GENERAC®

Owner's Manual

GP Series Portable Generator

⚠ DANGER!

⚠ DEADLY EXHAUST FUMES! ONLY use OUTSIDE far away from windows, doors and vents!

⚠ NOT INTENDED FOR USE IN CRITICAL LIFE SUPPORT APPLICATIONS.

⚠ SAVE this Manual. Provide this manual to any operator of the generator.

2 YEAR LIMITED WARRANTY

www.generac.com or 1-888-436-3722

Table of Contents

WARNING!

California Proposition 65

Engine exhaust and some of its constituents are known to the state of California to cause cancer, birth defects, and other reproductive harm.

WARNING!

California Proposition 65

This product contains or emits chemicals known to the state of California to cause cancer, birth defects, and other reproductive harm.

INTRODUCTION

Thank you for purchasing this model by Generac Power Systems, Inc. This model is a compact, high performance, air-cooled, engine driven generator designed to supply electrical power to operate electrical loads where no utility power is available or in place of utility due to a power outage.

READ THIS MANUAL THOROUGHLY

If any portion of this manual is not understood, contact the nearest Authorized Dealer for starting, operating and servicing procedures.

The operator is responsible for proper and safe use of the equipment. We strongly recommend that the operator read this manual and thoroughly understand all instructions before using the equipment. We also strongly recommend instructing other users to properly start and operate the unit. This prepares them if they need to operate the equipment in an emergency.

The generator can operate safely, efficiently and reliably only if it is properly located, operated and maintained. Before operating or servicing the generator:

- Become familiar with and strictly adhere to all local, state and national codes and regulations.
- Study all safety warnings in this manual and on the product carefully.
- Become familiar with this manual and the unit before use.

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, ensure that it is safe for others. Also make sure the procedure, work method or operating technique utilized does not render the generator unsafe.

THE INFORMATION CONTAINED HEREIN WAS BASED ON MACHINES IN PRODUCTION AT THE TIME OF PUBLICATION. GENERAC RESERVES THE RIGHT TO MODIFY THIS MANUAL AT ANY TIME.

SAFETY RULES

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 or action which, if not avoided, will result in death or serious injury.

⚠ WARNING!

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

⚠ CAUTION!

Indicates a hazardous situation or action 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 body 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.

Four commonly used safety symbols accompany the **DANGER**, **WARNING** and **CAUTION** blocks. The type of information each indicates is as follows:

This symbol points out important safety information that, if not followed, could endanger personal safety and/or property of others.

This symbol points out potential explosion hazard.

This symbol points out potential fire hazard.

This symbol points out potential electrical shock hazard.

GENERAL HAZARDS

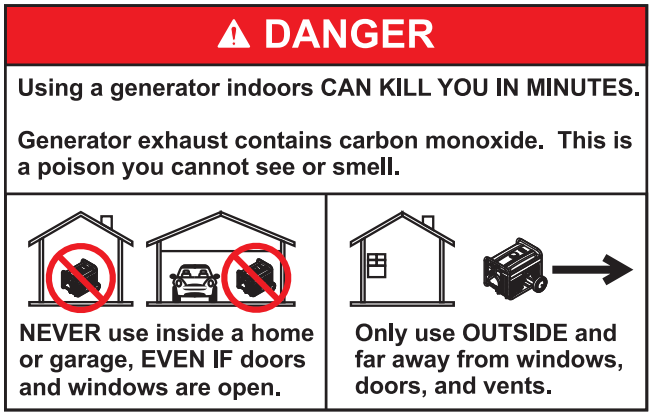
- NEVER operate in an enclosed area, in a vehicle, or indoors EVEN IF doors and windows are open.
- For safety reasons, the manufacturer recommends that the maintenance of this equipment is carried out by an Authorized Dealer. Inspect the generator regularly, and contact the nearest Authorized Dealer for parts needing repair or replacement.
- Operate generator only on level surfaces and where it will not be exposed to excessive moisture, dirt, dust or corrosive vapors.
- Keep hands, feet, clothing, etc., away from drive belts, fans, and other moving parts. Never remove any fan guard or shield while the unit is operating.
- Certain parts of the generator get extremely hot during operation. Keep clear of the generator until it has cooled to avoid severe burns.
- Do NOT operate generator in the rain.
- Do not alter the construction of the generator or change controls which might create an unsafe operating condition.
- Never start or stop the unit with electrical loads connected to receptacles AND with connected devices turned ON. Start the engine and let it stabilize before connecting electrical loads. Disconnect all electrical loads before shutting down the generator.
- When working on this equipment, remain alert at all times. Never work on the equipment when physically or mentally fatigued.
- Never use the generator or any of its parts as a step. Stepping on the unit can stress and break parts, and may result in dangerous operating conditions from leaking exhaust gases, fuel leakage, oil leakage, etc.

Safety Rules

SAVE THESE INSTRUCTIONS – The manufacturer suggests that these rules for safe operation be copied and posted near the unit's installation site. Safety should be stressed to all operators and potential operators of this equipment.

EXHAUST & LOCATION HAZARDS

- **Never operate in an enclosed area or indoors! NEVER use in the home, in a vehicle, or in partly enclosed areas such as garages, even if doors and windows are open! ONLY use outdoors and far from open windows, doors, vents, and in an area that will not accumulate deadly exhaust.**



- The engine exhaust fumes contain carbon monoxide, which you cannot see or smell. This poisonous gas, if breathed in sufficient concentrations, can cause unconsciousness or even death.
- 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.
- This exhaust system must be properly maintained. Do nothing that might render the exhaust system unsafe or in noncompliance with any local codes and/or standards.
- Always use a battery operated carbon monoxide alarm indoors, installed according to the manufacturers instructions.
- 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

- The generator produces dangerously high voltage when in operation. Avoid contact with bare wires, terminals, connections, etc., while the unit is running, even on equipment connected to the generator. Ensure all appropriate covers, guards and barriers are in place before operating the generator.
- Never handle any kind of electrical cord or device while standing in water, while barefoot or while hands or feet are wet. **DANGEROUS ELECTRICAL SHOCK MAY RESULT.**
- The 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).
- Do not use worn, bare, frayed or otherwise damaged electrical cord sets with the generator.
- In case of accident caused by electric shock, immediately shut down the source of electrical power. If this is not possible, attempt to free the victim from the live conductor. **AVOID DIRECT CONTACT WITH THE VICTIM.** Use a non-conducting implement, such as a rope or board, to free the victim from the live conductor. If the victim is unconscious, apply first aid and get immediate medical help.

FIRE HAZARDS

- **Gasoline is highly FLAMMABLE and its vapors are EXPLOSIVE. Do not permit smoking, open flames, sparks or heat in the vicinity while handling gasoline.**
- **Never add fuel while unit is running or hot.** Allow engine to cool completely before adding fuel.
- **Never fill fuel tank indoors.** Comply with all laws regulating storage and handling of gasoline.
- **Do not overfill the fuel tank. Always allow room for fuel expansion.** If tank is over-filled, fuel can overflow onto a hot engine and cause FIRE or an EXPLOSION. Never store generator with fuel in tank where gasoline vapors might reach an open flame, spark or pilot light (as on a furnace, water heater or clothes dryer). FIRE or EXPLOSION may result. Allow unit to cool entirely before storage.
- Wipe up any fuel or oil spills immediately. Ensure that no combustible materials are left on or near the generator. Keep the area surrounding the generator clean and free from debris and keep a clearance of five (5) feet on all side to allow for proper ventilation of the generator.
- Do not insert objects through unit's cooling slots.
- **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.

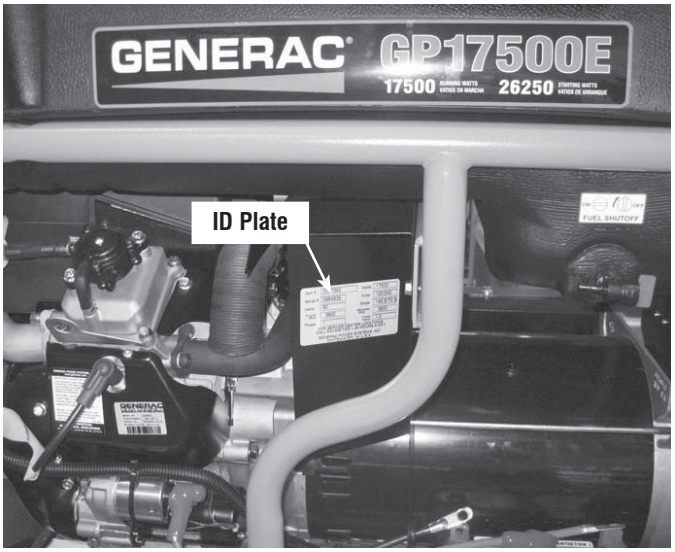
STANDARDS INDEX

1. National Fire Protection Association (NFPA) 70: The NATIONAL ELECTRIC CODE (NEC) available from www.nfpa.org
2. National Fire Protection Association (NFPA) 5000: BUILDING CONSTRUCTION AND SAFETY CODE available from www.nfpa.org
3. International Building Code available from www.iccsafe.org
4. Agricultural Wiring Handbook available from www.rerc.org , Rural Electricity Resource Council P.O. Box 309 Wilmington, OH 45177-0309
5. ASAE EP-364.2 Installation and Maintenance of Farm Standby Electric Power available from www.asabe.org, American Society of Agricultural & Biological Engineers 2950 Niles Road, St. Joseph, MI 49085

This list is not all inclusive. Check with the Authority Having Local Jurisdiction (AHJ) for any local codes or standards which may be applicable to your jurisdiction.

MODEL NO:	
SERIAL NO:	

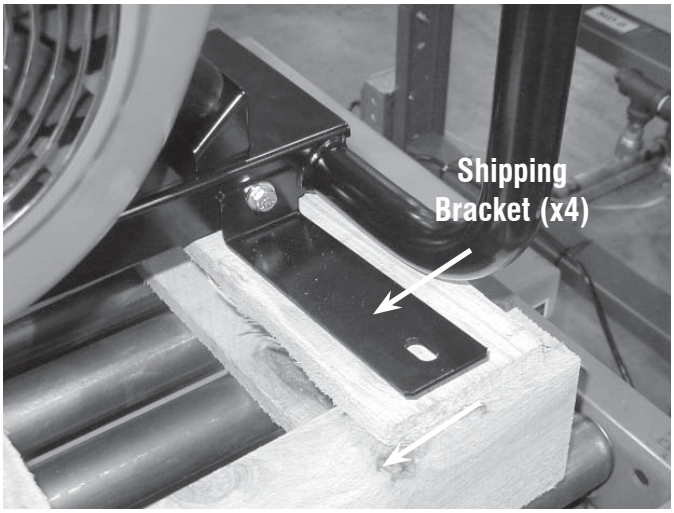
Figure 1 - Generator ID Plate



1.1 UNPACKING

- Set the palleted carton on a rigid flat surface.
- Remove staples along bottom of carton that fasten carton to pallet. Open carton from top.
- Remove all packaging material.
- Remove separate accessory box.
- Lift carton off the generator.
- Remove generator from shipping pallet by removing bolts through the shipping brackets (Figure 1).

Figure 1 - Bracket Removal



1.1.1 ACCESSORY BOX

Check all contents. If any parts are missing or damaged locate an authorized dealer at 1-888-436-3722.

Contents include:

- Wheel Axle
- 2 – Washers
- 2 – Wheel Spacers
- 2 – Cotter Pins
- 2 – Spark Plugs
- Air Filter
- Pre-cleaner
- 6 – Carriage Bolts, Washers, Nuts
- Bolt-on tubular handle
- 2 – Pneumatic Wheels
- 2 – Axle Bracket Assemblies
- Bolt-on Foot
- Spark Plug Wrench
- Oil Filter
- Battery Charge Cable

1.2 ASSEMBLY

The generator requires some assembly prior to using it. If problems arise when assembling the generator, please call the Generator Helpline at 1-888-436-3722.

1.2.1 ASSEMBLING THE WHEEL KIT

The wheel kit is designed to greatly improve the portability of the generator. A socket wrench with a 9/16" socket, a 1/2" socket, a 1/2" wrench and a pair of pliers are the tools that will be needed for assembly of the wheel kit.

NOTE:

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

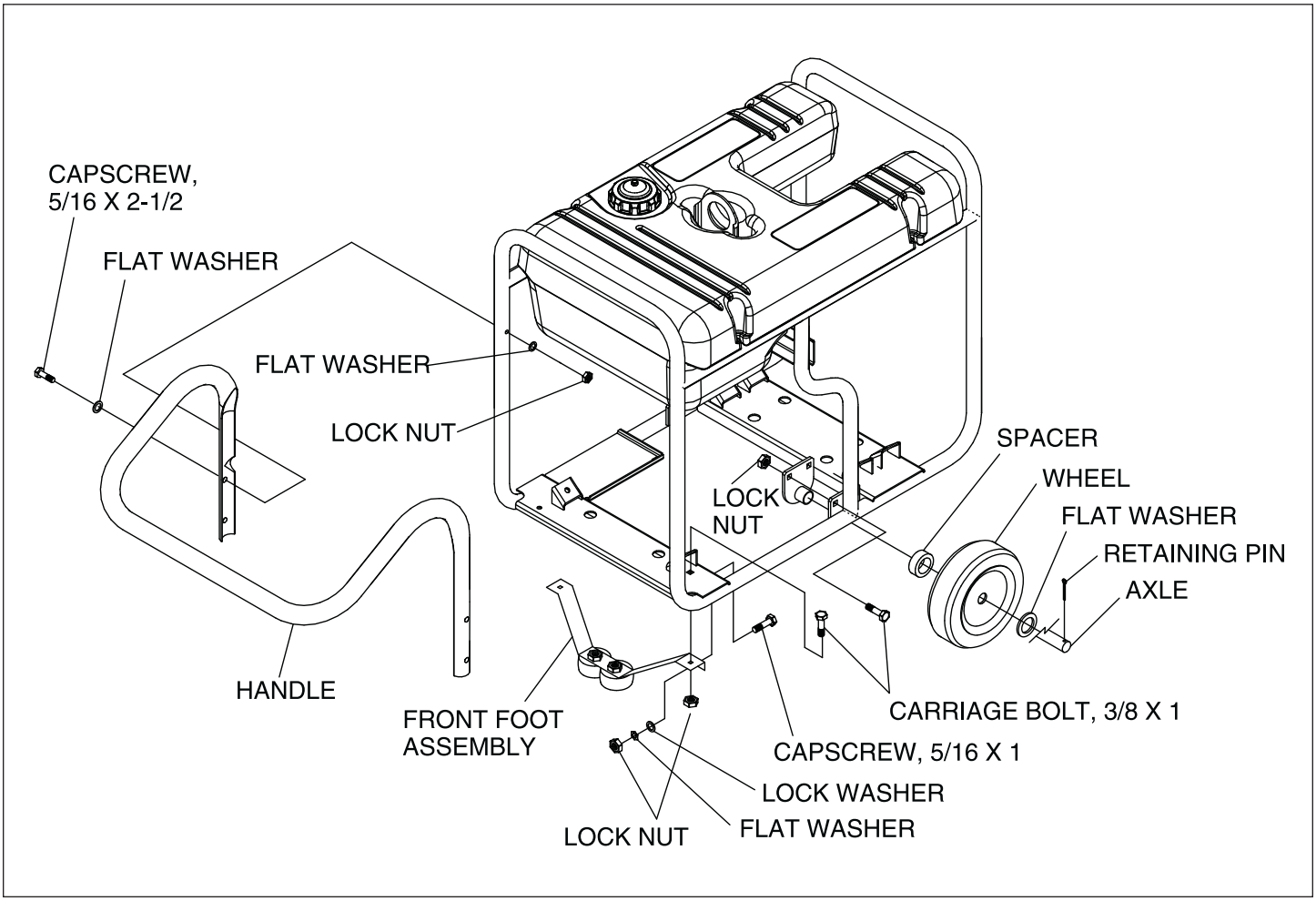
- Refer to Figure 2 and install the wheel kit as follows:

1. Place the generator on a hard flat surface.
2. Stand at the engine end of the unit and gently tilt the generator forward, high enough to place wooden blocks beneath the cradle. This will allow space to install the wheel assemblies.
3. Attach an axle bracket assembly with attached sleeve to either side of the frame. Ensure the sleeve faces outward.
4. Slide the axle through the sleeves on the axle brackets.
5. Slide one wheel with flat washer to the outside and a spacer to the inside onto each end of the axle. Make sure the air inflation valve on the wheel is facing outward.
6. Insert retaining pins and using pliers, bend out the ends to prevent the pins from falling out of the axle. Remove the wooden blocks.

1.2.2 ASSEMBLING THE HANDLE

1. Attach the handle by aligning one side of the handle on the cradle, then spread the handle around the cradle and let it spring into place. Secure the handle to the frame using the 5/16' hex head bolts provided. Check each fastener to ensure that it is secure.
2. Using the handle, lift the unit high enough to place wooden blocks under the unit. Attach the front support foot to the underside of the cradle using the 3/8" carriage bolts provided.
3. Remove the shipping brackets from the cradle, if it has not already been done.

Figure 2 - Handle Assembly



1.2.3 BATTERY CONNECTION

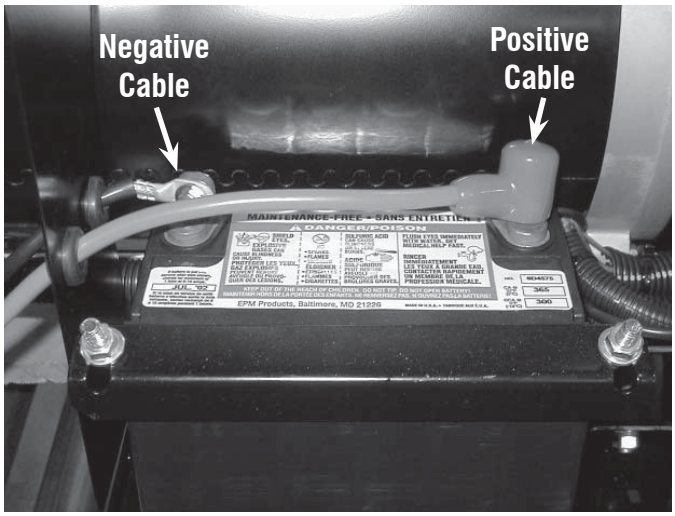
- The battery shipped with the generator has been provided fully charged. Caution must be taken when connecting the battery.

NOTE:

A battery may lose some of it's charge when not in use for prolonged periods of time.

1. Cut the tie wrap cable holding the RED and BLACK battery cables to the stator.
2. Connect the RED battery cable to the battery Positive terminal (+). After making sure that the connection is tight, slip the rubber boot over the terminal connection.
3. Connect the BLACK battery cable to the battery Negative terminal (–). Make sure the connection is tight.
4. Double check all connections to ensure they are in the correct location and secure. See Figure 3.
5. Install the battery post covers (included).

Figure 3 - Battery Connections



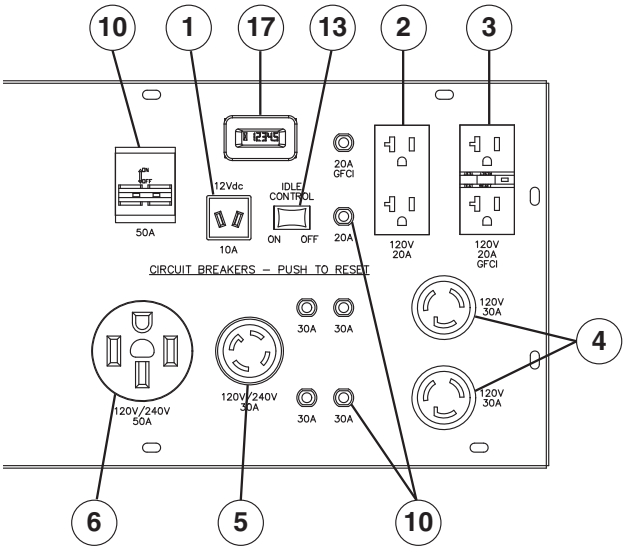
2.1 KNOW THE GENERATOR

Read the Owner's Manual and Safety Rules before operating this generator.

Compare the generator to Figures 4 through 7 to become familiarized with the locations of various controls and adjustments. Save this manual for future reference.

1. **12 Volt DC, 10 Amp Receptacle** – This receptacle allows the capability to recharge a 12 volt DC storage battery with provided battery charge cables.
2. **120 Volt AC, 20 Amp, Duplex Receptacle** – Supplies electrical power for the operation of 120 Volt AC, 20 Amp, single-phase, 60 Hz electrical lighting, appliance, tool and motor loads.
3. **120 Volt AC, 20A Duplex GFCI Receptacle** – Supplies ground fault protected electrical power for operation of 120 volt AC 20 amp, single-phase, 60 Hz electric lighting, appliances, tools and motor loads.
4. **120 Volt AC, 30 Amp Locking Receptacle** – Supplies electrical power for the operation of 120 Volt AC, 30 Amp, single-phase, 60 Hz electrical lighting, appliance, tool and motor loads.
5. **120/240 Volt AC, 30 Amp Locking Receptacle** – Supplies electrical power for the operation of 120 and/or 240 Volt AC, 30 Amp, single-phase, 60 Hz, electrical lighting, appliance, tool and motor loads.
6. **120/240 Volt AC, 50 Amp Receptacle (17.5kW, Located on underside of control panel)**– Supplies electrical power for the operation of 120/240 Volt AC, 50 Amp, single-phase, 60 Hz, welder or motor loads.
7. **Air Cleaner** – Filters intake air as it is drawn into the engine.
8. **Choke Knob** – Used when starting a cold engine.
9. **Winter/Summer Valve** – See "Cold Weather Operation/De-icer" section.
10. **Circuit Breakers** (AC) – Each receptacle is provided with a push-to-reset circuit breaker to protect the generator against electrical overload. (50 amp uses toggle reset)
11. **Fuel Tank** – Tank holds 16 U.S. gallons of fuel.

Figure 4 - Control Panel



12. **Grounding Lug** – Ground the generator to an approved earth ground here. See "Grounding the Generator" for details.
13. **Idle Control Switch** – The idle control runs the engine at normal (high) speeds when there is an electrical load present and runs the engine at idle (low) speeds when a load is not present.
14. **Start/Run/Stop Switch** – Controls the operation of the generator.
15. **Oil Fill** – Use this point to add oil to engine.
16. **Fuse - 10 Amp (Located at rear of control panel)** – Protects the DC control circuit from overload. If this fuse element has melted open the engine will not be able to crank and start.
17. **Hourmeter -** Tracks hours of operation.

Figure 5 - Generator Controls

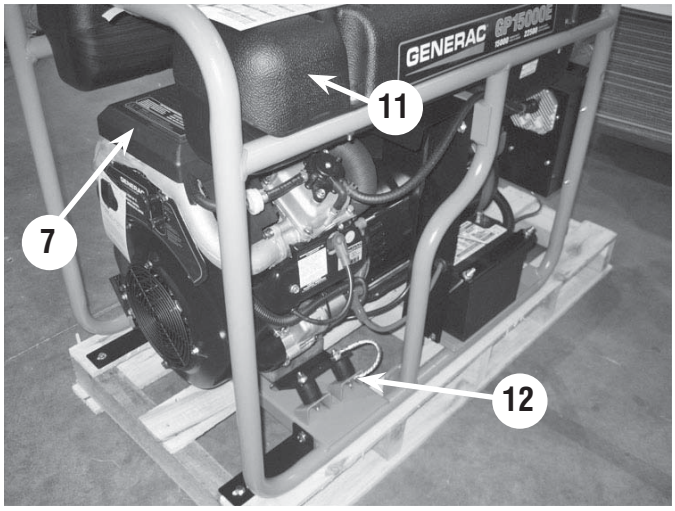


Figure 6 - Engine Control Panel

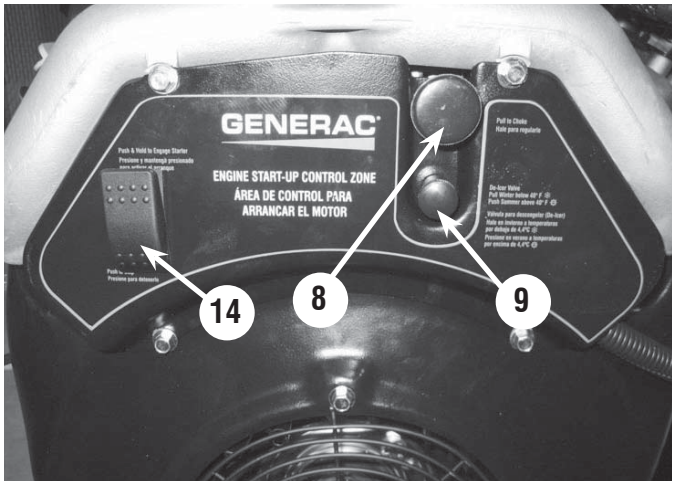
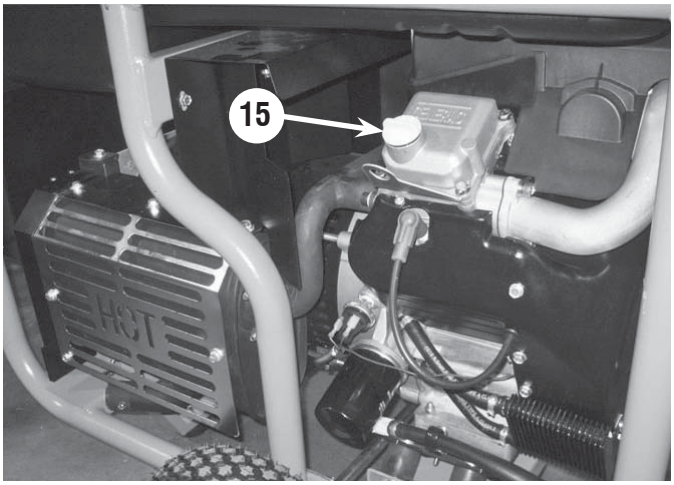


Figure 7 - Oil Fill



2.2 HOURMETER - WITH RESET

The Hourmeter tracks hours of operation for scheduled maintenance (see chart).

Operation: Push and release the reset button to toggle between screens. The hours count backwards from the set interval as shown in the chart.

When the meter reaches 5 hours,the text "CHG OIL" (or "SVC AIR FILTER" or "CHG PLUG") will flash continually for two minutes. After this time, the meter will go back to displaying the total hours of the unit (for 2 minutes). This cycle will repeat for the entire 5 hours.

When the service interval reaches zero hours, the text "NOW" replaces the hours remaining.

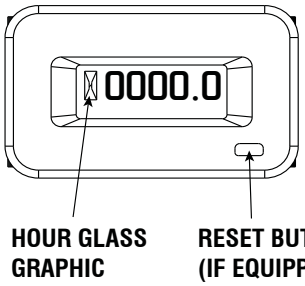
For a new generator for instance, the message will say "CHG OIL" then flash "in 30". This means that in 30 hours, the oil will need to be changed. Pressing the button a few more times will bring the meter back to the screen that shows the total hours run.

Reset: Toggle to the alert that you wish to reset then hold the button down for 9 seconds. The maintenance hours are reset when the display shows "0000.0".

Note:

The hour glass graphic will flash on and off when the engine is running. This signifies that the meter is tracking hours of operation.

Figure 8 – Hourmeter



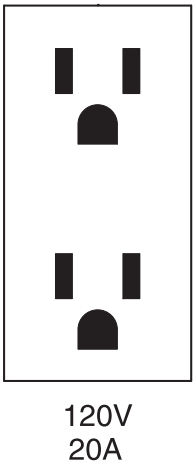
2.3 CORD SETS AND CONNECTION PLUGS

2.3.1 120 VAC, 20 AMP, DUPLEX RECEPTACLE

This is a 120 Volt outlet protected against overload by a 20 Amp push-to-reset circuit breaker (Figure 9). Use each socket to power 120 Volt AC, single phase, 60 Hz electrical loads requiring up to a combined 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).

Keep extension cords as short as possible, preferably less than 15 feet long, to prevent voltage drop and possible overheating of wires.

Figure 9 - 120 Volt AC, 20 Amp, Duplex Receptacle



Hourmeter (With Reset) Chart			
Message	**Frequency of Message**	**Interval**	**Duration of message**
CHG OIL	Initial break-in period	First 30 Hours	ON/OFF for 2 minutes in a 5 hour period
CHG OIL	Re-occuring	100 hours	
SVC AIR FILTER	Re-occuring	200 hours	
CHG PLUG	Re-occuring	200 hours	

2.3.2 120 VAC, 20 AMP, GFCI RECEPTACLE

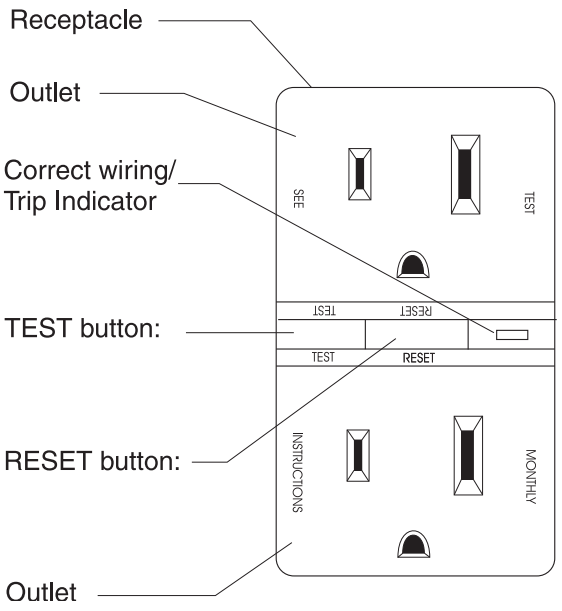
This unit is equipped with a ground fault circuit interrupter (GFCI). This device meets applicable federal, state and local codes (Figure 10).

A GFCI receptacle is different from conventional receptacles. In the event of a ground fault, a GFCI will trip and quickly stop the flow of electricity to prevent serious injury.

Definition: Instead of following its normal safe path, electricity passes through a persons body to reach the ground. For example, a defective appliance can cause a ground fault.

A GFCI receptacle does NOT protect against circuit overloads, short circuits, or shocks. For example, electric shock can still occur if a person touches charged electrical wires while standing on a non-conducting surface, such as a wood floor.

Figure 10 - 120 VAC, 20 Amp GFCI Receptacle



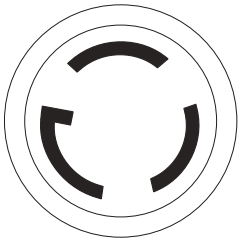
Testing the GFCI: Test the GFCI outlet every month as follows:

1. Plug a test lamp into the receptacle.
2. Start the generator, the test lamp should be on.
3. Press the “Test” button located on the front of the receptacle to trip the device.
4. This should stop the flow of electricity making the lamp shut off. The yellow trip indicator should now be on.
5. To restore the flow of electricity, press the “Reset” button on the front of the receptacle. If the GFCI does not perform in this manner, do not use the receptacle. Contact a local service dealer.
6. This outlet is protected against overload by a 20A push-to-reset circuit breaker. Use the outlet to power 120V AC, single-phase, 60 Hz, electrical loads requiring up to a combined 2400 watts (2.4 kW) or 20 amps of current.

2.3.3 120 VAC, 30 AMP RECEPTACLE

Use a NEMA L5-30 plug with this receptacle. Connect a 3-wire cord set rated for 125 Volts AC at 30 Amps (or greater) to the plug (Figure 11).

Figure 11 - 120 VAC, 30 Amp Receptacle



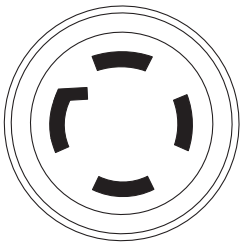
120V
30A

Use this receptacle to operate 120 Volt AC, 60 Hz, single phase loads requiring up to 3600 watts (3.6 kW) of power at 30 Amps. The outlet is protected by a 30 Amp push-to-reset circuit breaker.

2.3.4 120/240 VAC, 30 AMP RECEPTACLE

Use a NEMA L14-30 plug with this receptacle. Connect a suitable 4-wire grounded cord set to the plug and to the desired load. The cord set should be rated for 250 Volts AC at 30 Amps (or greater) (Figure 12).

Figure 12 - 120/240 VAC, 30 Amp Receptacle



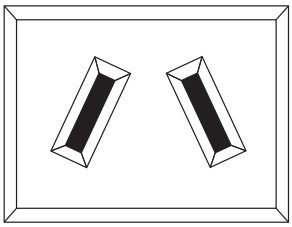
120V/240V
30A

Use this receptacle to operate 120 Volt AC, 60 Hz, single phase loads requiring up to 3600 watts (3.6 kW) of power at 30 Amps or 240 Volt AC, 60 Hz, single phase loads requiring up to 7200 watts (7.2 kW) of power at 30 Amps. The outlet is protected by two 30 Amp push-to-reset circuit breakers.

2.3.5 12 VOLT DC, 10 AMP RECEPTACLE

This receptacle permits recharging a 12-Volt automotive or utility style storage battery with the battery charge cables provided (Figure 13). This receptacle **can not** recharge 6-Volt batteries and **can not** be used to crank an engine having a discharged battery. See the section "Charging a Battery" before attempting to recharge a battery.

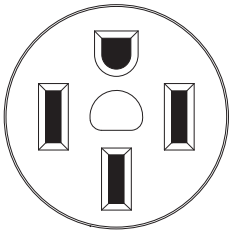
Figure 13 - 12 Volt DC, 10 Amp Receptacle



2.3.6 120/240 VAC, 50 AMP RECEPTACLE

Use a NEMA 14-50 plug with this receptacle. Connect a 4-wire cord set rated for 250 Volts AC at 50 Amps to the plug (Figure 14).

Figure 14 - 120/240 VAC, 50 Amp Receptacle



120V/240V
50 A

Use this receptacle to operate 120/240 Volt AC, 60 Hz electrical loads requiring up to 12,000 watts (12.0 kW) of power. This receptacle is protected by a 50 Amp 2-pole circuit breaker.

2.4 HOW TO USE THE GENERATOR

See the "To Start the Engine" section for how to safely start and stop the generator and how to connect and disconnect loads. If there are any problems operating the generator, please call the generator helpline at 1-888-436-3722.

⚠ DANGER!

⚠ Never operate in an enclosed area or indoors! NEVER use in the home, in a vehicle, or in partly enclosed areas such as garages, EVEN IF doors and windows are open! ONLY use outdoors and far from open windows, doors, vents, and in an area that will not accumulate deadly exhaust.

⚠ The engine exhaust fumes contain carbon monoxide, which can you cannot see or smell. This poisonous gas, if breathed in sufficient concentrations, can cause unconsciousness or even death.

⚠ 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.

⚠ This exhaust system must be properly maintained. Do nothing that might render the exhaust system unsafe or in noncompliance with any local codes and/or standards.

⚠ Always use a battery operated carbon monoxide alarm indoors, installed according to the manufacturers instructions.

⚠ DANGER

Using a generator indoors CAN KILL YOU IN MINUTES.

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

NEVER use inside a home or garage, EVEN IF doors and windows are open.

Only use OUTSIDE and far away from windows, doors, and vents.

2.4.1 GROUNDING THE GENERATOR WHEN USED AS A PORTABLE

This generator has an equipment ground that connects the generator frame components to the ground terminals on the AC output receptacles (see NEC 250.34 (A) for explanation). This allows the generator to be used as a portable without grounding the frame of the generator as specified in NEC 250.34.

Special Requirements

There may be Federal or State Occupational Safety and Health Administration (OSHA) regulations, local codes, or ordinances that apply to the intended use of the generator.

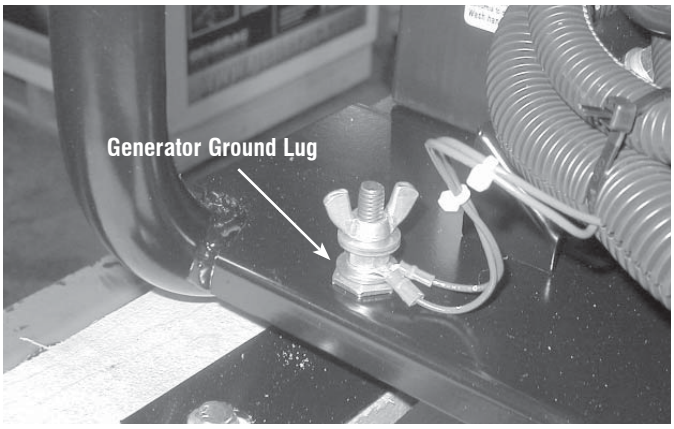
Please consult a qualified electrician, electrical inspector, or the local agency having jurisdiction:

- In some areas, generators are required to be registered with local utility companies.
- If the generator is used at a construction site, there may be additional regulations which must be observed.

2.4.2 CONNECTING TO A BUILDING'S ELECTRICAL SYSTEM

When connecting directly to a building's electrical system, it is recommended that a manual transfer switch is used. Connections for a portable generator to a building's electrical system must be made by a qualified electrician and in strict compliance with all national and local electrical codes and laws.

Figure 15 - Grounding the Generator



2.4.3 CONNECTING ELECTRICAL LOADS

DO NOT connect 240 Volt loads to 120 Volt receptacles. **DO NOT** connect 3-phase loads to the generator. **DO NOT** connect 50 Hz loads to the generator.

- Let engine stabilize and warm up for a few minutes after starting.
- Plug in and turn on the desired 120 or 240 Volt AC, single phase, 60 Hz electrical loads.
- Add up the rated watts (or amps) of all loads to be connected at one time. This total should not be greater than (a) the rated wattage/ amperage capacity of the generator or (b) circuit breaker rating of the receptacle supplying the power. See "Don't Overload the Generator" below.

2.5 DON'T OVERLOAD THE GENERATOR

Overloading a generator in excess of its rated wattage capacity can result in damage to the generator and to connected electrical devices. Observe the following to prevent overloading the unit:

- Add up the total wattage of all electrical devices to be connected at one time. This total should NOT be greater than the generator's wattage capacity.
- The rated wattage of lights can be taken from light bulbs. The rated wattage of tools, appliances and motors can usually 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 selecting electrical devices to connect to the generator:

1. Figure the watts needed to start the largest motor.
2. Add to that figure the running watts of all other connected loads.

The 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.

2.6 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	250 to 1100
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 (handheld)	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.

2.7 BEFORE STARTING THE GENERATOR

Prior to operating the generator, engine oil and gasoline will need to be added, as follows:

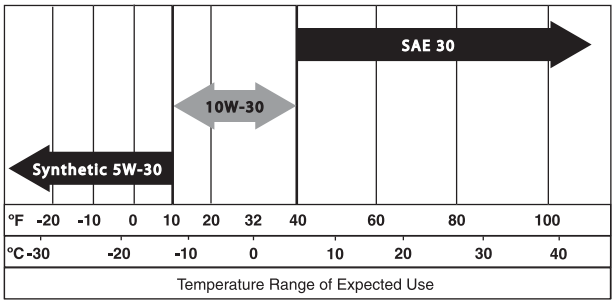
2.7.1 ADDING ENGINE OIL

All oil should meet minimum American Petroleum Institute (API) Service Class SJ, SL or better. Use no special additives. Select the oil's viscosity grade according to the expected operating temperature (also see chart).

- Above 40° F, use SAE 30
- Below 40° F and down to 10° F, use 10W-30
- Below 10° F, use synthetic 5W-30

⚠ CAUTION!

Any attempt to crank or start the engine before it has been properly serviced with the recommended oil may result in an engine failure.



1. Place generator on a level surface (not to exceed 15° in any direction).
2. Clean area around oil fill and remove oil fill cap and dipstick. Dipstick is accessible from the top of the unit next to the lifting eye in the U-shape of the fuel tank.
3. Wipe dipstick clean; reinsert and remove dipstick and check oil level against marks on dipstick.
4. If required, slowly fill engine with oil through the oil fill opening until it reaches the full mark on the dipstick. Stop filling occasionally to check oil level. **Do not overfill.**
5. Install oil fill cap and finger tighten securely.
6. Reinsert dipstick and seat firmly.
7. Check engine oil level before starting each time thereafter.

2.7.2 ADDING GASOLINE

⚠ WARNING!

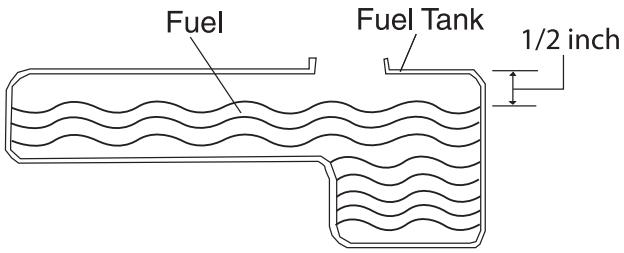
Never fill fuel tank indoors. Never fill fuel tank when engine is running or hot. Allow unit/engine to cool entirely before adding fuel. DO NOT light a cigarette or smoke when filling the fuel tank.

⚠ CAUTION!

Do not overfill the fuel tank. Always leave room for fuel expansion.

. To reduce lead and carbon deposits use high quality UNLEADED gasoline with the generator engine. Leaded REGULAR grade gasoline is an acceptable substitute. Do not use premium gasoline. Do not mix oil with gasoline.
2. Clean area around fuel fill cap, remove cap.
3. Slowly add unleaded regular gasoline to fuel tank. **Be careful not to overfill.** Allow about 1/2" of tank space for fuel expansion, as shown in Figure 16.
4. Install fuel cap and wipe up any spilled gasoline.

Figure 16 - Fuel Tank



IMPORTANT: It is important to prevent gum deposits from forming in fuel system parts such as the carburetor, fuel hose or tank during storage. Alcohol-blended 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.

⚠ CAUTION!

The manufacturer does not recommend using any gasoline containing alcohol (such as "gasohol"). If using any gasoline containing alcohol, it must not contain more than 10 percent ethanol, and it must be removed from the generator during storage. Do NOT use any gasoline containing methanol. If using gasoline with alcohol, inspect more frequently for fuel leaks and other abnormalities.

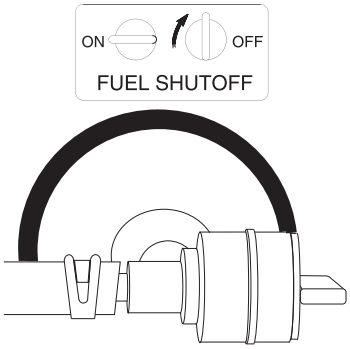
2.8 TO START THE ENGINE

⚠ WARNING!

Never start or stop engine with electrical devices plugged into the receptacles AND devices turned on.

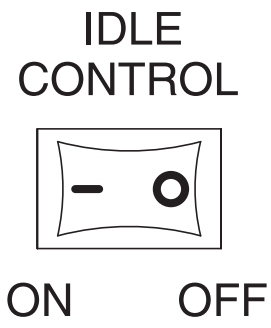
1. Unplug all electrical loads from the unit's receptacles before starting the engine.
2. Make sure the unit is in a level position (not to exceed 15° in any direction).
3. Open the fuel shut-off valve (Figure 17).

Figure 17 - Fuel Shut-off Valve



4. Locate the Idle Control ON/OFF switch on the control panel and set it to the "OFF" position (Figure 18).

Figure 18 - Idle Control Switch



5. Move engine CHOKE knob outward to **"Full Choke"** position (Figure 19).
6. To start engine, press and hold the Start/Run/Stop switch in the "Start" position. The engine will crank and attempt to start. When the engine starts, release the switch to the run position.
7. When the engine starts, move choke knob to "1/2 Choke" position until the engine runs smoothly and then fully in to the "Run" position. If engine falters, move choke knob back out to "1/2 Choke" position until the engine runs smoothly and then to "Run" position.

NOTE:

If engine fires, but does not continue to run, move choke lever to "Full Choke" and repeat starting instructions.

IMPORTANT: Do not overload the generator. Also, do not overload individual panel receptacles. These outlets are protected against overload with push-to-reset-type circuit breakers. If amperage rating of any circuit breaker is exceeded, that breaker opens and electrical output to that receptacle is lost. Read "Don't Overload the Generator" carefully.

Figure 19 - Full Choke Position

2.9 STOPPING THE ENGINE

1. Shut off all loads, then unplug the electrical loads from generator panel receptacles. Never start or stop the engine with electrical devices plugged in and turned on.
2. Turn "Off" the Idle Control switch (if on).
3. Let engine run at no-load for several minutes to stabilize the internal temperatures of engine and generator.
4. Move Start/Run/Stop switch to "Off" position.
5. Close fuel valve.

2.10 AUTOMATIC IDLE CONTROL

This feature is designed to greatly improve fuel economy. When this switch is turned "**On**," the engine will only run at its normal fast governed engine speed when electrical load is connected. When the load is removed, the engine will run at a reduced speed of 2100 RPM. With the switch "**Off**," the engine runs at the normal fast engine speed all the time. **Always have the switch OFF when starting and stopping the engine.**

2.11 COLD WEATHER OPERATION/DE-ICER

Under certain weather conditions (temperatures below 40° F (4° C) and a high dew point), the engine may experience icing of the carburetor and/or the crankcase breather system. To eliminate this problem, this generator engine is fitted with a winter/summer valve. This directs hot air into the carburetor during cold weather operation. Always make sure the winter/summer valve is in the correct location relative to the weather conditions.

2.12 LOW OIL PRESSURE SHUTDOWN SYSTEM

The engine is equipped with a low oil pressure sensor that shuts down the engine automatically when the oil pressure drops below 10 psi. If the engine shuts down by itself and the fuel tank has enough gasoline, check engine oil level.

2.12.1 INITIAL START-UP

A delay built into the low oil shutdown system allows oil pressure to build during starting. The delay allows the engine to run for about 10 seconds before sensing oil pressure.

2.12.2 SENSING LOW OIL PRESSURE

If the system senses low oil pressure during operation, the engine shuts down.

2.12.3 RESTARTING

If trying to restart the engine within 10 seconds after it shuts down, the engine may NOT start. The system needs five (5) to 10 seconds to reset.

If the engine is restarted after such a shutdown and the low oil pressure has not been corrected, the engine will run for about 10 seconds as described above and then stop.

2.13 CHARGING A BATTERY

⚠ DANGER!

Storage batteries give off explosive hydrogen gas while recharging. An explosive mixture will remain around the battery for a long time after it has been charged. The slightest spark can ignite the hydrogen and cause an explosion. Such an explosion can shatter the battery and cause blindness or other serious injury.

⚠ DANGER!

Do not permit smoking, open flame, sparks or any other source of heat around a battery. Wear protective goggles, rubber apron and rubber gloves when working around a battery. Battery electrolyte fluid is an extremely caustic sulfuric acid solution that can cause severe burns. If spill occurs flush area with clear water immediately.

This generator has the capability of recharging a discharged 12 Volt automotive or utility style storage battery. **Do not use the unit to charge any 6 Volt batteries. Do not use the unit to crank an engine having a discharged battery.**

This battery charger is a pulse type designed to provide a quality charge current into the battery. The voltage measured at the outlet should be 8-12 VDC. This is normal and does not indicate a faulty charging system.

To recharge 12 Volt batteries, proceed as follows:

1. Check fluid level in all battery cells. If necessary, add ONLY distilled water to cover separators in battery cells. **Do not use tap water.**
2. If the battery is equipped with vent caps, make sure they are installed and are tight.
3. If necessary, clean battery terminals.
4. Connect battery charge cable connector plug to panel receptacle identified by the words "12-VOLT D.C."
5. Connect battery charge cable clamp with red handle to the positive (+) battery terminal.
6. Connect battery charge cable clamp with black handle to the negative (-) battery terminal.
7. Start engine. Let the engine run while battery recharges. Engine idle control switch must be in off position for battery charging.
8. When battery has charged, shut down engine.

NOTE:

Use an automotive hydrometer to test battery state of charge and condition. Follow the hydrometer manufacturer's instructions carefully. Generally, a battery is considered to be at 100% state of charge when specific gravity of its fluid (as measured by hydrometer) is 1.260 or higher.

3.1 PERFORMING SCHEDULED MAINTENANCE

It is important to perform service as specified in the Maintenance Schedule for proper generator operation, and to ensure that the generator complies with the applicable emission standards for the duration of its useful life. Service and repairs may be performed by any capable person or repair shop. Additionally, emissions critical maintenance must be performed as scheduled in order for the Emissions Warranty to be valid. Emissions critical maintenance consists of servicing the air filter and spark plugs in accordance with the Maintenance Schedule.

3.2 MAINTENANCE SCHEDULE

Follow the calendar intervals. More frequent service is required when operating in adverse conditions noted below.

Check Oil Level	At Each Use
Change Oil ‡	*Every 100 hours or Every Season
Check Valve Clearance	***Every Season
Service Air Filter	** Every 200 hours or Every Season
Replace Spark Plug	Every 200 hours or Every Season

‡ Change oil after first 30 hours of operation then every season.

* Change oil and oil filter every month when operating under heavy load or in high temperatures.

** Clean more often under dirty or dusty operating conditions. Replace air filter parts if they cannot be adequately cleaned.

*** Check valve clearance and adjust if necessary after first 50 hours of operation and every 100 hours thereafter.

3.3 PRODUCT SPECIFICATIONS

3.3.1 GENERATOR SPECIFICATIONS

MODEL	15 KW	17.5 KW
Rated Max. Power	15.0 kW	17.5 kW
Surge Power	22.5 kW	26.25 kW
Rated AC Voltage	120/240	120/240
Rated Max AC Load		
Current @ 240V	62.5 Amps	72.9 Amps
Current @ 120V	125.0 Amps	145.8 Amps
Rated Frequency	60 Hz @ 3600 RPM	60 Hz @ 3600 RPM
Phase	Single Phase	Single Phase
Rated DC Voltage	12 Volts	12 Volts
Rated Max DC Load		
Current @ 12 Volts	10 Amperes	10 Amperes
Weight	373 lbs.	400 lbs.

3.3.2 ENGINE SPECIFICATIONS

Rated Horsepower @ 3600 RPM	30
Displacement	992cc
Spark Plug Type	Champion RC14YC or Equivalent
Spark Plug Part No.	0E7585A
Spark Plug Gap	0.040 inch or (1.01 mm)
Gasoline Capacity	16 U.S. gallons
Oil Type	**Summer** – SAE 30, **Winter** – 5W-30 Synthetic or 10W-30
Oil Capacity	w/ Filter Change = 1.7 Qts., w/o Filter Change = 1.4 Qts.
Oil Filter Part No.	070185E
Run Time/Fuel Consumption - 1/2 Load	10 Hours / 1.6 gallons per hour
Air Filter Part No.	0D9723
Battery Part No.	0D4575

3.3.3 EMISSIONS INFORMATION

The Environmental Protection Agency (and California Air Resource Board for generators certified to CA standards) require(s) that this generator comply with exhaust and evaporative emission standards. Locate the emissions compliance decal on the engine to determine what standards the generator meets. This generator is certified to operate on gasoline. The emission control system consists of the following:

- Air Induction System
  - Intake Pipe / Manifold
  - Air Cleaner
- Fuel System
  - Carburetor
  - Fuel Tank / Cap
  - Fuel Lines
  - Evaporative Vent Lines
  - Carbon Canister (for CA engines only)
- Ignition System
  - Spark Plug
  - Ignition Module
- Exhaust System
  - Exhaust Manifold
  - Muffler
  - Catalyst (for CA engines only).

3.4 GENERAL RECOMMENDATIONS

The warranty of the generator does not cover items that have been subjected to operator abuse or negligence. To receive full value from the warranty, the operator must maintain the generator as instructed in this manual.

Some adjustments will need to be made periodically to properly maintain the generator.

All adjustments in the Maintenance section of this manual should be made at least once each season. Follow the requirements in the "Maintenance Schedule" chart.

NOTE:

Once a year, replace the spark plug and replace the air filter. A new spark plug and clean air filter assure proper fuel-air mixture and help the engine run better and last longer.

3.4.1 GENERATOR MAINTENANCE

Generator maintenance consists of keeping the unit clean and dry. Operate and store the unit in a clean dry environment where it will not be exposed to excessive dust, dirt, moisture or any corrosive vapors. Cooling air slots in the generator must not become clogged with snow, leaves, or any other foreign material.

Check the cleanliness of the generator frequently and clean when dust, dirt, oil, moisture or other foreign substances are visible on its exterior surface.

⚠ CAUTION!

⚠ Never insert any object or tool through the air cooling slots, even if the engine is not running.

NOTE:

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

3.4.2 TO CLEAN THE GENERATOR

- Use a damp cloth to wipe exterior surfaces clean.
- A soft, bristle brush may be used to loosen caked on dirt, oil, etc.
- A vacuum cleaner may be used 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 the generator. These openings must be kept clean and unobstructed.

3.4.3 ENGINE MAINTENANCE

⚠ DANGER!

⚠ When working on the generator, always disconnect negative cable from battery. Also disconnect spark plug wires from spark plugs and keep wire away from spark plugs.

3.4.4 CHECKING OIL LEVEL

See the “BEFORE STARTING THE GENERATOR” section for information on checking the oil level. The oil level should be checked before each use, or at least every eight hours of operation. Keep the oil level maintained.

⚠ CAUTION!

⚠ Hot oil may cause burns. Allow engine to cool before draining oil. Avoid prolonged or repeated skin exposure with used oil. Thoroughly wash exposed areas with soap.

3.4.5 CHANGING THE OIL AND OIL FILTER

Change the oil and filter after the first 30 hours of operation. Change the oil every 100 hours thereafter. If running this unit under dirty or dusty conditions, or in extremely hot weather, change the oil more often.

Use the following instructions to change the oil after the engine cools down:

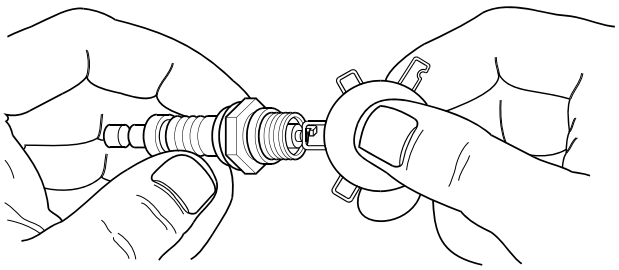
1. Clean area around oil drain hose and plug.
2. Remove oil drain plug from end of hose and oil fill plug to drain oil completely into a suitable container.
3. When oil has completely drained, install oil drain plug and tighten securely.
4. Place a suitable container beneath the oil filter and turn filter counterclockwise to remove. Discard according to local regulations.
5. Coat gasket of new filter with clean engine oil. Turn filter clockwise until gasket contacts lightly with filter adapter. Then tighten an additional 3/4 turn.
6. Fill oil sump with recommended oil. (See “Before Starting the Generator” for oil recommendations).
7. Wipe up any spilled oil.
8. Dispose of used oil at a proper collection center.

3.4.6 REPLACING THE SPARK PLUGS

Use Champion RC14YC spark plug or equivalent. The correct air gap is 1.01 mm (0.040 in.). **Replace the plugs every 200 hours**. This will help the engine start easier and run better.

1. Stop the engine and pull the spark plug wire off of the spark plug.
2. Clean the area around the spark plug and remove it from the cylinder head.
3. Set the spark plug's gap to 1.01 mm (0.040 in.). Install the correctly gapped spark plug into the cylinder head.

Figure 20 - Spark Plug Gap



3.5 SERVICE AIR CLEANER

The engine will not run properly and may be damaged if using a dirty air cleaner. Clean or replace the air cleaner paper filter every 200 hours or once a year. Clean or replace more often if operating under dusty conditions. Clean foam pre-cleaner every month or more often under dusty conditions.

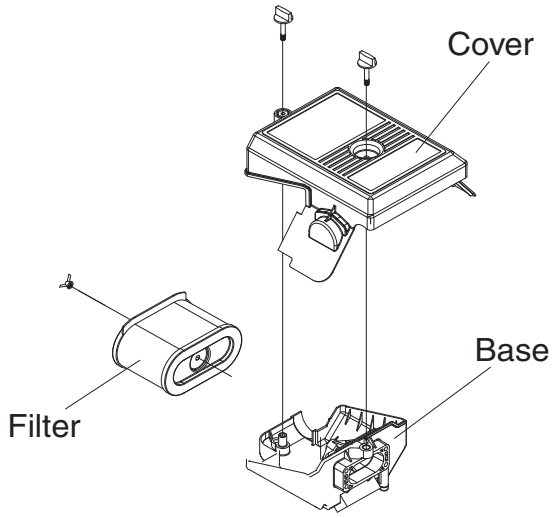
To clean or replace paper air filter:

1. Remove air cleaner cover and remove paper filter.
2. Clean paper filter by tapping it gently on a solid surface. If the filter is too dirty, replace it with a new one. Dispose of the old filter properly.
3. Clean air cleaner cover. Next insert new paper filter into the base of the air cleaner. Re-install air cleaner cover.

NOTE:

To order a new air filter, please contact the nearest authorized service center at 1-800-333-1322.

Figure 21 - Air Cleaner



3.6 CLEAN SPARK ARRESTOR SCREEN

The engine exhaust muffler has a spark arrestor screen. Inspect and clean the screen at least once each year (Figure 22). If unit is used regularly, inspect and clean more often.

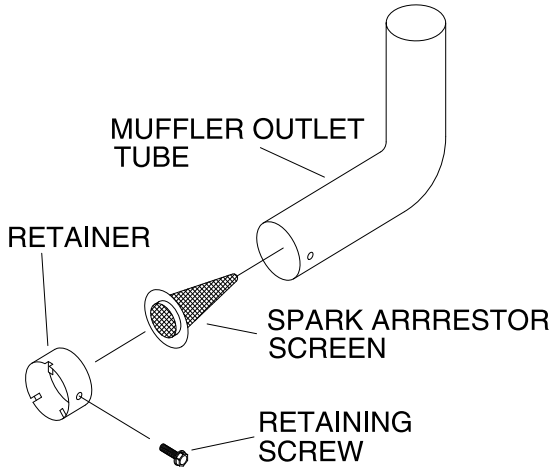
NOTE:

If using the generator on any forest-covered, brush-covered or grass-covered unimproved land, it must equipped with a spark arrestor. The spark arrestor must be maintained in good condition by the owner/ operator.

Clean and inspect the spark arrestor as follows:

1. Remove the screen retaining bracket by removing the screw.
2. Slide the spark arrestor screen out from the tail pipe.
3. Inspect screen and replace if torn, perforated or otherwise damaged. DO NOT USE a defective screen. If screen is not damaged, clean it with commercial solvent.
4. Replace the screen and the retaining bracket.

Figure 22 - Spark Arrestor



3.7 ADJUSTING VALVE CLEARANCE

After the first 50 hours of operation, check the valve clearance in the engine and adjust if necessary.

Important: If feeling uncomfortable about doing this procedure or the proper tools are not available, please take the generator to the nearest service center to have the valve clearance adjusted. This is a very important step to insure longest life for the engine.

To check valve clearance:

1. Make sure the engine is at room temperature (60° - 80° F).
2. Make sure that the spark plug wire is removed from the spark plug and out of the way.
3. Remove the four screws attaching the valve cover.
4. Make sure the piston is at Top Dead Center (TDC) of its compression stroke (both valves closed). To get the piston at TDC, remove the intake screen at the front of the engine to gain access to the flywheel nut. Use a large socket and socket wrench to rotate the nut and hence the engine in a clockwise direction while watching the piston through the spark plug hole. The piston should move up and down. The piston is at TDC when it is up as high as it can go.
5. Insert a 0.002 - 0.004 inch (0.05 - 0.1mm) feeler gauge between the rocker arm and valve stem. Correct clearance is when a slight drag is felt when sliding the gauge back and forth. If the clearance is either excessively loose or tight the rocker arms will need adjusting.

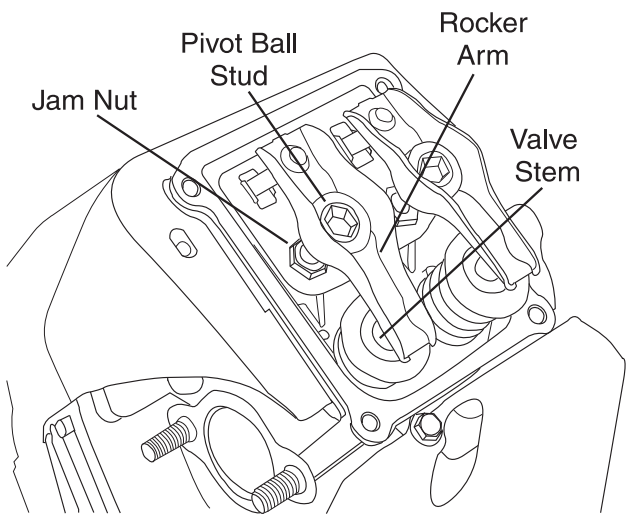
To adjust valve clearance:

1. Loosen the rocker jam nut (Figure 23). Use an 10mm allen wrench to turn the pivot ball stud while checking clearance between the rocker arm and the valve stem with a feeler gauge. Correct clearance is 0.002-0.004 inch (0.05-0.1 mm).

NOTE:

The rocker arm jam nut must be held in place as the pivot ball stud is turned.

Figure 23 - Valve Clearance Adjustment



When valve clearance is correct, hold the pivot ball stud in place with the allen wrench and tighten the rocker arm jam nut. Tighten the jam nut to 174 in-lbs. torque. After tightening the jam nut, recheck valve clearance to make sure it did not change.

2. Install new valve cover gasket.
3. Re-attach the valve cover.

NOTE:

Start all four screws before tightening or it will not be possible to get all the screws in place. Make sure the valve cover gasket is in place.

4. Re-attach the spark plug wire to the spark plug.
5. Repeat the process for the other cylinder.

3.8 GENERAL

The generator should be started at least once every 30 days and be allowed to run at least 30 minutes. If this cannot be done and the unit must be stored for more than 30 days, use the following information as a guide to prepare it for storage.

⚠ DANGER!

NEVER store engine with fuel in tank indoors or in enclosed, poorly ventilated areas where fumes may reach an open flame, spark or pilot light as on a furnace, water heater, clothes dryer or other gas appliance.

3.9 LONG TERM STORAGE

It is important to prevent gum deposits from forming in essential fuel system parts such as the carburetor, fuel hose or tank during storage. Also, experience indicates that alcohol-blended 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, as follows:

1. Remove all gasoline from the fuel tank.

⚠ DANGER!

Drain fuel into approved container outdoors, away from open flame. Be sure engine is cool. Do not smoke.

2. Start and run engine until engine stops from lack of fuel.
3. After the engine cools down, drain oil from crankcase. Refill with recommended grade.
4. Remove spark plugs and pour about 1/2 ounce (15 ml) of engine oil into the cylinders. Cover spark plug hole with rag. Press the “Start” button and allow engine to crank for 2 seconds. Then press the “Stop” button.
5. Remove the black battery cable from the battery post indicated by a negative, NEG or (-) and attach to frame ground.

⚠ CAUTION!

Avoid spray from spark plug holes when cranking engine.

6. Install and tighten spark plugs. Do not connect spark plug wires.
7. Clean the generator outer surfaces. Check that cooling air slots and openings on generator are open and unobstructed.
8. Store the unit in a clean, dry place.

3.10 OTHER STORAGE TIPS

- Do not store gasoline from one season to another.
- Replace the gasoline can if it starts to rust. Rust and/or dirt in the gasoline will cause problems with the carburetor and fuel system.
- If possible, store the unit indoors and cover it to give protection from dust and dirt. **BE SURE TO EMPTY THE FUEL TANK.**
- If it is not practical to empty the fuel tank and the unit is to be stored for some time, use a commercially available fuel stabilizer added to the gasoline to increase the life of the gasoline.
- Cover the unit with a suitable protective cover that does not retain moisture.

⚠ DANGER!

NEVER cover the generator while engine and/or exhaust area are warm.

4.1 TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	CORRECTION
Engine is running, but no AC output is available.	1. Circuit breaker is open. 2. Poor connection or defective cord set. 3. Connected device is bad. 4. Fault in generator. 5. 120V GFCI tripped (no light).	1. Reset circuit breaker. 2. Check and repair. 3. Connect another device that is in good condition. 4. Contact Authorized Service Facility. 5. Reset 120V GFCI push button (light is on).
Engine runs good but bogs down when loads are connected.	1. Short circuit in a connected load. 2. Generator is overloaded. 3. Engine speed is too slow. 4. Shorted generator circuit.	1. Disconnect shorted electrical load. 2. See “Don’t Overload the Generator”. 3. Contact Authorized Service Facility. 4. Contact Authorized Service Facility.
Engine will not crank.	1. 10 amp fuse at rear of generator control panel has melted open. 2. Battery weak or dead.	1. Replace fuse with only an identical 10-amp replacement fuse. 2. Recharge or replace battery.
Engine will not start; or starts and runs rough.	1. Dirty air cleaner. 2. Out of gasoline. 3. Stale gasoline. 4. Spark plug wire not connected to spark plug. 5. Bad spark plug. 6. Water in gasoline. 7. Overchoking. 8. Low oil level. 9. Excessive rich fuel mixture. 10. Intake valve stuck open or closed. 11. Engine has lost compression.	1. Clean or replace air cleaner. 2. Fill fuel tank. 3. Drain fuel tank and fill with fresh fuel. 4. Connect wire to spark plug. 5. Replace spark plug. 6. Drain fuel tank; fill with fresh fuel. 7. Put choke knob to **No Choke** position. 8. Fill crankcase to proper level. 9. Contact Authorized Service Facility. 10. Contact Authorized Service Facility. 11. Contact Authorized Service Facility.
Engine shuts down during operation.	1. Out of gasoline. 2. Low oil level. 3. Fault in engine.	1. Fill fuel tank. 2. Fill crankcase to proper level. 3. Contact Authorized Service Facility.
Engine lacks power.	1. Load is too high. 2. Dirty air filter. 3. Engine needs to be serviced.	1. See “Don’t Overload the Generator”. 2. Replace air filter. 3. Contact Authorized Service Facility.
Engine “hunts” or falters.	1. Choke is opened too soon. 2. Carburetor is running too rich or too lean.	1. Move choke to halfway position until engine runs smoothly. 2. Contact Authorized Service Facility.
No Battery Charge DC output.	1. Battery posts are corroded. 2. Battery cable is bad. 3. Battery is defective. 4. Receptacle is bad.	1. Clean battery posts. 2. Replace cable. 3. Check battery condition; replace if defective. 4. Contact Authorized Service Facility.

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