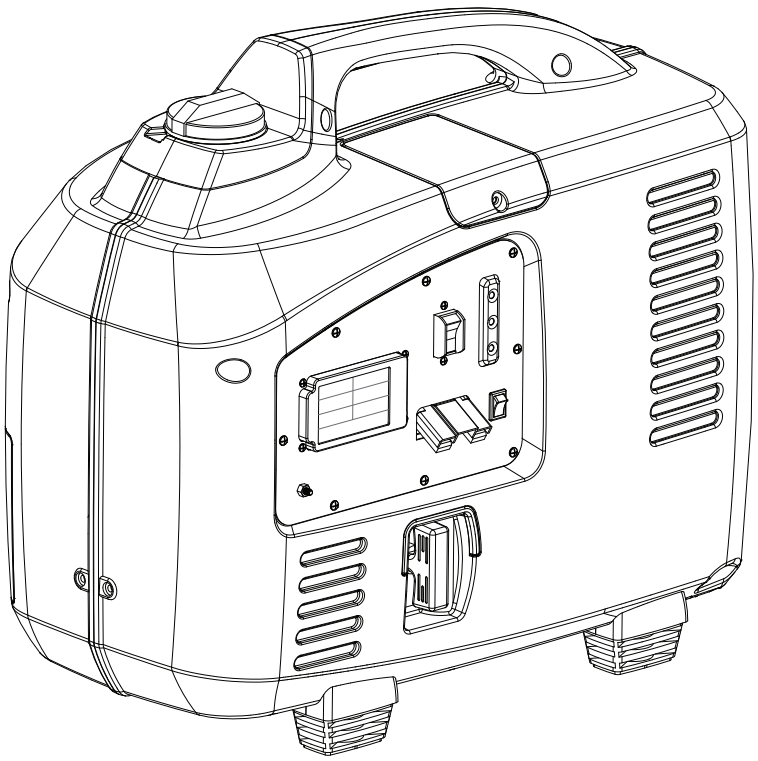
AlphaGen DCX2000 36VDC Portable Generator

Operation Manual

Effective: June 2014



Power

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Safety Notes

Review the drawings and illustrations contained in this manual before proceeding. If there are any questions regarding the safe installation or operation of the system, contact Alpha Technologies or the nearest Alpha representative. Save this document for future reference.

To reduce the risk of injury or death and to ensure the continued safe operation of this product, the following symbols have been placed throughout this manual. Where these symbols appear, use extra care and attention.

WARNING! ELECTRICAL HAZARD

ELECTRICAL HAZARD WARNING provides electrical safety information to PREVENT INJURY OR DEATH to the technician or user.

WARNING! FUMES HAZARD

FUMES HAZARD WARNING provides fumes safety information to PREVENT INJURY OR DEATH to the technician or user.

WARNING! FIRE HAZARD

FIRE HAZARD WARNING provides flammability safety information to PREVENT INJURY OR DEATH to the technician or user.

There may be multiple warnings associated with the call out. Example:

WARNING! ELECTRICAL & FIRE HAZARD

This WARNING provides safety information for both Electrical AND Fire Hazards

CAUTION!

CAUTION provides safety information intended to PREVENT DAMAGE to material or equipment.

NOTICE:

NOTICE provides additional information to help complete a specific task or procedure.

ATTENTION:

ATTENTION provides specific regulatory/code requirements that may affect the placement of equipment and /or installation procedures.

The following sections contain important safety information that must be followed during the installation and maintenance of the equipment and batteries. Read all of the instructions before installing or operating the equipment, and save this manual for future reference.

AlphaGen DCX2000
36VDC Portable Generator
Operation Manual

041-135-B0-001, Rev. A1
Effective Date: June 2014

Alpha Technologies, Inc.

member of The Group™

NOTICE:

Alpha denies responsibility for any damage or injury involving its enclosures, power supplies, generators, batteries or other hardware, manufactured by Alpha or members of the Alpha Group, when used for an unintended purpose, installed or operated in an unapproved manner, or improperly maintained.

NOTICE:

Photographs and drawings in this manual are for illustrative purposes only and might not exactly match your installation.

NOTICE:

Review this manual before proceeding. If there are questions regarding the safe installation or operation of this product, please contact Alpha Technologies or your nearest Alpha representative.

Contacting Alpha Technologies: *www.alpha.com*

or

For general product information and customer service (7 AM to 5 PM, Pacific Time), call

1-800-863-3930

For complete technical support, call

1-800-863-3364

7 AM to 5 PM, Pacific Time or 24/7 emergency support

To report errors in this document, send email to:*Techpubs@alpha.com*

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Figures & Tables

DCX2000 Portable Generator Safety Notes

The manufacturer cannot anticipate every circumstance that may involve a hazard, therefore, these warnings are not comprehensive.

WARNING! FUMES HAZARD

- Engine exhaust contains carbon monoxide gas, which can be deadly in closed or poorly ventilated areas.

WARNING! ELECTRICAL HAZARD

- Generator must be properly grounded.
- Do not place or operate the generator in standing water, or expose it to a forced spray of water.
- Ensure cables do not cross hot surfaces or sharp edges. Inspect cables before and after each use.

WARNING! FIRE HAZARD

- Never operate the generator near combustible materials.
- Never refuel the generator in the vicinity of open flames of heat sources. Do not smoke near the generator.
- Do not refuel the generator while engine is running. Allow generator to cool before refueling.
- Fuel spillage cleanup is the responsibility of the operator and should comply with local codes and regulations.
- For fire safety, the generator must be properly connected, maintained, and in compliance with applicable codes and regulations.
- Drain oil and empty the fuel tank before transporting. Fuel can leak from the filler cap if the generator is tilted.

CAUTION!

- Prior to each use, inspect the generator for leaks and damage. Immediately repair or replace any damaged parts.
- The generator must be operated on level ground, not to exceed 15° slant.
- Use only vendor-authorized repair parts.

1.0 Introduction

The Alphagen DCX2000 portable DC generator supplies DC voltage to a power supply battery bus when commercial AC power is not available. The generator is designed to be temporarily connected to the DC bus of a standard Alpha 36V uninterruptable power supply (UPS). Upon loss of commercial AC power, the existing batteries immediately supply the power supply inverters. After some interval of battery discharge, an operator deploys the portable generator at the site to supply power to the DC bus.

1.1 DCX2000 Generator Components

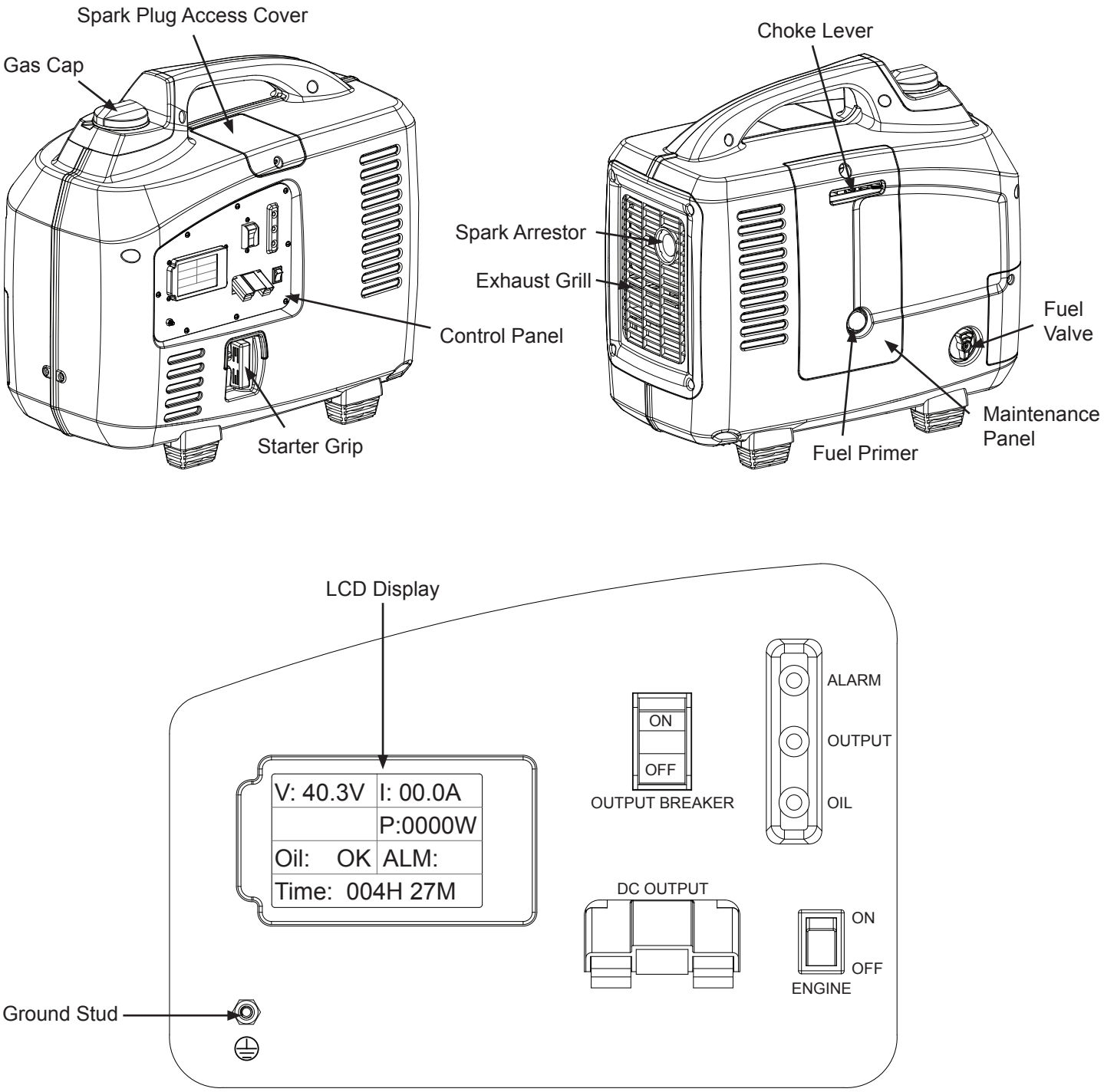

Fig. 1-1, DCX2000 Generator Components

1.1 DCX2000 Generator Components, continued

The engine serial number is stamped on the engine block (remove maintenance panel).

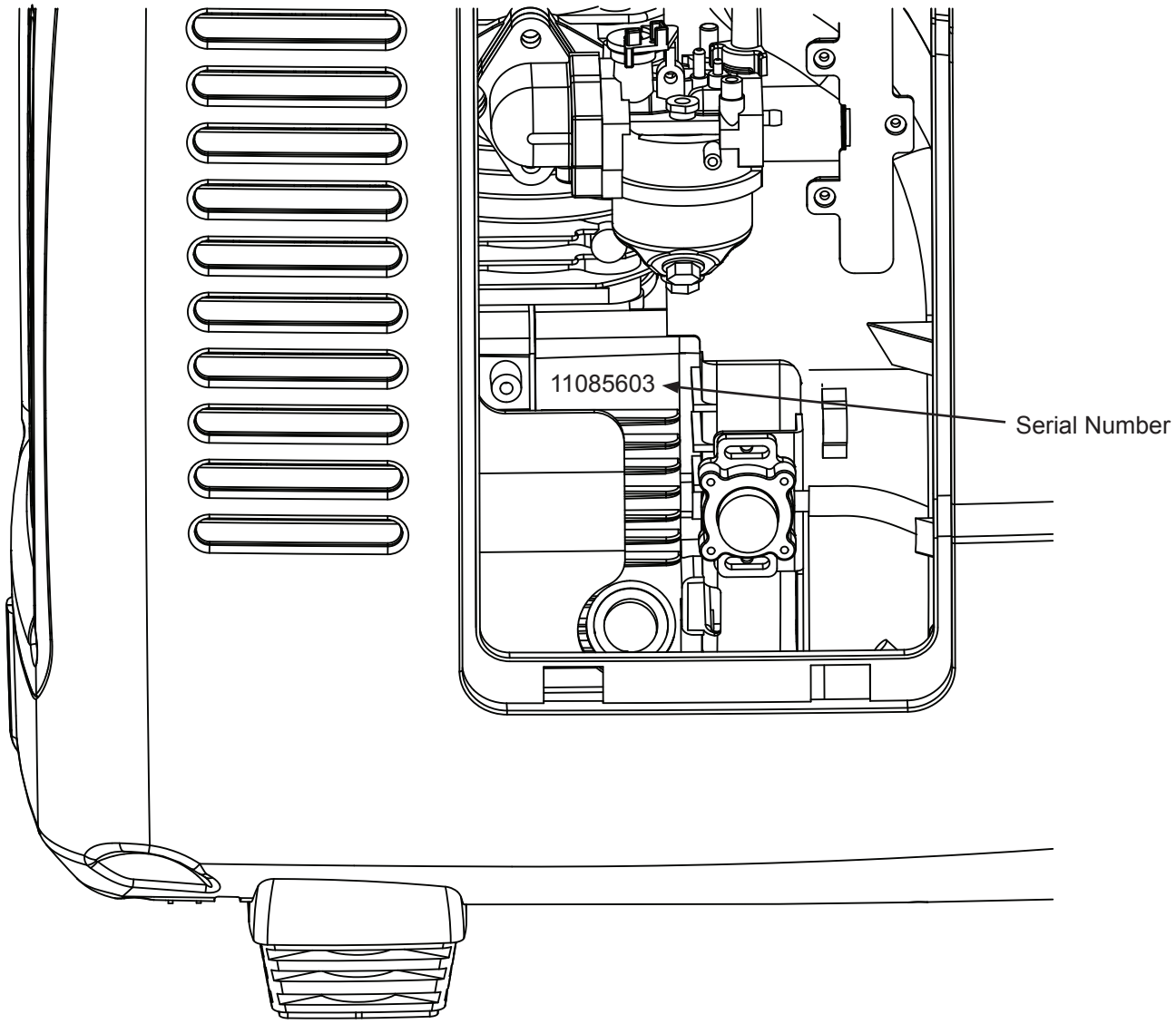

Fig. 1-2, Engine Serial Number

2.0 Operation

2.1 Oil Level

WARNING! ELECTRICAL HAZARD

Power OFF the generator engine and place on a level surface before servicing.

CAUTION!

- Using non-detergent oil or 2-stroke engine oil will shorten service life and void the warranty. Use only high-detergent, premium quality, 4-stroke engine oil, certified to meet U.S. automobile manufacturer's requirements for API Service Classification SG/SF/SJ/SL/SM/SN. Use synthetic SAE 15W-40 viscosity oil unless operating at ambient temperatures below 32°F (0°C). For temperatures below 32°F, use synthetic SAE 0W-40 viscosity oil.
- Change the oil in a new engine within 4-6 hours of operation to clean any contamination or manufacturing debris.
- Running the engine with low oil can cause serious damage.
- The Low Oil Alarm System will automatically stop the engine before the oil level falls below a safe limit. To avoid an unexpected shutdown, inspect the oil level regularly.

Tools Required:
#2 Philips Head Screwdriver
Oil Drain Pipe

Procedure:

1. Remove the maintenance cover.
2. Using the slots in the oil drain pipe, remove the dipstick, wipe with a clean rag and reinsert, screw down until tight.
3. Remove the dipstick to check the oil level.
4. If the oil level is below the lower level of the dipstick, refill to the top of the upper level marking. Do not overfill.
5. Reinsert the dipstick and screw down until tight.

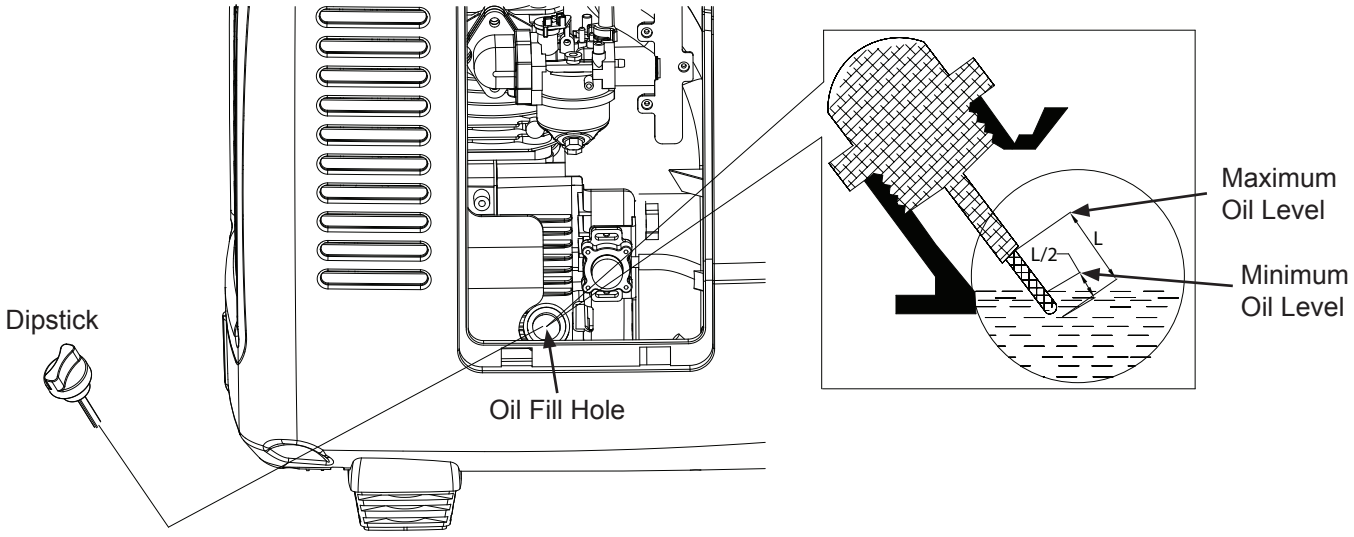

Fig. 2-1, Checking Oil Level

2.2 Fuel Level

WARNING! FIRE & FUMES HAZARD

Gasoline is extremely flammable and can be explosive. Refuel in a well-ventilated area with the engine OFF. Keep all smoking materials, sparks, and other sources of combustion away from the generator during refueling.

The area must be free of spilled fuel before starting the engine. Avoid repeated or prolonged contact with skin or exposure to vapor. KEEP OUT OF REACH OF CHILDREN.

Only use regular unleaded gasoline with the DCX2000 Generator. The fuel tank has a capacity of 1.7 gallons (6.5 Liters).

Procedure:

1. If the fuel level is low, refill to the top of the fuel strainer.
2. After refueling, tighten the fuel cap securely.

CAUTION!

Do not use an alternate fuel blend that contains more than 10% ethanol. Do not use gasoline containing methanol. An octane rating of 87 or higher is recommended. Fuel system damage or engine performance problems resulting from the use of fuels that contain an improper alcohol blend are not covered under warranty.

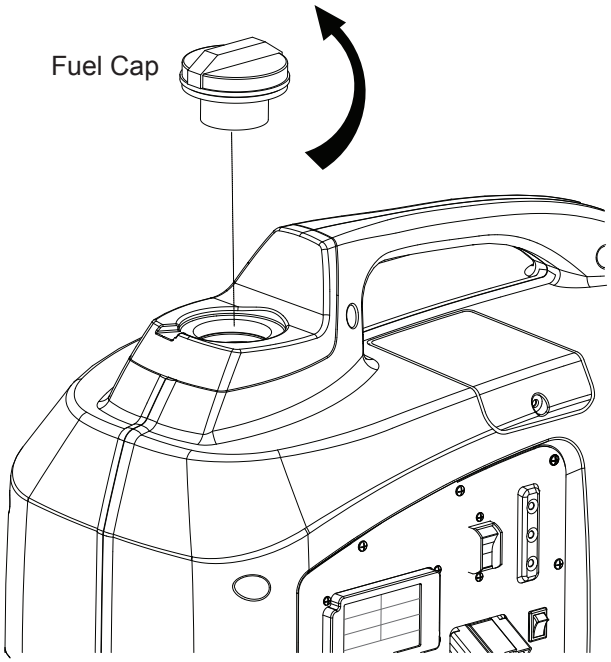

Fig. 2-2, Checking Fuel Level

2.3 Air Cleaner

CAUTION!

Never run the engine without the air cleaner element in place. Rapid engine wear will result from contaminants entering through the carburetor into the engine.

Tools Required:
#2 Philips Head Screwdriver

Procedure:

1. Remove the maintenance cover.
2. Remove the three screws from the air cleaner. Remove the cover to check the element. Clean or replace as necessary (see **Section 3.4, Air Cleaner Service** for details).
3. Replace the air cleaner element and cover. Tighten the screw.
4. Replace the maintenance cover and tighten the screw.

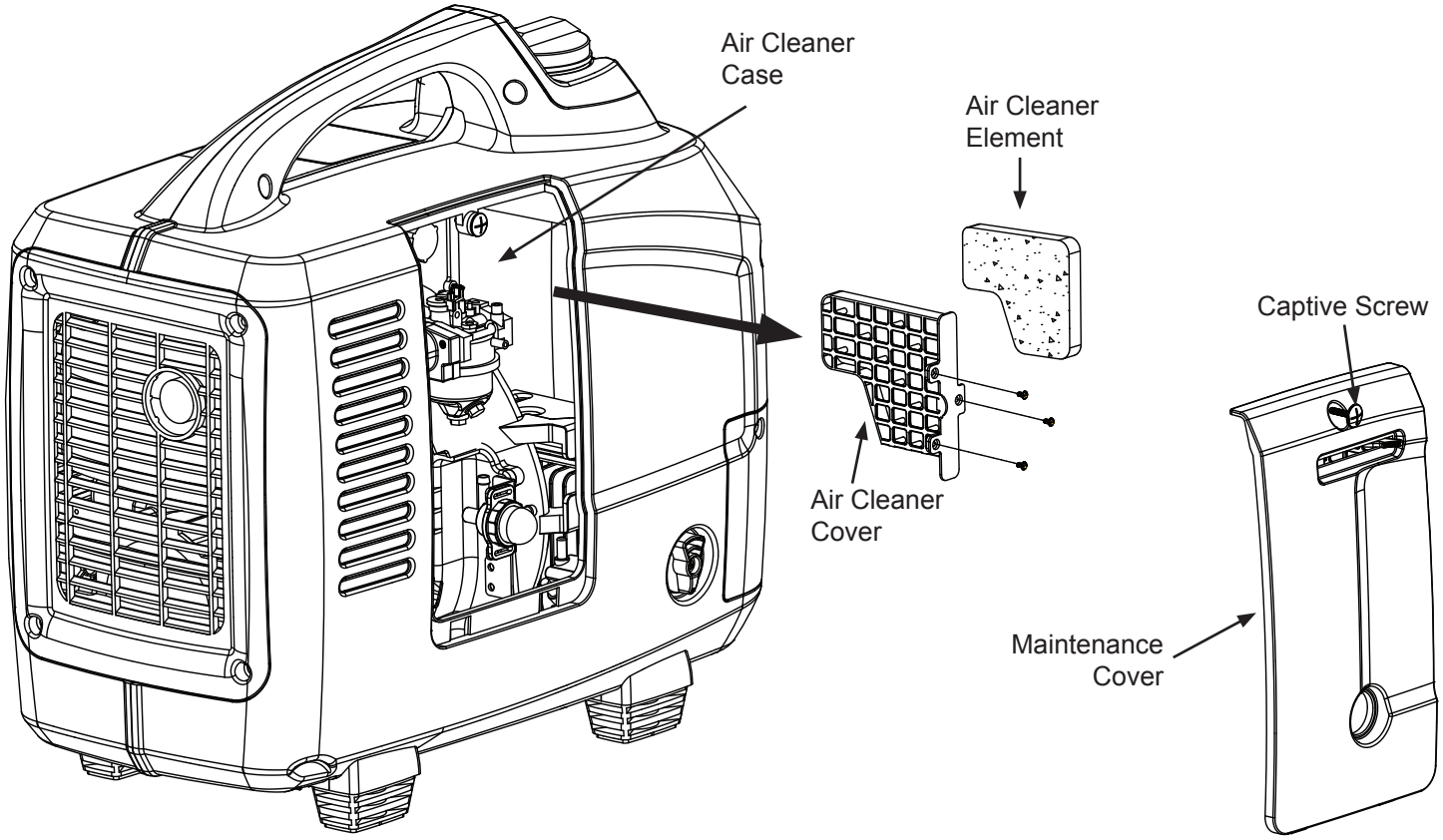

Fig. 2-3, Checking Air Cleaner

2.4 Power System Connections

2.4.1 Y-Style Connection

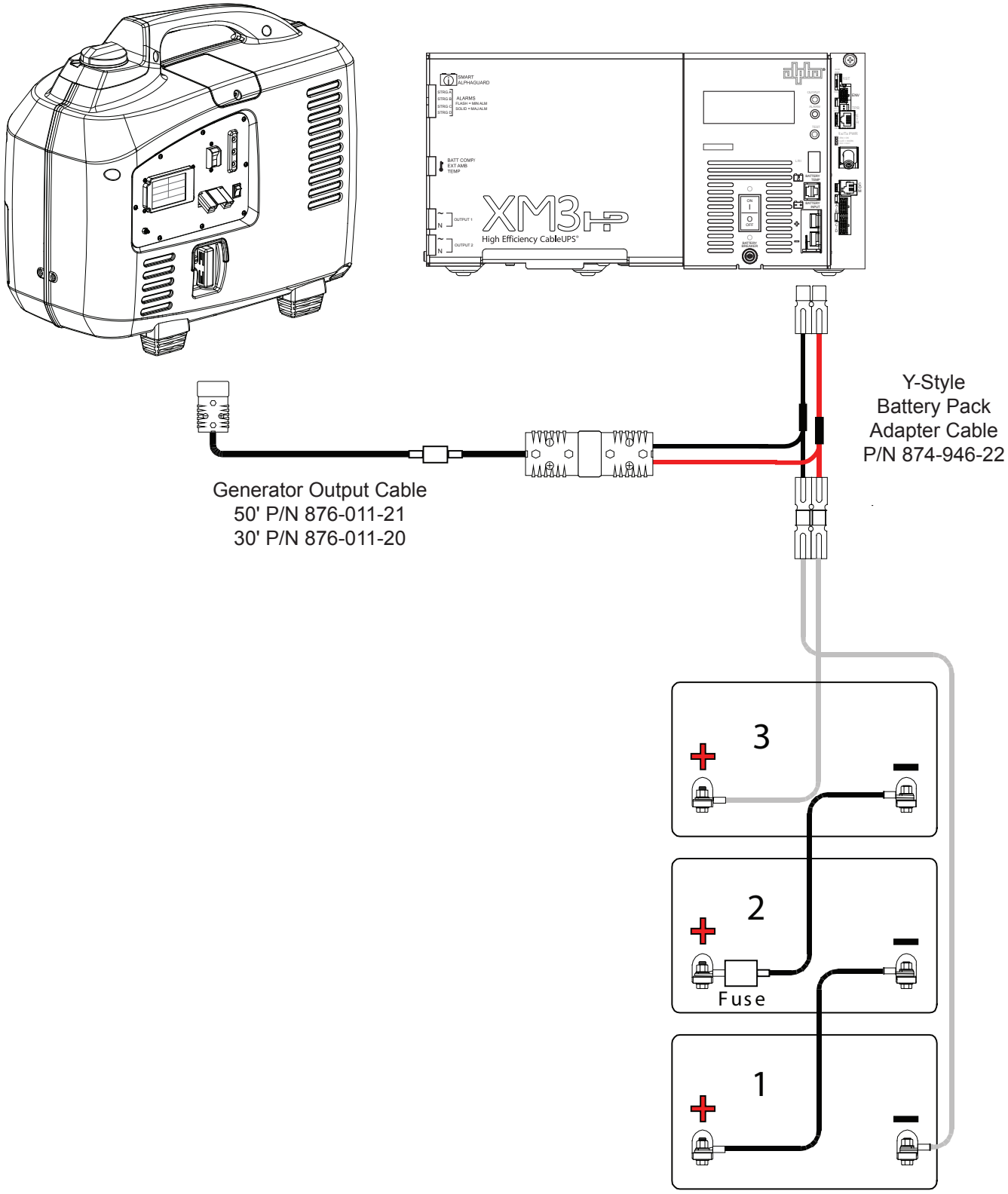

Fig. 2-4, Y-Style Connection

2.4.2 Ring Lug Style Connection

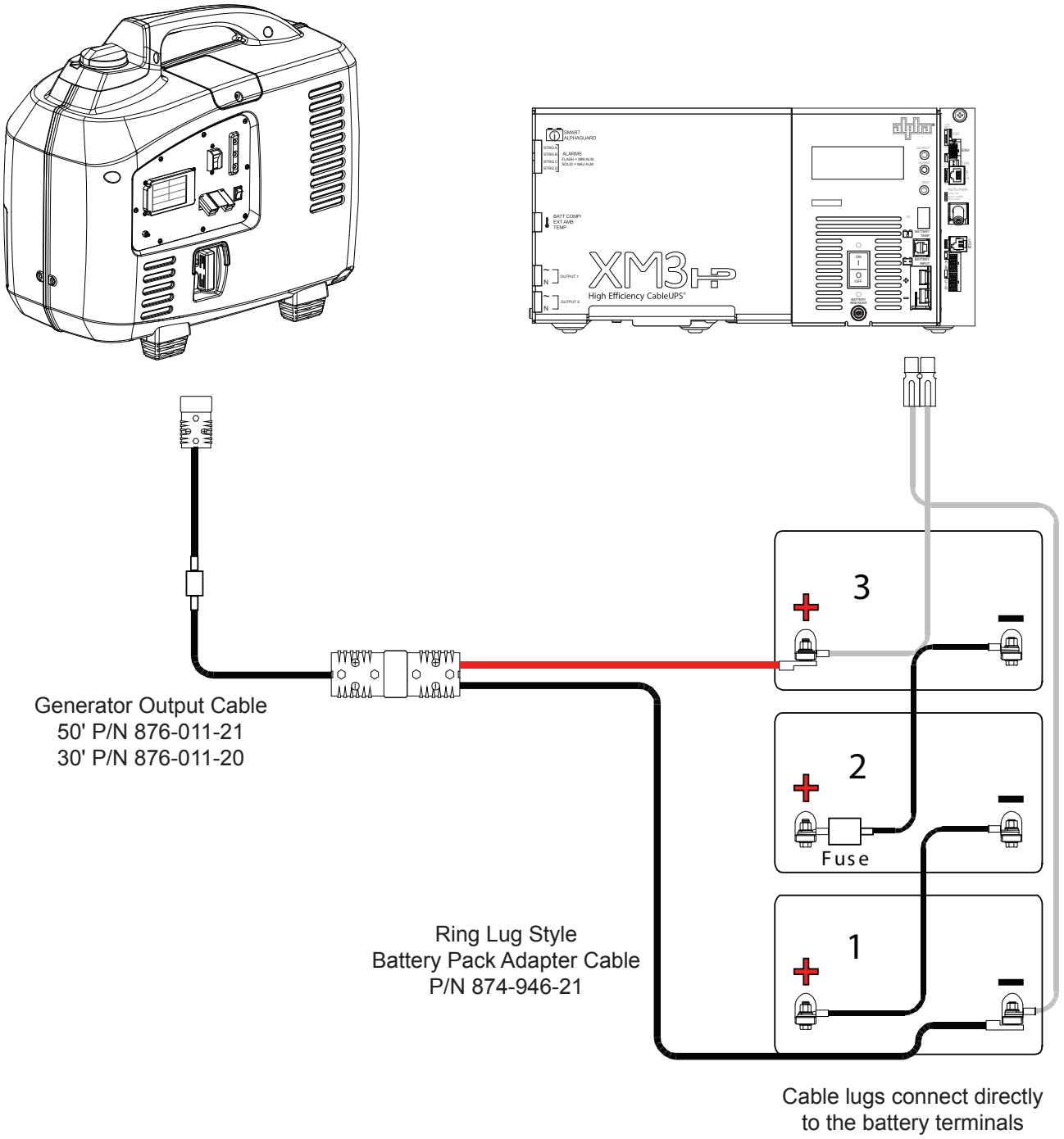

Fig. 2-5, Ring Lug Style Connection

2.4.3 Alligator Clamp Style Connection

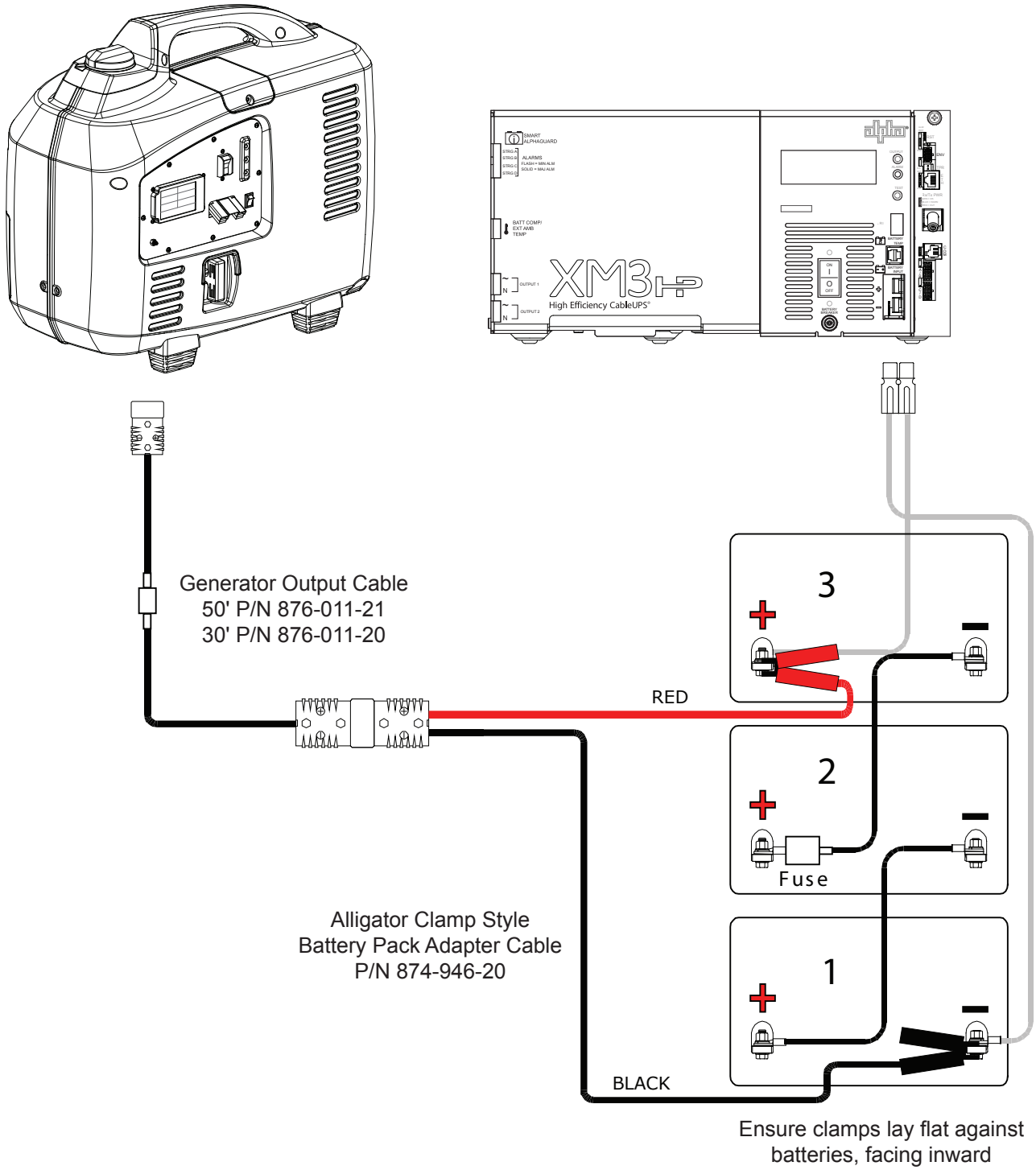

Fig. 2-6, Alligator Clamp Style Connection

2.5 Start-Up

Before starting the engine, verify the output circuit breaker is in the OFF position.

Procedure:

1. Connect output cable to the generator's DC output connection and the power supply.
2. Turn the fuel valve to the ON position. If the fuel tank was just filled, pump the fuel primer bulb 7 times to get fuel to the carburetor.
3. Turn the engine switch ON.
4. Move the choke lever to the START position.
5. Pull the starter grip lightly until resistance is felt, then pull briskly out.
6. Move the choke lever to the RUN position after the engine warms up.
7. Turn the output circuit breaker ON.
8. Verify an output voltage of 39.5V on the display.

CAUTION!

Slowly return starter grip to position; do not allow it to snap back. Do not allow the rope to rub against generator body while retracting.

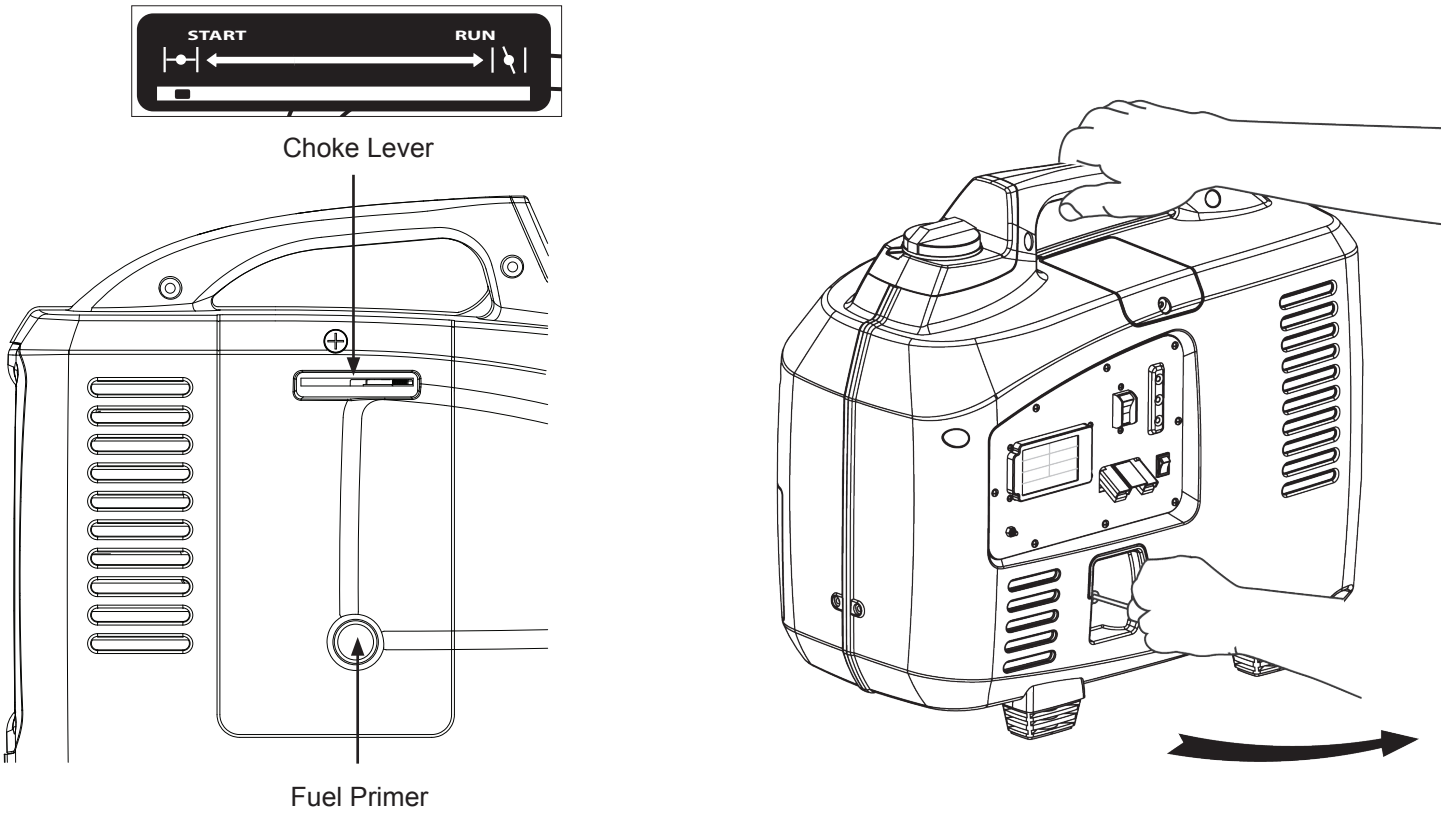

Fig. 2-7, Start-Up

CAUTION!

Substantial overloading that continuously lights the overload LED (red) may damage the generator. Marginal overloading that temporarily lights the overload LED (red) may shorten the service life of the generator.

2.6 Operation at High Altitude

The standard carburetor air-fuel mixture will be excessively rich at high altitudes. This will decrease performance and increase fuel consumption.

High altitude performance can be improved by installing a smaller diameter main fuel jet in the carburetor. If you always operate the generator at altitudes higher than 5000 feet (1500 m) above sea level, have an authorized Alpha Service Center install a high altitude main jet.

Even with suitable carburetor jetting, engine horsepower will decrease approximately 3.5% for each 1000 feet (305 m) increase in altitude. The affect of altitude on the horsepower will be greater than this if no carburetor modification is made.

CAUTION!

Have any carburetor modifications reversed before operating at lower altitudes. Operation of the generator at an altitude lower than the carburetor is jetted for may result in reduced performance, overheating, and serious engine damage caused by an excessively lean air/fuel mixture.

2.7 Operation at Extreme Temperatures

High temperatures adversely affect generator operation. Generator performance will decrease 1% for each 10°F (5.5°C) increase in temperature above 85°F (29°C). The normal operating range of this generator is 5° to 104°F (-15° to 40°C). Although the generator can operate at 5°F (-15°C) it will be necessary to use a lower viscosity engine oil such as SAE 0W-40. Even with 0W-40 oil, the engine will be more difficult to start.

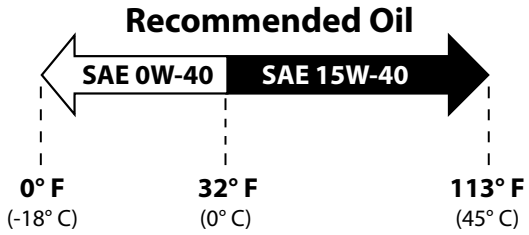

Fig. 2-8, Recommended Oil By Temperature

CAUTION!

When operating the generator below 5°F (-15°C), the unit may be difficult to start. In temperatures above 104°F (40°C), the output power will be derated.

2.8 Engine Shutdown

To stop the engine in an emergency, push the engine switch on the control panel to the OFF position.

CAUTION!

In an emergency, push the engine switch to the off position. This will stop the engine with or without a load. However, repeatedly stopping the generator without disconnecting all loads may damage the generator or power supply.

Normal Shutdown Procedure:

1. Turn the Output Breaker OFF.
2. Disconnect load.
3. Push the engine switch to the OFF position.
4. Turn the fuel valve to the OFF position.

Fig. 2-9, Fuel Valve ON/OFF Positions

2.9 Output, Alarm and Oil LEDs

CAUTION!

Before connecting or reconnecting a power supply to the generator, check that it is in good condition and that its electrical rating does not exceed that of the generator.

Use Fig. 2-10 and Table 2-1 to understand the different LED states of the generator.

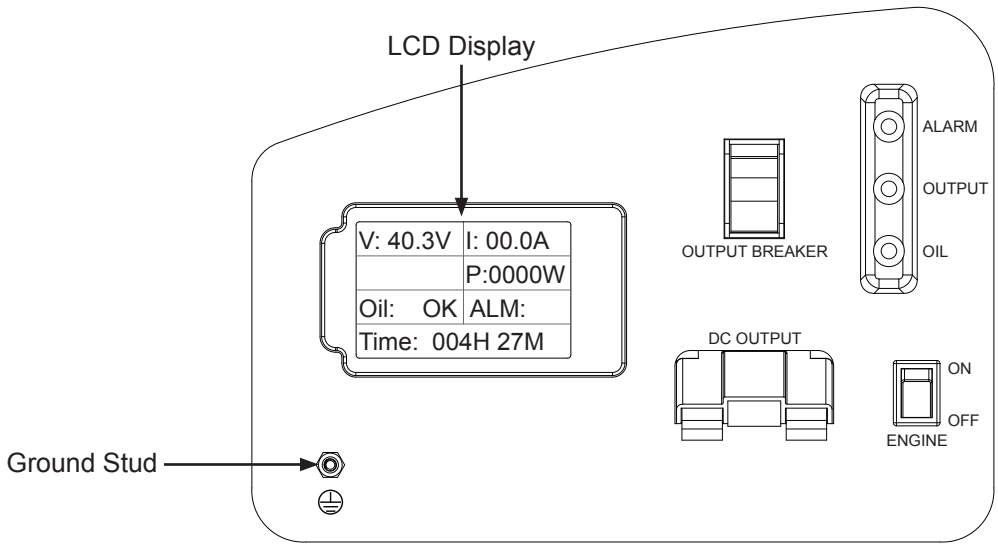

Fig. 2-10, Control Panel
(data values shown for illustration purposes only)

State	LED State	LCD Display Text	Output State	Corrective Action
Normal Operation	OUTPUT	V = Voltage (V) I = Current (A) P = Power (W) Oil = "_OK" ALM = no display Time = Hour; Min	Engine Running Output ON	
Overload	ALARM (flashes during overload)	ALM = "OL"	Engine Running	Disconnect the power supply and investigate the cause of the overload; manual reset* (the output LED turns green)
Module Overheat	ALARM	ALM = "OH"	Engine Running	Manual reset*
Critical Low Oil Shutdown	OIL	Oil = "LO_"	Engine OFF Output OFF	Replenish oil; manual reset
Overspeed Shutdown	ALARM OIL	N/A	Engine OFF Output OFF	Generator needs servicing; Contact Alpha for service information.

*To manually reset the generator, stop the engine and disconnect all electrical connections. Follow instructions in Section 2.5 for startup.

Table 2-1, LED States

3.0 Servicing

The maintenance schedule (**Section 3.2, Maintenance Schedule**) maintains the generator in peak operating condition. The oil should be changed between the first 4 to 6 hours of operation to remove any manufacturing debris or contamination.

WARNING! FUMES HAZARD

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

CAUTION!

Use genuine Alpha parts. The use of replacement parts not of equivalent quality may damage the generator. When repairing or replacing components of the emission control system, only use parts known to comply with EPA standards.

3.1 Emission Control System

Emission Source

Exhaust gas contains carbon monoxide, nitrogen oxides (NOx), and hydrocarbons. Controlling the emissions of NOx and hydrocarbons is very important, as they are a major contributor to air pollution. Carbon monoxide is a poisonous gas. The emission of fuel vapors is also a source of pollution. The Alpha generator engine utilizes a precise air-fuel ratio and emission control system to reduce the emissions of carbon monoxide, NOx, hydrocarbons, and evaporative fuel emissions.

Regulation

This engine has been designed to meet current Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) clean air standards. The regulations dictate that the manufacturer provides operation and maintenance standards regarding the emission control system. Tune up specifications are provided in **Section 6.0, Specifications**. Adherence to the following instructions will help ensure the engine meets the emission control standards.

Modification

Modification of the emission control system may lead to increased emissions and will void the warranty statement. Modification is defined as the following:

- Disassembling or modifying the function or parts of the intake, fuel, or exhaust system.
- Modifying or destroying the speed governing function of the generator.

Engine Faults

Any of the following faults must be repaired immediately. Consult with Alpha technical support for diagnosis and repair. The following engine faults may affect emission:

- Hard starting or shut down after starting.
- Unstable idle speed.
- Shut down or backfire after applying an electrical load.
- Backfire.
- Black smoke and/or excessive fuel consumption.

3.0 Servicing, continued

3.1 Emission Control System, continued

Replacement Parts and Accessories

The parts making up the emission control system have been specifically approved and certified by the regulatory agencies. Replacement parts supplied by Alpha have been manufactured to the same production standard as the original parts. The use of replacement parts or accessories which are not designed by Alpha may affect the engine emission performance. The manufacturers of replacement parts and accessories have the responsibility to guarantee that their replacement products will not adversely affect emission performance.

Maintenance

Maintain the generator according to the maintenance schedule in **Section 4.2, Maintenance Schedule**. Service items more frequently when used in dusty areas, or under conditions of high load, temperature, and humidity.

Air Quality Index

CARB requires that an air quality index label be attached to every certified engine showing the engine emission information for the emission duration period. The label is provided for the user to compare the emission performance of different engines. The lower the air index, the better the engine emission performance. The description of durability is helpful for the user to learn the engine emission duration period and the service life of emission control system. Refer to the warranty section of this Owner's Manual for more information.

The air quality index label is designed to be permanently affixed to the generator and removal should not be attempted.

The generator has an engine that has been approved by the California Air Resources Board. Other than the tune up procedures specified in the maintenance section, no additional maintenance is required.

The emission control system has the following components:

1. Fuel System: The fuel tank, cap, indicator and hoses are specially designed and constructed to not allow fuel vapors to permeate and be released to the atmosphere.
2. A carbon activated canister collects gasoline vapors from the fuel tank and returns them to the combustion chamber for burning.
3. A catalyst is built into the muffler to further treat the engine exhaust.
4. A secondary air injection valve adds combustion air to ignite unburned fuel in the exhaust.

Contact Alpha to obtain the correct replacement parts and service on this system.

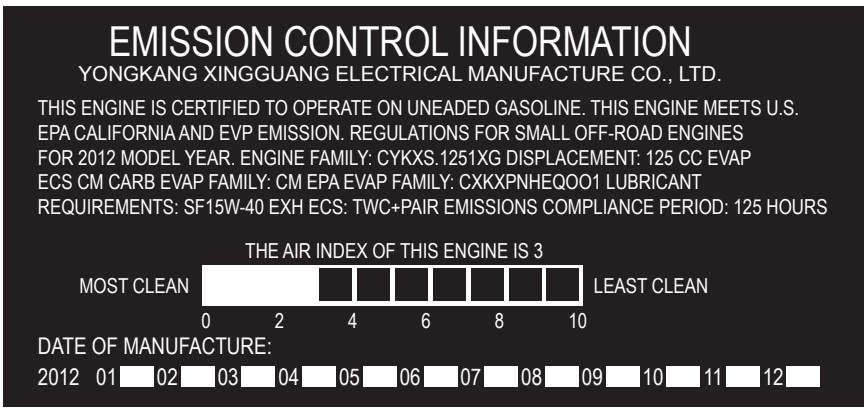

Fig. 3-1, Air Quality Index Label

3.2 Maintenance Schedule

Item	Maintenance Procedure	Regular Service period. Perform at every indicated month or operating hour interval, whichever occurs first.*				
		Each Use	1st Month or 4 to 6 Hours	Every 3 Months or 50 Hours	Every 6 Months or 100 Hours	Once per Year or 300 Hours
Engine Oil	Check	x				
	Change		x		x	
Air Cleaner	Check	x				
	Clean			x**		
Spark Plug	Clean / Adjust				x	
Spark Arrester	Clean				x	
Fuel Filter	Check	x				
	Replace					x**
Valve Clearance	Check / Adjust					x***
Fuel Tank and Strainer	Clean					x**
Fuel Line	Check	Every 2 years (Replace as necessary)***				

*Log hours of operation to determine proper maintenance.

**Service more frequently when used in dusty areas.

***These items should be serviced by an authorized dealer or qualified personnel.

Service Period for Oil Changes	Temperature
Normal - 100 hr	77°F (25°C)
95 hr	86°F (30°C)
85 hr	95°F (35°C)
70 hr	104°F (40°C)

Table 3-1, Maintenance Schedule

3.3 Changing Oil

WARNING! BURN HAZARD

Engine oil is HOT! Avoid contact with skin and clothing.

CAUTION!

Switch the engine OFF before draining the oil.

Recommended oil is synthetic SAE 15W-40 when ambient temperature is above 32° F (0° C).

Synthetic SAE 0W-40 is recommended if operating temperatures are below 32° F (0° C).

Engine oil capacity: 15.2 fl oz (.45L)

Tools Required:
#2 Philips Head Screwdriver
Oil Drain Pipe

NOTICE:

Drain the oil while the engine is still warm to assure thorough draining.

Procedure:

1. Remove the maintenance cover.
2. Remove the oil dipstick (use the slots in the oil drain pipe to easily remove the dipstick).
3. Install the oil drain pipe (included with the generator).
4. Drain the dirty oil into a container. Be sure to allow time for the oil to drain completely.
5. Refill with the recommended oil, ensuring the oil level is at the upper line on the dipstick.
6. Reinstall the dipstick and the maintenance cover and tighten the screws securely.

ATTENTION:

Dispose of used motor oil according to local environmental disposal regulations. Do not throw it in the trash or pour it on the ground.

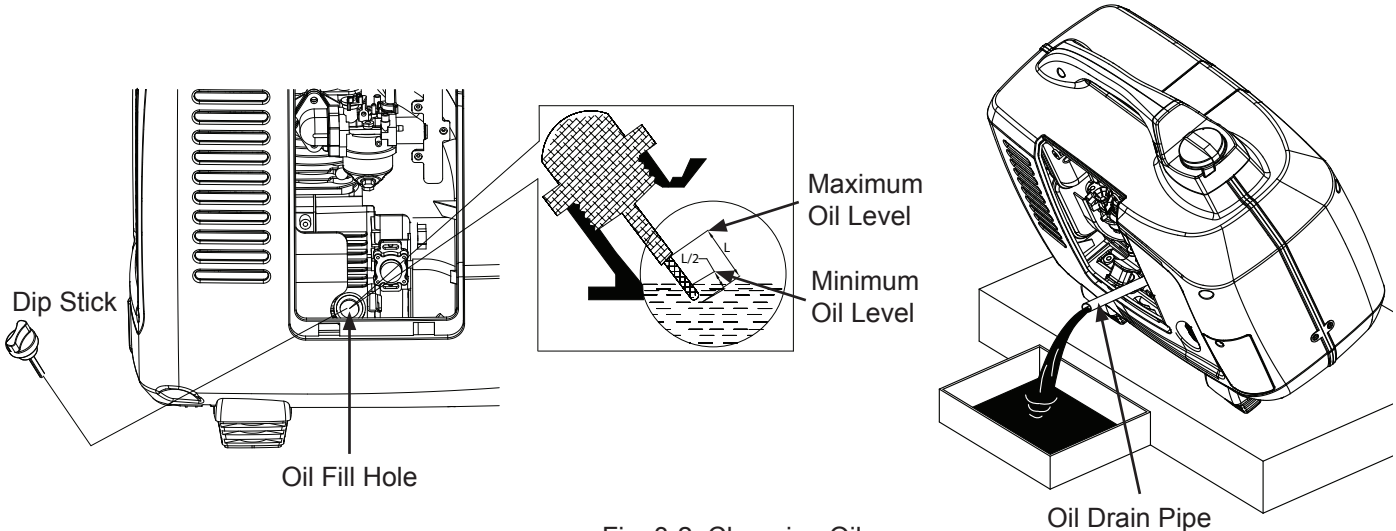

Fig. 3-2, Changing Oil

3.4 Air Cleaner Service

WARNING! FIRE HAZARD

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

CAUTION!

Never run the generator without the air cleaner, otherwise rapid engine wear may result.

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 dirty areas.

Tools Required:
#2 Philips Head Screwdriver

Procedure:

1. Remove the maintenance cover.
2. Remove three air filter retaining screws. Remove the air cleaner cover and check the air cleaner element. Clean or replace the element if necessary.
3. Wash the element in a non-flammable or high flash point solvent and dry it thoroughly.
4. Soak the element in clean engine oil and squeeze out the excess oil.
5. Reinstall the air cleaner element and the air cleaner cover. Tighten the cover screws securely.
6. Reinstall the maintenance cover and tighten the screws securely.

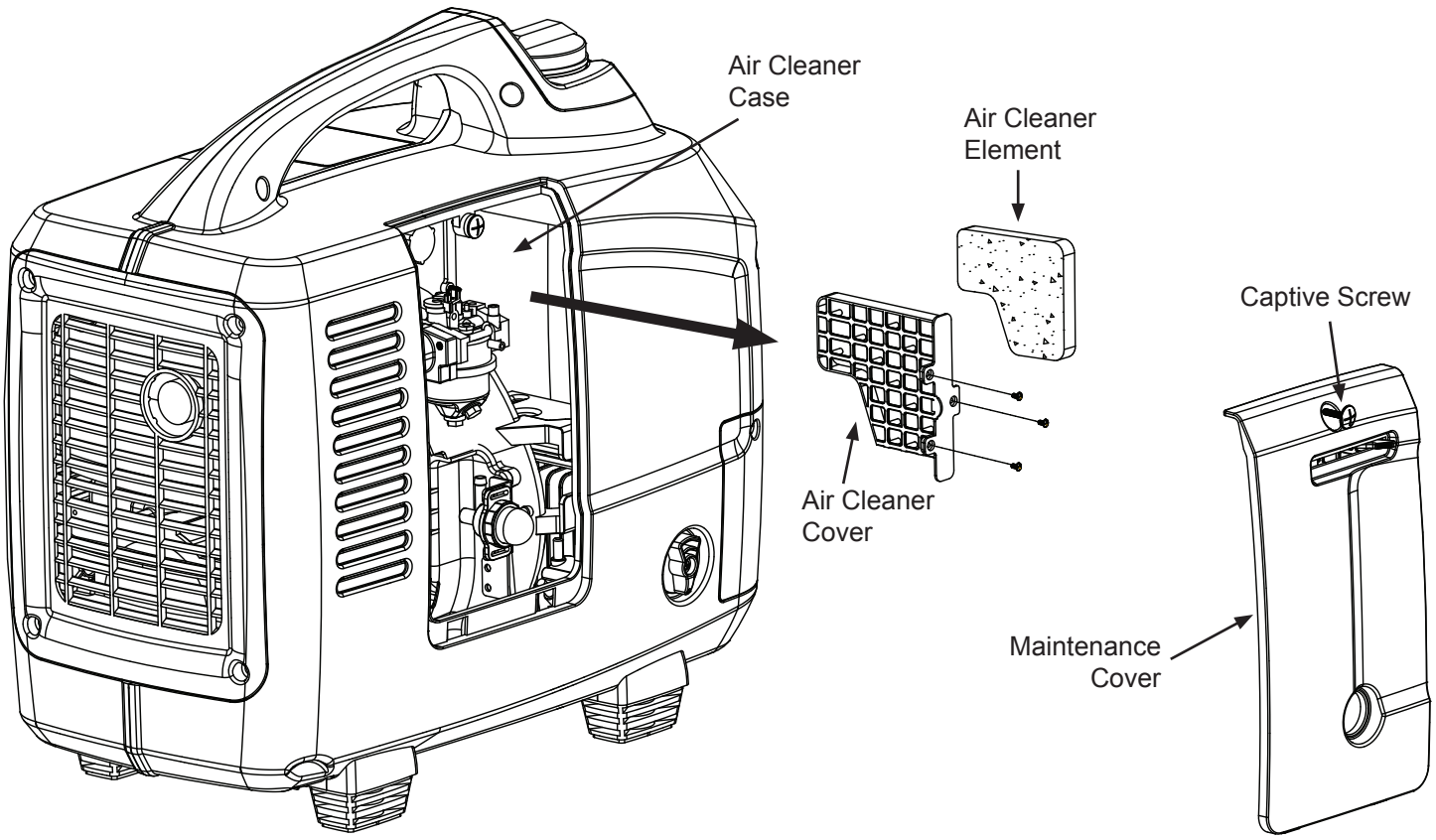

Fig. 3-3, Air Cleaner Assembly

3.5 Spark Plug Maintenance

To ensure proper engine operation, the spark plug must be in good repair and properly gapped. Replace and properly gap the spark plug per the following procedure.

Tools Required:
#2 Philips Head Screwdriver
A7RTC Resistor-type Spark Plug

Procedure:

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

CAUTION!

The spark plug must be securely tightened. An improperly tightened plug can become very hot and possibly damage the generator. Never use a spark plug with an improper heat range. Always use an A7RTC resistor-type spark plug. Using a non-resistor spark plug will interfere with AC output.

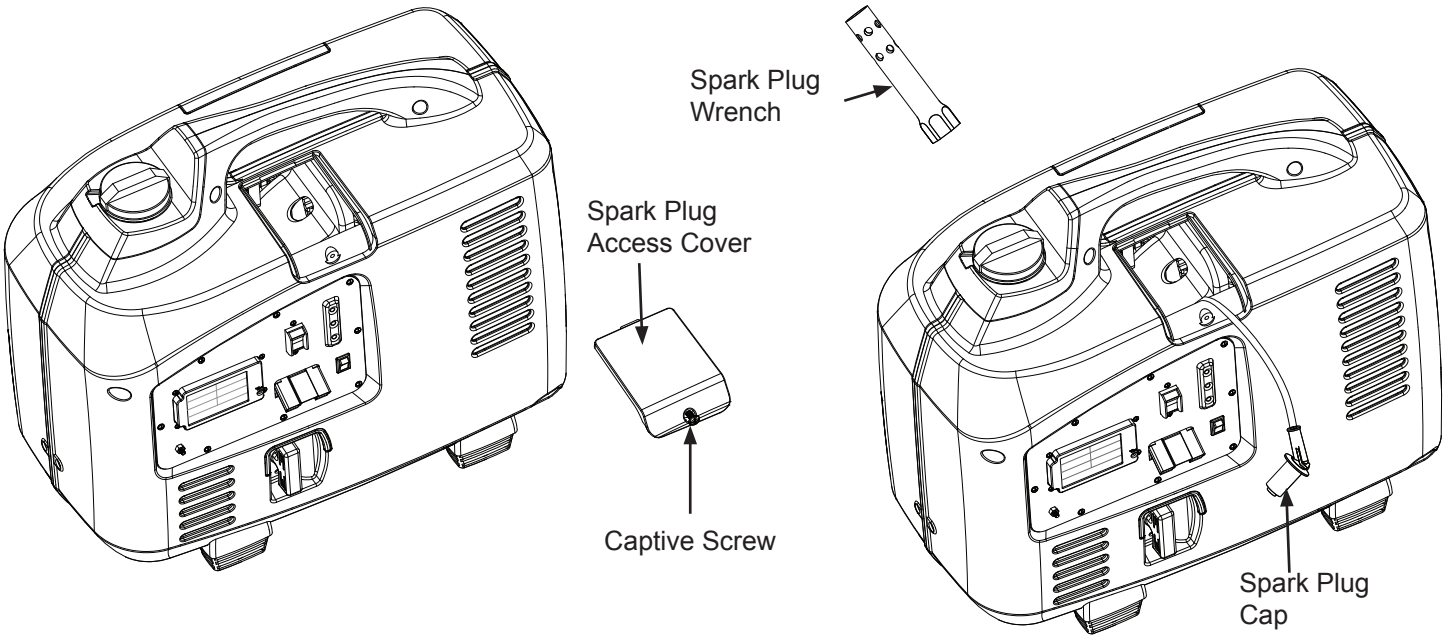

Fig. 3-4, Spark Plug Maintenance

3.6 Spark Arrestor Maintenance

CAUTION!

If the generator has been running, the muffler will be very hot. Allow it to cool before proceeding.

NOTICE:

The spark arrestor must be serviced every 100 hours to maintain its efficiency.

Tools Required:
#2 Philips Head Screwdriver

Procedure:

1. Remove the four M6 screws and remove the muffler grill.
2. Remove the two M4 screws holding the spark arrestor to the muffler.
3. Use a stiff wire brush to remove carbon deposits from the spark arrestor screen.
4. Inspect the screen for holes, and replace it if necessary.
5. Reinstall the spark arrestor.
6. Reinstall the muffler grill.

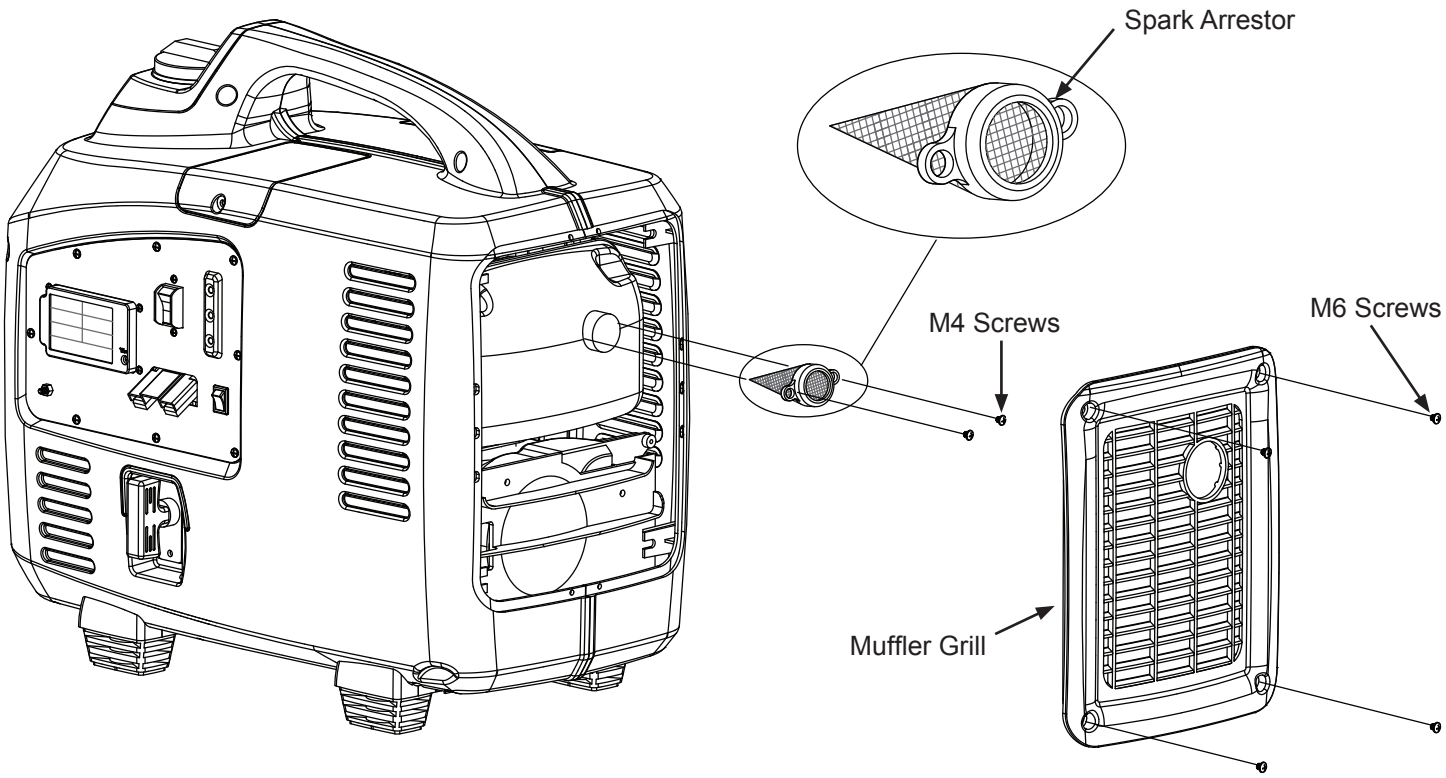

Fig. 3-5, Accessing the Spark Arrestor

4.0 Transport and Storage Instructions

4.1 Transporting the Generator

When transporting the generator, it should always be secured upright in its normal operating position with the fuel valve and engine switch turned OFF.

WARNING! FIRE & FUMES HAZARD

When transporting the generator, do not overfill the tank, and do not operate the generator while it is on or in a vehicle. If you must transport the generator in an enclosed vehicle, drain all fuel from the generator.

4.2 Exercising the Generator

The generator must be exercised on a regular basis. This will prevent the accumulation of varnish or sludge in the fuel system, remove moisture from the generator windings, and lubricate the engine seals and moving components. Exercise the generator by running it with at least a 1/2 load (1000W) for 15 minutes per month. Use gasoline fuel treatments to prevent contamination of the fuel supply. Damage to the carburetor due to fuel varnishing is not a warrantable failure.

4.3 Short Term Storage

During short term storage, the generator should be secured upright in its normal operating position with the fuel valve and engine switch turned OFF.

Avoid placing the generator in direct sunlight when storing.

If the generator is left in an enclosed area or vehicle, high temperatures inside could cause residual fuel to vaporize resulting in possible explosion.

4.4 Long Term Storage

WARNING! FIRE HAZARD

Gasoline is extremely flammable and explosive under certain conditions. Do not smoke or allow flames or sparks in the area.

1. Be sure the storage area is free of excessive humidity and dust.
2. Regardless of whether you plan to store your generator with or without fuel, add an appropriate amount (per the instructions on the bottle) of fuel stabilizer and run the generator for 5 minutes. This will assure that any fuel trapped in the system will have the stabilizer in it. If you do not drain the fuel, it is best to keep the tank full, as it will be less likely to form condensation in the fuel tank. You may also opt to add the fuel stabilizer and run the unit until it is out of fuel. If you opt to drain the fuel, then continue on with the instructions below.
3. To drain the gasoline from the fuel tank, turn the engine switch to the OFF position.
4. Attach a hose to the drain fitting on the carburetor and place the other end of the hose into an approved gasoline container.
5. Turn the fuel valve to the ON position, and loosen the carburetor drain screw and drain the gasoline into the approved gasoline container.
6. After the fuel tank has been drained, with the drain screw loosened, disconnect the spark plug wire and pull the starter grip 3 to 4 times to drain the gasoline from the fuel pump.
7. Turn the fuel valve to the OFF position, and tighten the drain screw securely.
8. Change the engine oil.
9. Remove the spark plug and pour about a tablespoon of clean engine oil into the cylinder.
10. Crank the engine several revolutions to distribute the oil and then reinstall the spark plug.
11. Slowly pull the starter grip until resistance is felt. At this point, the piston is coming up on its compression stroke and both the intake and exhaust valves are closed. Storing the engine in this position will help to protect it from internal corrosion.

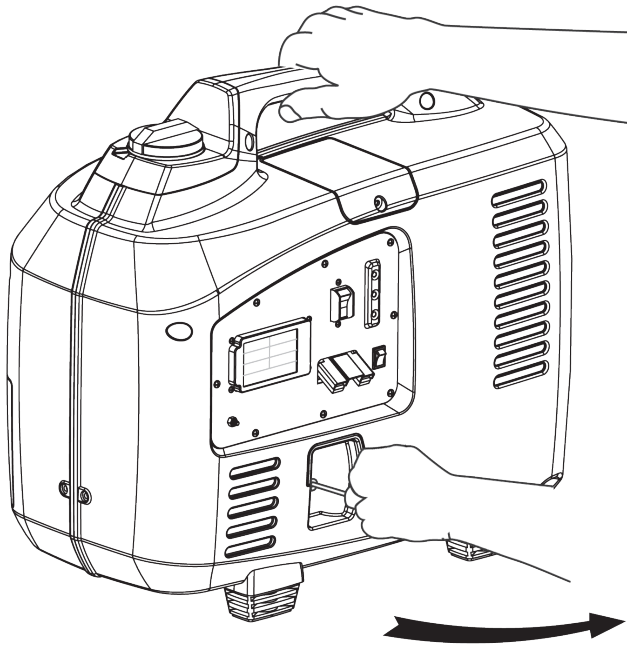

Fig. 4-1, Starter Grip

5.0 Troubleshooting

Description of Problem	Corrective Action
Engine will not start	
Low or empty fuel tank	Refuel the fuel tank
Engine and/or fuel switch off	Turn the engine switch and fuel switch ON
Low or empty oil tank	Add recommended oil
No spark from spark plug	Replace spark plug
Engine still does not start	Contact Alpha technical support
No output voltage	
Circuit breaker OFF	Reset circuit breaker
Output indicator light (green) OFF; overload indicator light (red) ON	Contact Alpha technical support

WARNING! FIRE HAZARD

Clean any spilled fuel around the spark plug. Spilled fuel may ignite.

To check spark:

1. Remove the spark plug cap and clean any dirt from around the spark plug.
2. Remove the spark plug and install the spark plug in the plug cap.
3. Attach the plug side electrode to your ground wire.
4. Pull the recoil starter, sparks should jump across the gap.

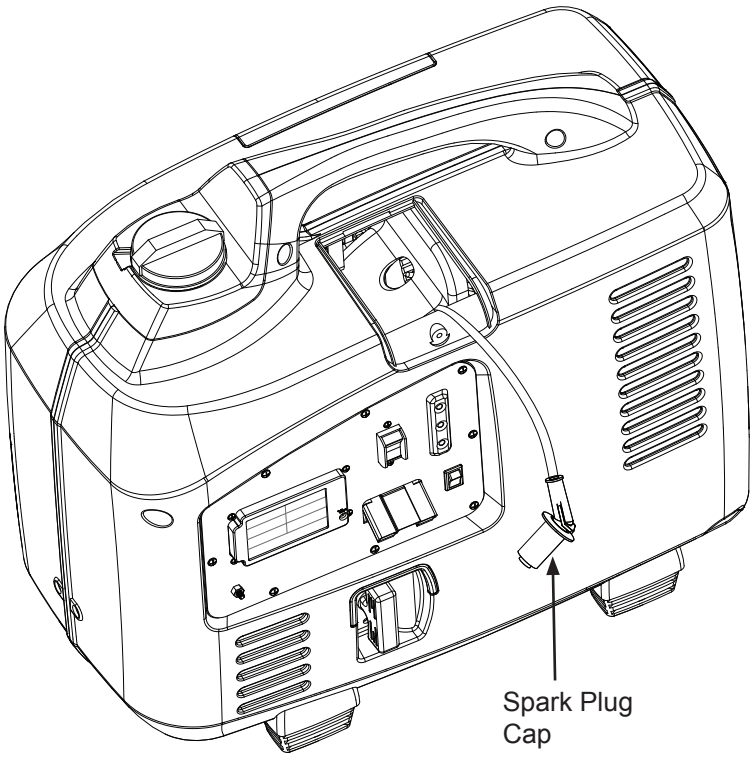

Fig. 5-1, Replace Spark Plug

6.0 Specifications

DCX2000 Portable Generator Specifications	
Generator	
Model	DCX2000-36
Rated Voltage (VDC)	39.5
Rated Current (A)	50.6
Max Current (A)	62.5A
Rated Output (W)	2000
Max Output (W)	2200
Engine	
Model	XG-152F
Type	4 stroke, vertical shaft, air-cooled, OHC, gasoline engine
Displacement	125 cc
Compression Ratio	9.2:1
Engine Speed	Variable
Ignition System	Electronic
Spark Plug	A7RTC
Starting System	Recoil
Fuel	Automotive unleaded gasoline
Lube Oil	SAE 15W-40 (0W-40 for extreme cold weather)
Oil Capacity	15.2 oz. (.45L)
Fuel Tank Capacity	1.7 gal (6.5L)
Continuous Running Time (Rated Output, 1/4 Load)	23.4 Hours (25% Load) 5.85 Hours (100% Load)
Noise Level (No Load - Full Load) dB at 23ft. (7m)	56-66 dB
Tune Up Specifications	
Spark Plug Gap	0.024-0.028 in (0.6-0.7 mm)
Valve Clearance (Intake)	0.0039±0.0008 in (0.10±0.02 mm)
Valve Clearance (Exhaust)	0.0059±0.0008 in (0.15±0.02mm)
Dimensions	
Overall Dimensions (LxWxH) in (mm)	21.5 x 11.4 x 19.7 (545 x 290 x 500)
Dry Weight	62 lbs. (28 kg)

7.0 Warranty Information

7.1 California Emissions Control Warranty Statement

Warranty Rights and Obligations

The California Air Resources Board (CARB) and Alpha Technologies, Inc. have established the following emissions control system warranty on 2008 and later small off-road engines (SORE). In California, new SOREs must be designed, built, and equipped to meet the State's stringent anti-smog standards. Alpha must warrant the emissions control system on SOREs for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of the SOREs.

The emission control system may include parts such as the carburetor, fuel tanks, fuel caps, fuel lines, the ignition system, and the catalytic converter. Also included may be hoses, belts, clamps, connectors and other emission-related assemblies.

Where a warrantable condition exists, Alpha will repair the small engine at no cost, including diagnosis, parts, and labor.

Manufacturer's Warranty Coverage

The emissions control system is warranted for two years. If any emissions-related part on the SORE is defective, the part will be repaired or replaced by Alpha.

Owner's Warranty Responsibilities

- The SORE owner is responsible for the performance of the required maintenance listed in the Owner's Manual. Alpha recommends retaining all receipts covering maintenance on the SORE, but Alpha cannot deny warranty solely for the lack of receipts or for failure to ensure the performance of all scheduled maintenance.
- The SORE owner should however be aware that Alpha may deny warranty coverage if the SORE or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.
- The SORE owner is responsible for presenting the SORE to a distribution center or service center authorized by Alpha as soon as the problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

For any questions regarding warranty coverage, contact Alpha's technical support.

7.2 Emission Control System Warranty

The generator engine complies with U.S. Environmental Protection Agency, Environment of Canada, and the state of California (if the model is certified by CARB). The following systems and/or parts are covered by this warranty. Failures or improper operation of the following systems and components will be diagnosed and repaired with no charge for labor or parts.

Fuel System

- Carburetor including the choke system and replaceable high altitude main jets
- Engine speed control system (Economy Throttle)
- Intake manifold
- Engine control module

Evaporative Control System

- Fuel tank
- Fuel cap
- Fuel strainer
- Fuel valve
- Fuel pump
- Fuel lines
- Carbon canister (including brackets and connectors)

Air Induction System

- Air filter element*
- Air filter housing

Ignition system

- Ignition module
- Ignition coil
- Ignition winding
- Spark plug*
- Spark plug cap and wire

Exhaust system

- Catalyst
- Exhaust manifold
- Secondary air injection assembly

Miscellaneous

- Pipes, tubes, hoses and clamps, o-rings, seals, and gaskets associated with the above systems.

* Covered up to the first scheduled replacement only. See the maintenance schedule.

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041-135-B0-001 Rev. A1 (06/2014)