ACEUP ENERGY 4500 Watt Open Frame Inverter Generator Instruction Manual

Contents

ACEUP ENERGY 4500 Watt Open Frame Inverter Generator

Product Specifications

- **Model:** Portable Generator
- **Starting Watts:** 4500W
- **Running Watts:** 3600W

Product Usage Instructions

Introduction and Safety
Before operating the portable generator, it is crucial to read and fully understand the manual to ensure safe usage.

Safety Rules

Danger: Using a generator indoors can result in carbon monoxide poisoning. Always operate the generator outside in a well-ventilated area.

Warning: Keep clothing, hair, and body parts away from moving parts to prevent injuries.

Caution: Do not alter the construction or block ventilation of the generator to avoid unsafe operation or damage.

Exhaust and Location Hazards

Danger: Running engines produce carbon monoxide, ensure proper ventilation to prevent asphyxiation.

Danger: Maintain the exhaust system properly to comply with safety standards and prevent hazards.

Frequently Asked Questions (FAQ)

Q: Can I use the generator indoors?
A: No, using the generator indoors can lead to carbon monoxide poisoning. Always operate it outside in a well-ventilated area.

Q: What should I do before connecting power source and load lines?
A: Turn off utility and emergency power supplies to prevent electrocution.

Q: How should I handle hot surfaces when operating the machine?
A: Avoid touching hot surfaces and keep the machine away from combustibles to prevent burns or fire.

Read the instructions carefully and make sure that you fully understand before operation.

Introduction and Safety

WARNING
Consult Manual. Read and understand manual completely before using product. Failure to completely understand manual and product could result in death or serious injury.

The owner is responsible for proper maintenance and safe use of the equipment. Before operating, servicing or storing this generator:

- Study all warnings in this manual and on the product carefully.
- Become familiar with this manual and the unit before use.
- Refer to the Assembly section of the manual for instructions on final assembly procedures. Follow the instructions completely.

Save these instructions for future reference. ALWAYS supply this manual to any individual that will use this machine.
THE INFORMATION CONTAINED HEREIN WAS BASED ON MACHINES IN PRODUCTION AT THE TIME OF PUBLICATION. BALDR INTERNATIONAL LLC RESERVES THE RIGHT TO MODIFY THIS MANUAL AT ANY TIME.

Safety Rules
The manufacturer cannot anticipate every possible circumstance that might involve a hazard. The warnings in this manual, and on tags and decals affixed to the unit are, therefore, not all inclusive. If using a procedure, work method or operating technique that the manufacturer does not specifically recommend, verify that it is safe for others. Also make sure the procedure, work method or operating technique utilized does not render the equipment unsafe.

Throughout this publication, and on tags and decals affixed to the generator, DANGER, WARNING, CAUTION and NOTE blocks are used to alert personnel to special instructions about a particular operation that may be hazardous if performed incorrectly or carelessly. Observe them carefully.

Their definitions are as follows:

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

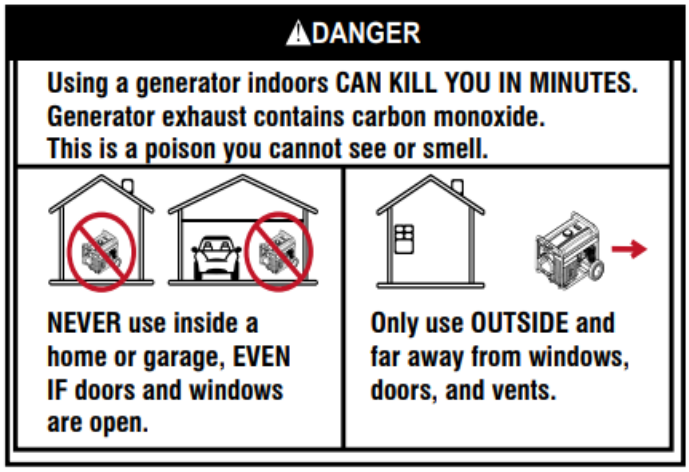
WARNING
Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION
Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTE: Notes contain additional information important to a procedure and will be found within the regular text of

this manual.
These safety warnings cannot eliminate the hazards that they indicate. Common sense and strict compliance with the special instructions while performing the action or service are essential to preventing accidents.

Safety Symbols and Meanings



- Adequate, unobstructed flow of cooling and ventilating air is critical to correct generator operation. Do not alter the installation or permit even partial blockage of ventilation provisions, as this can seriously affect safe operation of the generator. The generator MUST be operated outdoors.

DANGER
Asphyxiation. Running engines produce carbon monoxide, a colorless, odorless, poisonous gas. Carbon monoxide, if not avoided, will result in death or serious injury.

- Electrocution. Water contact with a power source, if not avoided, will result in death or serious injury.
- Electrocution. Turn utility and emergency power supplies to OFF before connecting power source and load lines. Failure to do so will result in death or serious injury.
    - It is recommended to obtain parts and service from your local IASD to keep this unit in safe working order.
    - Do not operate unit on uneven surfaces, or in areas where it can be exposed to excessive moisture, dirt, dust, or corrosive vapors.

WARNING

- Moving Parts. Keep clothing, hair, and appendages away from moving parts. Failure to do so could result in death or serious injury.
- Hot Surfaces. When operting machine, do not touch hot surfaces. Keep machine away from combustables during use. Hot surfaces could result in severe burns or fire.
- Equipment and property damage. Do not alter construction of, installation, or block ventilation for generator. Failure to do so could result in unsafe operation or damage to the generator.
- Do not insert any object through the air cooling slots. Generator can start at any time and could result in death, serious injury, and unit damage.

Exhaust and Location Hazards

DANGER

- Asphyxiation. Running engines produce carbon monoxide, a colorless, odorless, poisonous gas. Carbon monoxide, if not avoided, will result in death or serious injury.
- The exhaust system must be properly maintained. Do not alter or modify the exhaust system as to render it unsafe or make it noncompliant with local codes and/or standards. Failure to do so will result in death or serious injury.

WARNING

- Asphyxiation. Always use a battery operated carbon monoxide alarm indoors and installed according to the manufacturer's instructions. Failure to do so could result in death or serious injury.
- Equipment and property damage. Do not alter construction of, installation, or block ventilation for generator. Failure to do so could result in unsafe operation or damage to the generator.
    - If you start to feel sick, dizzy, or weak after the generator has been running, move to fresh air IMMEDIATELY. See a doctor, as you could have carbon monoxide poisoning.

Electrical Hazards

DANGER

- Electrocution. Contact with bare wires, terminals, and connections while generator is running will result in death or serious injury.
- Electrocution. Water contact with a power source, if not avoided, will result in death or serious injury.
    - National Electric Code (NEC) requires the frame and external electrically conductive parts of the generator be properly connected to an approved earth ground. Local electrical codes may also require proper grounding of the generator. Consult with a local electrician for grounding requirements in the area.
    - Use a ground fault circuit interrupter in any damp or highly conductive area (such as metal decking or steel work).
- Electrocution. In the event of electrical accident, immediately shut power OFF. Use non-conductive implements to free victim from live conductor. Apply first aid and get medical help. Failure to do so will result in death or serious injury.

WARNING
Accidental Start-up. Disconnect the negative battery cable, then the positive battery cable when working on unit. Failure to do so could result in death or serious injury.

Fire Hazards

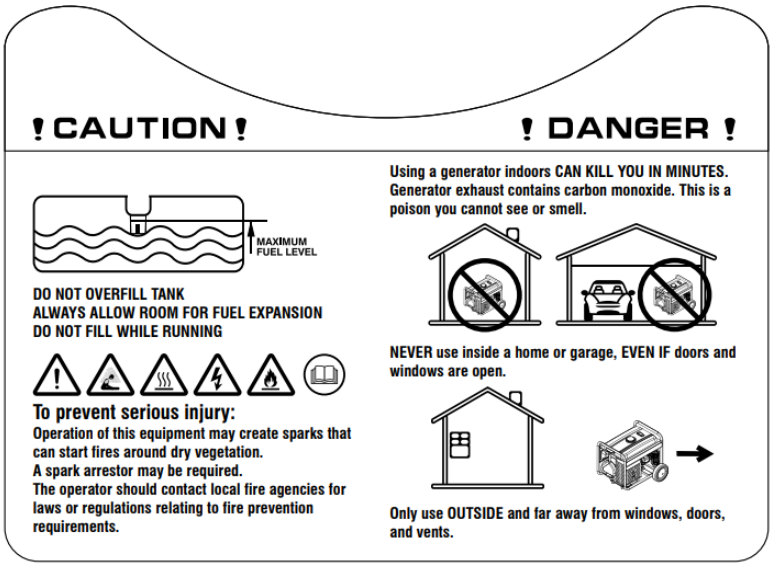
DANGER

- Explosion and Fire. Fuel and vapors are extremely flammable and explosive. Add fuel in a well ventilated area. Keep fire and spark away. Failure to do so will result in death or serious injury.
- Do not overfill fuel tank. Fill to 1/2 in. of top of tank to allow for fuel expansion. Overfilling may cause fuel to spill onto engine causing fire or explosion, which will result in death or serious injury.
- Risk of fire. Allow fuel spills to completely dry before starting engine. Failure to do so will result in death or serious injury.

WARNING

- Do not insert any object through the air cooling slots. Generator can start at any time and could result in death, serious injury, and unit damage.
    - Do not operate the generator if connected electrical devices overheat, if electrical output is lost, if engine or generator sparks or if flames or smoke are observed while unit is running.
    - Keep a fire extinguisher near the generator at all times.

Replacement Hazard Labels
Vertical CO Warning Decal



General Information and Setup

TABLE 1. Generator Components

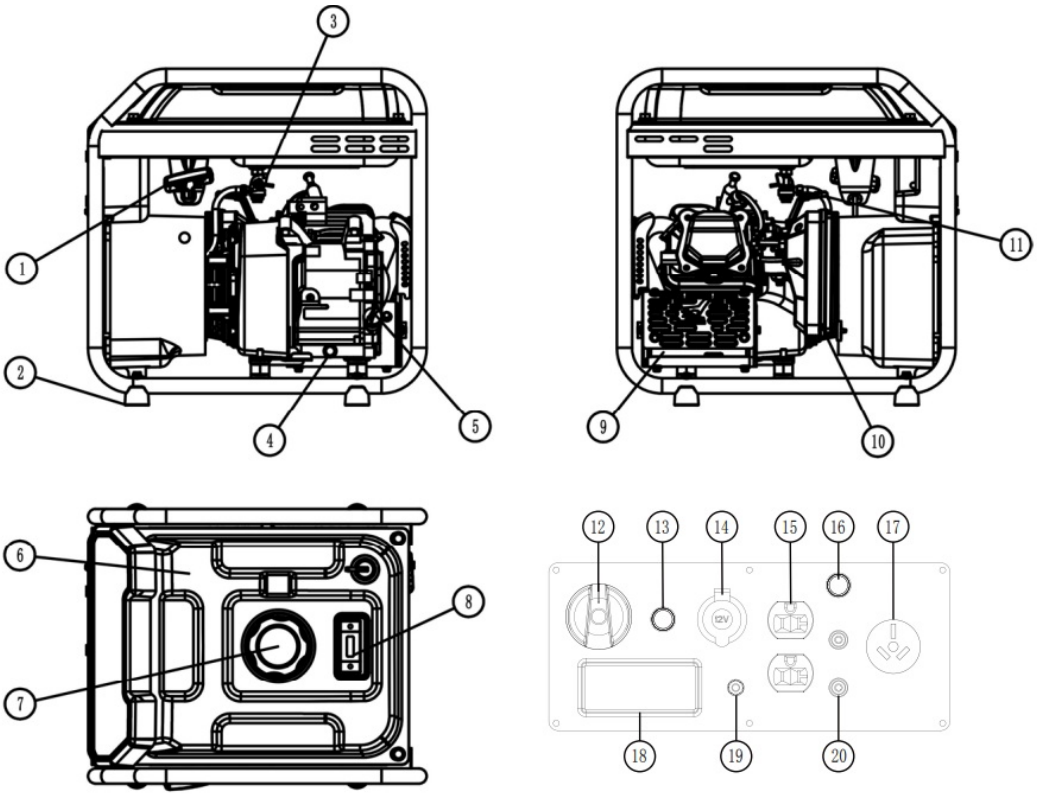


Figure 2-1. Features and Controls

Figure 2-2. Control Panel

1. Recoil Starter
2. Grounding Lug
3. Gas valve
4. Oil Drain
5. Oil Fill
6. Fuel Tank
7. Gas Cap
8. Fuel Gauge
9. Muffler
10. Air Filter
11. CHOKE Knob
12. ON/OFF/CHOKE Switch
13. DC Breaker
14. 12 Volt DC
15. 20A Volt AC Sock
16. AC Breaker
17. 30A Volt AC Sock
18. Gauge Meter
19. Ground
20. PARALLEL OPERATION OUTLETS

Know Your Generator

WARNING

Consult Manual. Read and understand manual completely before using product. Failure to completely understand manual and product could result in death or serious injury.

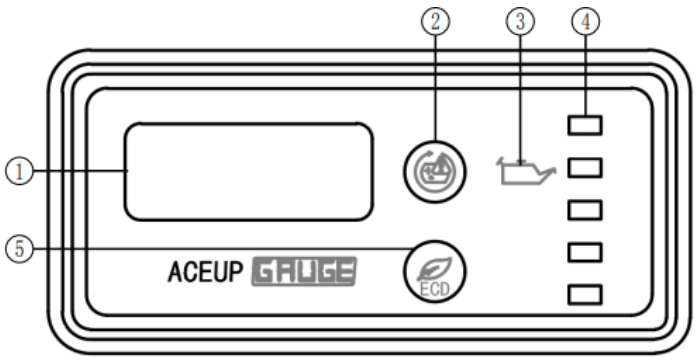
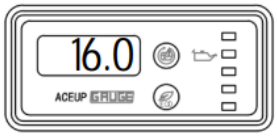
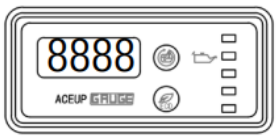


Figure 2-3. Intelligent Gauge

Six mode digital meter for displaying voltage, frequency, total run time, low oil alarm, power output, economic mode and AC reset.

1. V.F.R – Display voltage(V), frequency(H) and total run time(R) of inverter generator.
2. AC Reset Button – re-energize receptacles after overload fault.
   AC Reset Button – Switch voltage(V), frequency(H) and total run time(R) when not overloaded.
3. Low Oil Warning Indicator Light – When ON, engine will shut down and not run. Check oil level.
4. Power Output – Display the output power (watts).
5. Economy Mode Button-Provides excellent fuel economy and noise reduction.

MODE	DESCRIPTION	
Voltage(V)	Output voltage of the generator.	
	Example: 120 volts	
Frequency(H)	Output frequency in hertz.	
	Example: 60.0 hertz	
Total Run Time	Total run time of the generator since first operation.	
	Example: 16 hours	
Power Meter	Power Output percentage.	
	Example: 100% Output	

Emissions

The United States Environmental Protection Agency (US EPA) (and California Air Resources Board (CARB), for engines/equipment certified to California standards) requires that this engine/equip-ment complies with exhaust and evaporative emissions standards. Locate the emissions compliance decal on the engine to determine applicable standards. For emissions warranty information, please reference the included emissions warranty. It is

important to follow the maintenance specifications in the manual to ensure that the engine complies with the applicable emissions standards for the duration of the product's life.

TABLE 2. Product Specifications

Generator Specifications	
Rated Power	3600 W
Peak Power	4500 W
Rated AC Voltage	120 V
Rated AC Load Current @ 120V	30 Amps
Rated Frequency	60 Hz @ 3600 RPM
Phase	Single Phase
Generator Dry Weight (assembled)	63.9 lbs.
** Operating Temperature Range: -18 deg. C (0 deg. F) to 40 Deg. C (104 Deg. F). When operated above 25 de g. C (77 deg. F) there may be a decrease in power. ** Maximum wattage and current are subject to, and limited by, such factors as fuel Btu content, ambient temper ature, altitude, engine condition, etc.. Maximum power decreases about 3.5% for each 1,000 feet above sea lev el; and will also decrease about 1% for each 6° C (10° F) above 16° C (60° F) ambient temperature.	
Engine Specifications	
Displacement	223 cc
Spark Plug Type	F6TC
Spark Plug Gap	0.7-08 mm (0.028-0.031 inch)
Gasoline Capacity	2.64 gal (10 L)
Oil Type	See Chart in the Add Engine Oil Section
Oil Capacity	0.634 qt (0.6 L)
Run Time at 50% Load	6.0 Hours

Connection Plugs

120 VAC, 20 Amp, Duplex Receptacle

The 120 Volt outlet is overload protected by a 20 Amp push-to-reset circuit breaker. See Figure 2-3. Each receptacle will power 120 Volt AC, single phase, 60 Hz electrical loads requiring up to 2400 watts (2.4 kW) or 20 Amps of current. Use only high quality, well-insulated, 3-wire grounded cord sets rated for 125 Volts at 20 Amps (or greater).

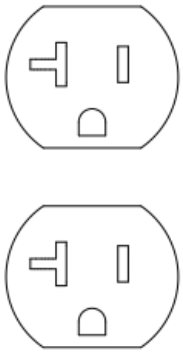


Figure 2-3. 120 VAC, 20 Amp, Duplex Receptacle NEMA 5-20R

120 VAC, 30 Amp Receptacle
Use a NEMA L5-30 plug with this receptacle (rotate to lock/unlock). Connect a suitable 3- wire cord set to the plug and to desired load. The cord set should be rated for 125 Volts AC at 30 Amps (or greater). See Figure 2-4. Use this receptacle to operate 120 Volt AC, 60Hz, single phase loads requiring up to 3000 watts (3.0kW) of power at 25 Amps. The outlet is protected by a 25 Amp circuit breaker.

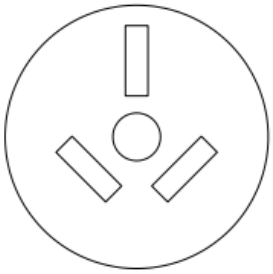


Figure 2-4. 120 VAC, 30 Amp Receptacle

ON/O FF/CHOKE Switch
This controls the ON/OFF functions, choke and fuel valve operation. See Figure 2-5.

- The OFF position (1) stops the engine and shuts off fuel flow.
- The ON position (2) is for normal opera-tion and to gradually reduce the use of the choke.

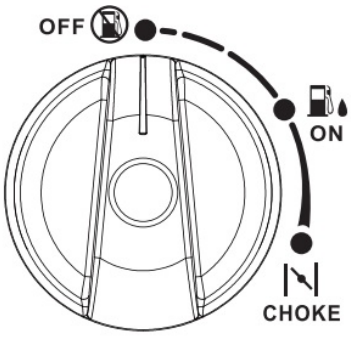


Figure 2-5. Dial (example)

Economy Switch
The economy switch has 2 modes of opera-tion:

- **ON:** The quietest mode and best when running appliances or equipment that are resistive loads (non-motor starting), (example: TV, video game, light, radio).
- **OFF** : Best when running a both inductive (motor-starting loads) and resistive (non-motor starting loads), especially when these loads are turning on and off (example: RV, air conditioner, hairdryer).

AC Reset
The AC receptacle is protected by inverter module.
If the generator is overloaded or an external short circuit occurs, the inverter module will stop working and there will be no voltage output from the generator.

If this occurs, disconnect all electrical loads to determine the cause of the problem before using the generator again.
Afterwards, press the AC RESET button, the inverter reverts to normal working condition, and the output voltage of the generator returns to normal.

DC Reset
The DC Receptacle is protected by DC reset(circuit protector). If the generator is overloaded or an external short circuit occurs, the circuit protector will trip. If this occurs, disconnect all electrical loads to determine the cause of the problem before using the generator again. Reduce the load if the circuit protector is tripped.

NOTE: Continuous tripping of the circuit protector may cause damage to generator or equipment.
Push DC rest button to reset the circuit protector.

Remove Contents from Carton

1. Open carton completely by cutting each corner from top to bottom.
2. Remove and verify carton contents prior to assembly. Carton contents should contain the following:

Add Engine Oil

CAUTION
Engine damage. Verify proper type and quantity of engine oil prior to starting engine. Failure to do so could result in engine damage.

NOTE: The generator is shipped without oil in the engine. Add oil slowly and verify oil level often during filling process to ensure overfilling does not occur.

1. Place generator on a level surface.
2. Verify oil fill area is clean.
3. Remove oil fill cap and wipe dipstick clean. See Figure 2-6.

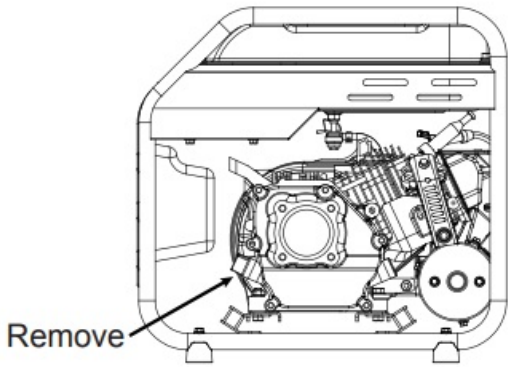


Figure 2-6. Remove oil fill cap

4. Clean area around oil fill and oil drain plug.
5. Remove oil fill cap and wipe dipstick clean. See Figure 2-7.

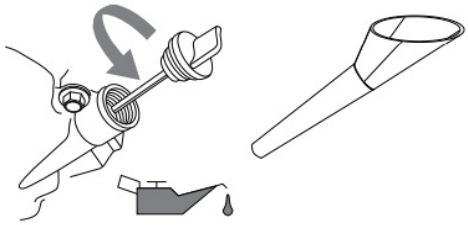
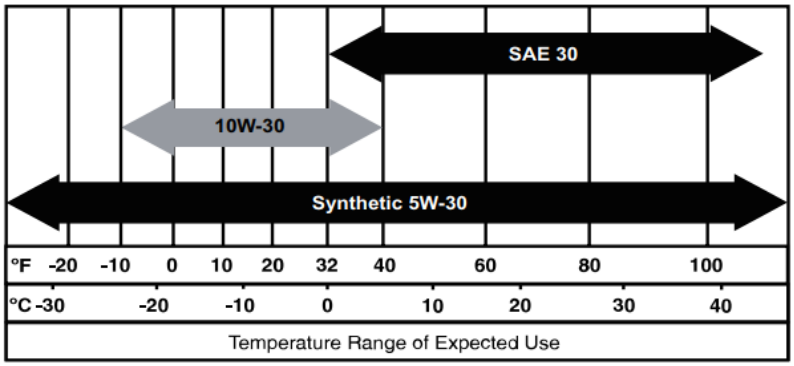


Figure 2-7. Remove Dipstick

6. Insert funnel into oil fill opening. Add rec-ommended engine oil as necessary. Cli-mate determines proper engine oil viscosity. See chart to select correct viscosity.
   NOTE: Use petroleum based oil for engine break-in before using synthetic oil.



7. To check oil level, remove funnel and insert dipstick into oil filler neck. See Figure 2-8.

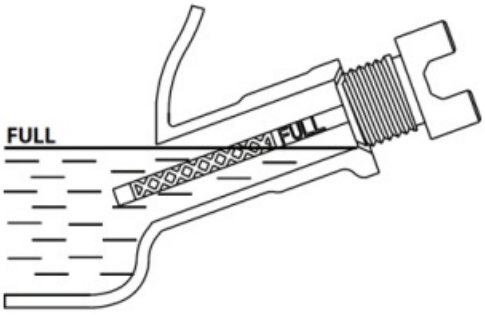


Figure 2-8. Safe Operating Range

8. Remove dipstick and verify oil level is within safe operating range.
   NOTE: Verify oil level often during filling process to ensure overfilling does not occur.
9. Install oil fill cap/dipstick and hand-tighten.
10. Replace side cover and screws.

Fuel

DANGER

- Explosion and Fire. Fuel and vapors are extremely flammable and explosive. Add fuel in a well ventilated area. Keep fire and spark away. Failure to do so will result in death or serious injury.
- Explosion and Fire. Do not overfill fuel tank. Fill to 1/2 inch from top of tank to allow for fuel expansion. Overfilling may cause fuel to spill onto engine causing fire or explosion, which will result in death or serious injury.

Fuel requirements are as follows:

- Clean, fresh, unleaded gasoline.

- Minimum rating of 87 octane/87 AKI (91 RON).
- Up to 10% ethanol (gasohol) is acceptable.
- DO NOT use E85.
- DO NOT use a gas oil mix.
- DO NOT modify engine to run on alternate fuels. Stabilize fuel prior to storage.

1. Verify unit is OFF and cooled entirely prior to fueling.
2. Place unit on level ground in a well ventilated area.

   WARNING

   Explosion and Fire. Verify fuel cap vent is set to ON for operation, and OFF for transportation and storage. Failure to do so could result in poor unit performance, death, or serious injury.
3. Clean area around fuel cap and turn vent on fuel cap to ON. See Figure 2-9.

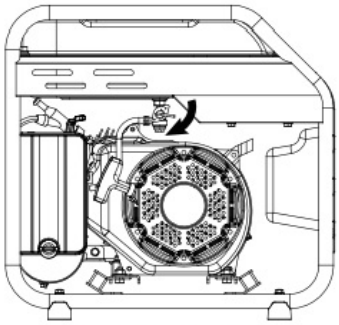


Figure 2-9.Fuel Cap

4. Turn cap slowly to remove.
5. Slowly add recommended fuel. Do not overfill.
6. Install fuel cap.
7. Turn vent on fuel cap to OFF for transportation and storage to avoid fuel spills.

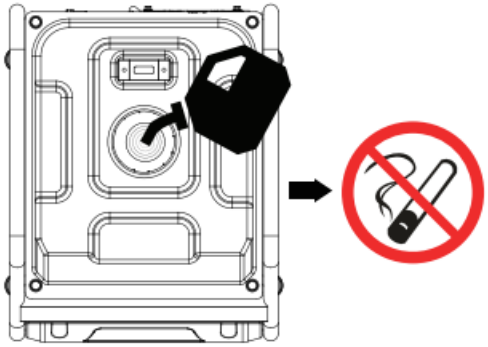


Figure 2-10. Internal Fuel Tank Level

NOTE: Allow spilled fuel to evaporate before starting unit.

IMPORTANT NOTE: It is important to prevent gum deposits from forming in fuel system parts such as the carburetor, fuel hose or tank during storage. Alcoholblended fuels (called gasohol, ethanol or methanol) can attract moisture, which leads to separation and formation of acids during storage. Acidic gas can damage the fuel system of an engine while in storage.
To avoid engine problems, the fuel system should be emptied before storage of 30 days or longer. See the Storage section.
Never use engine or carburetor cleaner products in the fuel tank as permanent damage may occur.

OPERATION

Before Starting Engine

1. Verify engine oil level is correct.
2. Verify fuel level is correct.
3. Verify unit is secure on level ground, with proper clearance and is in a well ventilated area.

Prepare Generator for Use

DANGER

- Asphyxiation. Running engines produce carbon monoxide, a colorless, odorless, poisonous gas. Carbon monoxide, if not avoided, will result in death or serious injury.
- Asphyxiation. The exhaust system must be properly maintained. Do not alter or modify the exhaust system as to render it unsafe or make it noncompliant with local codes and/or standards. Failure to do so will result in death or serious injury.

WARNING

- Risk of fire. Do not use generator without spark arrestor installed. Failure to do so could result in death or serious injury.
- Asphyxiation. Always use a battery operated carbon monoxide alarm indoors and installed according to the manufacturer’s instructions. Failure to do so could result in death or serious injury.
- Risk of Fire. Hot surfaces could ignite combustibles, resulting in fire. Fire could result in death or serious injury.
- Hot Surfaces. When operating machine, do not touch hot surfaces. Keep machine away from combustibles during use. Hot surfaces could result in severe burns or fire.

CAUTION

- Equipment and property damage. Disconnect electrical loads prior to starting or stopping unit. Failure to do so could result in equipment and property damage.

Grounding the Generator When In Use
The generator is equipped with an equipment ground connecting the generator frame and the ground terminals on the AC output recep- tacles. This allows the generator to be used as a portable without grounding the frame of the generator. See Figure 3-1.

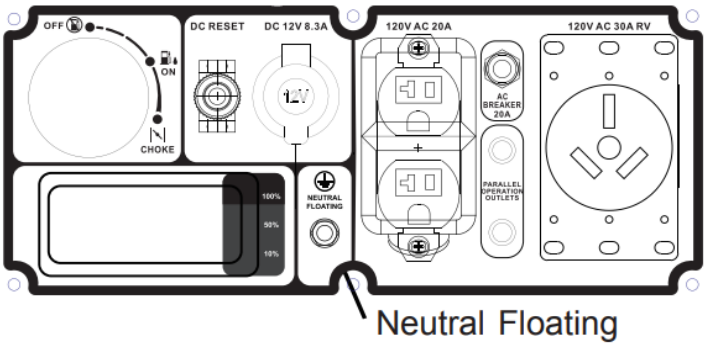


Figure 3-1.Grounding the Generator

The generator (stator winding) is isolated from the frame and from the AC receptacle ground pin. Electrical devices that require a grounded receptacle pin connection will not function if the receptacle ground pin is not functional.

Know Generator Limits
Overloading a generator can result in damage to the generator and connected electrical devices. Observe the following to prevent overload:

- Add up the total wattage of all electrical devices to be connected at one time. This total should NOT be greater than the gener-ator's wattage capacity.
  The rated wattage of lights can be taken from light bulbs. The rated wattage of tools, appliances, and motors can be found on a data label or decal affixed to the device.
- If the appliance, tool, or motor does not give wattage, multiply volts times ampere rating to determine watts (volts x amps = watts).
  Some electric motors, such as induction types, require about three times more watts of power for starting than for running. This surge of power lasts only a few seconds when starting such motors. Make sure to allow for high starting wattage when select-ing electrical devices to connect to the gen-erator:
  1. Figure the watts needed to start the largest motor.
  2. Add to that figure the running watts of all other connected loads.

Wattage Reference Guide is provided to assist in determining how many items the generator can operate at one time.

NOTE: All figures are approximate. See data label on appliance for wattage requirements.

Wattage Reference Guide

Device	**Running** **Watts**
•Air Conditioner (12,000 Btu)	1700
•Air Conditioner (24,000 Btu)	3800
•Air Conditioner (40,000 Btu)	6000
Battery Charger (20 Amp)	500

Belt Sander (3″)	1000
Chain Saw	1200
Circular Saw (6-1/2″)	800 to 1000
•clothes Dryer (Electric)	5750
•clothes Dryer (Gas)	700
•clothes Washer	1150
Coffee Maker	1750
•compressor (1 HP)	2000
•compressor (3/4 HP)	1800
• compressor (1/2 HP)	1400
Curling Iron	700
•Dehumidifier	650
Disc Sander (9″)	1200
Edge Trimmer	500
Electric Blanket	400
Electric Nail Gun	1200
Electric Range (per element)	1500
Electric Skillet	1250
***Freezer**	700
•Furnace Fan (3/5 HP)	875
•Garage Door Opener	500 to 750
Hair Dryer	1200
Hand Drill	250101100
Hedge Trimmer	450
Impact Wrench	500
Iron	1200
• Jet Pump	800
Lawn Mower	1200
Light Bulb	100
Microwave Oven	700 to 1000
•Milk Cooler	1100
Oil Burner on Furnace	300
Oil Fired Space Heater (140,000 Btu)	400

Oil Fired Space Heater (85,000 Btu)	225

Oil Fired Space Heater (30,000 Btu)	150
•Paint Sprayer, Airless (1/3 HP)	600
Paint Sprayer, Airless (hand-held)	150
Radio	50 to 200
• Refrigerator	700
Slow Cooker	200
•submersible Pump (1-1/2 HP)	2800
•submersible Pump (1 HP)	2000
•submersible Pump (1/2 HP)	1500
•sump Pump	800 to 1050
•Table Saw (10″)	1750 to 2000
Television	200 to 500
Toaster	1000 to 1650
Weed Trimmer	500
• Allow 3 times the listed watts for starting these **devices.**	

Transporting/Tipping of the Unit
Do not store or transport the unit at an angle greater than 15 degrees.
Starting Pull Start Engines

WARNING
Recoil Hazard. Recoil could retract unexpectedly.
Kickback could result in death or serious injury.

CAUTION
Equipment and property damage. Disconnect electrical loads prior to starting or stopping unit. Failure to do so could result in equipment and property damage.

1. Turn fuel cap vent ON. See Figure 2-9.
2. See Figure 3-2. Rotate the OFF/ON/-CHOKE dial to CHOKE (1).
3. Switch Economy switch to OFF.
4. Firmly grasp recoil handle and pull slowly until increased resistance is felt. Pull rapidly up and away.

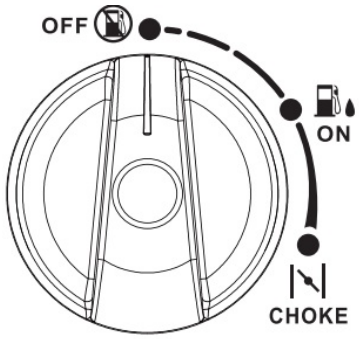


Figure 3-2.OFF/ON Positions

5. See Figure 3-2. When engine starts, rotate OFF/ON/CHOKE dial to ON (2).CHOKE operation is reduced as OFF/ON/- CHOKE dial is rotated towards ON.

NOTE: If engine fires, but does not continue to run, rotate the OFF/ON/CHOKE dial to OFF and repeat starting instructions.

Generator Shut Down

CAUTION
Equipment and property damage. Disconnect electrical loads prior to starting or stopping unit. Failure to do so could result in equipment and property damage.

1. Shut off all loads and unplug electrical loads from generator panel receptacles.
2. Let engine run at no load for several minutes to stabilize internal temperatures of engine and generator.
3. See Figure 3-2 Rotate OFF/ON/CHOKE dial to OFF (3).
4. Turn fuel cap OFF.

Restarting Hot Engines

CAUTION
Equipment and property damage. Disconnect electrical loads prior to starting or stopping unit. Failure to do so could result in equipment and property damage.

1. See Figure 3-2. Turn OFF/ON/CHOKE dial from STOP to ON. This will open the fuel valve and permit starting.
2. Firmly grasp recoil handle and pull slowly until increased resistance is felt. Pull rapidly up and away.

Parallel Operation

For output power up to 3420W, two inverters can operate in parallel using Parallel Kit (optional). See the Parallel Kit Operator's Manual.

NOTE: All connections to the parallel kit should be made while both inverters are turned off and all loads disconnected.

1. Make sure the Engine Economy Switch is in the same position on both generators.
2. Make appropriate parallel connections to the outlets on each inverter as outlined in the owner's manual supplied with the kit.
   NOTE: Do not disconnect any parallel kit connection once the units are running.
3. Start both units per starting instructions.

Once the green output indicator illuminates, devices can be connected and turned on using the parallel kit outlet.

4. Follow Generator Shut Down instructions.

   NOTE: For inverters, load applied to the parallel kit is not to exceed 3420 watts due to a 5% power loss when paralleling. See manual.

   NOTE: Only use our approved parallel kit.

MAINTENANCE AND TROUBLESHOOTING

Maintenance

Regular maintenance will improve performance and extend engine/equipment life. We recommends that all maintenance work be performed by an Independent Autho-rized Service Dealer (IASD). Regular maintenance, replacement, or repair of the emissions control devices and systems may be performed by any repair shop or person of the owner's choosing. To obtain emissions control warranty service free of charge, the work must be performed by an IASD (Independent Authorized Service Dealer). See the emissions warranty.

Maintenance Schedule

Follow maintenance schedule intervals, whichever occurs first according to use.

NOTE:

- Adverse conditions will require more frequent service.
- All required service and adjustments should be each season as detailed in the fol-lowing chart.

At Each Use
Check engine oil level
Every 50 Hours
Clean/Replace Air Filter**
Change oil ǂ
Every 100 Hours or Every Season*
Replace Spark Plug
Clean Spark Arrestor
Valve Clearance Adjustment
Every 200 Hours or Every Season
Inspect/clean air cleaner filter**
Replace Fuel Filter +
ǂ Change oil after first 30 hours of operation, then every 50 hours. + To be performed by IASD (Independent Authorized Service Dealer). * Change oil every month when operating under heavy load or in high temperatures. ** Clean more often under dirty or dusty oper- ating conditions. Replace air filter parts if they cannot be adequately cleaned. *** Check valve clearance and adjust if neces- sary after first 50 hours of operation and every 100 hours thereaf ter.

Preventive Maintenance
Dirt or debris can cause improper operation and equipment damage. Clean generator daily or before each use. Keep area around and behind muffler free from combustible debris. Inspect all cooling air openings on generator.

WARNING
Personal injury. Do not insert any object through the air cooling slots. Generator can start at any time and could result in death, serious injury, and unit damage.

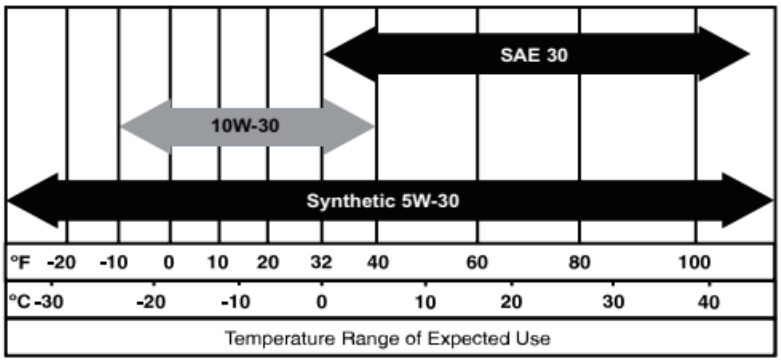
- Use a damp cloth to wipe exterior surfaces clean.
- Use a soft bristle brush to loosen caked-on dirt, oil, etc.
- Use a vacuum to pick up loose dirt and debris.
- Low pressure air (not to exceed 25 psi) may be used to blow away dirt. Inspect cooling air slots and openings on generator. These openings must be kept clean and unobstructed.

NOTE: DO NOT use a garden hose to clean generator. Water can enter engine fuel system and cause problems. If water enters generator through cooling air slots, some water will be retained in voids and crevices of rotor and stator winding insulation. Water and dirt buildup on generator internal windings will decrease insulation resistance of windings.

Engine Maintenance

WARNING
Accidental startup. Disconnect spark plug wires when working on unit. Failure to do so could result in death or serious injury.

Engine Oil Recommendations
To maintain the product warranty, the engine oil should be serviced in accordance with the recommendations of this manual. For your convenience, maintenance kits designed and intended for use on this product are available from the manufacturer that include engine oil, oil filter, air filter, spark plug(s), a shop towel and funnel. These kits can be obtained from an Independent Authorized Service Dealer (IASD).



Inspect Engine Oil Level

WARNING
Risk of burns. Allow engine to cool before draining oil or coolant. Failure to do so could result in death or serious injury.

Inspect engine oil level prior to each use, or every 8 hours of operation.

1. Place generator on a level surface.
2. Clean area around oil fill, and oil drain plug.
3. Remove oil fill cap and wipe dipstick clean. See Figure 4-1.

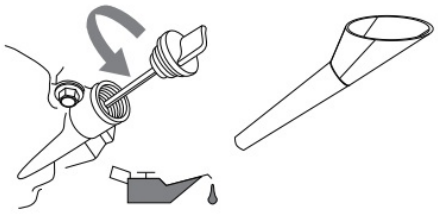


Figure 4-1. Engine Oil Fill

4. To check oil level, insert dipstick into oil filler neck without screwing it in. See Figure 4-2.

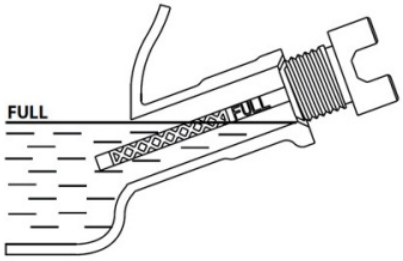


Figure 4-2. Safe Operating Range

5. Remove dipstick and verify oil level is within safe operating range.
6. Add recommended engine oil as necessary.

   NOTE: Verify oil level often during filling process to ensure overfilling does not occur.
7. Replace oil fill cap and hand-tighten.

NOTE: Some units have more than one oil fill location. It is only necessary to use one oil fill point.

Change Engine Oil

WARNING
Accidental start-up. Disconnect spark plug wires when working on unit. Failure to do so could result in death or serious injury.

When using generator under extreme, dirty, dusty conditions, or in extremely hot weather, change oil more frequently.

NOTE: Don't pollute. Conserve resources. Return used oil to collection centers.
Change oil while engine is still warm from run-ning, as follows:

1. Place generator on a level surface.
2. Clean area around oil fill and oil drain plug.

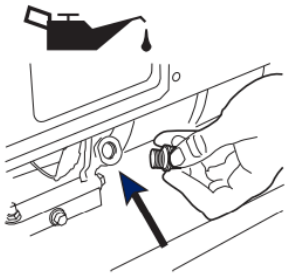


Figure 4-3. Remove oil fill cap

3. Remove oil fill cap and wipe dipstick clean.

   See Figure 4-3.
4. Tip unit and drain oil completely into a suit-able container.
5. Once oil is sufficiently drained from unit, tip unit back to a level position.
6. Insert funnel into oil fill opening. See Fig-ure 4-4. Add recommended engine oil as necessary.

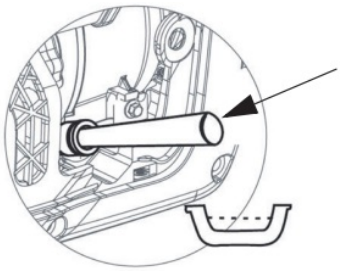


Figure 4-4. Oil Fill Opening With Funnel

7. To check oil level, remove funnel and insert dipstick into oil filler neck without screwing it in. See Figure 4-2.
8. Remove dipstick and verify oil level is within safe operating range.

   NOTE: Verify oil level often during filling process to ensure overfilling does not occur.
9. Replace oil fill cap and hand-tighten.
10. Wipe up any spilled oil.
11. Replace side cover and screws.
12. Properly dispose of oil in accordance with all applicable regulations.

Air Filter
Engine will not run properly and may be damaged if run with a dirty air filter. Service air fil-ter more frequently in dirty or dusty conditions. To service air filter:

1. Turn knob (A) and remove air filter cover (B). See Figure 4-5.
2. Wash in soapy water. Squeeze filter (C) dry in clean cloth (DO NOT TWIST).
3. Clean air filter cover before re-installing it.

NOTE: To order a new air filter, contact the nearest Independent Authorized Service Dealer (IASD).

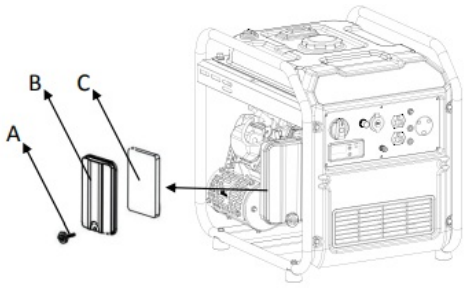


Figure 4-5. Air Filter Assembly

Service Spark Plug

To service spark plug:

1. Remove spark plug cover. See Figure 2-1.
2. Clean area around spark plug.
3. Remove and inspect spark plug.
4. Inspect electrode gap with wire feeler gauge and reset spark plug gap to 0.6 -0.7mm (0.024 – 0.028 in). See Figure 4-6.

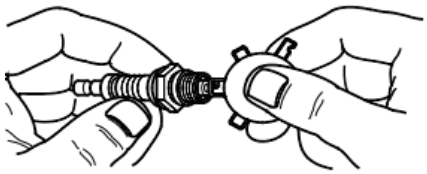


Figure 4-6. Spark Plug

   NOTE: Replace spark plug if electrodes are pitted, burned or porcelain is cracked. Use ONLY recommended replacement plug. See Product Specifications.
5. Install spark plug finger tight, and tighten an additional 3/8 to 1/2 turn using spark plug wrench.

Inspect Muffler and Spark Arrester
Contact original equipment manufacturer, retailer, or dealer to obtain a spark arrester designed for exhaust system installed on this engine.

NOTE: Use ONLY original equipment replace-ment parts.
Inspect muffler for cracks, corrosion, or other damage. Remove spark arrester, if equipped, inspect for damage or carbon blockage. Replace parts as required.

Inspect Spark Arrester Screen

WARNING
Hot Surfaces. When operating machine, do not touch hot surfaces. Keep machine away from combustibles during

use. Hot surfaces could result in severe burns or fire.

Clean Spark Arrestor Screen

The engine exhaust muffler has a spark arres-tor screen. Inspect and clean the screen every 100 hours of operation or every season, whichever comes first.

To service spark arrestor:

1. See Figure 4-7. Remove the clamp to remove retainer.
2. Slide spark arrestor screens out from the muffler outlet tube.
3. Inspect screens and replace if torn, perforated or otherwise damaged. Do NOT use a defective screen. If screen is not dam-aged, clean with a commercial solvent.
4. Replace the screens, and retainer, and secure with clamp.

Figure 4-7. Spark Arrestor Screen

Valve Clearance

Important: Please contact an Independent Authorized Service Dealer for service assis-tance. Proper valve clearance is essential for prolonging the life of the engine.
Check valve clearance after the first fifty-hours of operation. Adjust as necessary.

- Intake — 0.10 ± 0.02mm (cold), (0.004″ ± 0.001″ inches)
- Exhaust — 0.10 ± 0.02mm (cold) (0.004″ ± 0.001″ inches)

Storage

General

DANGER
Explosion and Fire. Fuel and vapors are extremely flammable and explosive. Store fuel in a well ventilated area. Keep fire and spark away. Failure to do so will result in death or serious injury.

WARNING
Risk of Fire. Verify machine has properly cooled before installing cover and storing machine. Hot surfaces could result in fire.

It is recommended to start and run the generator for 30 minutes, every 30 days. If this is not possible, refer to the following list to prepare unit for storage.

- DO NOT place a storage cover on a hot generator. Allow unit to cool to room tem-perature before storage.
- DO NOT store fuel from one season to another unless properly treated.
- Replace fuel container if rust is present. Rust in fuel will cause fuel system problems.
- Cover unit with a suitable protective, moisture-resistant cover.
- Store unit in a clean, dry area.
- Always store generator and fuel away from heat and ignition sources.

Prepare Fuel System/Engine for Storage
Fuel stored over 30 days can go bad and damage fuel system components. Keep fuel fresh, use fuel stabilizer. If fuel stabilizer is added to fuel system, prepare and run engine for long-term storage. Run engine for 10-15 minutes to circulate stabilizer throughout fuel system. Adequately prepared fuel can be stored up to 24 months.

NOTE: If fuel has not been treated with fuel stabilizer, it must be drained into an approved container. Run engine until it stops from lack of fuel. Use of fuel stabilizer in fuel storage container is recommended to keep fuel fresh.

1. Change engine oil.
2. Remove spark plug.
3. Pour tablespoon (5-10cc) of clean engine oil or spray a suitable fogging agent into cylinder.

   WARNING

   Vision Loss. Eye protection is required to avoid spray from spark plug hole when cranking engine. Failure to do so could result in vision loss.
4. Pull starter recoil several times to distribute oil in cylinder.
5. Install spark plug.
6. Pull recoil slowly until resistance is felt. This will close valves so moisture cannot enter engine cylinder. Gently release recoil.

Change Oil
Change engine oil before storage. See, Change Engine Oil.

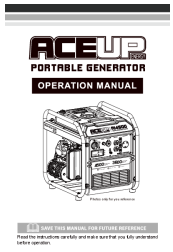
Troubleshooting

PROBLEM	CAUSE	CORRECTION
Engine won’t start.	1. Dial turned off. 2. Out of fuel. 3. Defective spark plug. 4. Plugged fuel filter. 5. Defective or stuck Dial assem- bly. 6. Incorrect engine oil level. 7. Defective ignition coil. 8. Fuel cap vent OFF.	1. Turn on Dial. 2. Fill fuel tank. 3. Replace spark plug. 4. Replace fuel and fuel filter. 5. Contact IASD (Independent Authoriz ed Service Dealer). 6. Check/fill engine oil. 7. Contact IASD (Independent Authorized Service Dealer).

	9. Carb is flooded. 10. Throttle plate closed.	8. Turn fuel cap vent ON. 9. Drain carb. 10. Open throttle plate (push toward ba ck of unit).
Engine starts, then shuts do wn.	1. Out of fuel. 2. Incorrect engine oil level. 3. Contaminated fuel. 4. Defective low oil level switch. 5. Fuel cap vent OFF.	1. Fill fuel tank. 2. Check engine oil level. 3. Contact IASD (Independent Authoriz ed Service Dealer). 4. Contact IASD (Independent
		Authorized Service Dealer). 5. Turn fuel cap vent ON.
Engine will not start; or start s and runs rough.*	1. Choke is stuck or left on. 2. Dirty or clogged air filter. 3. Defective or dirty spark plug. 4. Dirty fuel filter. 5. Dirty or gummed up carburet- tor. 6. Unit not warmed up. 7. Fuel cap vent OFF. 8. Spark arrestor clogged.	1. Turn choke off. 2. Clean or replace air filter. 3. Replace spark plug. 4. Replace fuel and fuel filter. 5. Clean carburetor. 6. Gradually adjust Dial and reduce ch oke until engine runs smoothly in RUN position. 7. Turn fuel cap vent ON. 8. Clean spark arrestor.

No AC output.	1. Generator is overloaded. 2. Inverter module is overheated. 3. Short circuit in electrical device. 4. Defective inverter assembly.	1. Disconnect all loads. Shut down generator to reset mod- ule. Reduce lo ads, restart generator. 2. Verify service door is ON. Let cool 1 5 minutes by running engine without A C output. Press and hold Reset button on control panel, restart gener- ator. 3. Verify condition of extension cords a nd items being pow- ered. Press and h old Reset button on control panel. 4. Contact IASD (Independent Authorized Service Dealer).
Fuel leaks from drain hoses.	1. Carburetor drain in bowl is not close d.	1. Turn valve clockwise to close.
* Engine speed increases and decreases — This is normal as generator starts up and loads vary.		

Documents / Resources

	ACEUP ENERGY 4500 Watt Open Frame Inverter Generator [pdf] Instruction Manual 4500 Watt Open Frame Inverter Generator, 4500, Watt Open Frame Inverter Generator, Open F rame Inverter Generator, Frame Inverter Generator, Inverter Generator, Generator

References

- User Manual