



MX10000E

Gasoline Powered Generator

Owner's Manual



Max Tool Customer Service

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Product Support (Product: information, application, service info & warranty questions)

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This manual provides information regarding the operation and maintenance of these products. We have made every effort to ensure the accuracy of the information in this manual. We reserve the right to change this product at any time without prior notice.

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

WARNING:

The generator is a potential source of electrical shock if misused. Do not expose the generator to moisture, rain or snow. Do not let the generator get wet, and do not operate it with wet hands.

 WARNING	
	GASOLINE IS HIGHLY FLAMMABLE AND EXPLOSIVE. YOU COULD BE BURNED OR SERIOUSLY INJURED IF THE GASOLINE IS IGNITED. BEFORE REFUELLING, STOP THE ENGINE AND KEEP HEAT, SPARKS AND FLAME AWAY. HANDLE FUEL ONLY OUTDOORS. DO NOT FILL THE FUEL TANK ABOVE THE UPPER LIMIT LINE. WIPE UP SPILLS IMMEDIATELY.
	EXHAUST CONTAINS POISONOUS CARBON MONOXIDE GAS THAT CAN BUILD UP TO DANGEROUS LEVELS IN CLOSED AREAS. BREATHING CARBON MONOXIDE CAN CAUSE UNCONSCIOUSNESS OR DEATH. NEVER RUN THE GENERATOR IN A CLOSED, OR EVEN PARTLY CLOSED AREA WHERE PEOPLE MAY BE PRESENT.
	IMPROPER CONNECTIONS TO A BUILDING CAN ALLOW ELECTRICAL CURRENT TO BACK FEED INTO UTILITY LINES. CREATING AN ELECTROCUTION HAZARD. CONNECTIONS TO A BUILDING MUST ISOLATE GENERATOR POWER FROM UTILITY POWER AND COMPLY WITH ALL APPLICABLE LAWS AND ELECTRICAL CODES.
	THE GENERATOR IS A POTENTIAL SOURCE OF ELECTRICAL SHOCK IF NOT KEPT DRY. DO NOT EXPOSE THE GENERATOR TO MOISTURE, RAIN OR SNOW. DO NOT OPERATE THE GENERATOR WITH WET HANDS.

These labels warn you of potential hazards that can cause serious injury. Read them carefully.

SAFETY INFORMATION

Read and understand this instruction manual before operating your generator. You can help prevent accidents by being familiar with your generator's controls, and by observing safe operating procedures.

Operator Responsibility

- ◆ Know how to stop the generator quickly in case of emergency.
- ◆ Understand the use of all generator controls, output receptacles, and connections.
- ◆ Do not let children operate the generator without parental supervision.

Carbon Monoxide Hazards

- ◆ Exhaust contains poisonous carbon monoxide, a colorless and odorless gas. Breathing exhaust can cause loss of consciousness and may lead to death.
- ◆ If you run the generator in an area that is confined, or even partially enclosed, the air you breathe could contain a dangerous amount of exhaust gas. To keep exhaust gas from accumulating, provide adequate ventilation.

Electric Shock Hazards

The generator produces enough electric power to cause a serious shock or electrocution if misused. Using a generator or electrical appliance in wet conditions, such as rain or snow, or near a pool or sprinkler system, or when your hands are wet, could result in electrocution. Keep the generator dry. If the generator is stored outdoors, unprotected from the weather, check all of the electrical components on the control panel, before each use. Moisture or ice can cause a malfunction or short circuit in electrical components, which could result in electrocution. Do not connect to a building electrical system unless a qualified electrician has installed an isolation switch.

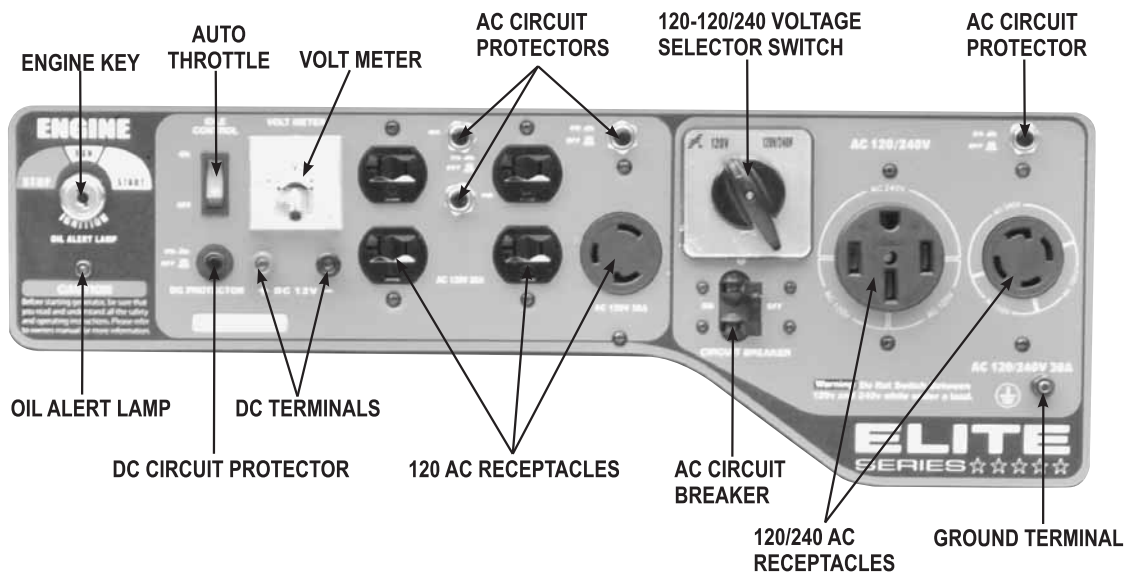
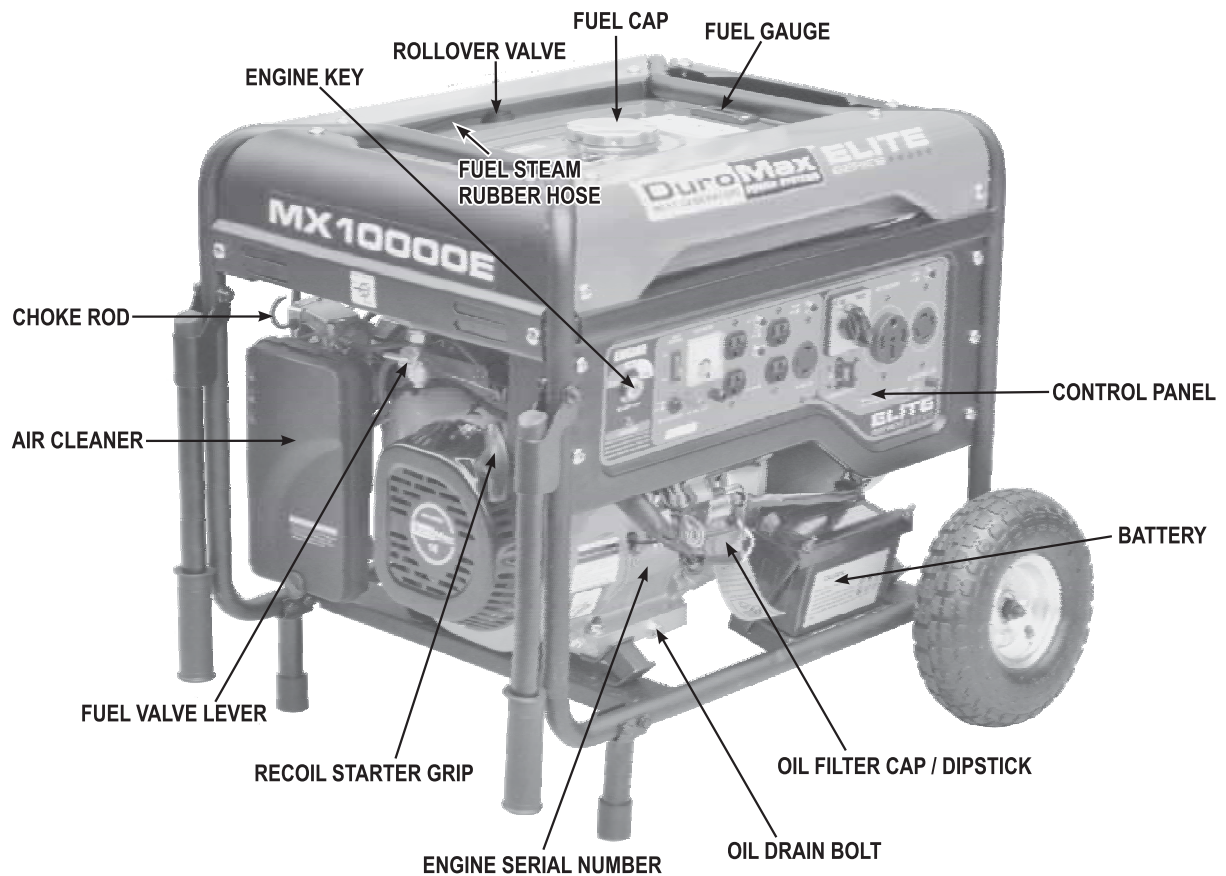
Fire and Burn Hazards

- ◆ The exhaust system gets hot enough to ignite some materials.
 - Keep the generator at least 3 feet (1 meter) away from buildings and other equipment during operation.
 - Do not enclose the generator in any structure.
 - Keep flammable materials away from the generator.
- ◆ The muffler becomes very hot during operation and remains hot for a while after stopping the engine.
 - Be careful not to touch the muffler while it is hot. Let the engine cool before storing the generator indoors.
- ◆ Gasoline is extremely flammable and is explosive under certain conditions. Do not smoke or allow flames or sparks where the generator is refueled or where gasoline is stored. Refuel in a well-ventilated area with the engine stopped.
- ◆ Fuel vapors are extremely flammable and may ignite after the engine has started. Make sure that any spilled fuel has been wiped up before starting the generator.

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COMPONENT IDENTIFICATION



Engine Key

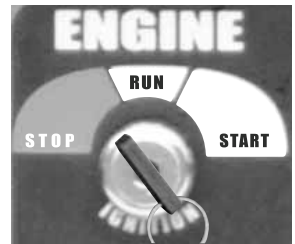
To start and stop the engine.

Key position:

STOP: To stop the engine. Key can be removed / inserted.

RUN: To run the engine after starting, or to pull start the unit.

START: To start the engine by operating the starter motor.



WARNING:

Do not turn the key switch to START position when the engine is running to prevent damage to the starting motor.

Recoil Starter

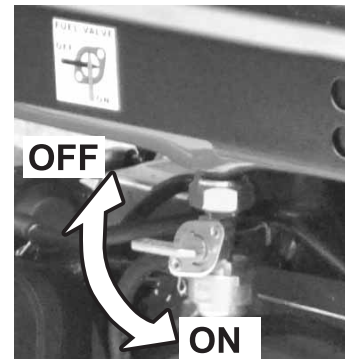
To start the engine, turn the key to on, pull the starter grip lightly until resistance is felt, then pull briskly.

WARNING:

Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the starter.

Fuel Valve Lever

The fuel valve is located between the fuel tank and carburetor. When the valve lever is in the ON position, fuel is allowed to flow from the fuel tank to the carburetor. Be sure to return the fuel valve lever to the OFF position after stopping the engine.



Choke Rod

The choke is used to provide an enriched fuel mixture when starting a cold engine. It can be opened and closed by operating the choke rod manually. Pull the rod out toward CLOSED to enrich the mixture for cold starting

Voltage Selector Switch

The voltage selector switch switches the main power carrying windings of the generator to produce “120V ” or “120/240V”. If a 240V appliance is connected to the 4-prong receptacles, the switch must be in the “120/240V” position. If only a 120V appliance is being connected select the "120V" position.

Switch Position

120/240V: The 120V and 120/240V receptacles can be used simultaneously.

120V: Do not use the 120/240V twist lock receptacle in this position. The most power will be available at the 50A 120/240V receptacle.

WARNING:

Change the Voltage Selector Switch after turning the AC circuit breaker to OFF. The generator may be damaged if the Voltage Selector Switch is changed with the breaker in the ON position.

Ground Terminal

The generator ground terminal is connected to the frame of the generator, the metal non-current-carrying parts of the generator, and the ground terminals of each receptacle.

DC Receptacle

The DC receptacle may ONLY be used for charging 12 volt automotive type batteries.

The battery must be connected to the generator DC receptacle with the proper polarity (battery positive to generator positive (+) and battery negative to the generator negative (-).

WARNING:

Do not start the vehicle while the battery charging cable is connected and the generator is running. The vehicle or the generator may be damaged.

DC Circuit Protector

The DC circuit protector automatically shuts off the DC battery charging circuit when the DC charging circuit is overloaded, when there is a problem with the battery, or when the connections between the battery and the generator are improper.

Oil Alert System

The Oil Alert system is designed to prevent engine damage caused by an insufficient amount of oil in the crankcase. Before the oil level in the crankcase can fall below a safe limit, the Oil Alert system will automatically stop the engine (the engine switch will remain in the ON position). The Oil Alert system should not take the place of checking the oil level before each use.

If the engine stops and will not restart, check the engine oil level before troubleshooting in other areas.

AC Circuit Breaker

The AC circuit breaker will automatically switch OFF if there is a short circuit or a significant overload of the generator at the receptacle. If the AC circuit breaker is switched OFF automatically, check that the appliance is working properly and does not exceed the rated load capacity of the circuit before switching the AC circuit breaker ON again. The AC circuit breaker may be used to switch the generator power ON or OFF.

AC Circuit Protector

The AC circuit protectors will automatically switch OFF if there is a short circuit or a significant overload of the generator at the 20A 120V, 30A 120V plug. If an AC circuit protector switches OFF automatically, check that the appliance is working properly and does not exceed the rated load capacity of the circuit before resetting the AC circuit protector ON.



WATTAGE REFERENCE CHART

Electric equipment, especially engines produce strong current when being started. The table below offers references when you connect those installations to generator.

Tool or Appliance	Rated* (Running) Watts	Additional Surge (Starting) Watts
Essentials		
Light Bulb-75 watt	75	-
Deep Freezer	500	800
Sump Pump	800	1200
Refrigerator/Freezer-18 Cu. Ft.	800	1600
Water Well Pump-1/3 HP	1000	2000
Heating/Cooling		
Window Air Conditioner-10000 BTU	1200	1800
Window Fan	300	600
Furnace Fan Blower-1/2 HP	800	1300
Kitchen		
Microwave Oven-1000 watt	1000	2000
Coffee Maker	1500	-
Electric Stove- Single Element	1500	-
Hot Plate	2500	-
Family Room		
DVD/CD Player	100	-
VCR	100	-
Stereo Receiver	450	-
Color Television- 27"	500	-
Personal Computer w/17" Monitor	800	-
Other		
Security System	180	-
AM/FM Clock Radio	300	-
Garage Door Opener- 1/2 HP	480	520
Electric Water Heater- 40 Gallon	4000	-
DIY / Job Site		
Quartz Halogen Work Light	1000	-
Airless Sprayer- 1/3 HP	600	1200
Reciprocating Saw	960	960
Electric Drill- 1/2 HP	1000	1000
Circular Saw- 7 1/4"	1500	1500
Miter Saw- 10"	1800	1800
Table Planer- 6"	1800	1800
Table Saw / Radial Arm Saw- 10"	2000	2000
Air Compressor- 1- 1/2 HP	2500	2500

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

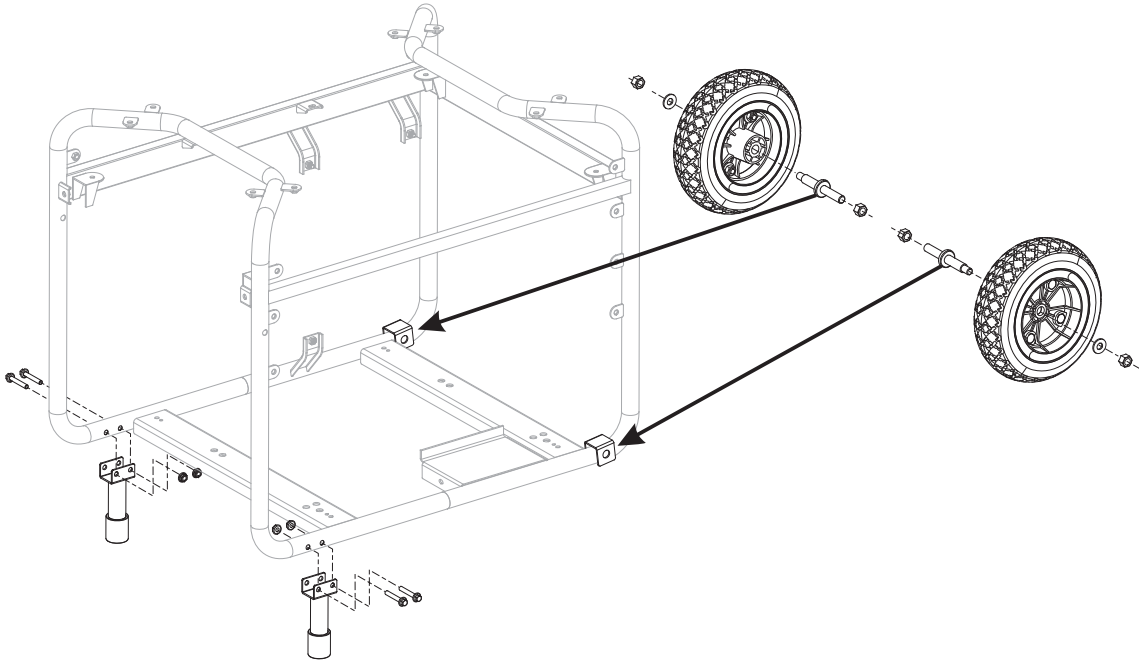
SPECIFICATIONS

Generator	Model	MX10000E	
	Frequency	60 HZ	
	Max. AC Output	7100 Watt	
	Rated AC Output	6500 Watt	
	Run Time	6.5 hour	
Engine	Model	DS16HPE	
	Type	Air Cooled, OHV, 4-Stroke	
	Displacement	420 cc	
	Output	16.0 HP / 3600 rpm	
	Fuel	Unleaded Gasoline	
	Fuel Tank Capacity	6.5 Gallon	
	Decibel	<78 dBA	
	Oil Alert	Standard	
	Battery	12V 9A/hr	
	Fuel Gauge	Standard	
	Air Cleaner	Standard	
	Silencer	Standard	
	Voltmeter	Standard	Receptacle 2 × NEMA 5-20R 1 × NEMA 5-30R 1 × NEMA L14-30R 1 × NEMA 14-50R Plug(Not included with your generator)
	Voltage Selector	Standard	
	DC Circuit Breaker	Standard	
	DC Receptacle	Standard	
	AC Circuit Breaker	Standard	
	AC Circuit Protector	Standard	
	AC Receptacle	2 Pole 120V AC 3 Pole 120V/240V AC	
Dimensions	Length	26.9"	2 × NEMA 5-20P 1 × NEMA 5-30P 1 × NEMA L14-30P 1 × NEMA 14-50P
	Width	20.1"	
	Height	21.3"	
	Gross Weight	195 lbs.	

ASSEMBLY

Wheel Kit Installation

- 1 Install the axle assembly on the generator.
- 2 Install the two wheels on the axle shaft using the flange nuts.
- 3 Install the two stands on the under frame using the flange nuts.



Starter Cables Connection

- 1 Route the starter cable under the tank.
- 2 Connect the starter cable to the battery positive (+) terminal first, then to the negative (–) terminal. When disconnecting, disconnect at the battery negative (–) terminal first.

WARNING:

Battery posts, terminals and related accessories contain lead and lead compounds. Wash hands after handling.

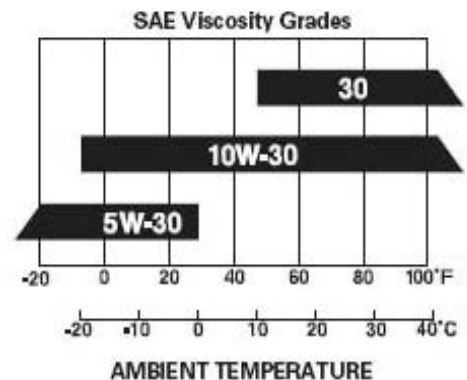
PRE-OPERATION CHECK

Engine Oil

WARNING:

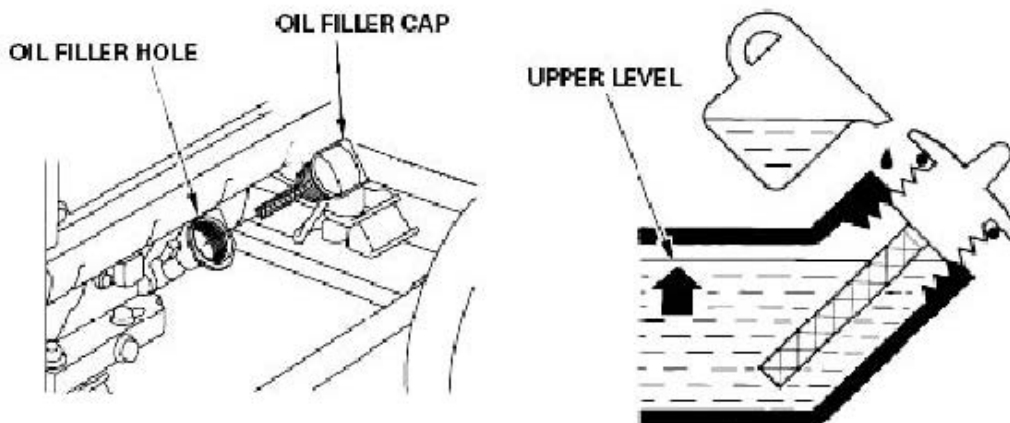
Engine oil is a major factor affecting engine performance and service life. Non-detergent and 2-stroke engine oils will damage the engine and are not recommended.

- ◆ Check the oil level BEFORE EACH USE with the generator on a level surface and the engine stopped.
- ◆ Use 4-stroke motor oil that meets or exceeds the requirements for API service classification SJ.



Always check the API SERVICE label on the oil container to be sure it includes the letter SJ.

- ◆ SAE 10W-30 is recommended for general, all-temperature use. Other viscosities shown in the chart may be used when the average temperature in your area is within the indicated range.



- 1 Remove the oil filler cap and wipe the dipstick clean.
- 2 Check the oil level by inserting the dipstick into the filler neck without screwing it in.
- 3 If the level is low, fill to the top of the oil filler neck with the recommended oil.

Fuel

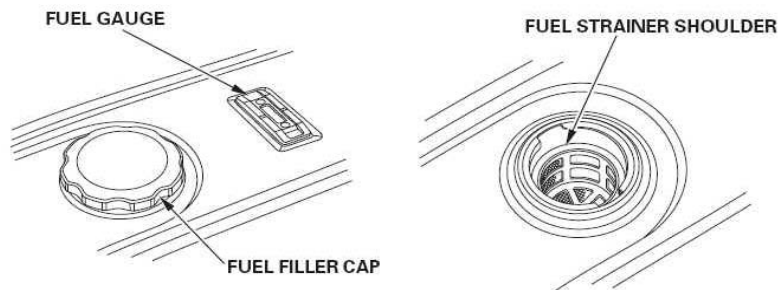
- ◆ Check the fuel gauge, and refill the tank if the fuel level is low.
- ◆ Refuel carefully to avoid spilling fuel. Do not fill above the shoulder of the fuel strainer.

WARNING:

Gasoline is highly flammable and explosive, and you can be burned or seriously injured when refueling.

- Stop engine and keep heat, sparks, and flame away.
- Refuel only outdoors.
- Wipe up spills immediately.
- ◆ Use unleaded gasoline with an octane rating of 86 or higher.
- ◆ This engine is certified to operate **ONLY** on unleaded gasoline.

Unleaded gasoline produces fewer engine and spark plug deposits and extends exhaust system life. Never use stale or contaminated gasoline or an oil/gasoline mixture. Avoid getting dirt or water in the fuel tank.



STARTING THE ENGINE / STOPPING THE ENGINE

Starting the Engine

- 1 Make sure that the AC circuit breaker is in the OFF position. The generator may be hard to start if a load is connected.
- 2 Turn the fuel valve lever to the ON position.
- 3 The choke will need to be closed, pull the choke rod out to the CLOSED position.
- 4 Connect the battery cables to the generator.
- 5 Turn the engine switch to the START position and hold it there for 5 seconds or until the engine starts.

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.

If the speed of the starter motor drops after a period of time, it is an indication that the battery should be recharged.

When the engine starts, allow the engine switch to return to the RUN position.

Push the choke to the OPEN position as the engine warms up.

Stopping the Engine

In an emergency:

To stop the engine in an emergency, move the engine switch to the STOP position.

In normal use:

- 1 Turn the AC circuit breaker to the OFF position. Disconnect DC battery charging cables.
- 2 Turn the engine switch to the STOP position.
- 3 Turn the fuel valve lever to the OFF position.

OPERATING INSTRUCTIONS

Connections to a Building Electrical System

Connections for standby power to a building electrical system must be made by a qualified electrician. The connection must isolate the generator power from utility power, and must comply with all applicable laws and electrical codes. A transfer switch, which isolates generator power from utility power, is prerequisite.

WARNING:

Improper connections to a building electrical system can allow electrical current from the generator to back feed into the utility lines. Such back feed may electrocute utility company workers or others who contact the lines during a power outage, and the generator may explode, burn, or cause fires when utility power is restored. Consult the utility company or a qualified electrician.

Ground System

The portable generators have a system ground that connects generator frame components to the ground terminals in the AC output receptacles. The system ground is not connected to the AC neutral wire.

AC Applications

Before connecting an appliance or power cord to the generator:

- ◆ Make sure that it is in good working order. Faulty appliances or power cords can create a

potential for electrical shock.

- ◆ If an appliance begins to operate abnormally, becomes sluggish or stops suddenly, turn it off immediately. Disconnect the appliance, and determine whether the problem is the appliance, or if the rated load capacity of the generator has been exceeded.
- ◆ Make sure that the electrical rating of the tool or appliance does not exceed that of the generator. Never exceed the maximum power rating of the generator. Power levels between rated and maximum may be used for no more than 30 minutes.

WARNING:

Substantial overloading will open the circuit breaker. Exceeding the time limit for maximum power operation or slightly overloading the generator may not switch the circuit breaker or circuit protector OFF, but will shorten the service life of the generator.

AC Operation

- 1 Start the engine .
- 2 Turn the voltage selector switch to either position.

With the voltage selector switch in the “120/240V” position, you can use the 120V and 120/240V receptacles simultaneously. If you require more 120V only power, then select the "120V only" position, this will disable the 120/240V twist lock plug.

- 3 Switch the AC circuit breaker ON.
- 4 Plug in the appliance.

Most motorized appliances require more than their rated power for startup.

Do not exceed the current limit specified for any one receptacle. If an overloaded circuit causes the AC circuit breaker or AC circuit protector to switch OFF, reduce the electrical load on the circuit, wait a few minutes and then reset the AC circuit breaker or AC circuit protector.

AC Receptacle Selection

The generator has two separate main power producing circuits. These two circuits supply equal power to different receptacles shown when the voltage selector switch is in the 120/240V position.

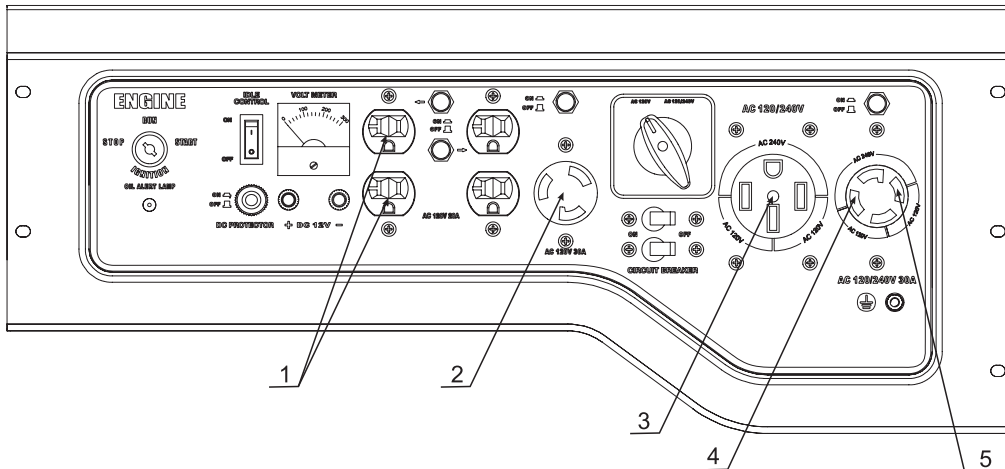
When two or more receptacles are used; prevent overloading by dividing the load between the two power circuits.

The chart below shows the rated load in amperes that can be connected to each receptacle to balance the generator.

The total rated ampere draw is 65A in 120V ONLY.

Main Power Circuit	Receptacles Powered by Each Main Circuit	Power Distribution
Main Circuit 1	2 and 5	2+5=32.5 A Rated
Main Circuit 2	1 and 4	1+4=32.5 A Rated

The table shows the specifications when the 120/240V locking plug receptacle is used for 120V.



DC Operation

The DC terminals may **ONLY** be used for charging 12 volt automotive type batteries.

Connecting the battery cables:

- 1 Before connecting the battery charging cables to a battery that is installed in a vehicle, disconnect the vehicle ground battery cable from the battery negative (—) terminal.

WARNING:

- ◆ Batteries give off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging or using batteries.
 - ◆ Battery posts, terminals and related accessories contain lead and lead compounds. Wash hands after handling.
- 2 Connect the positive (+) battery cable to the battery positive (+) terminal.
 - 3 Connect the negative (—) battery cable to the battery negative (—) terminal.
 - 4 Connect the plug of the battery cable to the generator DC receptacle.
 - 5 Start the generator.

WARNING:

Do not start the vehicle while the battery charging cable is connected and the generator is running. The vehicle or the generator may be damaged. An overloaded DC circuit, excessive current draw by the battery, or a wiring problem will trip the DC circuit protector. If this happens, wait a few minutes before pushing in the circuit protector to resume operation.

Disconnecting the battery cables:

- 1 Stop the engine.
- 2 Disconnect the plug of the battery cable to the generator DC receptacle
- 3 Disconnect the other end of the negative (—) battery cable from the battery negative (—) terminal.
- 4 Disconnect the other end of the positive (+) battery cable from the battery positive (+) terminal.
- 5 Reconnect the vehicle ground battery cable to the battery negative (—) terminal.

KIT HIGH ALTITUDE REPLACEMENT FOR EPAIII ENGINES

3000ft to 6000ft or 6000ft to 8000ft of elevation

* At high altitude, the standard carburetor air-fuel mixture will be too rich. Performance will decrease and fuel consumption will increase. A very rich mixture will also foul the spark plug and cause hard starting. Operation at an altitude that differs from that at which this engine was certified, for extended periods of time, may increase emissions.

* The fuel system on this Engine or Equipment may be influenced by operation at higher altitudes. Proper operation can be ensured by installing an altitude kit when required. See the table below to determine when an altitude kit is required. Operating this generator without the proper altitude kit installed may increase the engine's emissions and decrease fuel economy and performance. Kits may be obtained from any Dealer, and should be installed by a qualified individual.

Equipment model*	Fuel	Altitude Range**	Kit Part Number
Added by Keli	Gasoline	0 – 3000 ft	Not Required
		3000 – 6000 ft	Altitude kit 1#
		6000 – 8000 ft	Altitude kit 2#
* Engine, Generator Set, Pressure Washer, Walk-Behind Lawnmower, Compressor, Pump, Tiller etc.			
** Elevation above sea level.			

* This high altitude jet is to be used at elevations above 3000 feet.

* At elevations above 8000 feet, the engine may experience decreased performance, even with the high altitude kit.

If a carburetor is replaced, the proper high altitude kit jet will need to be installed into the replacement carburetor.



WARNING! To prevent serious injury from fire: Follow the kit procedures in a well-ventilated area away from ignition sources. If the engine is hot from use, shut the engine off and wait for it to cool before proceeding.

NOTICE: The warranty may be void if necessary adjustments are not made for high altitude use. To install a high altitude kit.

MAINTENANCE

The Importance of Maintenance.

Good maintenance is essential for safe, economical, and trouble-free operation. It will also help reduce air pollution.

WARNING:

Improper maintenance, or failure to correct a problem before operation, can cause a malfunction in which you can be seriously injured or killed.

Always follow the inspection and maintenance recommendations and schedules in this instruction manual.

Maintenance Safety

- ◆ Make sure the engine is off before you begin any maintenance or repairs.
- ◆ Let the engine and exhaust system cool before touching.
- ◆ To reduce the possibility of fire or explosion, be careful when working around gasoline. Use only a nonflammable solvent, not gasoline, to clean parts. Keep cigarettes, sparks, and flames away from all fuel-related parts.

Maintenance Schedule

Remember that this schedule is based on the assumption that your machine will be used for its designed purpose. Sustained high-load or high-temperature operation, or use in unusually wet or dusty conditions, will require more frequent service.

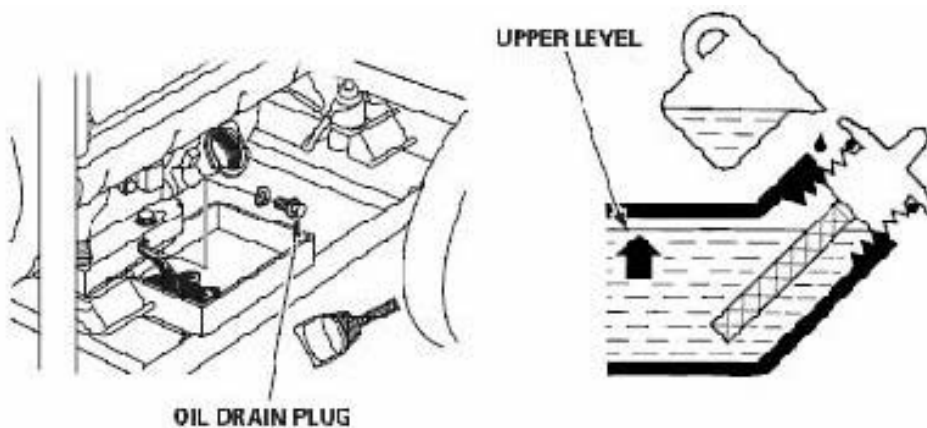
Frequency		Each time	First 1 month or first 20hrs of operation	Thereafter, every 3 months or every 50hrs of operation	Every year or every 100 hrs of operation
Items					
Engine oil	Check- Refill	○			
	Replace		○	○	
Reduction gear oil(if equipped)	Oil level check	○			
	Replace		○	○	
Air filter element	Check	○			
	Clean		○		
	Replace			○	
Deposit Cup(if equipped)	Clean				○
Spark Plug	Check - adjust				○*
Spark arrester	Clean			○	
Idling (if equipped)**	Check - adjust				○
Valve clearance **	Check-adjust				○
Fuel tank & fuel filter **	Clean				○
Fuel line	Check	Every 2 years(change if necessary)			
Cylinder head, piston	Clean up carbon **	<225cc , Every 125hrs ≧225cc , Every 250hrs			
* These items should be replaced if replacement needed.					
** These items should be maintained and repaired by our authorized dealer, unless the owner has appropriate tools and is proficient with mechanical maintenance.					

Engine Oil Change

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

- 1 Remove the drain plug and sealing washer, remove the oil filler cap, and drain the oil.
- 2 Reinstall the drain plug and sealing washer. Tighten the plug securely.
- 3 Refill with the recommended oil and check the oil level.

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



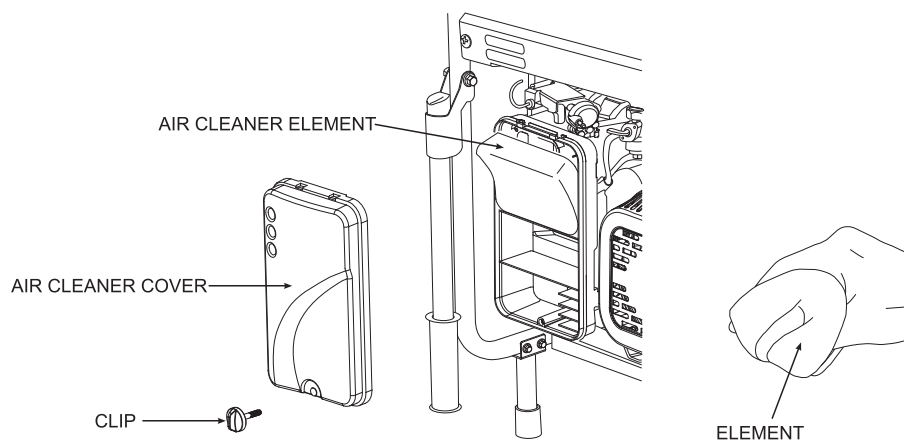
Air Cleaner Service

A dirty air cleaner will restrict air flow to the carburetor. To prevent carburetor malfunction, service the air cleaner regularly. Service more frequently when operating the generator in extremely dusty areas.

WARNING:

Never run the generator without the air filter. Rapid engine wear will result.

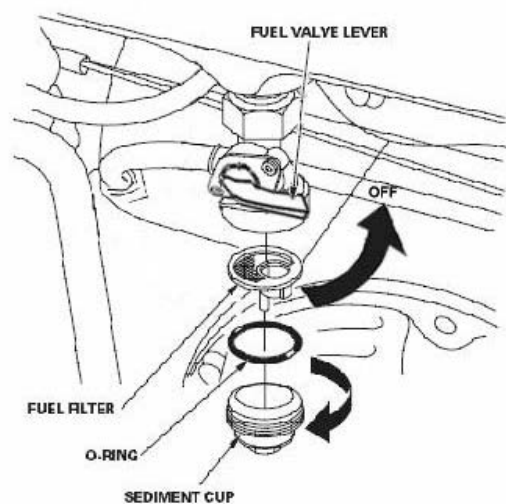
- 1 Unsnap the air cleaner cover clips, remove the air cleaner cover, and remove the element.
- 2 Wash the air cleaner element in a solution of household detergent and warm water, then rinse thoroughly, or wash in nonflammable or high flashpoint solvent. Allow the air cleaner element to dry thoroughly.
- 3 Soak the air cleaner element in clean engine oil and squeeze out the excess oil. The engine will smoke during initial startup if too much oil is left in the air cleaner element.
- 4 Reinstall the air cleaner element and the cover.



Fuel Sediment Cup Cleaning

The sediment cup prevents dirt or water, which may be in the fuel tank from entering the carburetor. If the engine has not been running for a long time, the sediment cup should be cleaned.

- 1 Turn the fuel valve lever to the OFF position. Remove the sediment cup, O-ring, and filter.
- 2 Clean the sediment cup, O-ring, and filter in nonflammable or high flash point solvent.
- 3 Reinstall the filter, O-ring, and sediment cup.
- 4 Turn the fuel valve lever ON and check for leaks.



Spark Plug Service

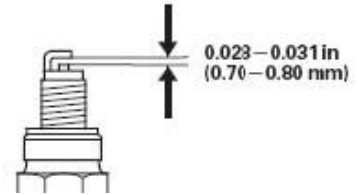
To ensure proper engine operation, the spark plug must be properly gapped and free of deposits. If the engine has been running, the muffler will be very hot. Be careful not to touch the muffler.

- 1 Remove the spark plug cap.
- 2 Clean any dirt from around the spark plug base.
- 3 Use a spark plug wrench to remove the spark plug.
- 4 Visually inspect the spark plug. Discard it if the insulator is cracked, chipped or fouled.
- 5 Measure the plug gap with a feeler gauge. Correct as necessary by carefully bending the side electrode.

The gap should be: 0.028 0.031 in (0.70 0.80 mm)

- 6 Check that the spark plug washer is in good condition, and thread the spark plug in by hand to prevent cross-threading.
- 7 After the spark plug is seated, tighten with a spark plug wrench to compress the washer.

—If installing a new spark plug, tighten 1/2 turn after the spark plug seats to compress the washer. If reinstalling a used spark plug, tighten 1/8 —1/4 turn after the spark plug seats to compress the washer.



WARNING:

The spark plug must be securely tightened. An improperly tightened spark plug can become very hot and could damage the engine. Never use spark plugs which have an improper heat range.

STORAGE

Before storing the unit for an extended period:

- ◆ Be sure the storage area is free of excessive humidity and dust.
- ◆ Service according to the table below:

STORAGE TIME	TO PREVENT HARD STARTING RECOMMENDED SERVICE PROCEDURE
Less than 1 month	No preparation required
1 to 2 months	Fill with fresh gasoline and add gasoline conditioner.
2 months to 1 year	Fill with fresh gasoline and add gasoline conditioner. Drain the carburetor float bowl. Drain the fuel sediment cup.
1 year or more	Fill with fresh gasoline and add gasoline conditioner. Drain the carburetor float bowl. Drain the fuel sediment cup. Remove the spark plug and put a tablespoon of engine oil into the cylinder head. Pull recoil starter slowly to distribute the oil evenly in the cylinder. Reinstall the spark plug. Change the engine oil. After removal from storage, drain the stored gasoline into a suitable container and fill with fresh gasoline before starting.

TROUBLESHOOTING

Note: Troubleshooting problems may have similar causes and solutions.

PROBLEM	POSSIBLE CAUSE	SOLUTION
The engine will not start	Is there fuel in the tank?	Refill the fuel tank.
	Is there enough oil in the engine?	Add the recommended oil.
	Is the spark plug in good condition?	Readjust gap and dry the spark plug. Replace it if necessary.
	Is the fuel reaching the carburetor?	Clean the fuel sediment cup.
No electricity at the AC receptacles	Is the AC circuit breaker ON?	Turn the AC circuit breaker ON.
	Check the electrical appliance or equipment for any defects.	• Replace the electrical appliance or equipment. • Take the electrical appliance or equipment to an electrical shop for repair.

EASY START INSTRUCTION

- 1) Fill with at least 1 gallon of fresh gas or until gas shows on the gauge.
- 2) Fill engine case with (10-30w) motor oil until you can see oil reach the top of dipstick threads. Replace oil cap/dipstick, low oil kill switch is now activated.
- 3) Turn on/off switch to ON position (located on control panel).
- 4) Turn fuel control valve to ON position.
- 5) Pull (CHOKE) lever out to the choke on position. Turn Key to Start or pull Recoil Start Rope (complete easy pulls) until generator starts.
- 6) After starting push (CHOKE) level in (slowly). If engine dies complete the above procedures. If Choke is left on and engine dies your spark plug could be fouled and may need to be cleaned.
- 7) Before plugging load into receptacles make sure you Circuit Breaker Switch is in the ON position.

GENERATOR ASSEMBLY AND MOUNTING

Generator is supplied with a wheel kit. If you want to install the wheel kit on your unit, please follow the instructions below. If you will not be using the wheel kit, skip this section.

1. Place the bottom of the generator cradle on a flat, even surface. Temporarily place unit on blocks to ease assembly.
2. Secure the support leg to the cradle with cap screws (M8 x 16) and lock nuts (M8) (see figure 22).
3. Secure the axle to the cradle with cap screws (M8 x 16) and lock nuts (M8) (see figure 23).
4. Slide a wheel over the axle, then secure the wheel with a retaining pin. (see figure 24、Figure 25、Figure 26).
5. Position the handles on the cradle and attach with cap screws (M8 X 16) and lock nuts (M8) (Figure 27、 Figure 28).
5. Check that all fasteners are tight.



Figure 22



Figure 23



Figure 24



Figure 25



Figure 26

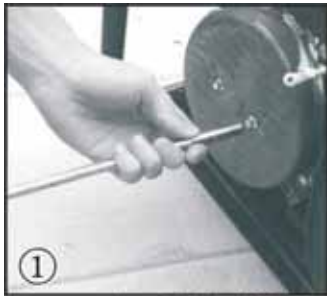


Figure 27

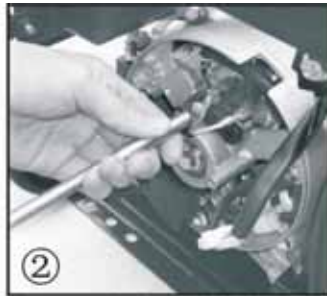


Figure 28

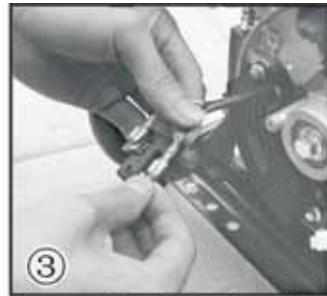
CHANGE THE CARBON-BRUSH



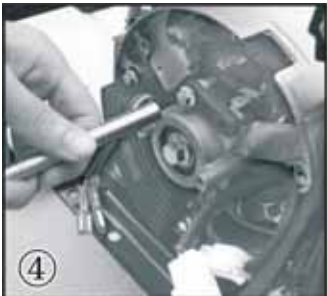
① Remove the 2 bolts (M5x12) on the generator back-cover



② Remove the bolt (M5x16) holding the carbon brush.



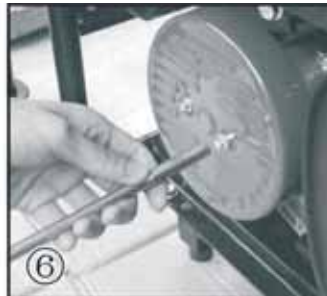
③ Remove the 2 wires from the AVR on the carbon brush.



④ Install the new carbon brush with bolt (M5x16)

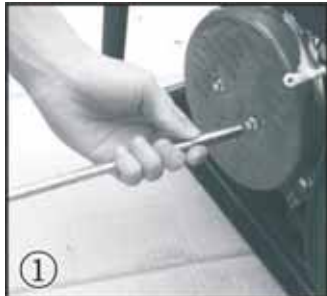


⑤ Insert and connect the 2 wires from the AVR, be sure to connect + and - correctly.



⑥ Replace the back cover of the generator and secure with the 2 bolts (M5x12)

CHANGE THE AVR



① Remove the 2 bolts (M5x12) on the generator back cover.



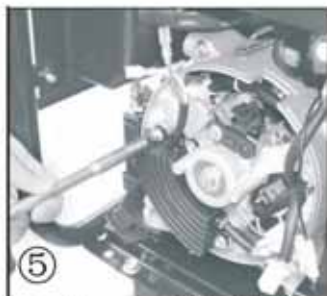
② Remove the 2 bolts (M5x16) holding the AVR.



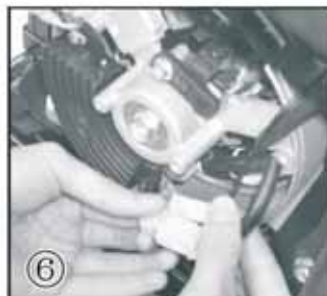
③ Disconnect the wire clip.



④ Remove the 2 wires of the AVR from the carbon brush.



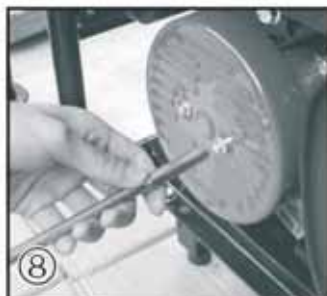
⑤ Install the new AVR with the 2 bolts (M5x16).



⑥ Reconnect the wire clip.

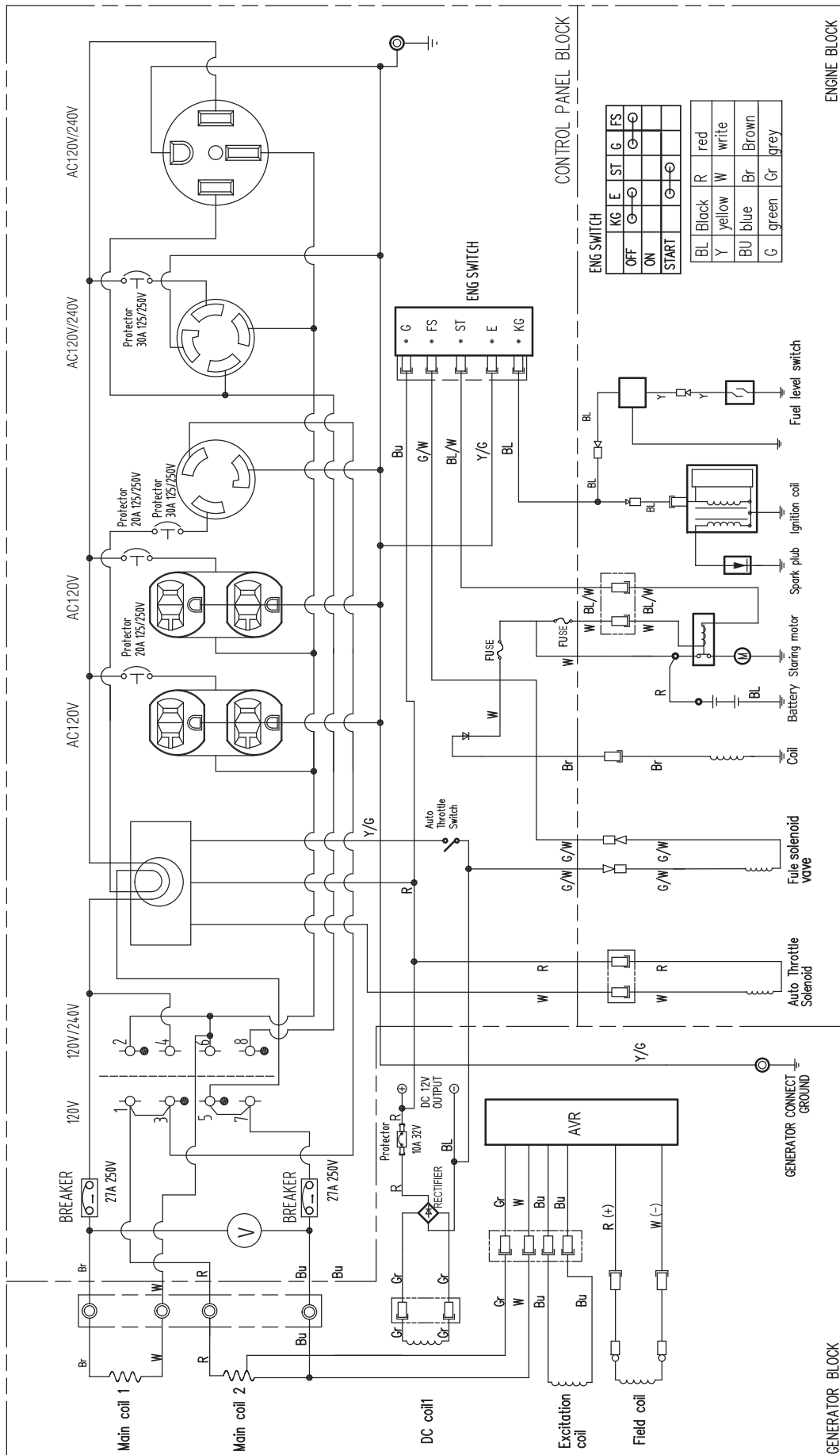


⑦ Connect the 2 wires to the carbon brush, be sure to connect the + and - correctly.

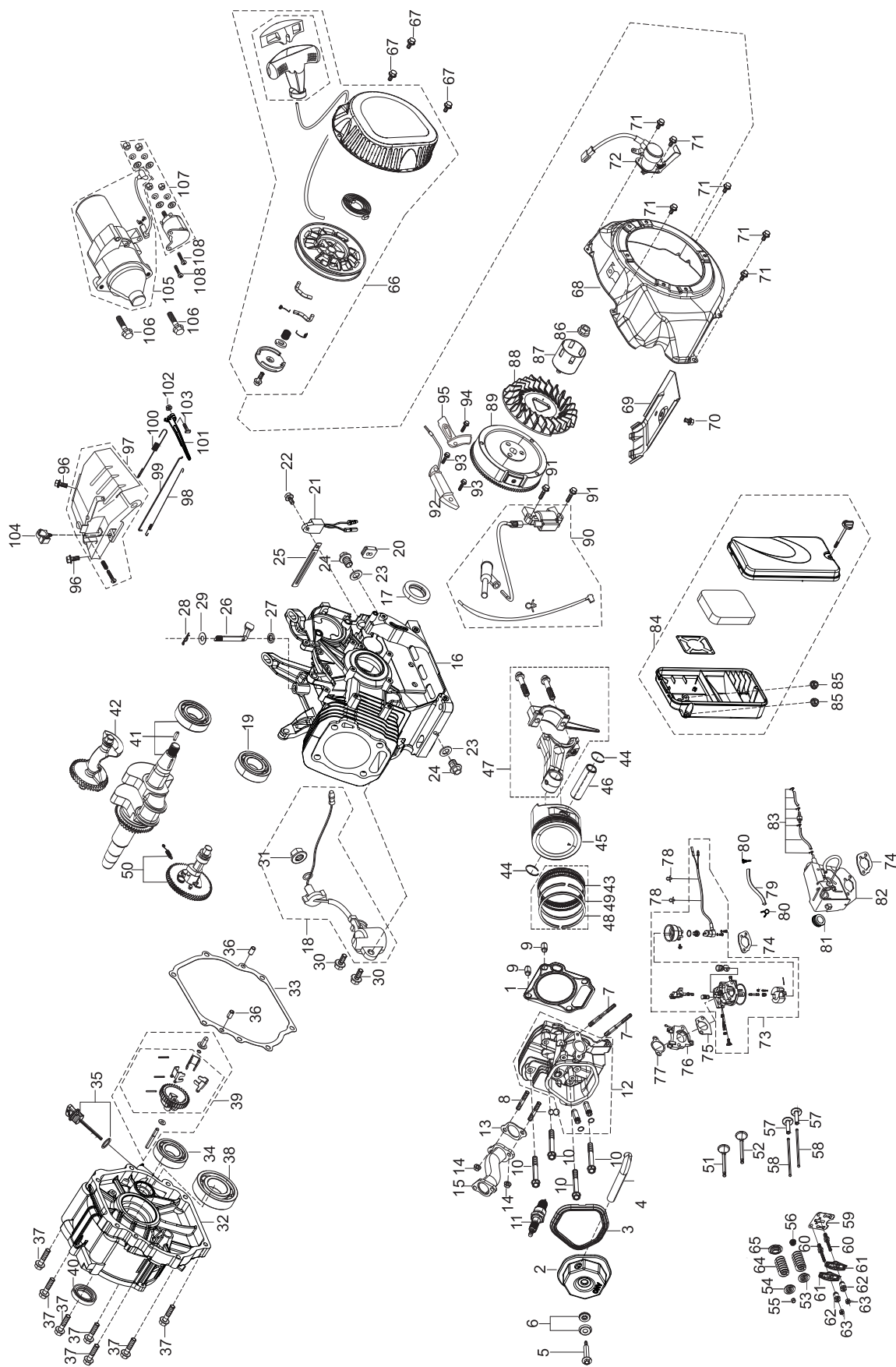


⑧ Replace the back cover of the generator and secure with the 2 bolts (M5x12).

WIRING DIAGRAM

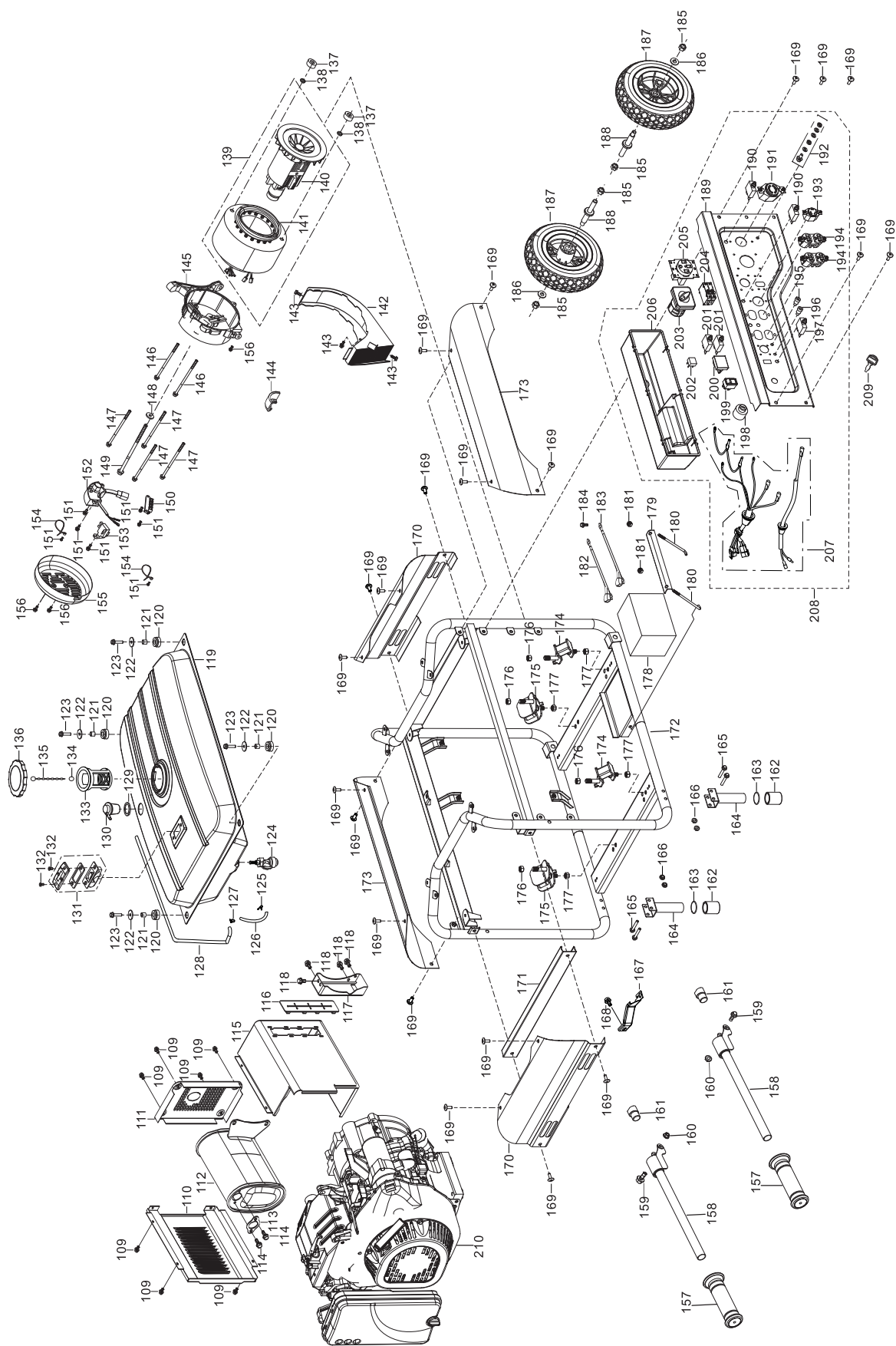


EXPLODED VIEW AND PARTS LIST



Item	Part	Qty	Description	Item	Part	Qty	Description
1	12131-Z190110-0000	1	GASKET, CYLINDER HEAD	44	13122-Z100110-0000	2	CLIP, PISTON PIN
2	12410-Z580110-0199	1	COVER SUBASSEMBLY, CYLINDER HEAD	45	13111-Z190310-0099	1	PISTON
3	12004-Z580110-0099	1	GASKET, CYLINDER HEAD COVER	46	13121-Z100110-0000	1	PIN, PISTON
4	17004-Z080320-0000	1	TUBE, BREATHER	47	13010-Z190120-0000	1	ROD, CONNECTING
5	12032-Z080110-0100	1	BOLT SUBASSEMBLY, CYLINDER HEAD COVER	48	13201-Z190210-0099	1	RING, THE FIRST
6	12034-Z080110-0099	1	BOLT SUBASSEMBLY, CYLINDER HEAD COVER	49	13202-Z190210-0099	1	RING, THE SECOND
7	90204-Z100410-0000	2	STUD	50	14200-Z190310-0099	1	CAMSHAFT ASSY.
8	90203-Z010110-0000	2	STUD	51	12121-Z190110-0099	1	VALVE, EXHAUST
9	90502-1220-00	2	PIN	52	12111-Z100110-0099	1	VALVE, INTAKE
10	12003-Z080110-0000	4	BOLT, CYLINDER HEAD	53	12112-Z080110-0000	1	SEAT, VALVE SPRING
11	30010-Z030110-0000	1	PLUG, SPARK	54	12107-Z080110-0000	1	RETAINER ' EXHAUST VALVE
12	12140-Z190230-0B99	1	HEAD SUBASSEMBLY, CYLINDER	55	12104-Z080110-0000	1	ROTATOR, VALVE
13	18001-Z190110-0000	1	GASKET, EXHAUST OUTLET	56	12101-Z080110-0000	1	GUIDE, SEAL
14	90303-0800-31	2	NUT	57	14081-Z080110-0000	2	TAPPET, VALVE
15	18150-Z100210-0000	1	PIPE, EXHAUST	58	14070-Z100110-0000	2	LIFTER SUBASSEMBLY, VALVE
16	11310-Z190210-0B00	1	CRANKCASE SUBASSEMBLY.	59	14090-Z080110-0000	1	PLATE SUBASSEMBLY, LIFTER STOPPER
17	90682-Z310110-0000	1	SEAL, OIL	60	14313-Z010110-0000	2	BOLT, VALVE ADJUSTING
18	37060-Z080120-0000	1	SENSOR, ENGINE OIL	61	14311-Z080110-0000	2	ROCKER, VALVE
19	90548-0202-CL	1	BEARING	62	14314-Z010110-0000	2	NUT ' VALVE ADJUSTING
20	28101-Z080110-0000	1	PLUG, RUBBER	63	14312-Z010110-0000	2	NUT, VALVE LOCK
21	37050-Z010310-0000	1	PROTECTOR, OIL	64	12103-Z080110-0000	2	SPRING, VALVE
22	90001-0612-01	1	BOLT	65	12105-Z080110-0000	1	RETAINER, VALVE SPRING
23	90412-Z080110-0000	2	WASHER ' FLAT	66	28200-Z101310-H700	1	STARTER ASSY, RECOIL
24	11007-Z080110-0000	2	BOLT, DRAIN PLUG	67	90001-0608-01	3	BOLT
25	90684-Z030120-0000	1	CLIP	68	28110-Z100220-Y900	1	SHROUD
26	16061-Z100110-0000	1	ARM, GOVERNOR	69	19304-Z100210-0000	1	SHROUD, CYLINDER BODY
27	90682-Z100210-0000	1	SEAL, OIL	70	90001-0612-01	1	BOLT
28	90501-Z010110-0000	1	PIN	71	90001-0612-01	5	BOLT
29	90412-Z080210-0000	1	WASHER ' FLAT	72	35180-Z190120-0000	1	"ISC Soleniod "
30	90001-0616-01	2	BOLT, DRAIN PLUG	73	16100-Z101410-0099	1	CARBURETOR ASSY.
31	90327-1000-31	1	NUT	74	17001-Z080110-0000	2	GASKET, AIR CLEANER
32	11411-Z100610-0B00	1	COVER, CRANKCASE	75	16001-Z100110-0000	1	GASKET, CARBURETOR
33	11001-Z100210-0000	1	GASKET, CRANKCASE	76	16003-Z100210-0000	1	PLATE, CARBURETOR INSULATOR
34	90548-0202-CL	1	BEARING	77	17002-Z100110-0000	1	GASKET, INLET
35	15010-Z080320-Q500	1	DIPSTICK SUBASSEMBLY, OIL	78	90684-Z030210-0000	2	CLIP
36	90502-0812-00	2	PIN	79	90686-Z080610-0000	1	TUBE, FUEL
37	90001-0840-01	7	BOLT	80	90740-Z010210-0000	2	COLLAR
38	90547-0207-CL	1	BEARING	81	17005-Z080110-0000	1	SLEEVE, BREATHER TUBE FIXING
39	16400-Z100110-0000	1	GEAR ASSY, GOVERNOR	82	16900-Z100120-0000	1	CONTROL ASSY, CHOKE
40	90682-Z310110-0000	1	SEAL, OIL	83	15150-Z080110-0000	1	VALVE, ONE WAY
41	13300-Z190110-CL00	1	CRANKSHAFT ASSY.	84	17100-Z310610-0001	1	CLEANER, AIR
42	13400-Z190110-0000	1	BALANCING SHAFT	85	90305-0600-31	2	NUT
43	13210-Z190210-0099	1	RING SET, OIL	86	13501-Z080110-0000	1	NUT, FLYWHEEL

Item	Part	Qty	Description	Item	Part	Qty	Description
87	28002-Z100210-0000	1	PULLEY,STARTER	98	16012-Z080110-0000	1	SPRING, THROTTLE VALVE RETURNING
88	19352-Z100210-0000	1	IMPELLER	99	16062-Z100110-0000	1	ROD, GOVERNEOR
89	13510-Z170120-0000	1	FLYWHEEL SUBASSEMBLY	100	16063-Z190110-0000	1	SPRING, GOVERNOR
90	30400-Z190110-0000	1	COIL, IGNITION	101	16070-Z190210-0000	1	SUPPORT SUBASSEMBLY, GOVERNOR
91	90001-0628-01	2	BOLT	102	90305-0600-31	1	NUT
92	30140-Z160130-0000	1	COIL SUBASSEMBLY, CHARGE	103	16072-Z010110-0000	1	BOLT, GOVERNOR SUPPORT
93	90001-0632-01	2	BOLT	104	90740-Z010110-0000	1	COLLAR
94	90001-0610-01	2	BOLT	105	09000-Z170110-0000	1	MOTOR ASSY,STARTING
95	30001-Z170110-0000	1	CLAMP, CHARGE COIL	106	90001-0835-01	2	BOLT
96	90001-0612-01	2	BOLT	107	30500-Z160110-0000	1	RELAY, STARTING
97	16520-Z100220-0000	1	CONTROL ASSY, THROTTLE	108	90001-0516-01	2	BOLT



Item	Part	Qty	Description	Item	Part	Qty	Description
109	90007-0612-A1	7	BOLT	152	30060-Y240710-0000	1	REGULATOR, VOLTAGE
110	18130-Y030110-H300	1	COVER, MUFFLER OUTER	153	31320-Y030120	1	BRUSH, CARBON
111	18002-Y030110-H300	1	COVER, MUFFLER SIDE	154	90727-Y020110-0000	2	BAND
112	18100-Y240510-0000	1	MUFFLER ASSY.	155	30022-Y030110-Y900	1	COVER, MOTOR TAIL
113	18001-Z080110-0000	1	GASKET, EXHAUST OUTLET	156	90001-0512-01	3	BOLT
114	90001-0830-03	2	BOLT	157	54101-Y020210-0000	2	SLEEVE, HANDLE RUBBER
115	18003HY030310-H300	1	COVER, MUFFLER INNER	158	54110-Y030320-H700	2	HANDLE TUBE ASSY
116	18005-Y030120-0000	1	CUSHION, MUFFLER INSULATOR RUBBER	159	90001-0840-01	2	BOLT
117	90001-0816-01	4	BOLT	160	90310-0800-31	2	NUT
118	18030-Y730110-0000	1	BRACKET, MUFFLER	161	54102-Y020320-0000	2	HANDLE TUBE CONNECTING SEAT
119	16620-Y031310-Y900	1	TANK, FUEL	162	51039-Y110110-0000	2	SUPPORT , ENGINE FRAME SHOCK ABSORPTION
120	16601-Y020120-0000	4	SLEEVE, FUEL TANK RUBBER	163	90408-Y110210-0000	2	WASHER , FLAT
121	90683-Y020110-0000	4	BUSH	164	51016-Y110410-H700	2	SUPPORT , ENGINE FRAME SHOCK ABSORPTION
122	90408-Y020310-0000	4	WASHER , FLAT	165	90007-0640-A3	4	BOLT
123	90007-0625-A1	4	BOLT	166	90305-0600-33	4	NUT
124	16750-Y020110-0000	1	COCK ASSY, FUEL	167	17003-Y290110-0000	1	SUPPORT , ATR CLEANER
125	90740-Z010210-0000	1	COLLAR	168	90001-0612-01	1	BOLT
126	30431-Y030110-0000	1	SHEATH, RUBBER	169	90111-Y460110-0000	21	SCREW, INNER HEX. FLAT
127	90685-Z020110-0000	1	CLAMP	170	51027-Y030110-H700	2	PLATE , FRONT PANEL DECORATED
128	16804-Y120310-0000	1	HOSE, FUEL STEAM RUBBER	171	51150-Y030510-H700	1	CROSSPIECE SUBASSEMBLY
129	90698-Y1Z0110-0000	1	CUSHION, RUBBER	172	51100-Y121920-H700	1	FRAME ASSY, ENGINE
130	15150-Y1Z0110-0000	1	VALVE, ONE WAY	173	51025-Y030110-Y900	2	PLATE , FRONT PANEL DECORATED
131	37200-Y020210-H300	1	LEVELER ASSY, OIL	174	51005HY030120-0000	2	CUSHION, ENGINE FRAME
132	90104-0512-51	2	BOLT	175	51012HY030120-0000	2	CUSHION, ENGINE FRAME REAR
133	16652-Y020120-0000	1	STRAINER , FUEL	176	90305-0800-31	4	NUT
134	16658-Y730110-0000	1	CLIP , CABLE COVER	177	90306-1000-31	4	NUT
135	16744-Y730110-0000	1	CHAIN PROOF OFF , FUEL TANK COVER	178	31110-Y230110-0000	1	BATTERY
136	16730-Y020710-0000	1	COVER, FUEL TANK	179	31142-Y030120-H700	1	CLAMP, BATTERY
137	31317-Y030110-0000	2	NUT , STATOR	180	31151-Y030120-0000	2	BOLT , BATTERY
138	90403-0500-03	2	WASHER , FLAT	181	90305-0600-31	2	NUT
139	31300-Y122710-0000	1	MOTOR ASSY.	182	31112HY130310-0000	1	WIRE, ANODE
140	31330-Y121410-0000	1	ROTOR COMP.	183	31114HY130310-0000	1	WIRE, CATHODE
141	31310-Y122710-0000	1	STATOR COMP.	184	90007-0612-A1	1	BOLT
142	30024-Y030110-0000	1	SHROUD, MOTOR	185	90303-1200-31	4	NUT
143	90001-0510-01	3	BOLT	186	90408-Y110510-0000	2	WASHER , FLAT
144	30023-Y030120-0000	1	STOPPER, MOTOR RIGHT COVER	187	44110-X060110-0000	2	WHEEL, FRONT
145	30021-Y030210-0000	1	BRACKET, MOTOR	188	44020-Y990110-QC00	2	SHAFT, FRONT WHEEL
146	31316-Y240120-0000	2	BOLT , STATOR	189	35650-Y124710-0000	1	PANEL, CONTROL
147	30048-Y240120-0000	4	BOLT , STATOR	190	31234-Y090210-0000	2	PROTECTOR, OVERCURRENT
148	90408-Y030110-0000	1	WASHER , FLAT	191	35614-Y090110-0000	1	SOCKET SUBASSEMBLY, POWER SUPPLY
149	30049-Y240120-0000	1	BOLT , ROTOR	192	35629-Y090110-0000	1	TERMINAL SUBASSEMBLY, GROUNDING
150	31303HY090110	1	BLOCK, TERMINAL	193	35614-Y090210-0000	1	SOCKET SUBASSEMBLY, POWER SUPPLY
151	90001-0516-01	7	BOLT	194	35614-Y200210-0000	2	SOCKET SUBASSEMBLY, POWER SUPPLY

Item	Part	Qty	Description	Item	Part	Qty	Description
195	35634-Y020110-0000	1	TERMINAL, NEGATIVE ELECTRODE	203	35623-Y120210-0000	1	SWITCH, VOLTAGE SWITCHOVER
196	35633-Y020110-0000	1	TERMINAL, POSITIVE ELECTRODE	204	35627-Y120110-0000	1	BREAKER, DOUBLE-POLE
197	31234-Y020110-0000	1	PROTECTOR, OVERCURRENT	205	35614-Y400110-0000	1	SOCKET SUBASSEMBLY, POWER SUPPLY
198	35160-Y030710-0000	1	SWITCH SUBASSEMBLY	206	35601-Y050510-0000	1	CASE, PANEL REAR
199	35000-Y240110-0000	1	BOX, MOTOR CONTROL	207	35660-Y124710-0000	1	HARNESS, CONTROL PANEL WIRING
200	37114-Y280110-0000	1	VOTMETER	208	35610-Y124710-H700	1	PANEL SUBASSEMBLY, CONTROL
201	31234-Y090110-0000	2	PROTECTOR, OVERCURRENT	209	35552-Y030110-0000	1	KEY, STOP ENGINE SWITCH
202	35621-Y020110-0000	1	BRIDGE, RECTIFICATION	210	R420DR000F3-MZL003	1	ENGINE

COMBINED EXHAUST AND EVAPORATIVE EMISSIONS CONTROL WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board, the United States Environmental Protection Agency and CHONGQING RATO POWER MANUFACTURING CORPORATION (RATO), are pleased to explain the emission control system warranty on your 2013 model year small off-road engine/equipment. In the United States and California, new small off-road engine/equipments must be designed, built and equipped to meet the State's stringent anti smog standards. RATO must warrant the emission control system on your small off-road engine/equipment for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your small off-road engine/equipment.

Your emission control system may include parts such as the carburetor or fuel injection system, the ignition system, catalytic converter, fuel tanks, fuel lines, fuel caps, valves, canisters, filters, vapor hoses, clamps, connectors, belts, and other associated components. For engines less than or equal to 80 cc, only the fuel tank is subject to the evaporative emission control warranty requirements of this section. (California only)

Where a warrantable condition exists, RATO will repair your small off-road engine/equipment at no cost to you including diagnosis, parts and labor.

MANUFACTURER'S WARRANTY COVERAGE:

This emissions control system is warranted for two years. If any emission-related part on your small off-road engine/equipment is defective, the part will be repaired or replaced by Rato.

OWNER'S WARRANTY RESPONSIBILITIES:

As the small off-road engine/equipment owner, you are responsible for the performance of the required maintenance listed in your owner's manual. RATO recommends that you retain all receipts covering maintenance on your small off-road engine/equipment, but RATO cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the small off-road engine/equipment owner, you should however be aware that RATO may deny you warranty coverage if your small off-road engine/equipment or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your small off-road engine/equipment to a RATO distribution center as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact Great Lakes Technologies, LLC at 1-855-206-5286 or E-mail: service@rato-na.com.

DEFECTS WARRANTY REQUIREMENTS:

(a) The warranty period begins on the date the engine/equipment is delivered to an ultimate purchaser.

(b) General Emissions Warranty Coverage. RATO warrants to the ultimate purchaser and each subsequent owner that the engine/equipment is:

(1) Designed, built, and equipped so as to conform with all applicable regulations adopted by the Air Resources Board; and

(2) Free from defects in materials and workmanship that causes the failure of a warranted part for a period of two years.

(c) The warranty on emissions-related parts will be interpreted as follows:

(1) Any warranted part that is not scheduled for replacement as required maintenance in the written instructions required by subsection (d) must be warranted for the warranty period defined in Subsection (b)(2). If any such part fails during the period of warranty coverage, it must be repaired or replaced by RATO according to Subsection (4) below. Any such part repaired or replaced under the warranty must be warranted for the remaining warranty period.

(2) Any warranted part that is scheduled only for regular inspection in the written instructions required by subsection (d) must be warranted for the warranty period defined in Subsection (b)(2). A statement in such written instructions to the effect of "repair or replace as necessary" will not reduce the period of warranty coverage. Any such part repaired or replaced under warranty must be warranted for the remaining warranty period.

(3) Any warranted part that is scheduled for replacement as required maintenance in the written instructions required by subsection (d) must be warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part must be repaired or replaced by RATO according to Subsection (4) below. Any such part repaired or replaced under warranty

must be warranted for the remainder of the period prior to the first scheduled replacement point for the part.
(4) Repair or replacement of any warranted part under the warranty must be performed at no charge to the owner at a warranty station.

(5) Notwithstanding the provisions of Subsection (4) above, warranty services or repairs must be provided at all RATO distribution centers that are franchised to service the subject engine/equipments.

(6) The owner must not be charged for diagnostic labor that leads to the determination that a warranted part is in fact defective, provided that such diagnostic work is performed at a warranty station.

(7) RATO is liable for damages to other engine/equipment components proximately caused by a failure under warranty of any warranted part.

(8) Throughout the emissions warranty period defined in Subsection (b)(2), RATO must maintain a supply of warranted parts sufficient to meet the expected demand for such parts.

(9) Any replacement part may be used in the performance of any warranty maintenance or repairs and must be provided without charge to the owner. Such use will not reduce the warranty obligations of RATO.

(10) Add-on or modified parts that are not exempted by the Air Resources Board may not be used. The use of any non-exempted add-on or modified parts will be grounds for disallowing a warranty claim. RATO will not be liable to warrant failures of warranted parts caused by the use of a non-exempted add-on or modified part.

(11) RATO issuing the warranty shall provide any documents that describe that manufacturer's warranty procedures or policies within five working days of request by the Air Resources Board.

(d) Emission Warranty Parts List for greater than 80cc.

(1) Fuel Metering System

(i) Carburetor and internal parts (and/or pressure regulator or fuel injection system).

(ii) Air/fuel ratio feedback and control system.

(iii) Cold start enrichment system.

(iv) Fuel Tank.

(2) Air Induction System

(i) Controlled hot air intake system.

(ii) Intake manifold.

(iii) Air filter.

(3) Ignition System

(i) Spark Plugs.

(ii) Magneto or electronic ignition system.

(iii) Spark advance/retard system.

(4) Exhaust Gas Recirculation (EGR) System

(i) EGR valve body, and carburetor spacer if applicable.

(ii) EGR rate feedback and control system.

(5) Air Injection System

(i) Air pump or pulse valve.

(ii) Valves affecting distribution of flow.

(iii) Distribution manifold.

(6) Catalyst or Thermal Reactor System

(i) Catalytic converter.

(ii) Thermal reactor.

(iii) Exhaust manifold.

(7) Particulate Controls

(i) Traps, filters, precipitators, and any other device used to capture particulate emissions.

(8) Miscellaneous Items Used in Above Systems

(i) Electronic controls.

(ii) Vacuum, temperature, and time sensitive valves and switches.

(iii) Hoses, belts, connectors, and assemblies.

(e) Emission Warranty Parts List for less than or equal to 80cc.

(i) Fuel Tank

RATO will furnish with each new engine/equipment written instructions for the maintenance and use of the engine/equipment by the owner.

