POWERHORSE®

M74006B

Item Number: 74006
Serial Number: _____

Owner's Manual

Instructions for Installation/Set-up, Operation, Servicing, & Storage

Portable, Outdoor Use-Only, Gasoline Generator

Can be used to power individual appliances plugged directly into the generator's outlets, or as a back-up connection to a building's power supply (via a professionally installed UL-listed transfer switch).

⚠ WARNING – READ THIS MANUAL

READ and UNDERSTAND this manual completely before using the generator! Failure to properly set up, operate, and maintain this generator could result in ***serious injury or death*** from ***carbon monoxide poisoning, electric shock, fire/explosion, or burns***. Generator has been shipped **WITHOUT** engine oil, Check the oil level using the dipstick and add oil as needed. In particular, be aware of the following hazards:

CO Poisoning

Generators give off carbon monoxide, a poisonous gas that can kill you. You CANNOT smell it, see it, or taste it.

- ONLY run generator OUTDOORS and AWAY from building air intakes. NEVER run generator inside any enclosed or semi-enclosed spaces, including homes, basements, garages, sheds, boxes, RVs, boats or pick-up truck beds. These spaces can trap poisonous gases, EVEN if you run a fan or open windows.
- Install carbon monoxide alarms inside nearby structures/buildings (battery-operated, or plug-in with battery backup).

Electric shock / Electrocution

- High voltage electricity from generator can kill. DO NOT operate in wet locations. Be sure generator is properly grounded. Use only UL-listed, outdoor-rated grounded extension cords of proper size.
- NEVER plug the generator directly into a wall outlet. ANY connection to a building's electrical system MUST ISOLATE THE GENERATOR FROM UTILITY POWER via a UL-listed transfer switch installed by a licensed electrician. Otherwise, back feed from the generator into the power grid could kill utility workers.

Fire / Explosion

- DO NOT overload generator (per rated capacity), and OPERATE ONLY in an area with adequate cooling ventilation so engine does not overheat. Exhaust can be extremely hot. Keep muffler at least 7 feet from all combustible objects.
- All fuels are flammable. Never fuel a running or hot engine. Never pump fuel directly into generator at gas station – use approved container to transfer fuel. Ensure there are no fuel leaks, and keep sources of sparks and flames away.
- ALWAYS keep a fire extinguisher rated "ABC" nearby.

STOP!

CHOOSE THE RIGHT GENERATOR FOR YOUR NEEDS. See the "Power Load Planning & Management" section of this manual to determine your power load requirements and then compare to the generator's rated capacity.

INSPECT COMPONENTS: Closely inspect to make sure no components are missing or damaged. See the "Unpacking & Delivery Inspection" section for instructions on whom to contact to report missing or damaged parts.

ARRANGE FOR PROFESSIONAL INSTALLATION of a transfer switch if you will be connecting the generator to your building's electrical system. See the "Installation/Initial Set-Up" section for more information about this requirement.

Any Questions, Comments, Problems, or Parts Orders

Call Powerhorse Product Support 1-866-443-2576

Hazard Signal Word Definitions

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

CAUTION used with the safety alert symbol, indicates a hazardous situation, which if not avoided, could result in minor or moderate injury.

CAUTION

CAUTION without the safety alert symbol, is used to address practices not related to personal injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

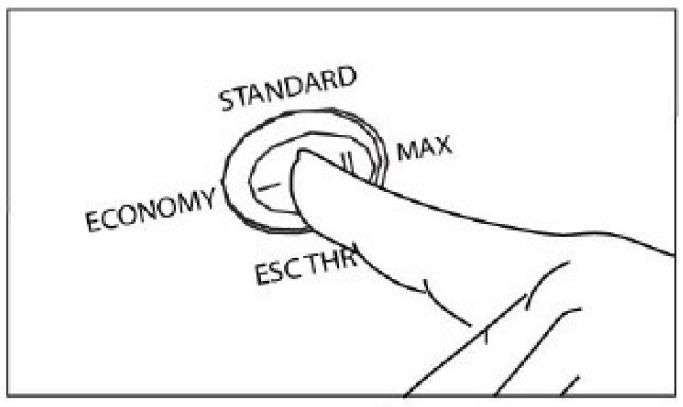
Operation

3. Starting the Generator

After you have completed the pre-start checklist procedures, you are ready to start the generator.

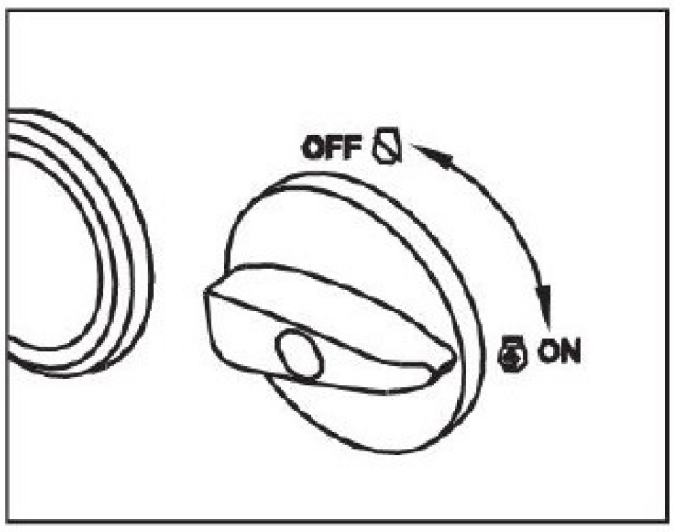
To start the engine:

1) Turn the ESC throttle switch to “Standard”.



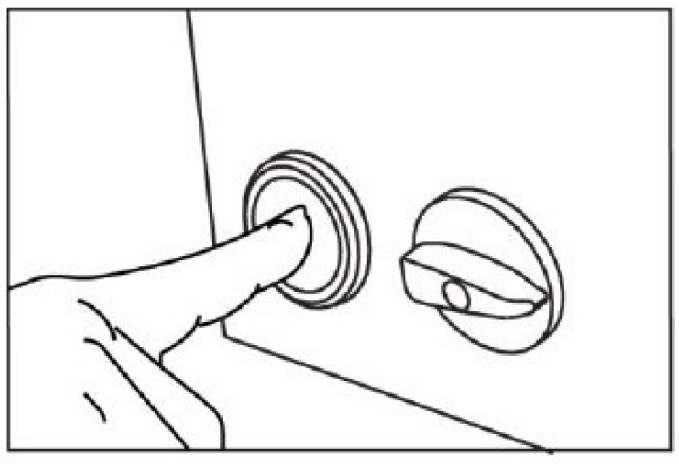
2) Turn the Main Switch to “ON”:

a. Ignition circuit is switched on.
b. Fuel is switched on.
c. Choke is switched on



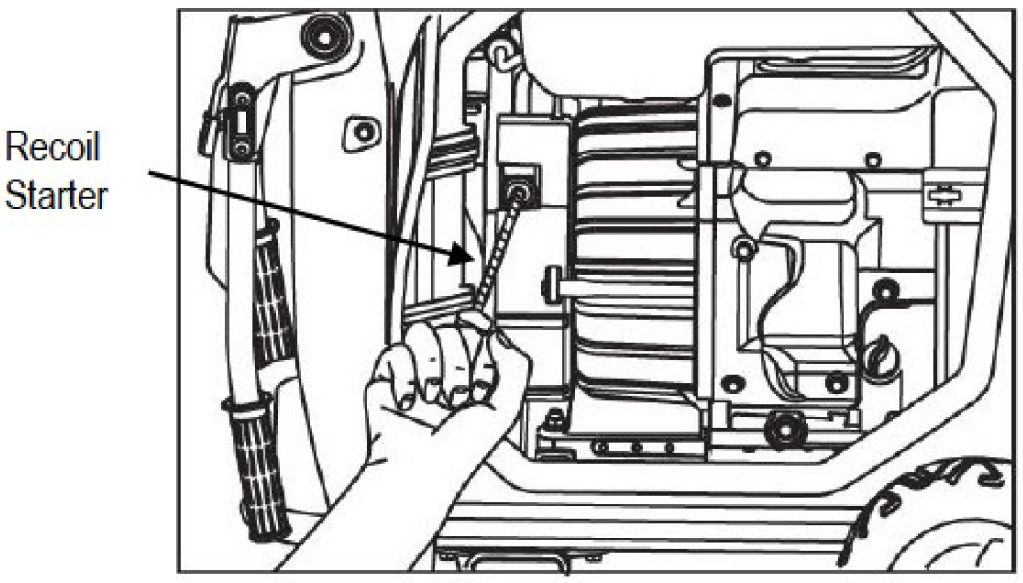
NOTICE: *The engine choke is controlled electronically to start the engine*

3) Electric Start – Push and release the engine switch on the control panel to start engine or proceed to Step 4) Recoil Start.



CAUTION: Make sure the intervals between pressing the switch are longer than 10 seconds. The engine electric start motor requires 10 seconds to cool between uses. This will also help extend the battery life.

4) Recoil Start - Pull slowly on the recoil starter until it is engaged, then pull it briskly.



Note: *Grasp the generator handle firmly to prevent the generator from falling over when pulling the recoil starter.*

5) Under long, continuous-run operating conditions, be prepared to:

a. Check and refuel the engine on a regular basis. A tank of gas should last about 16 hours @ 1/4 load.

⚠ WARNING: A running engine is hot enough to ignite fuel. Never add fuel or remove gas cap if engine is running or still hot. Let cool at least 2 minutes.

b. Check engine oil level each time you refuel.
c. Change oil after the first 20 operating hours, and at least every 100 operating hours thereafter.

⚠ WARNING: Never open oil port while engine is running. Hot oil can spray over face and body.

4. Checking Generator Output

Although the speed of the engine was carefully adjusted at the factory so that the generator produces the proper voltage and frequency, **output voltage should be checked periodically to ensure the generator is working properly before connecting loads to the generator**.

Output voltage should be checked with a portable voltage meter:

1. Start engine and allow to warm up for five minutes. Do not connect any loads.
2. Use voltage meter to check output voltage at the generator's outlets/receptacles.
3. Measured voltage should be within the following ranges:
   a. 120V +/- 10% at 120V receptacles.
   b. 240V +/- 10% at 240V receptacles.
4. If measured voltage is not within the specified range, have generator adjusted by factory authorized personnel. Do not attempt to adjust the engine speed yourself.

Note: **Slight Variation in Voltage/Speed with Changing Electrical Loads**	All engines have a tendency to slow down when a load is applied. When electrical loads are connected to the generator, the engine is more heavily loaded and as a result the speed drops slightly. This slight decrease in speed, together with the voltage drop within the generator itself, results in a slightly lower voltage when the generator is loaded to its full capacity than when it is running with no load. Additionally, there may be small brief surges and drops in voltage as motors connected to the generator cycle on or off. The slight variation has no appreciable effect in the operation of motors, lights, and most appliances.

Maintenance & Repair

Inspect and maintain your generator as specified below in order to keep it in safe and optimal working order. Follow all safety rules and recommended maintenance steps.

⚠ WARNING

ALWAYS shut off the engine, disconnect the spark plug(s), and discharge the capacitor before cleaning, adjusting, or servicing the generator. Make sure all guards and shields are replaced before using.

NOTICE: The generator head is brushless and maintenance free. The bearing is a heavy-duty, sealed ball bearing, which requires no maintenance or lubrication.

Maintenance & Repair

Follow Safety Rules

Read and follow these safety rules whenever you will be servicing the generator:

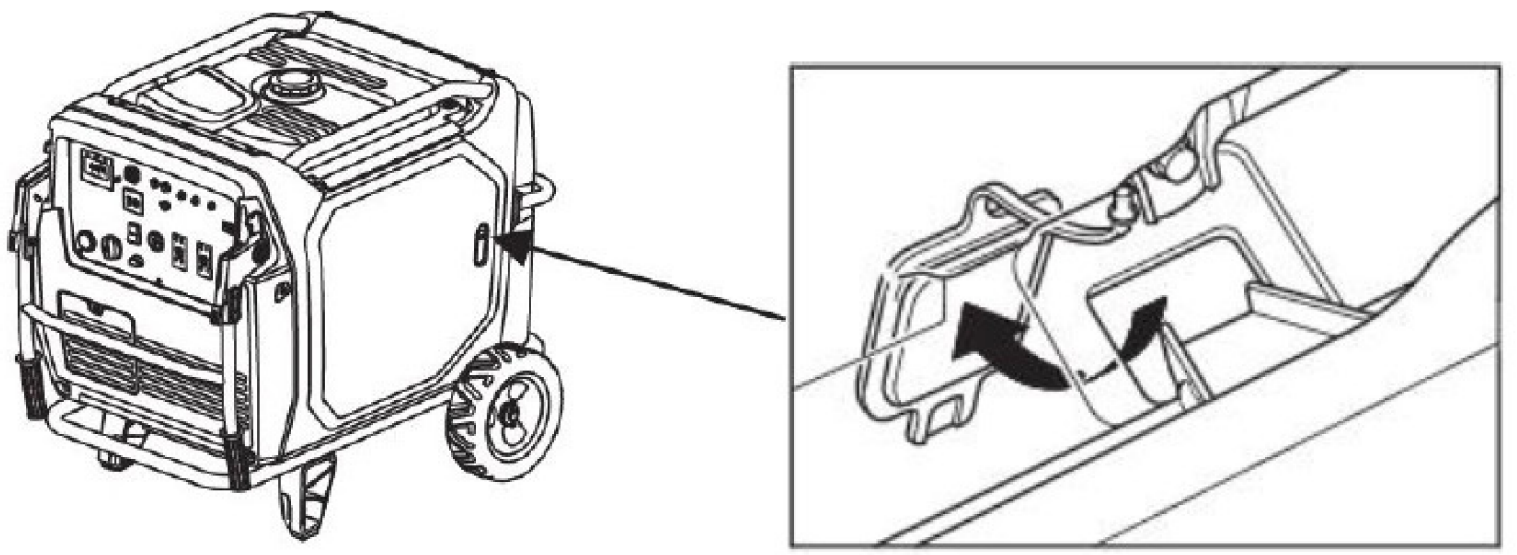
- **Turn off generator.** Always turn off generator and remove spark plug(s) or spark plug wire(s) before working on the engine or generator to prevent accidental starting.
- **Replace guards.** Make sure all guards and shields are replaced after servicing the generator.
- **Repair.** Major service, including the installation or replacement of parts, should be performed only by a qualified electrical service technician. Obtain factory approved parts from Powerhorse Product Support at 1-866-443-2576.
- **Replacement parts.** If a part needs replacement, only use factory approved repair parts. Replacement parts that do not meet specifications may result in a safety hazard or poor operation of the generator and will void the warranty.

Perform Engine Maintenance

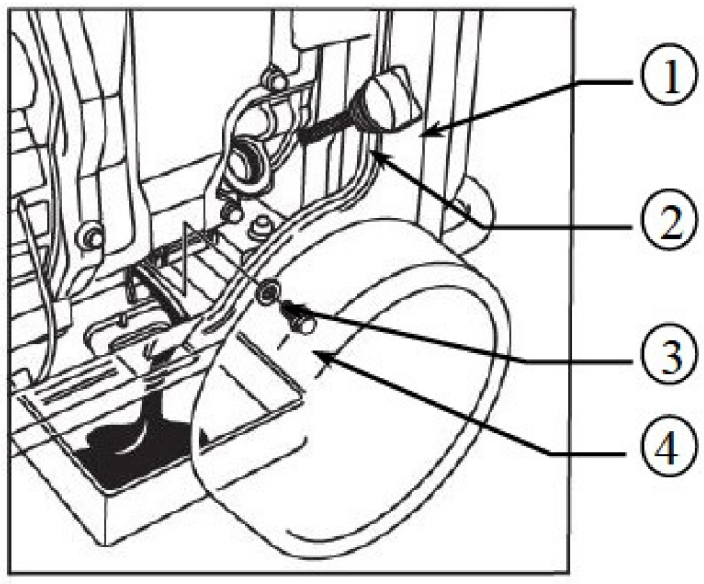
Engine maintenance items include:

Changing Oil

a) Place the generator on a level surface and warm up for several minutes. Shut off.
b) Turn side panel screw ¼ turn, and open side panel.
c) From inside the generator push out the rubber plug.



d) Remove the oil filler cap①. Inspect the O-ring②.



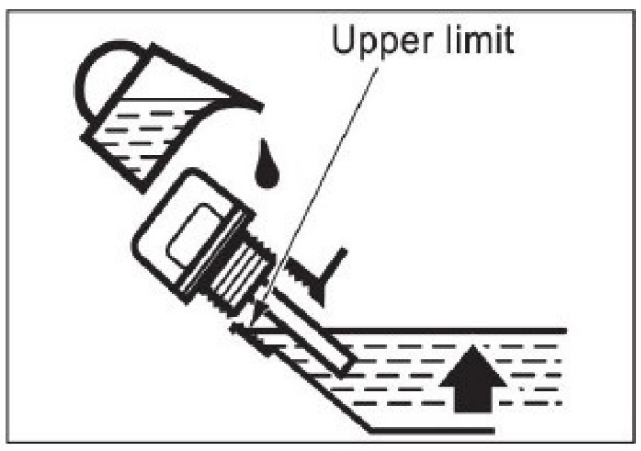
e) Place an oil pan under the engine. Remove the oil drain bolt④and inspect the oil filler cap packing③.

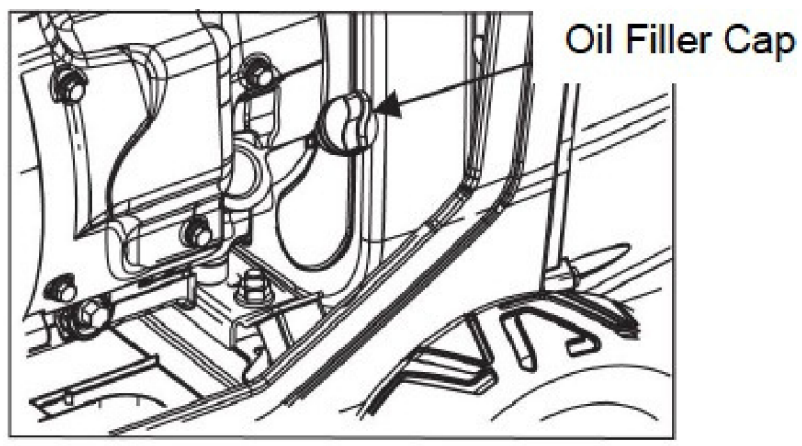
f) Reinstall the oil drain bolt③.

g) Reinstall the rubber plug to bottom of the generator.

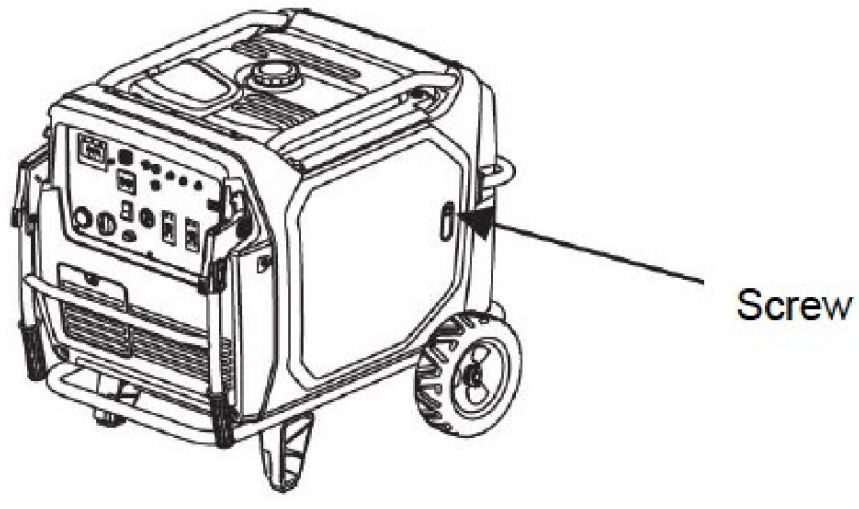
h) Fill with the recommend amount and type of engine oil, then install and tighten the oil filler cap①.(See Specification section for oil type and capacity.)

NOTICE: DO NOT tilt generator when adding engine oil. This could result in overfilling and cause damage to the engine.





i) Close side panel and turn screw to secure.

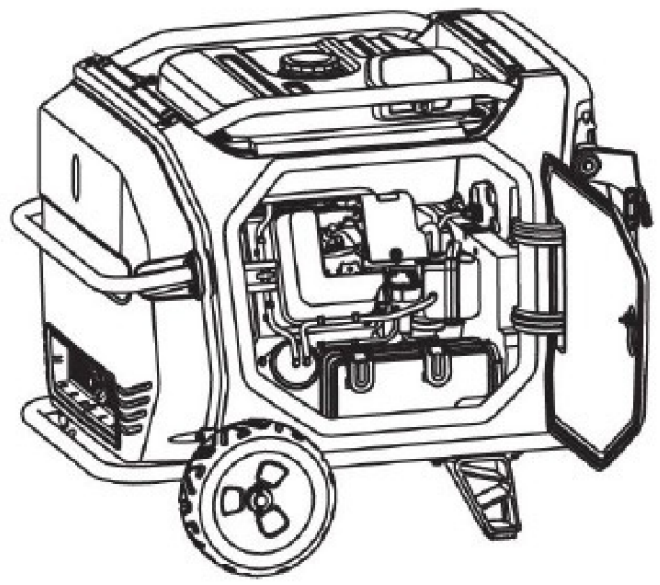


Using a funnel, add oil up to the max oil level with the recommended oil type for your engine and expected ambient conditions.
(See the specification section for oil type and capacity.)

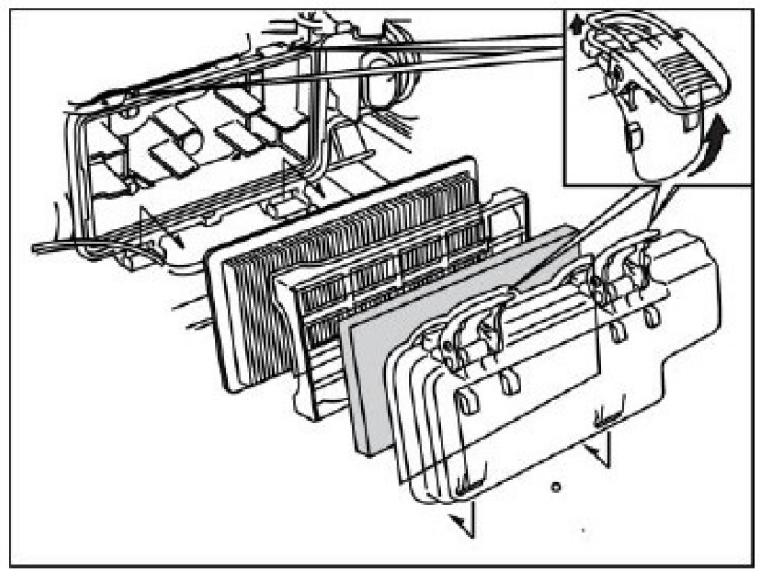
Air Filter Check/Replacement

a) Place the generator on a level surface.

b) Open left side cover by turning screw ¼ turn.

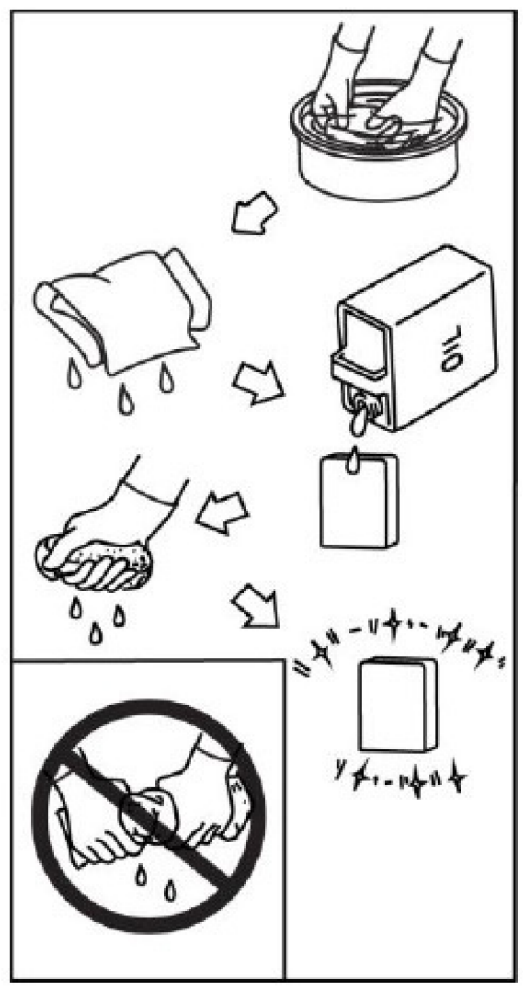


c) Remove the air filter housing cover, paper filter, and foam element.



d) Replace paper filter with a new filter.

NOTICE: DO NOT clean paper air filter with compressed air.



e) Wash the foam element in a solution of household detergent and warm water, rinse thoroughly, and let air dry.

f) Soak the foam element in oil and squeeze out excess oil. The foam element should be wet but not dripping.

NOTICE: DO NOT twist or wring out the foam element when squeezing; this could cause it to tear.

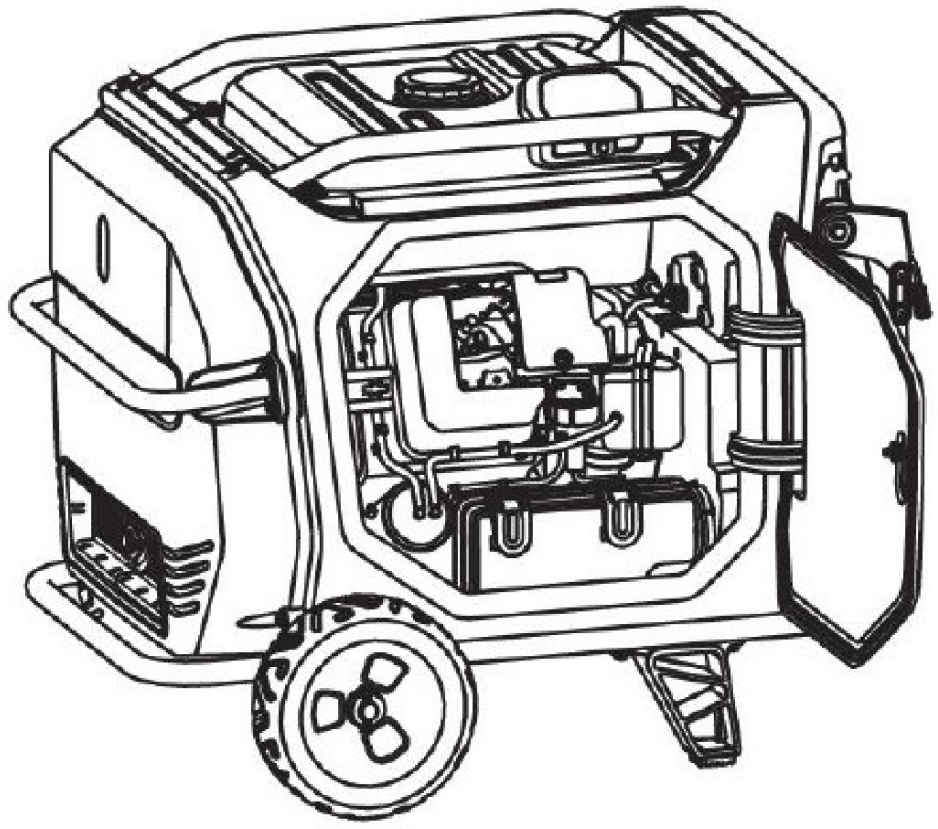
g) Install the foam element and paper filter.

h) Install the air filter case cover in its original position and latch clamps.

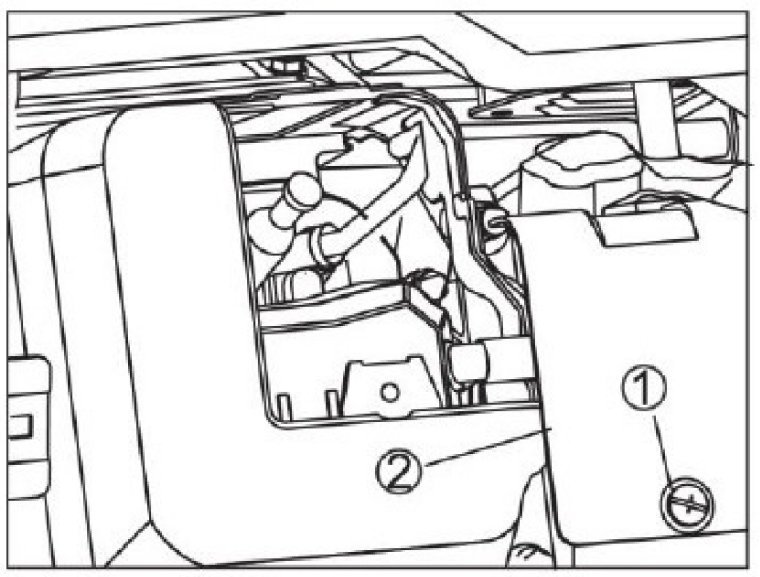
i) Close side left side cover and turn screw ¼ turn.

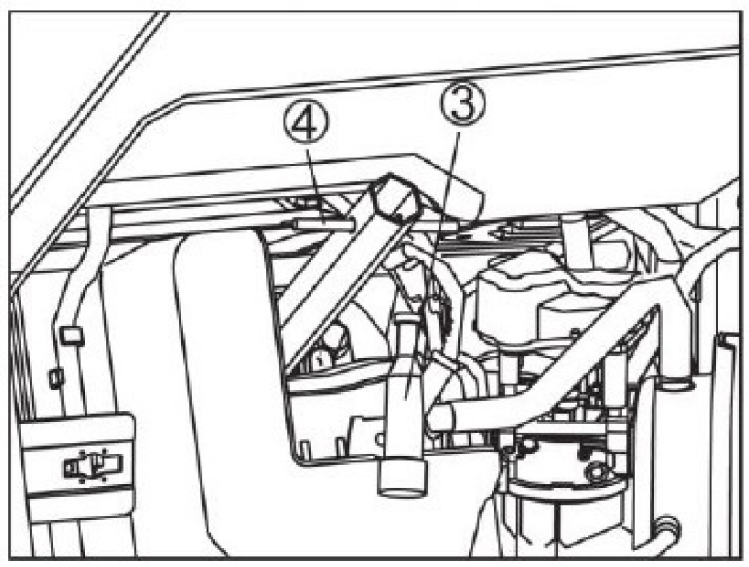
Spark Plug Cleaning and Replacement

a) Open left side cover by turning screw ¼ turn.



b) Remove spark plug cap③. Insert the spark plug wrench onto the spark plug and turn it counter clockwise to remove the spark plug.

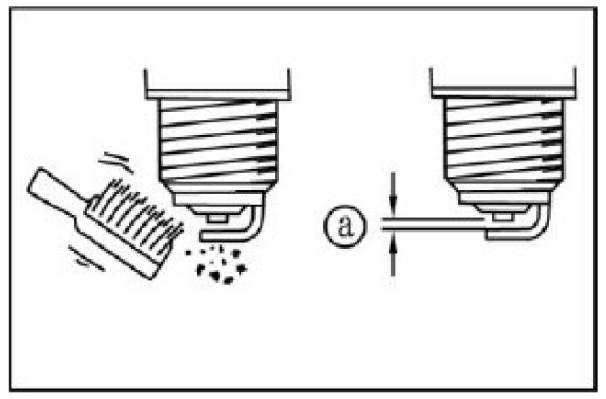




c) Check for discoloration and remove any carbon build-up. The porcelain insulator around the center electrode of the spark plug should be a medium-to-light tan color.

d) Check the spark plug type and gap ⓐ. The gap should be measured with a wire thickness gauge.

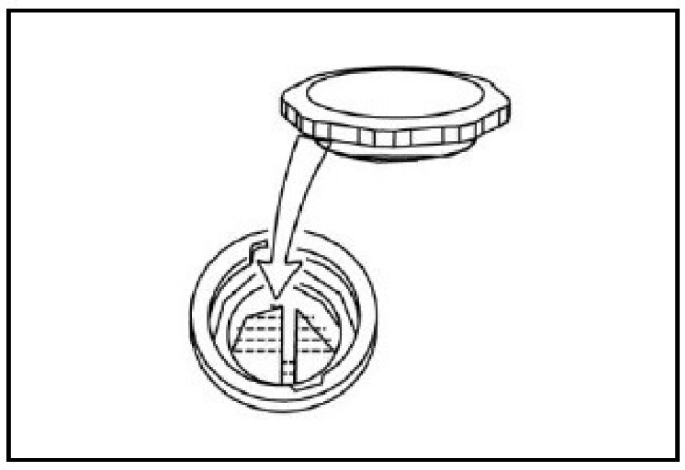
Standard Spark Plug:
BPR6ES/BP6ES (NGK)
or
F7RTC/F7TC
Spark Plug Gap:
0.6-0.8mm (0.024-0.031in)

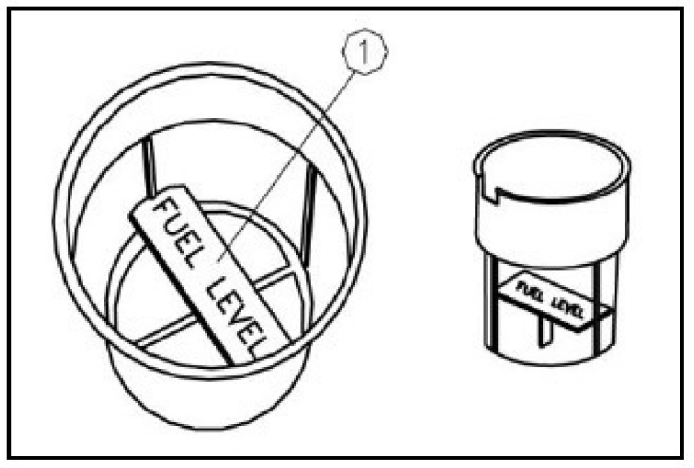


e) Install the spark plug. Torque specification is 14.8 ft. lbs. If a torque wrench is not available, a good estimate of the correct torque is 1/4-1/2 turn past finger tight.
f) Install the spark plug cap and left side cover and screws.

Fuel Tank Filter Check/Replacement

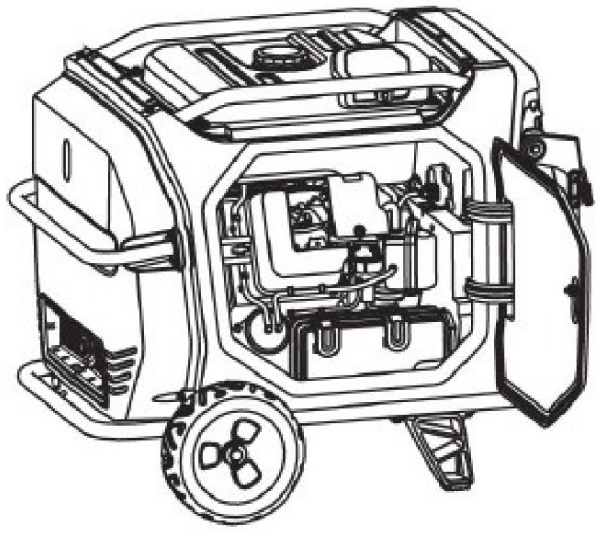
a) Remove the fuel tank cap and filter.
b) Clean the filter with gasoline.
c) Wipe the filter and install it.
d) Install the fuel tank cap.

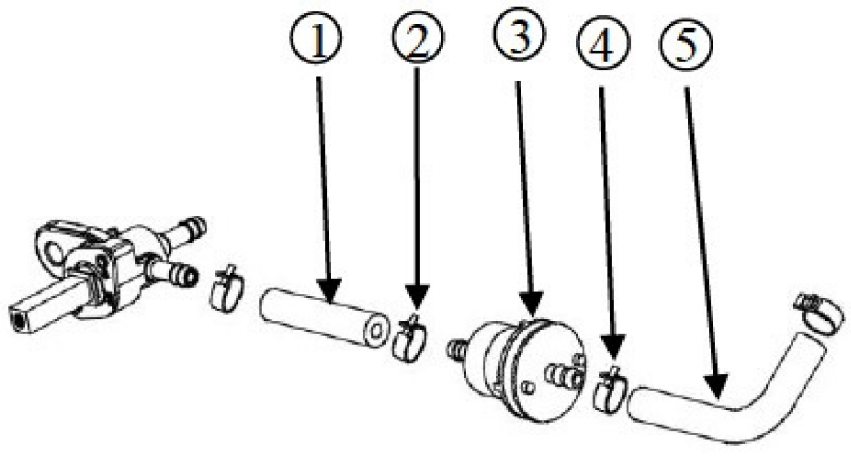




Fuel Filter Check/Replacement

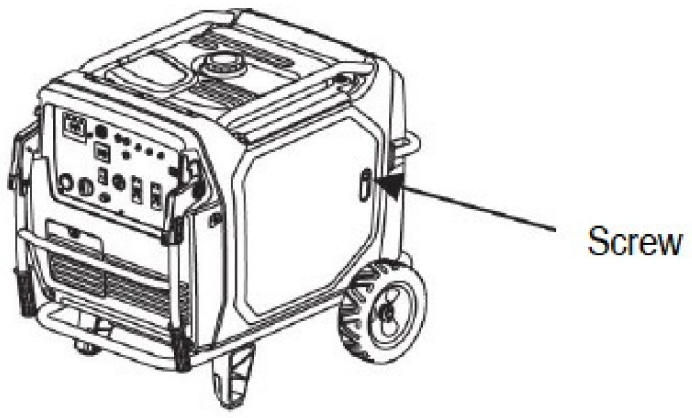
a) Open left side cover by turning screw ¼ turn.
b) Slide the hose clamp②away from the filter③and pull the fuel hose① off the fuel filter.
c) Slide the hose clamp④away from the filter and pull the fuel hose⑤ off the filter.
d) Inspect filter for debris, clean with gasoline, and replace if needed.
e) Dry the filter and reinstall on the hoses and hose clamp.
f) Close the left side cover and secure by turning screw ¼ turn.

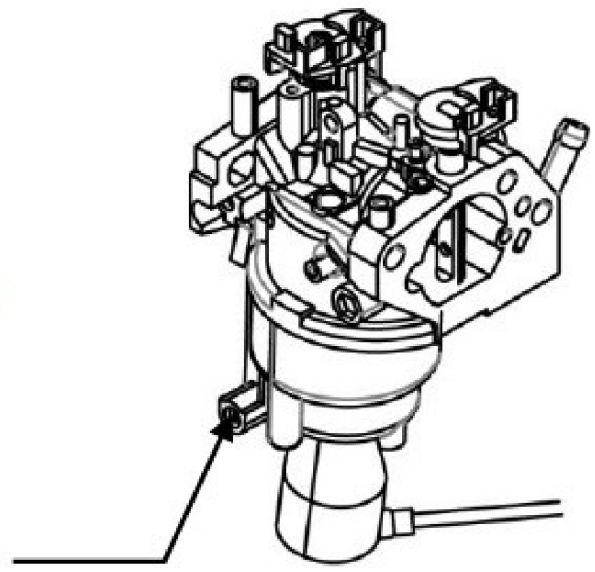




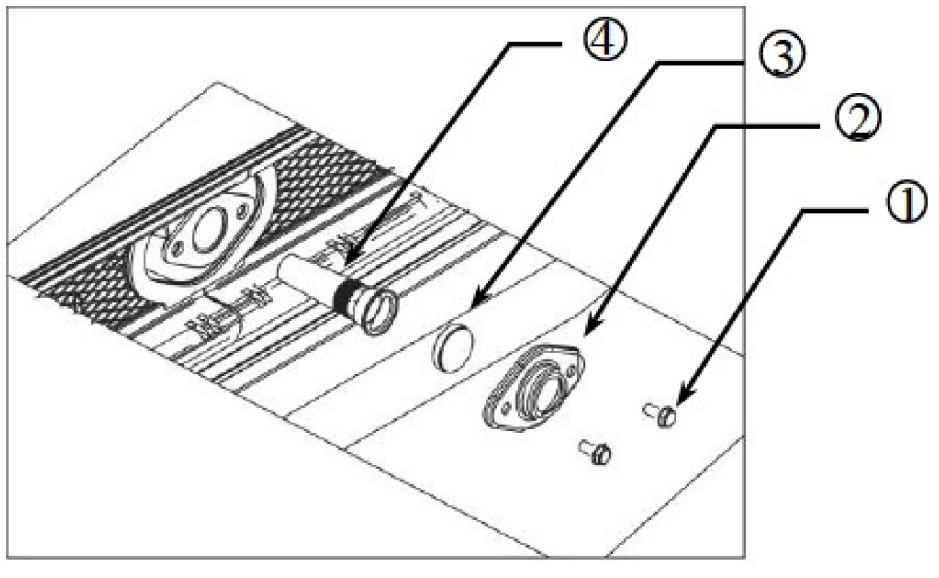
Draining the Carburetor

a) Open right-side cover by turning screw ¼ turn.
b) Loosen the carburetor drain screw with a flat blade screwdriver.
c) Drain fuel into suitable container.
d) Tighten the carburetor drain screw.
e) Close side cover and tighten the screws.



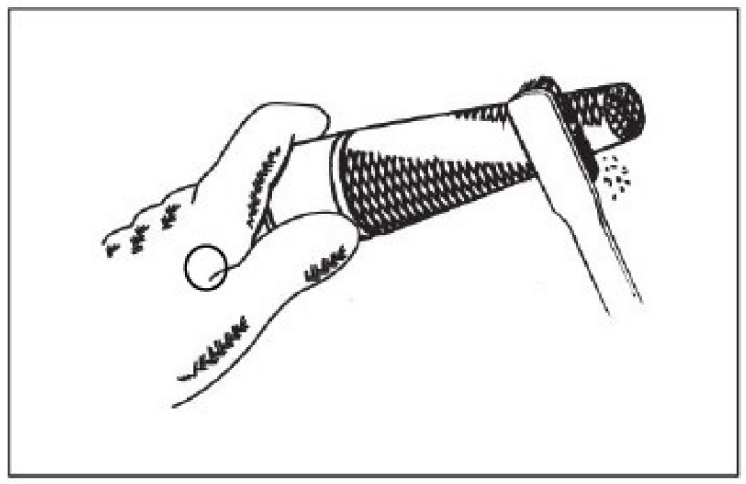


Check Receptacles	**Check receptacles before each use to make sure they are not cracked or broken.** If a receptacle is cracked or otherwise damaged, do not use until replaced with an authorized factory part. Using cracked or damaged receptacles can be both dangerous to the operator and destructive to the equipment.
Inspect Fuel System / Check for Leaks	**Inspect the fuel system and check for leaks on a regular basis.** Inspect the entire fuel system. Look for: signs of leaks or deterioration, chafed or spongy fuel hose, loose connections, loose or missing fuel hose clamps, damaged gasoline tank, or defective gasoline shut-off valve.
Clean & Inspect Spark Arrester	**Clean and inspect the spark arrester** The generator is equipped with a spark arrester, clean and inspect it regularly. Replace if damaged. a) Loosen the securing bolts①to remove the spark arrester bracket.



b) Remove spark arrester bracket②, flame screen③, and spark arrester④.

c) Clean the flame screen and spark arrester. Replace if damaged.

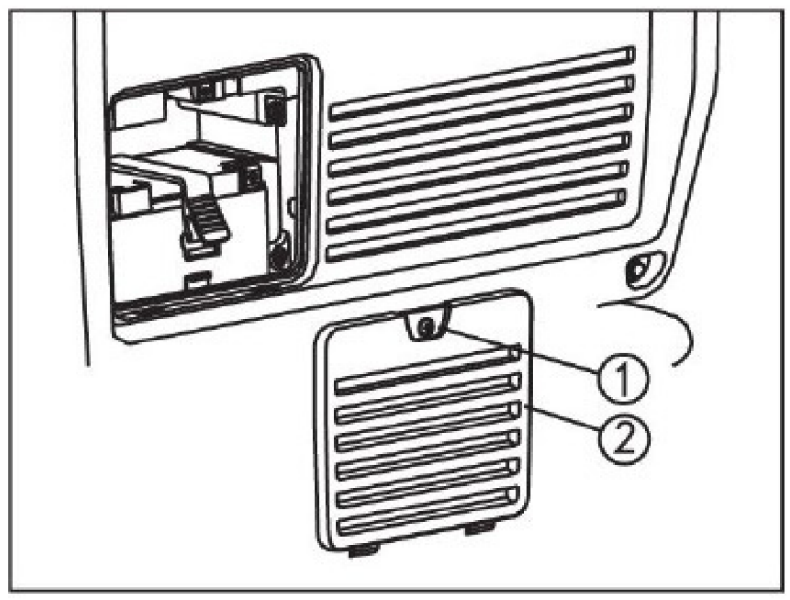


NOTICE: When cleaning, use a wire brush lightly to avoid damaging or scratching muffler screen and spark arrester.

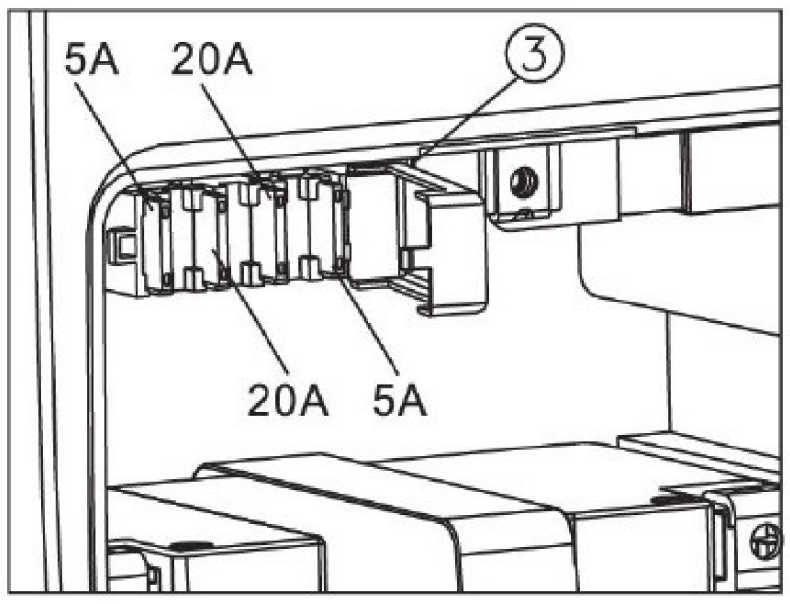
d) Reinstall the spark arrester, flame screen, and sparker arrester bracket.
e) Secure the spark arrester bracket with securing bolts.

Check DC Fuses

a) Remove the screw①and then remove the battery cover②.



b) Open the fuse cover③. Replace any bad fuses with the same rated fuse.



Note: See "Specifications" section for 5A and 20A fuse specifications.

Maintenance & Repair (continued)

Keep Generator Clean	**Keep generator clean.** If dust or debris accumulates on the generator, clean the generator with a damp cloth or soft bristle brush. Do not allow air intakes to become blocked. **NOTICE:** Do not spray generator with a garden hose or pressure washer. Water may enter the generator and cause damage to the rotor, stator, or internal windings.
High Altitude Operation	**CAUTION:** Operating at an altitude of greater than 5000 feet (1525 meters) may affect your engines performance, fuel consumption, and emissions. To remain emissions compliant and improve engine performance at higher altitudes, a high-altitude kit is required. A high-altitude kit includes a carburetor jet resized to help correct air / fuel mixture at altitude. To order a high-altitude kit or if you have additional questions, go to www.northerntool.com or contact us at 1-866-443-2576 – Powerhorse. Please note, engines with the high-altitude kit installed operated at lower altitudes could cause severe engine damage and affect emissions compliance. When modified, a tag or decal should be added to the product stating that a high-altitude kit was installed and to remind you to re-service the carburetor (re-jet) when operating in lower altitude environments.

Maintenance Schedule

Item	Steps	Pre-operation check (daily)	3 months or 50 Hr.	6 months or 100 Hr.	12 months or 300 Hr.
Spark plug	Check condition.			✓	
	Clean and replace if necessary.				✓
Fuel	Check level and for fuel leakage.	✓			
Fuel hose	Check for cracks and damage.	✓			
	Clean or replace if necessary.	Replace every 2 years			
Oil	Check oil level.	✓			
	Replace oil.			✓ (1)	
Air filter	Check condition.	✓			
	Clean.		✓ (2)		
	Replace (including the paper filter).				✓
Flame screen	Check condition and clean.			✓	
	Replace if necessary.	Replace every 2 years			
Spark arrester	Check condition and clean.			✓	
	Replace if necessary.	Replace every 2 years			
Fuel filter	Clean and replace if necessary.				✓
Crankcase breather hose	Check hose for cracks or damage.	✓			
	Replace if necessary.	Replace every 2 years			
Cylinder head	Remove carbon build up.				✓ *
Valve clearance	Check and adjust when engine is cold.				✓ *
Fittings/Fasteners	Check and replace if necessary.				✓ *

(1) Initial replacement of engine oil is after one month or 20 hours of operation.

(2) The air filter should be cleaned more frequently when used in an unusually wet or dusty area.

* These maintenance steps require tools and technical skills typically performed by a service technician.