USE WATER TO CLEAN GENERATOR.**

- Pull starter handle until resistance is felt, leaving handle in that position.
- Store generator in a well ventilated, low humidity area.



## 9. TROUBLE SHOOTING

Problem	Cause	Correction
<b>Engine is running, but no AC output is available.</b>	<ol style="list-style-type: none"> <li>1. Circuit breaker is open.</li> <li>2. Fault in generator.</li> <li>3. Poor connection or defective cord set.</li> <li>4. Connected device is bad.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reset circuit breaker.</li> <li>2. Contact authorized service facility.</li> <li>3. Check and repair.</li> <li>4. Connect another device that is in good condition.</li> </ol>
<b>Engine runs good at no-load but "bogs down" when loads are connected.</b>	<ol style="list-style-type: none"> <li>1. Short circuit in a connected load.</li> <li>2. Engine speed is too slow.</li> <li>3. Generator is overloaded.</li> <li>4. Shorted generator circuit.</li> </ol>	<ol style="list-style-type: none"> <li>1. Disconnect shorted electrical load.</li> <li>2. Contact authorized service facility.</li> <li>3. See Don't Overload Generator</li> <li>4. Contact authorized service facility.</li> </ol>
<b>Engine will not start; starts and runs rough or shuts down when running.</b>	<ol style="list-style-type: none"> <li>1. Engine switch set to OFF (0) position.</li> <li>2. Fuel shutoff lever is in OFF (0) position.</li> <li>3. Low oil level.</li> <li>4. Dirty air cleaner.</li> <li>5. Out of fuel.</li> <li>6. Stale fuel.</li> <li>7. Spark plug wire not connected to spark plug.</li> <li>8. Bad spark plug.</li> <li>9. Water in fuel.</li> <li>10. Flooded.</li> <li>11. Excessively rich fuel mixture.</li> <li>12. Intake valve stuck open or closed.</li> <li>13. Engine has lost compression.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set engine switch to ON (I) position.</li> <li>2. Move fuel shutoff lever to ON (I) position.</li> <li>3. Fill crankcase to proper level or place generator on level surface.</li> <li>4. Clean or replace air cleaner.</li> <li>5. Fill fuel tank.</li> <li>6. Drain fuel tank and carburetor; fill with fresh fuel.</li> <li>7. Connect wire to spark plug.</li> <li>8. Replace spark plug.</li> <li>9. Drain gas tank and carburetor; fill with fresh fuel.</li> <li>10. Wait 5 minutes and re-crank engine.</li> <li>11. Contact authorized service facility.</li> <li>12. Contact authorized service facility.</li> <li>13. Contact authorized service facility.</li> </ol>
<b>Engine lacks power.</b>	<ol style="list-style-type: none"> <li>1. Load is too high.</li> <li>2. Dirty air filter.</li> </ol>	<ol style="list-style-type: none"> <li>1. Don't Overload Generator</li> <li>2. Replace air filter.</li> </ol>
<b>Engine "hunts" or falters.</b>	Carburetor is running too rich or too lean.	Contact authorized service facility.

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## 10. FIRMAN Two (2) Year Limited Warranty

### Warranty Qualifications

Firman generator will register the warranty upon receipt of your Warranty Registration Card and a copy of your sales receipt from one of FIRMAN's retail locations as proof of purchase. Please submit your warranty registration and your proof of purchase within ten (10) days of the date of purchase.

### Repair/Replacement Warranty

Firman warrants to the original purchaser that the mechanical and electrical components will be free of defects in material and workmanship for a period of one (1) year (parts and labor) and two (2) years (parts) from the original date of purchase (90 days [parts and labor] and 180 days [parts] for commercial & industrial use. Transportation charges on product submitted for repair or replacement under this warranty are the sole responsibility of the purchaser. This warranty only applies to the original purchaser and is not transferable.

### Do Not Return the Unit to the Place of Purchase

Contact FIRMAN Service Center and FIRMAN will troubleshoot any issue via phone or e-mail. If the problem is not corrected by this method, FIRMAN will, at its option, authorize evaluation, repair or replacement of the defective part or component at a FIRMAN Service Center. FIRMAN will provide you with a case number for warranty service. Please keep it for future reference. Repairs or replacements without prior authorization, or at an unauthorized repair facility, will not be covered by this warranty.

### Warranty Exclusions

This warranty does not cover the following repairs and equipment:

#### Normal Wear

Your product needs periodic parts and service to perform well. This warranty does not cover repair when normal use has exhausted the life of a part or the equipment as a whole.

#### Installation, Use and Maintenance

This warranty will not apply to parts and/or labor if your product is deemed to have been misused, neglected, involved in an accident, abused, loaded beyond the generator's limits, modified, installed improperly or connected incorrectly to any electrical component. Normal maintenance is not covered by this warranty.

#### Other Exclusions

This warranty excludes:

- cosmetic defects such as paint, decals, etc.,
- wear items,
- accessory parts,
- failures to due acts of God and other force majeure events beyond the manufacturer's control,
- problems caused by parts that are not original FIRMAN parts.

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## **Limits of Implied Warranty and Consequential Damage**

FIRMAN disclaims any obligation to cover any loss of time, use of this product, freight, or any incidental or consequential claim by anyone from using this product. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

A unit provided as an exchange will be subject to the warranty of the original unit. The length of the warranty governing the exchanged unit will remain calculated by reference to the purchase date of the original unit.

This warranty gives you certain legal rights which may change from state to state. Your state may also have other rights you may be entitled to that are not listed within this warranty.

## **Contact Information**

You may contact FIRMAN at:

### **Address**

SUMEC North America  
Attn: Customer Service  
2090 Baker Road Suite 304 Box 105  
Kennesaw Ga. 30144  
[www.firmangenerators.com](http://www.firmangenerators.com)

### **Customer Service**

Mon-Fri 8:30 AM- 5:30 PM (EST)  
Toll Free:1-844-FIRMAN1(1-844-347-6261)

**WWW.FIRMANGENERATORS.COM**  
**Toll Free:1-844-347-6261**

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