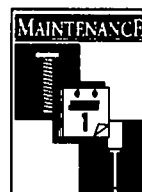
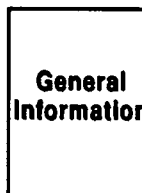
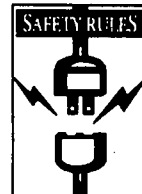
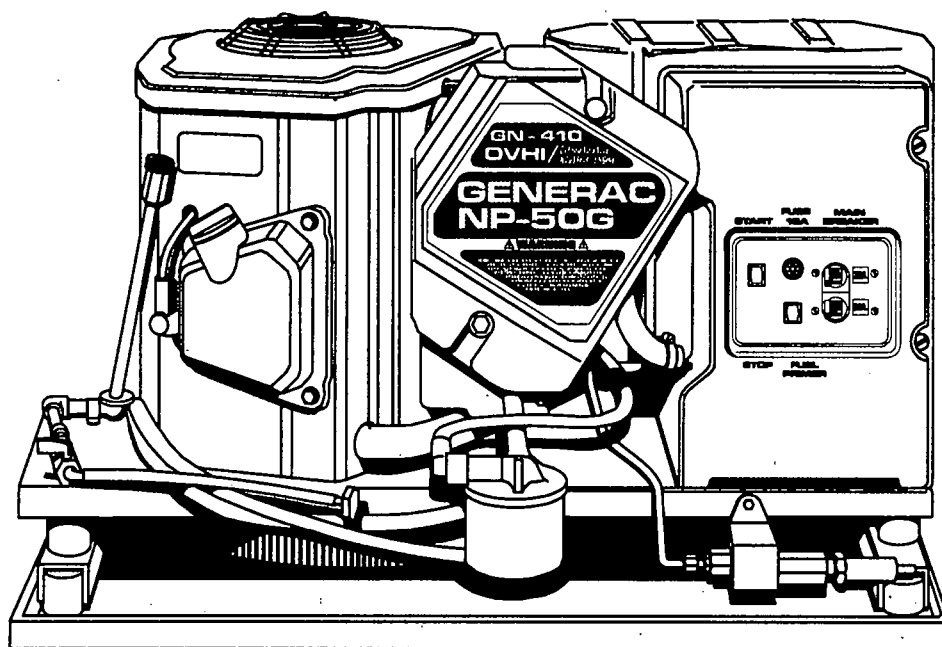


GENERAC®

Air-cooled Recreational Vehicle Generator

OWNER'S MANUAL



GENERAC®

POWER SYSTEMS INC.

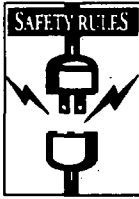
Model No. 00916-1 Series NP-50G



THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS, WHICH, IF NOT FOLLOWED, COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THE MANUAL BEFORE ATTEMPTING TO OPERATE THIS UNIT.

Revision 1 (8/6/98)

Printed in U.S.A.



THE MANUFACTURER SUGGESTS THAT THESE "RULES" FOR SAFE OPERATION BE COPIED AND POSTED IN POTENTIAL HAZARD AREAS OF THE RECREATIONAL VEHICLE. SAFETY SHOULD BE STRESSED TO ALL OPERATORS AND POTENTIAL OPERATORS OF THIS EQUIPMENT.



WARNING:



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

Study these SAFETY RULES carefully before installing, operating or servicing this equipment. Become familiar with the Owner's Manual and with the generator. The generator can operate safely, efficiently and reliably only if it is properly installed, operated and maintained. Many accidents are caused by failing to follow simple and fundamental rules or precautions.

Generac cannot possibly 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 you use a procedure, work method or operating technique Generac does not specifically recommend, you must satisfy yourself that it is safe for you and others. You must also make sure the procedure, work method or operating technique that you choose does not render the generator to be unsafe.

- For fire safety, the generator must be installed and maintained properly. Installation must always comply with applicable codes, standards, laws and regulations. Adhere strictly to local, state and national electrical and building codes. Comply with regulations the Occupational Safety and Health Administration (OSHA) established. Also, the generator and related components must be installed completely in conformance with the manufacturer's instructions and recommendations. Following proper installation, do nothing that might alter a safe installation and render the unit in non-compliance with such codes, standards, laws and regulations.

- ▲ The Recreational Vehicle Generator produces extremely high and dangerous electrical voltages and can cause dangerous, and possibly fatal, electrical shock. Avoid contact with bare wires, terminals, etc. while the unit is running. If you must work around an operating generator, stand on an insulated, dry surface to reduce shock hazard.

Never work on this equipment or handle any electrical device while standing in water, while barefoot, or while hands or feet are wet. Dangerous electrical shock will result.

- Have the generator properly grounded (bonded) during installation onto the vehicle, either by solid mounting to the vehicle frame or chassis or by means of an approved bonding conductor. DO NOT disconnect the bonding conductor, if so equipped. DO NOT reconnect the bonding conductor to any generator part that might be removed or disassembled during routine maintenance. If the grounding conductor must be replaced, use only a flexible conductor that is of No. 8 AWG copper wire minimum.
- Keep hands, feet, clothing, etc., away from drive belts, fans and other moving parts of this equipment. Never remove any drive belt or fan guards while the unit is operating.

- Inspect the generator periodically. Repair or replace all damaged or defective parts immediately.

- ▲ In case of accident caused by electric shock, shut down the source of electrical power at once. If this cannot be done, free victim from live conductor. AVOID DIRECT CONTACT WITH THE VICTIM. Use a dry board, dry rope, or other non-conducting implement to free the victim from live conductor. If victim is unconscious, apply first aid and get medical help.

- Inspect fuel system frequently for leaks or damage. Repair or replace any damaged or leaking component immediately. Never attempt to change, alter or modify the generator fuel system in any way that might affect safety or compliance with applicable codes and standards.

- ▲ The generator engine gives off DEADLY carbon monoxide gas through its exhaust system. This dangerous gas, if breathed in sufficient concentrations, can cause unconsciousness or even death. This exhaust system must have been properly installed, in strict compliance with applicable codes and standards. Following installation, you must do nothing that might render the system unsafe or in non-compliance with such codes and standards. The generator compartment must be completely vapor sealed from vehicle interior. There must be no possibility of exhaust fumes entering the vehicle interior. Never operate this equipment with a leaking or defective exhaust system.

- 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.

- Do not smoke around the generator. Wipe up any fuel, or oil spills immediately. Never leave oily or fuel soaked rags in the generator compartment or on the generator itself. Keep the area around the generator clean and free of debris.

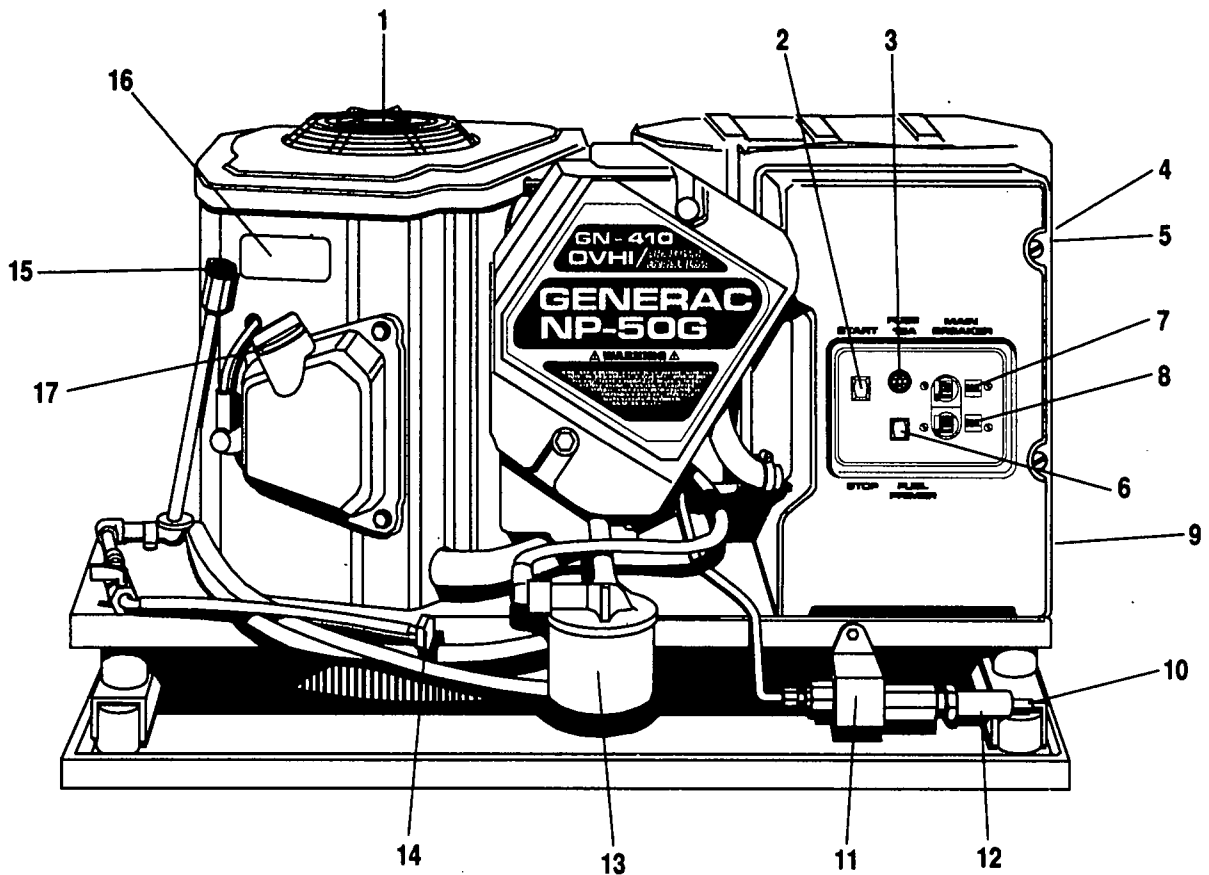
- Adequate ventilation is required to expel toxic fumes and fuel vapors from the generator compartment. Do not alter the installation of this equipment in any manner that might obstruct air and ventilation openings. Such openings must be kept clear and unobstructed.

Some generators may use LP gas (propane) as a fuel. LP gas is highly EXPLOSIVE. The gas is heavier than air and tends to settle in low areas where even the slightest spark can ignite the gas and cause an explosion.

- Before performing any maintenance on the generator set, disconnect its battery cables to prevent accidental start up. Disconnect the cable from the battery post indicated by a NEGATIVE, NEG or (-) first. Reconnect that cable last.

Please record the following information from the generator DATA DECAL or information decal.

1. Model Number _____ 2. Serial Number _____
3. kW Rating _____ 4. Rated Voltage _____



REFERENCE NUMBER IDENTIFICATION

- | | |
|-------------------------------------|--------------------|
| 1. Generator Air Intake Screen | 10. Fuel Inlet |
| 2. Engine Start/Stop Switch | 11. Fuel Pump |
| 3. Fuse | 12. Fuel Filter |
| 4. Optional Remote Panel Receptacle | 13. Oil Filter |
| 5. Generator AC Output Leads | 14. Oil Drain Plug |
| 6. Fuel Primer Switch | 15. Oil Dipstick |
| 7. Circuit Breaker | 16. Data Decal |
| 8. Circuit Breaker | 17. Oil Fill |
| 9. Starter Contactor | |



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READ THIS MANUAL THOROUGHLY

If you don't understand any portion of this manual, contact Generac for a demonstration of actual starting, operating and servicing procedures.

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

These safety warnings cannot eliminate the hazards that they indicate. Strict compliance with the special instructions while performing the service plus "common sense" are major measures to prevent accidents.

The following definitions apply to DANGER, WARNING, CAUTION, and NOTE blocks found throughout the manual.



DANGER: Indicates an immediately hazardous situation which, if not avoided, will result in death or serious injury. Danger is limited to the most extreme situations.



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



CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. Caution may also be used to alert against unsafe practices.

NOTE: After this heading you can read explanatory statements that require special emphasis.

These symbols indicate the following:



Points out important safety information and, if not followed, could endanger personal safety and/or property of yourself and others.



Potential explosion hazard.



Potential fire hazard.



Potential electrical shock hazard.

The operator (driver) is responsible for proper and safe use of the vehicle, equipment on the vehicle, and the safety of all vehicle occupants. We strongly recommend that the operator read this Owner's Manual and thoroughly understand all instructions before using this equipment. We also strongly recommend instructing other occupants in the vehicle to properly start and operate the generator. This prepares them if they need to operate the equipment in an emergency.

OPERATION AND MAINTENANCE

It is the operator's responsibility to perform all safety checks; to make sure that all maintenance for safe operation is performed promptly; and to have the equipment checked by an Authorized Dealer periodically. Normal maintenance service and replacement of parts are the responsibility of the Owner/Operator and, as such, are not considered defects in materials or workmanship within the terms of the warranty. Individual operating habits and usage contribute to the need for maintenance service.

Proper maintenance and care of your recreational vehicle generator assures a minimum number of problems and keeps your operating expenses at a minimum. See your authorized Dealer/Distributor for service aids and accessories.

HOW TO OBTAIN SERVICE

When your recreational vehicle generator requires servicing or repairs, simply contact an Authorized Service Facility for assistance. Service technicians are factory-trained and are capable of handling all of your service needs.

When contacting an Authorized Service Facility or the factory about parts and service, always supply the complete model number and serial number of your unit as given on its data decal.

The warranty on your generator is included in the Owner's Manual, as well as listings for repair parts.

DEALER LOCATOR PHONE NUMBER

To better assist our customers we have established a Dealer Locator phone number which allows the customer to call 24 hours a day to find the nearest Generac dealer. This is just a dealer locator number, no technical service can be provided on this line.

1-800-333-1322

GENERATOR APPLICABILITY

These generators have been designed and manufactured for supplying electrical power for recreational vehicles. You should not modify the generator or use it for any application other than for what it was designed. If there are any questions pertaining to its application, write or call the factory. Do not use the unit until you have been advised by a competent authority.



DANGER: For fire safety, the generator must have been properly installed in compliance with (1) ANSI 119.2-1975/NFPA 501C-1974 "Standard for Recreational Vehicles, Part III, "Installation of Electrical Systems." The generator also must have been installed in strict compliance with the manufacturer's detailed installation instructions. After installation, do nothing that might render the unit in non-compliance with such codes, standards and instructions.

You can use this generator to supply electrical power for operating 120/240 volts, single phase, 60 Hertz, AC electrical loads. These loads can require up to 4800 watts of (4.8kW) of power, but cannot exceed 40 AC amperes of current at 120 volts or exceed 20 AC amperes at 240 volts.



CAUTION: Do not overload the generator. Some installations may require that electrical loads be alternated to avoid overloading. Applying excessively high electrical loads may damage the generator and may shorten its life. Add up the rated watts of all electrical lighting, appliance, tool and motor loads the generator will power at one time. This total should not be greater than the wattage capacity of the generator. If an electrical device nameplate gives only volts and amps, multiply volts times amps to obtain watts (volts x amps = watts). Some electric motors require more watts of power (or amps of current) for starting than for continuous operation.

INSTALLATION

This Owner's Manual has been prepared under the assumption that a competent, qualified technician installed the generator. We also assume the installer complied with all applicable codes, standards and regulations pertaining to installation.

An **INSTALLATION MANUAL** was shipped with the generator. That manual contains manufacturer's instructions and recommendations for installing the unit into a recreational vehicle. After installation, installers should forward the Installation Manual to Owners/Operators for their information.

Owners/Operators have the responsibility to make sure that nothing is done that might render the installation unsafe or in non-compliance with applicable codes, standards and instructions.

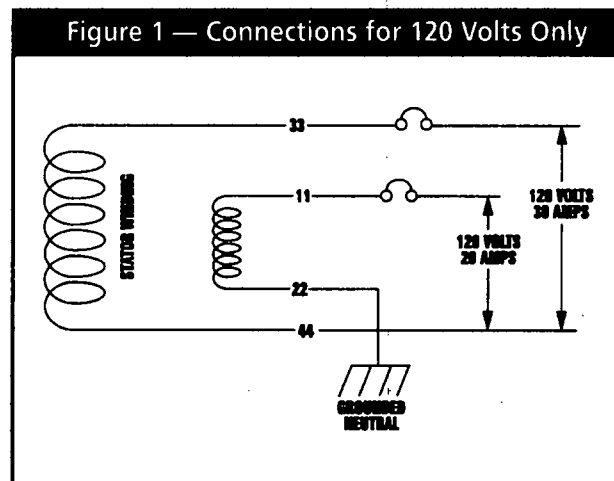
SAFETY

Before attempting to use the generator set, carefully read **GENERAL SAFETY RULES** inside the cover of this Manual. Comply strictly with these **RULES** to prevent accidents and damage to equipment and/or property. We suggest that copying and posting **GENERAL SAFETY RULES** in potential hazard areas of the vehicle. Stress safety to all operators and potential operators of this equipment.

GENERATOR AC CONNECTION SYSTEM

This generator set is equipped with dual stator AC power windings. These two stator windings supply electrical power to customer electrical loads by means of a dual 2-wire connection system. Note, however, that neutral is grounded.

The generator may have been installed so that units power 120 volts AC loads (Figure 1); or you can wire them to connect both 120 and/or 240 volts AC electrical loads. Be sure to install jumper wire between the circuit breakers when reconnecting for 120/240 volts. Refer to the Installation Manual for more information.

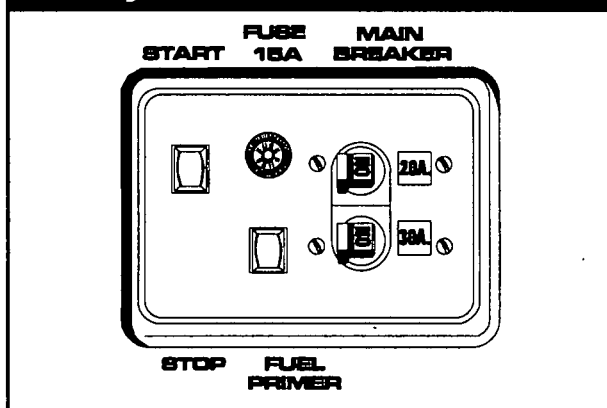




GENERATOR CONTROL PANEL

Mounted on the generator control panel (Figure 2) are the following features:

Figure 2 — Generator Control Panel



■ FUEL PRIMER

Before starting a cold engine (if it has not been started in more than two weeks), you must press this switch for approximately 5 seconds to bring fuel from the tank to the carburetor. This rocker type switch springs back into its original position when you release it.

■ START/STOP SWITCH

To crank and start the engine, hold this switch at its START position. Release the switch when the engine starts. To stop an operating engine, press and hold the switch in its STOP position until the engine shuts off. The switch center position is the RUN position.

■ FUSE

Protects the engine DC control circuit against electrical overload. If the fuse element has melted open due to overloading, the engine cannot be cranked. If you must replace it, use only an identical replacement fuse.

■ MAIN BREAKER

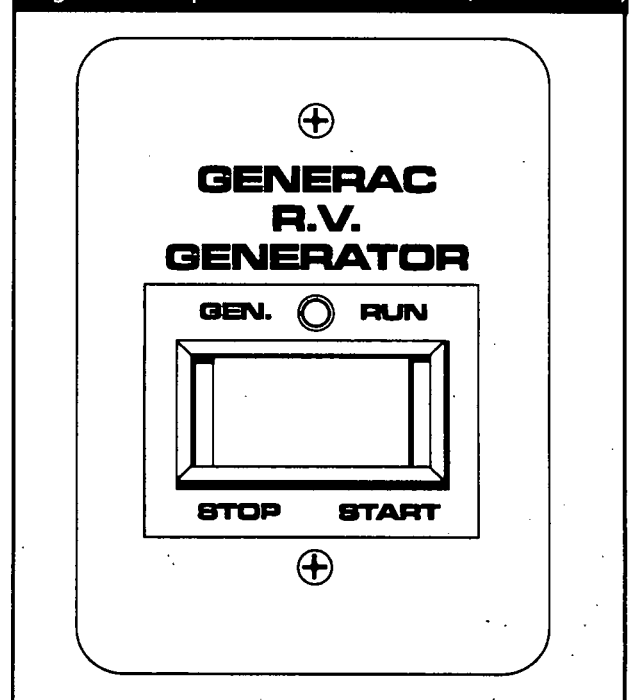
Protects generators AC output circuit against overload and provides a method of turning OFF the generators 120/240 volts AC output to vehicle circuits. The NP-50G has one 20 amp breaker and one 30 amp breaker.

NOTE: If the Series NP-50G has been reconnected for dual voltage AC output (120/240 volts), you can install line breakers having an amperage rating that is different than stated above. The replacement line breakers consist of two separate breakers with a connecting piece between the breaker handles (so that both breakers will operate at the same time). If the unit is reconnected for dual voltage, it is no longer RVIA listed.

OPTIONAL REMOTE START/STOP PANEL

A remote mounted Start/Stop Panel is available, which allows you to start and stop the generator engine conveniently from inside the vehicle. Figure 3 shows the Model 9042 remote panel which includes (a) start/stop switch and (b) a generator run lamp.

Figure 3 — Optional Remote Panel (Model 9042)



You can also order model 9043, a remote panel which includes the (a) start/stop switch, (b) the generator run lamp and (c) and hourmeter. The hourmeter provides a continuous indication of engine-generator operating time. Use the hourmeter for checking off periodic maintenance requirements on the unit.



AUTOMATIC CHOKE

The engine is equipped with an automatic choke that consists of two main components — choke solenoid and prechoke.

■ CHOKE SOLENOID

During engine cranking (start/stop switch at START), a solid state choke module signals the choke solenoid to actuate and cycle (choke on/choke off) until the engine starts. The choke solenoid thus opens and closes the carburetor choke valve only when the engine is cranking. When the engine starts, the choke stops cycling.

■ PRECHOKE

The choke system also has a temperature sensitive metal strip that adjusts choke valve angle according to ambient temperatures (i.e., in cold ambient temperatures, choke valve closes more). Once the engine starts, an element heats the temperature-sensitive strip to a normal operating condition, opening the choke valve. This may take about 3 minutes in cooler weather.

BEFORE STARTING THE ENGINE

IMPORTANT: Instructions and information in this manual assume the generator has been properly installed, connected, serviced, tested and adjusted by a qualified installation technician or installation contractor.

■ INSTALLATION

Generator installation must have been properly completed so it complies with all applicable codes, standards and regulations and with the manufacturer's recommendations.

■ ENGINE LUBRICATION

Have engine crankcase properly serviced with recommended oil before starting. Refer to MAINTENANCE and SPECIFICATIONS sections for oil servicing procedures and recommendations.



CAUTION: Any attempt to crank or start the engine before you have properly serviced it with the recommended oil may result in an engine failure.

■ FUEL SUPPLY

The engine must have adequate supply of proper fuel to operate. Before starting, check that sufficient fuel is available.

NOTE: On some installation, the generator engine may "share" the vehicles gasoline fuel tank with vehicle engine. Some installations may provide separate fuel tanks for generator and vehicle engine.

■ COOLING AND VENTILATING AIR

Air inlet and outlet openings in generator compartment must be open and unobstructed for continued proper operation. Without sufficient cooling and ventilating air flow, engine-generator quickly overheats which causes it to shutdown or may damage the generator.

■ ENGINE EXHAUST GAS

Before starting the generator engine, you should be sure there is no way for exhaust gases to enter the vehicle interior and endanger people or animals. Close windows, doors and other openings in the vehicle that, if open, might permit exhaust gases to enter the vehicle.



DANGER: The generator engine gives off **DEADLY** carbon monoxide gas through its exhaust system. This dangerous gas, if breathed in sufficient concentrations, can cause unconsciousness or even death. **DO NOT OPERATE THE GENERATOR IF THE EXHAUST SYSTEM IS LEAKING OR HAS BEEN DAMAGED. SYMPTOMS OF CARBON MONOXIDE POISONING ARE (a) inability to think coherently; (b) vomiting; (c) twitching muscles; (d) throbbing temples; (e) dizziness; (f) headaches; (g) weakness and sleepiness. IF YOU FEEL ANY OF THESE SYMPTOMS, MOVE INTO FRESH AIR IMMEDIATELY. IF SYMPTOMS PERSIST, GET MEDICAL HELP.**

STARTING THE GENERATOR

IMPORTANT: Read the vehicle manufacturer's instructions. The owner/operator should become familiar with the vehicle in which this generator is installed. Differences exist between vehicles. For example, some vehicles may use a transfer switch to isolate dockside power from the generator, while other vehicles may use an isolating receptacle. Some vehicles may be equipped with a DC converter which allows the generator to power certain DC lighting and other DC loads.

To start the generator from either the generator control panel or from the optional Remote Panel, proceed as follows on page 9.



1. Turn OFF electrical loads, using whatever means provided in your vehicle (such as a main line circuit breaker or transfer switch).

NOTE: If starting from the generator control panel, turn OFF loads by setting the generator's main circuit breaker to "OFF" or "OPEN". If starting from a Remote Panel, turn OFF loads using whatever means is provided in the vehicle (such as a main circuit breaker). Electrical load circuits will be turned ON after the generator has started, stabilized and warmed up.

2. If you have not started the engine in more than two weeks, press the Fuel Pump Primer switch and hold it for about 30 seconds to prime fuel system. However, if the engine is warm, skip Step 2.

3. Hold the engine Start/Stop Switch at START to crank engine. Release the switch when the engine starts.



CAUTION: If the engine does not start after it has been cranking for 15 seconds, release the start/stop switch and try again. Holding the switch for longer than 15 seconds can damage the starter motor.

4. Let the engine run at no-load for a few minutes to stabilize and warm up.

5. Turn ON electrical loads, using whatever means provided (such as a main circuit breaker or transfer switch).

STOPPING THE GENERATOR

1. Turn OFF all electrical loads, using whatever means provided (such as a main circuit breaker or transfer switch).

2. Let generator run at no-load for a few minutes, to stabilize internal engine generator temperatures.

3. Place Start/Stop switch in its STOP position.

APPLYING LOADS TO GENERATOR

When applying electrical loads to the generator, observe these guidelines:

- Before applying electrical loads, let the generator stabilize and warm up for a minute or two.
- DO NOT overload the generator.

LET ENGINE STABILIZE

The generator supplies correct rated voltage only at proper governed speed. Some electrical appliances may be extremely sensitive to voltage. Incorrect voltages can damage those appliances.

If electrical loads are applied at reduced operating speeds, such loads imposed on the engine when sufficient power is not available may shorten engine life. Never turn ON electrical loads until after the generator engine has started and stabilized ON-speed.

SUMMER/WINTER HEAT RISER SYSTEM

Under certain weather conditions, it is possible for ice to form in the venturi area of the carburetor. This condition can be very dangerous because it can prevent the governor system from functioning properly, which results in a "run-away" engine.

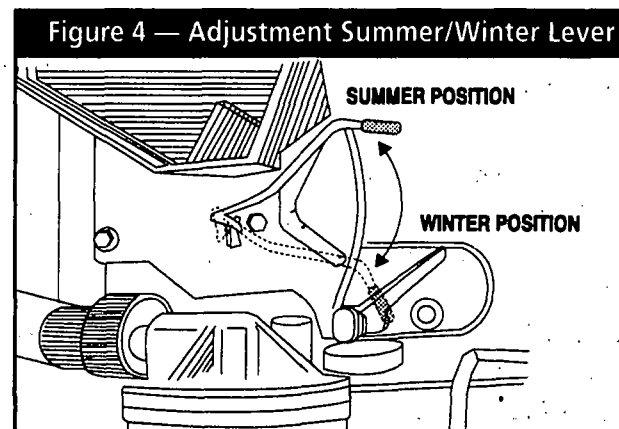
The most common weather conditions leading to this problem are temperatures in the range of 25° to 35°F, along with high humidity. This ice formation can also be attributed to the load being applied during these weather conditions. Generators running with no load or light loads applied usually have the most problems. The operator is responsible for adjusting the heat riser system for weather conditions.

CONSTRUCTION AND FUNCTION OF HEAT RISER SYSTEM

The system consists of the following components:

- Plastic collector box that is attached to the back side of the air filter base.
- "Flapper" valve and lever assembly.
- Corrugated aluminum tube that goes from the above plastic box, through engine enclosure sheet metal and nestled very close to exhaust manifold.

Place the lever in the "Summer" position (Figure 4), to draw air into the filter box directly from the compartment through the tube on the right side of the plastic box.





Place the lever in the "Winter" position (25 - 30°F), so the hole in the plastic tube is covered and the aluminum tube is opened. As mentioned previously, the end of the aluminum tube is positioned very close to the exhaust manifold. As the engine is running and the exhaust system heats up, heated air is drawn through the aluminum tube, which helps to prevent ice from forming on the carburetor.

DO NOT OVERLOAD THE GENERATOR

You can read the rated wattage/ampere capacity of your generator on the generator data decal (see "Identification Record" on Page 3).

Applying electrical loads in excess of the unit's rated capacity will cause the engine-generator to automatically shutdown.

To avoid overloading, add up the wattage of all connected electrical lighting, appliance, tool and motor loads. This total should not be greater than the generator's rated wattage capacity.

- Most lighting, appliance,, tool and motor loads indicate their required watts on their nameplate or data plate. For light bulbs, simply note the wattage rating of the bulb.
- If a load does not show its rated wattage, multiply that load's rated VOLTS times AMPS to obtain WATTS.

- Induction type motors (such as those that run the vehicle's furnace fan, refrigerator, air conditioner, etc.) need about 2-1/2 time more watts of power for starting than for running (for a few seconds during motor starting). Be sure to allow for this when connecting electrical loads to the generator. First, figure the watts needed to start electric motors in the system. To that figure, add the running wattages of other items that will be operated by the generator.
- Do not apply heavy electrical loads for the first two or three hours of operation.

ADDITIONAL INFORMATION

This section discusses some the the engine protective devices, overload protection and breaking in a new generator.

AUTOMATIC LOW OIL PRESSURE SHUTDOWN

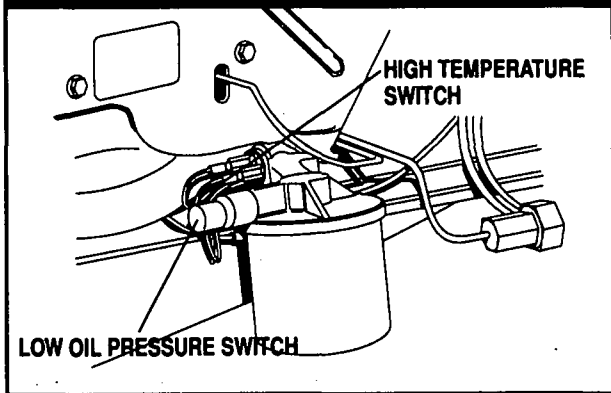
The engine is equipped with a normally-closed (N.C.) oil pressure switch (Figure 5). Engine oil pressure holds the switch open during cranking and operation. Should oil pressure drop below a pre-set level, the switch contacts close and the engine automatically shuts down.

WATTAGE REFERENCE GUIDE

	RUNNING WATTS	RUNNING WATTS	
*Air Conditioner (12,000 Btu)	1700	Lawn Mower	1200
Battery Charger (20 amp)	500	Light Bulb	100
Belt Sander (3")	1000	Microwave Oven	700
Chain Saw	1200	*Milk Cooler	1100
Circular Saw (6-12")	800 to 1000	Oil Burner on Furnace	300
Coffee Maker	1000	Oil Fired Space Heater (140,000 Btu)	400
*Compressor (1HP)	2000	*Paint Sprayer, Airless (1/3 HP)	600
*Deep Freeze	500	Radio	50 to 200
Disc Sander (9")	1200	*Refrigerator	600
Electric Range (one element)	1500	Slow Cooker	200
Electric Skillet	1250	*Submersible Pump (1-1/2 HP)	2800
*Furnace Fan (1/3 HP)	1200	*Submersible Pump (1 HP)	2000
Hair Dryer	1200	*Table Saw (10")	1750 to 2000
Hand Drill (1")	1100	Television	1750 to 2000
Hedge Trimmer	450		
Impact Wrench	500		

* Allow 2-1/2 times the listed watts for starting these devices.

Figure 5 — Switches for Engine Safety Shutdown



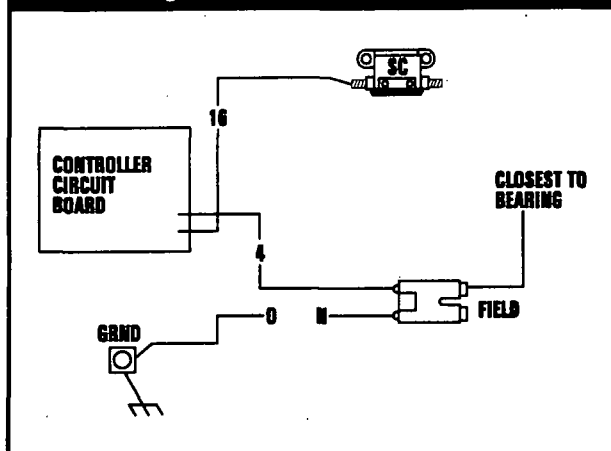
■ HIGH TEMPERATURE SHUTDOWN

A high temperature switch (Figure 5) with normally-open (N.O.) contacts is mounted near the oil filter. If engine temperature were to exceed about 284°F (140°C), the switch contacts close and the engine shuts down.

■ FIELD BOOST

The Controller Circuit Board houses a field boost diode and resistor which are not part of the automatic choke circuit. These two components are part of a "field boost" circuit (Figure 6). During engine cranking only, a positive DC (battery) voltage is delivered through the diode, resistor, brushes and slip rings, and the generator rotor. Application of this voltage to the rotor "flashes the field" whenever it is started. Flashing of the field each time the generator starts makes sure that a sufficiently strong magnetic field is available to produce "pick-up" voltage in the stator windings.

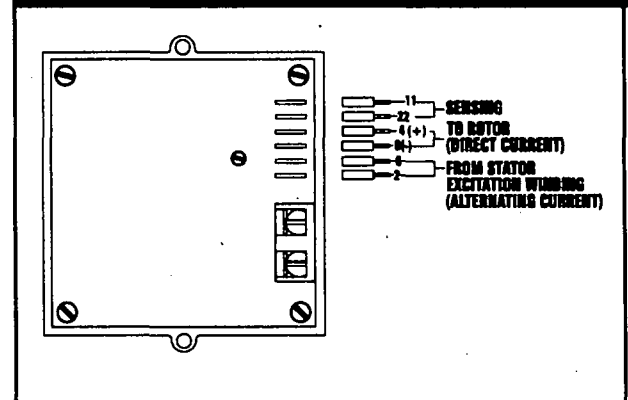
Figure 6 — Field Boost Circuit



■ OVERVOLTAGE PROTECTION

A solid state voltage regulator (Figure 7) controls the generator's AC output voltage. This regulator supplies an excitation current to the rotor. By regulating the rotor's excitation current, the strength of its magnetic field is regulated and, in turn, the voltage delivered to connected electrical loads is controlled. When the AC frequency is 60 Hz, voltage is regulated at 120 volts (voltage-to-frequency ratio is 2-to-1).

Figure 7 — Solid State Voltage Regulator



The voltage regulator also incorporates a "voltage surge protection circuit." This circuit prevents troublesome surges in the generator AC output voltage. Voltage surge is a common cause of damage to electronic equipment.

■ 25-HOUR BREAK IN PERIOD

The first 25 hours of operation is the break-in period for the generator. Properly breaking in the generator is essential to minimize fuel consumption and provide maximum engine performance. During this 25-hour break in period, follow this procedure:

- Run the unit at varying electrical loads, to help seat engine piston rings properly.
- Check engine oil level frequently. Add oil if needed. It is normal for the generator engine to consume more oil than is normal until the piston rings have properly seated.
- For the 75-hour operation following the break in period, avoid light electrical loads. Load the generator at 50% (or more) of its rated wattage capacity. Repeated light loads during these 75 hours can cause improper seating of engine piston rings, resulting in blowby and high oil consumption.
- After operating the unit for 25 hours, complete the tasks recommended under "25-Hour Check Up."



■ 25-HOUR CHECK UP

After the 25-hour break-in period, contact an authorized service facility for the following maintenance. The vehicle owner is responsible for any charges:

- Change engine crankcase oil and oil filter. Check oil level.
- Inspect cooling and ventilation openings. Check engine carburetor adjustments.
- Check engine ignition system.
- Inspect entire electrical system.
- Inspect the engine exhaust system.

■ ATTENTION REQUIRED AFTER SUBMERSION

If the recreational vehicle generator has been submerged in water, it must NOT be started or operated. Following any submersion in water, have an authorized Generac Service Facility thoroughly clean and dry the generator.

■ OPERATION IN HIGH GRASS OR BRUSH

Never operate the generator while the vehicle is parked in high grass, weeds, brush or leaves. Such materials can ignite and burn from the heat of the exhaust system. The generator exhaust system becomes extremely hot during operation and remains hot for a long time after it has shut down.

■ OPERATING PRECAUTIONS

Never operate the generator set while the vehicle is parked over dry leaves, dry grass or any other combustible substance. The generator's exhaust system becomes extremely hot and can cause fire if it is too close to combustible materials.

The generator's exhaust system gives off DEADLY carbon monoxide gas. This dangerous gas, if breathed in sufficient concentrations, can cause unconsciousness and even death. Never operate the generator set with the vehicle inside any garage or other enclosed area. Never operate the generator if it has a leaky exhaust system. Close windows in the vicinity of the generator exhaust outlet and take any other steps to prevent exhaust gases from entering rooms or areas occupied by people or animals.

■ EFFECTS OF MOISTURE AND DIRT

Keep the generator set as clean and dry as possible. Protect the unit against excessive dust, dirt, corrosive vapors, road splash, etc. Permitting dirt and moisture to accumulate on generator windings will have an adverse effect on the insulation resistance of those windings.

When moisture is allowed to remain in contact with windings, some of the moisture will be retained in voids and cracks in the insulation. This causes a reduced insulation resistance and will eventually cause problems. Dirt will make the problem worse, since dirt tends to hold moisture in contact with windings. Salt (as from sea air) will also worsen the problem since it tends to absorb moisture from the air. Salt and moisture, when combined, for a good electrical conductor.



FUEL REQUIREMENTS

The "NP" series generator is equipped with a gasoline fuel system. Specific installations may provide either a separate fuel tank for the generator, or the generator may "share" the vehicle engine's fuel tank.

NOTE: Some installations using a "shared" fuel tank may have a generator fuel pickup tube that is shorter than the vehicle engine's pickup tube. Such an arrangement causes the generator engine to "run out of gas" while adequate fuel for the vehicle remains in the tank.

To reduce lead and carbon deposits use high quality UNLEADED gasoline with the generator. Leaded REGULAR grade gasoline is an acceptable substitute.

NOTE: Using "Unleaded" gasoline contributes to longer engine valve life by reducing lead and carbon deposits.



CAUTION: Generac does not recommend using any gasoline containing alcohol (such as "gasohol"). If you use 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 you use gasoline with alcohol, inspect more frequently for fuel leaks and other abnormalities.

ENGINE OIL REQUIREMENTS

Use only high quality detergent oil rated with API service classification SF, SG, or SH. The recommended oil weights include the following:

- During summer months: SAE 30. An acceptable substitute is SAE 10W-30.
- During winter months: SAE 5W30. DO NOT USE SAE 10-W40.

Crankcase and oil filter capacity is about 1400ml or about 1.5 U.S. quarts. Use no special additives. See "Maintenance" section for oil level check and fill procedures.

SPECIFICATIONS

ENGINE

Type of Engine	GN-410, single-cylinder
Cooling Method	Air-cooled
Rated Horsepower	15 at 4200 RPM
Displacement	407cc
Cylinder Block	Aluminum with cast iron sleeve
Type of Governor	Mechanical, fixed speed
Air Cleaner	Paper element with foam pre-cleaner
Starter	12 volt DC electric
Ignition System.....	Solid State with flywheel magneto
Recommended Spark Plugs	
Champion	RC12YC
AC	R45S
Fram Autolite.....	.65
Spark Plug Gap.....	0.030 inch (0.76mm)
Recommended Minimum Battery	400 CCA (cold cranking amps)

GENERATOR

Rotor RPM	3600
Rotor Poles.....	2
Engine RPM.....	2571
Rated Maximum Continuous	
AC Output	4800 watts (4.8 kW)
Voltage	120 volts AC*
Rated Maximum Continuous AC Current	40 amperes**
Phase	single
Frequency.....	60 Hertz
Battery Charge Voltage	14 Volts DC
Battery Charge Current.....	2 amperes (max)
Weight	197 pounds (93 kg)
Length	25 inches (635mm)
Width	18.5 inches (470mm)
Height	15.75 inches (400mm)

* All units are reconnectable to 120 and/or 240 volts, dual voltage output. Units are no longer listed per RVIA/ANSI when reconnected for dual voltage output.

** If reconnected for dual voltage, the ampere rating for 240 volts is 20 AC amperes.

This section includes information about simple maintenance which includes the following tasks.

- Checking engine oil level.
- Changing engine oil.
- Changing oil filter.
- Changing the air cleaner.
- Cleaning the air intake screen.
- Cleaning spark plug.

CHECKING ENGINE OIL LEVEL

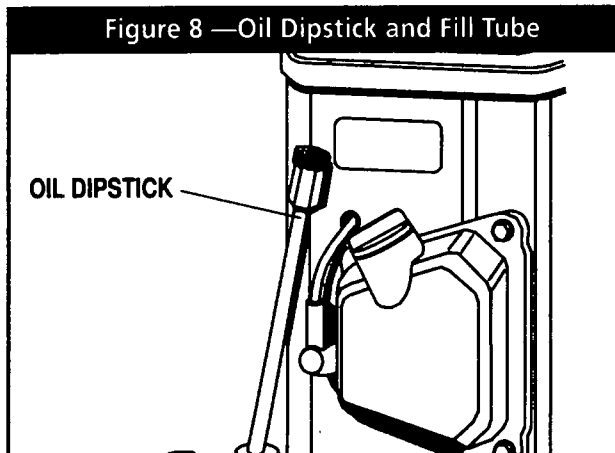
Check engine crankcase oil level at least every eight hours of operation, or before you use it.

Be sure the generator is as level as possible.

- Remove OIL DIPSTICK (Figure 8) and wipe it dry with clean, lint-free cloth.
- Install and tighten oil dipstick then remove again.
- Oil level should be at the dipstick "FULL" mark. If necessary, add oil to the "FULL" mark only. **DO NOT FILL ABOVE THE "FULL" MARK.**
- Install and tighten oil dipstick before operating the engine.

NOTE: See "Engine Oil Requirements" on Page 13 for recommended oils.

Figure 8 — Oil Dipstick and Fill Tube



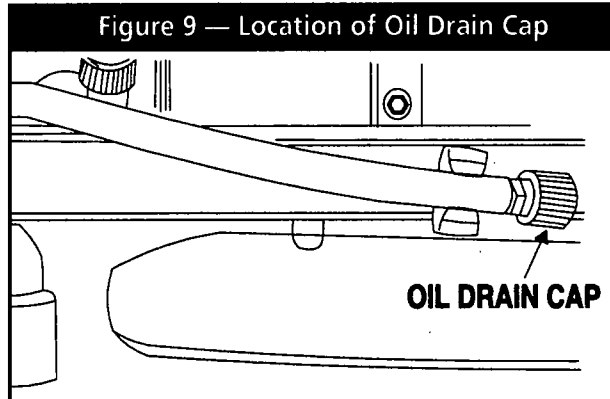
CHANGE ENGINE OIL

Change engine oil after the first 25 hours of operation (after the 25-hour break-in period, Page 11). Thereafter, change oil every 50 operating hours. Change oil more frequently if operating consistently under heavy load or at high ambient temperatures. To change oil, proceed as follows:

- Run engine for at least 5 minutes, then shut down.

- With engine still warm, remove oil drain cap from oil drain hose (Figure 9). Drain oil completely into a suitable container.

Figure 9 — Location of Oil Drain Cap



- When oil has drained, install and tighten oil drain cap.
- Remove oil dipstick and fill crankcase with the recommended oil (see Page 13). The engine crankcase can hold about 1.4 liters. **DO NOT FILL ABOVE "FULL" MARK.**
- Install and tighten dipstick before operating engine.

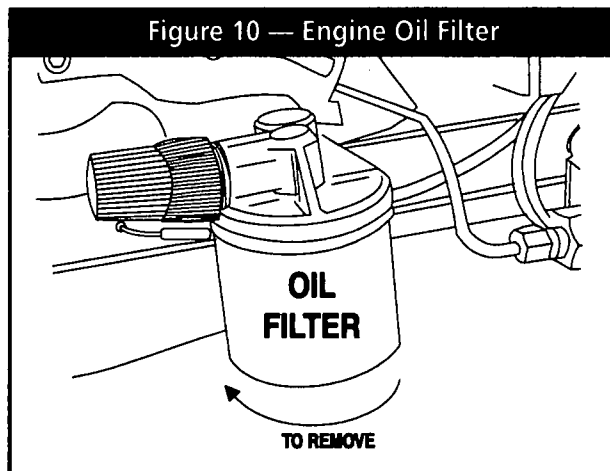
CHANGE OIL FILTER

Change engine oil filter after the first 25 hours of operation, every 100 operating hours thereafter.

- Turn oil filter counterclockwise to remove (Figure 10).
- Coat gasket of new filter with engine oil.
- Turn new filter clockwise until its gasket contacts lightly with the filter adapter. Then tighten with an additional 3/4 to one turn by hand.
- Run engine and check for leaks.

NOTE: Check oil level and fill to full mark after checking for leaks. Filter will retain some oil.

Figure 10 — Engine Oil Filter



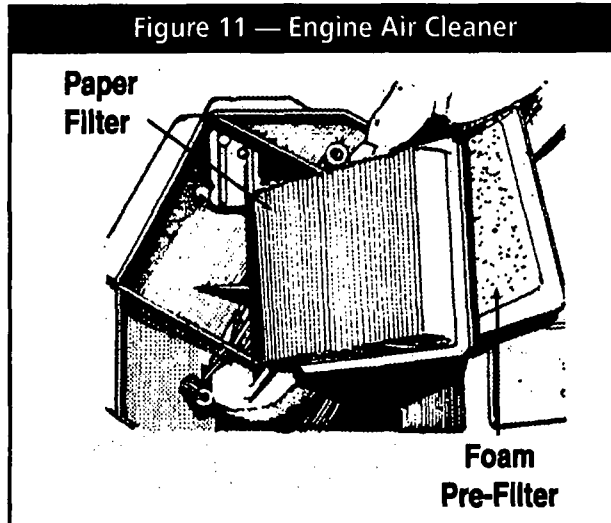
ENGINE AIR CLEANER

Clean and re-oil the foam pre-cleaner every three months or every 25 operating hours, whichever comes first. Service more frequently if operating under extremely dusty or dirty conditions (Figure 11):

- Remove both screws.
- Remove the COVER, FOAM PRE-CLEANER and PAPER FILTER.
- Remove foam pre-cleaner from cover.
- Wash foam pre-cleaner in liquid detergent and water.
- Wrap foam pre-cleaner in a cloth and squeeze dry.
- Saturate foam pre-cleaner in engine oil. Squeeze to remove excess oil (Do not twist foam pre-cleaner).
- Install foam pre-cleaner into cover, followed by paper filter.
- Install cover, foam pre-cleaner and paper filter.
- Tighten both screws.

Once each year or every 100 hours of operation (whichever comes first), replace the paper filter. The new replacement filter must be a flame retardant type.

Figure 11 — Engine Air Cleaner



■ CLEAN OR REPLACE PAPER AIR FILTER

Remove air cleaner cover; then remove foam pre-cleaner (service if necessary) and remove paper filter.

Clean air 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.

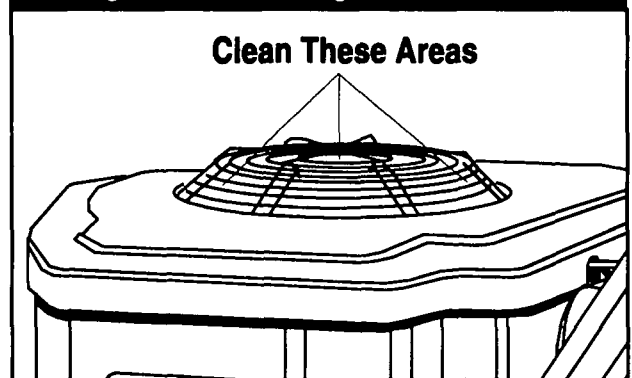
Clean air cleaner cover then insert pre-cleaner into cover. Next insert new paper filter into cover to hold pre-cleaner in place and assemble all of them to the base of the air cleaner.

CLEAN AIR INTAKE SCREEN

Clean all foreign material from air intake screen (Figure 12) at least once every 100 hours of operation. Clean more often if necessary.

Inspect the area around the generator exhaust muffler periodically and remove all grass leaves, dirt, etc. from this area.

Figure 12 — Cleaning Air Intake Screen



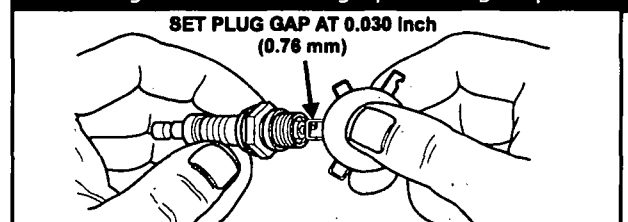
ENGINE SPARK PLUG

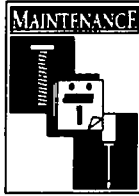
Clean engine spark plug and set gap to 0.030 inch (0.76mm) every 100 hours of operation (Figure 13). Clean by scraping or wire brushing and washing with commercial solvent. DO NOT BLAST CLEAN SPARK PLUG.



CAUTION: Sparking can occur if wire terminal does not fit firmly on spark plug terminal end. If necessary, reform wire terminal to obtain a tight fit.

Figure 13 — Setting Spark Plug Gap

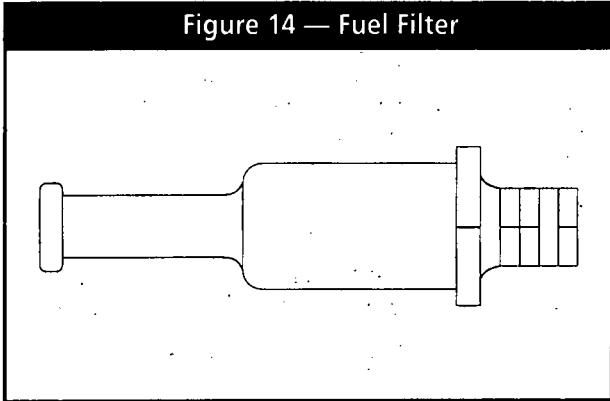




FUEL FILTER

Remove and replace fuel filter (Figure 14) every 100 hours of operation or once each year, whichever comes first.

Figure 14 — Fuel Filter



SPARK ARRESTOR MUFFLER

If the generator is not equipped with a spark arrestor exhaust muffler and is to be used on any forest covered, brush covered or grass covered unimproved land, you may have to install a spark arrestor. The spark arrestor must be maintained in effective working order by the vehicle owner/operator.

For assistance in ordering, installing and maintaining spark arrestor exhaust mufflers, contact your nearest authorized service facility.

Exhaust mufflers supplied by Generac are spark arrestor types. Generac exhaust muffler for recreational vehicle generators do not have a spark arrestor screen, but are of the more efficient "toroid" or "swirl" type. To remove carbon and combustion deposits from such mufflers, remove the PLUG from the muffler and run engine for about 15 minutes. Shut engine down, let the muffler cool and install the plug.



WARNING: Be sure to re-install the plug from the muffler tightly. Engine vibration could cause a loose plug to fall out. Without the plug in place, hot engine exhaust is directed out the opening. This hot exhaust, depending on the installation, could be directed to areas not able to withstand the extreme heat such as wooden floor boards or other flammable material. This could result in a fire.

CLEANING THE GENERATOR

Keep your generator set as clean and dry as possible. Dirt and moisture that are permitted to accumulate on electrical windings have an adverse affect on the insulation resistance of those windings.

Moisture that is allowed to remain in contact with windings will be retained in voids and cracks of the windings. Dirt makes the problem worse, since it tends to hold the moisture into contact with the windings. Salt, as from sea air, worsens the problem since it tends to absorb moisture from the air. The combination of salt and moisture makes a good electrical conductor.



CAUTION! Do NOT use a forceful spray of water to clean the generator. Water will enter the generator interior and cause problems, and may also contaminate the generator fuel system.

BATTERY

All lead-acid storage batteries will discharge when not in use. The generator battery should be inspected as follows:

■ ONCE WEEKLY

Inspect battery posts and cables for tightness, corrosion. Clean and/or tighten as needed.

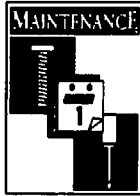
Also check battery fluid level, and, if necessary, fill with DISTILLED WATER ONLY. DO NOT USE TAP WATER IN BATTERY.

■ EVERY SIX MONTHS

Have battery state of charge and condition checked. This should be done with automotive type battery hydrometer.



DANGER: Storage batteries give off explosive hydrogen gas. This gas can form an explosive mixture around the battery for several hours after charging. The slightest spark can ignite the gas and cause an explosion. Such an explosion can shatter the battery and cause blindness or other injury. Any area that houses a storage battery must be properly ventilated. Do not allow smoking, open flame, sparks or any spark producing tools or equipment near the battery.



DANGER: Battery electrolyte fluid is an extremely caustic sulfuric acid solution that can cause severe burns. Do not permit fluid to contact eyes, skin, clothing, painted surfaces, etc. Wear protective goggles, protective clothing and gloves when handling a battery. If you spill the fluid, flush the affected are immediately with clear water.



DANGER: Do not use any jumper cables or booster battery to crank and start the generator engine. If any battery has discharged, remove it for recharging.

MAJOR SERVICE MANUAL

To obtain a service manual for your generator, order it from your dealer/distributor or contact the factory. Be sure to identify your MODEL NUMBER and SERIES.

DRIVE BELTS

The engine drives the generator rotor by means of a pulley and drive belt arrangement. The drive belt and pulleys are warranted for the life of the generator. Drive belt tension was properly adjusted before the unit was shipped from the factory. If you suspect that drive belt tension is incorrect, contact an authorized service facility.

EXERCISING THE GENERATOR

Generac recommends that you start and operate the generator at least once every seven days. Let the unit run for at least 30 minutes to "exercise" the engine.

OUT OF SERVICE PROTECTION

If you cannot exercise the generator every seven days and it is to be out of service longer than 30 days, prepare the generator for storage as follows:

- Start the engine and let it warm up.
- Close the fuel shutoff valve in the fuel supply line and let the engine "run out of fuel."

- While the engine is still warm from running, drain the oil completely. Refill crankcase with SAE 10W30 oil having API classification "For Service SF"
- Attach a tag to the engine indicating the viscosity and classification of the oil in the crankcase.
- Remove spark plug and pour about two or three tablespoons of clean, fresh engine oil into spark plug threaded opening. Crank engine several times to distribute oil, then install and tighten spark plug.
- Remove the battery and store in a cool, dry room on a wooden board. Never store the battery on concrete or earth floors.
- Clean and wipe the entire generator.

RETURN THE UNIT TO SERVICE AFTER STORAGE

To return the unit to service after storage, proceed as follows:

- Check tag on engine for oil viscosity and classification. Verify that the correct recommended oil is used in engine. If necessary, drain and refill with proper oil.
- Check battery. Fill all cells to the proper level with distilled water. **DO NOT USE TAP WATER IN THE BATTERY.** Recharge battery to 100% state of charge, or, if defective, replace the battery.
- Turn OFF all electrical loads, add fuel if necessary, then start the engine.
- Let the engine warm up.
- Apply electrical loads to at least 50% of the unit's rated wattage capacity.
- When engine is thoroughly warmed up, shut it down.

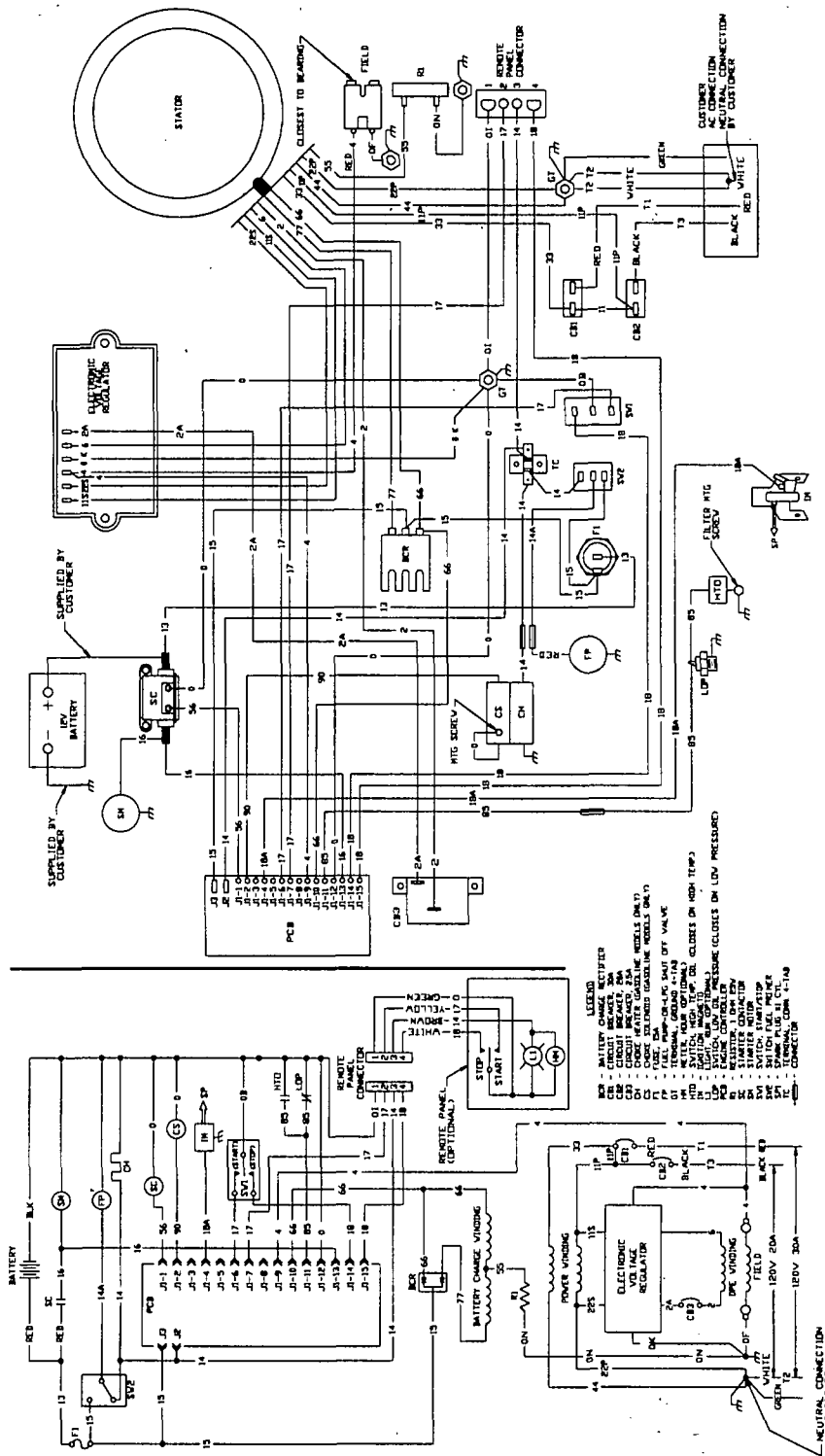
THE GENERATOR IS NOW READY FOR SERVICE.



TROUBLESHOOTING POINTS

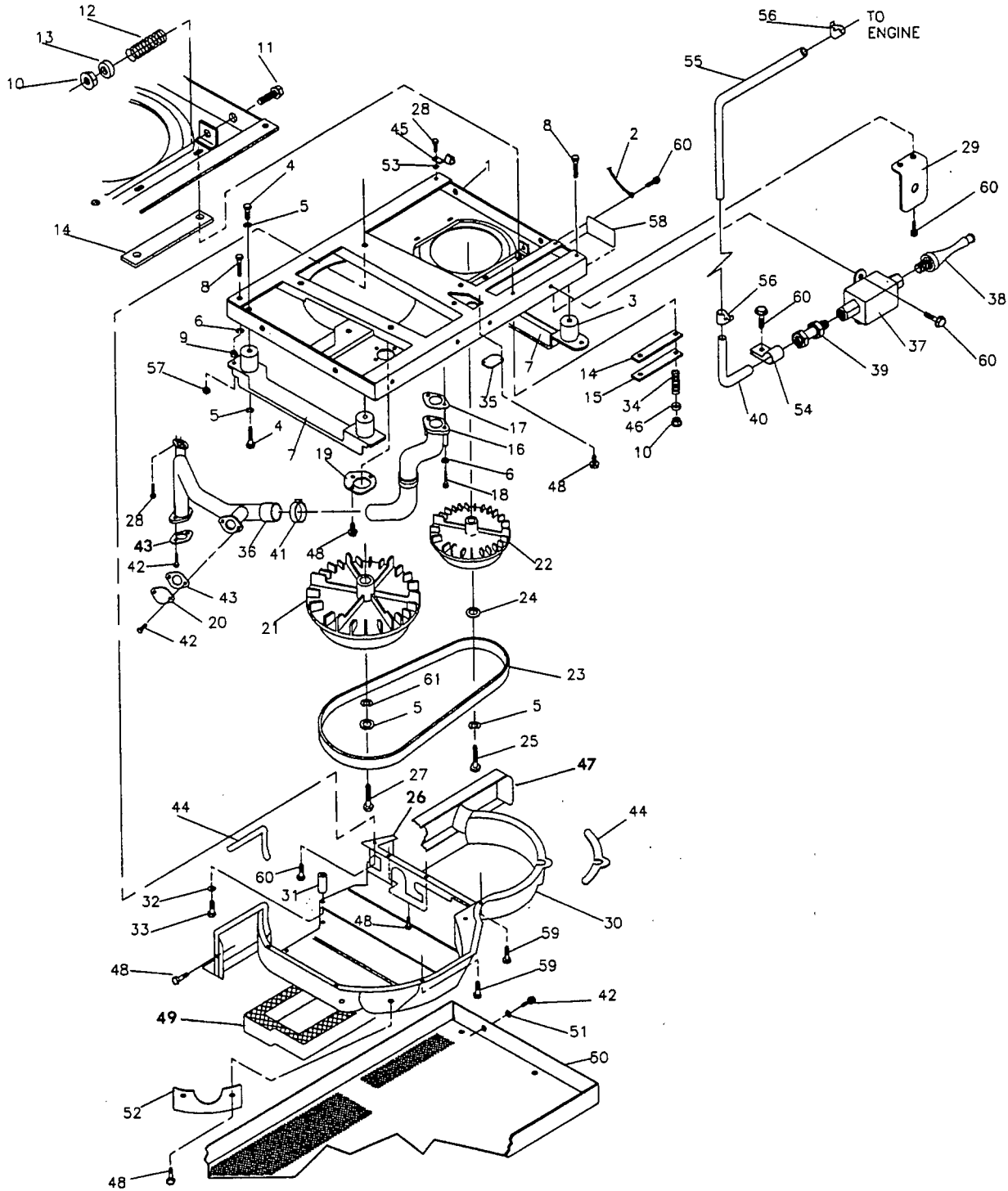
PROBLEM	CAUSE	CORRECTION
Engine won't crank.	<ol style="list-style-type: none"> 1. 15 amp fuse blown. 2. Loose or corroded or defective battery cables 3. Battery is discharged or defective. 4. Defective starter contactor. 5. Defective starter motor. 	<ol style="list-style-type: none"> 1. Replace fuse. 2. Tighten, clean or replace as necessary. 3. Recharge or replace battery. 4. Replace if defective. 5. Replace if defective.
Engine cranks but won't start	<ol style="list-style-type: none"> 1. Out of fuel. 2. Fuel shutoff valve is closed. 3. Fuel pump not operating 4. Automatic choke not operating properly. 5. Engine is flooded. 6. Fuel Filter is clogged. 7. Defective Controller Circuit Board. 8. Engine spark plug defective. 9. Bad ignition magneto on engine. 10. Bad carburetor. 11. Dirty air cleaner. 	<ol style="list-style-type: none"> 1. Replenish fuel. 2. Open fuel shutoff valve(s). 3. Repair or replace if defective. 4. Repair, replace or adjust. 5. Wait 5-10 minutes; try again. 6. Replace filter if clogged. 7. Replace bad circuit board 8. Clean, regap or replace as needed. 9. Replace if defective. 10. Adjust, repair or replace. 11. Clean or replace as needed.
Engine starts hard, runs rough.	<ol style="list-style-type: none"> 1. Dirty engine air cleaner. 2. Automatic choke is sticking. 3. Defective spark plug. 4. Defective ignition magneto. 	<ol style="list-style-type: none"> 1. Clean or replace as needed. 2. Free choke linkage as needed. 2. Clean, regap or replace plug. 4. Replace if defective.
Engine starts, then shuts down	<ol style="list-style-type: none"> 1. Engine oil level is low. 2. Defective Low Oil Pressure Switch 	<ol style="list-style-type: none"> 1. Check oil and add oil as needed. 2. Replace bad switch.
No AC output voltage.	<ol style="list-style-type: none"> 1. Main breakers open. 2. Transfer switch (if so equipped) is set to wrong position. 3. Failure in vehicle electrical system. 4. Generator component failure. 	<ol style="list-style-type: none"> 1. Close main breakers. 2. Reset transfer switch. 3. See vehicle manual. 4. Contact an authorized service facility.

ELECTRICAL DATA



Recreational Vehicle Generator

EXPLODED VIEW — BASE AND PULLEYS

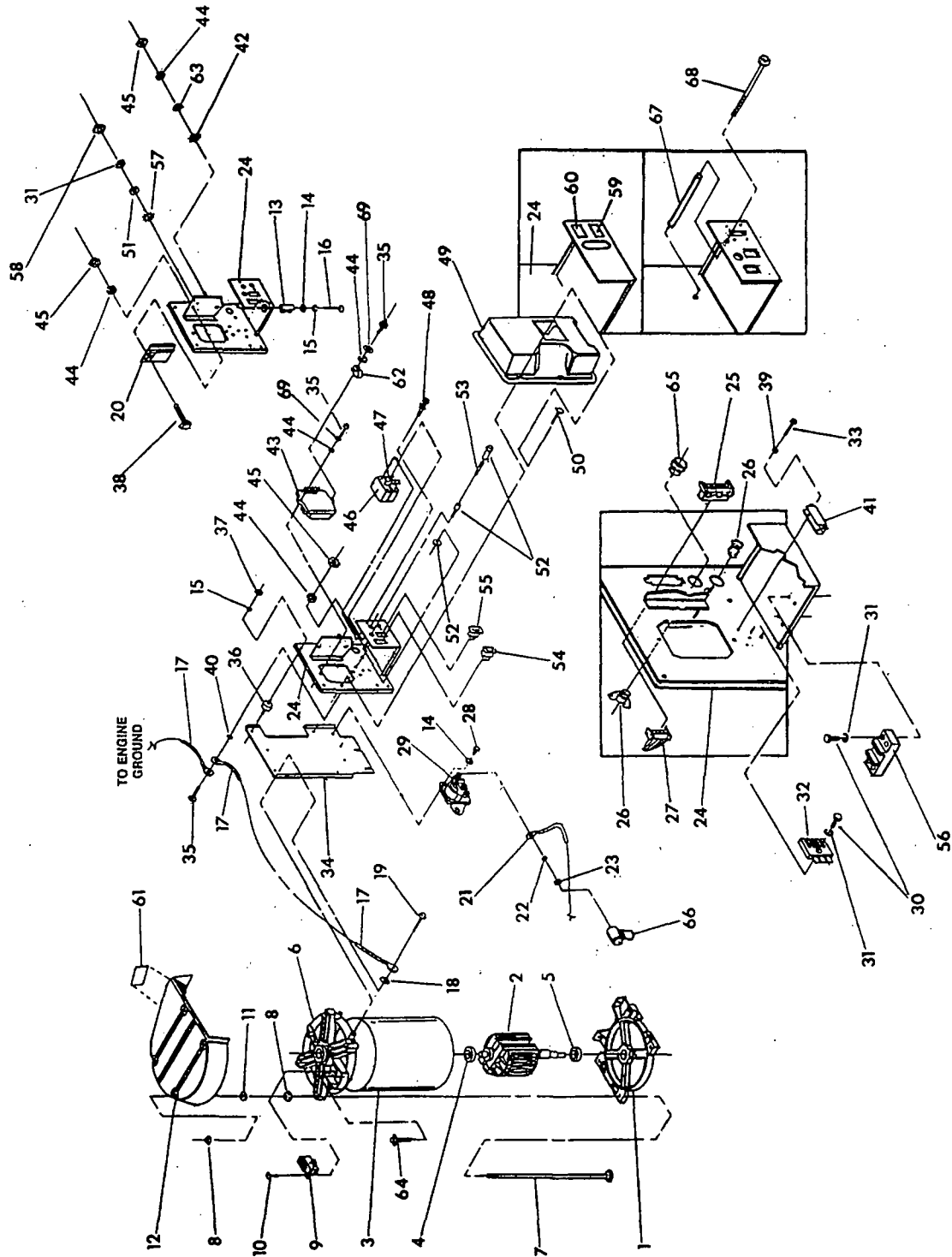


Recreational Vehicle Generator

REPAIR PARTS — BASE AND PULLEYS

ITEM	DESCRIPTION	PART NO.	QTY.	ITEM	DESCRIPTION	PART NO.	QTY.
1	Mounting Base	92603	1	32	M5 Lock Washer	22152	1
2	Ground Cable	90141	1	33	M5-0.80 x 80mm Screw	77682	1
3	Rubber Mount	46911	4	34	Generator Set Mt. Spring	75242	4
4	3/8"-16 x 1/2" Capscrew	25017	8	35	Exh. Base Cover Plate	92203	1
5	M10 Lock Washer	46526	10	36	Universal Exh. Adaptor	91146	1
6	M8 Lock Washer	22129	4	37	Fuel Pump	90475	1
7	Rubber Mount Skid	72391	2	38	Fuel Filter	87769	1
8	5/16-18 x 3-1/2 Safety Bolt	77603	2	39	1/8 Pipe to 1/4 Tube Fitting	87768	1
9	5/16-18 Hex Nut	22259	2	40	Metal Fuel Tube	91634	1
10	M8-1.25 Flanged Lock Nut	52858	6	41	1-1/4 Dia. Exh. Pipe Clamp	96289	1
11	M8-1.25 x 60mm Capscrew	51730	2	42	M6-1.0 x 16 HHCS & Lock Washer	79246	8
12	Belt Tension	29459	2	43	Exh. Pipe Gasket	77643	2
13	Spring Cntr. Washer	75215	2	44	Foam Tape	29289	10 Ft.
14	Nylon Slide	73146	4	45	Grounding Lug	62684	1
15	Nylon Slide Support	75209	2	46	Spring Retainer Washer	75237	4
16	Exhaust Manifold	91032	1	47	Air Opening Cover	75226	1
17	Exhaust Manifold Gasket	90239	1	48	#10-24 x .5 Screw	56893	14
18	M8-1.25 x 65 Socket Hd. Capscrew	57636	2	49	Foam Slide Pan Gasket	75229	1
19	Collector Pan Gasket	92645	1	50	Slide Pan	75227	1
20	External Cover Plate	90859	1	51	M6 Flat Washer	22473	4
21	Engine Pulley	75224B	1	52	Exhaust Outlet Cover	72384C	1
22	Alt. Pulley	73106B	1	53	M6 Shakeproof Lock Washer	22447	2
23	40" Belt (Poly V 4L)	75216	1	54	Vinyl Coated Clamp	90088	2
24	Pulley Retainer Washer	49451	1	55	1/4 Dia. 250mm Fuel Hose	44249B	1
25	3/8"-24 x 1 Socket Hd. Capscrew (Grade 5)	42633	1	56	Hose Clamp	48031	2
26	Blower Housing Guide	77017	1	57	5/16-18 Flange Nut (Special)	81105	2
27	3/8"-24 x 2-1/2" Capscrew	73118	1	58	Ground Decal	67210	1
28	M6-1.00 x 20 Screw	74906	2	59	M5-0.8 x 10 Taptite Screw	74908	9
29	Fuel Pump Bracket	91123	1	60	M6-1.0 x 10 Taptite Screw	45756	9
30	Blower Housing	72375	1	61	M10 Flat Washer	22131	1
31	Blower Housing Spacer	73185	1				

EXPLODED VIEW — ALTERNATOR AND PANEL

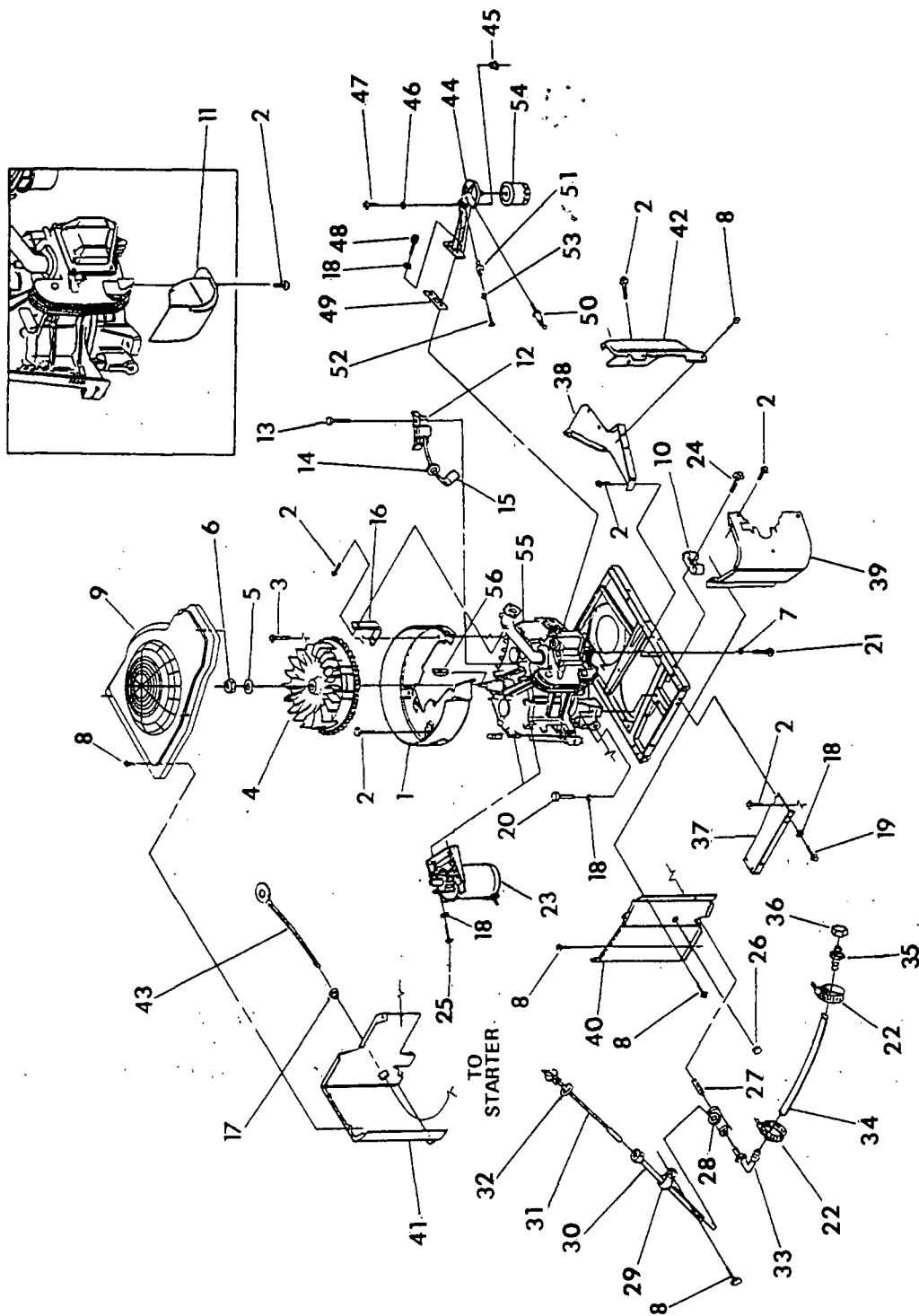


Recreational Vehicle Generator

REPAIR PARTS — ALTERNATOR AND PANEL

ITEM	DESCRIPTION	PART NO.	QTY.	ITEM	DESCRIPTION	PART NO.	QTY.
1	Lower Bearing Carrier	75995	1	35	M5-0.8 x 30 Capscrew	75235	3
2	50 Rotor Assembly	926050	1	36	Vibration Mount	82737	4
3	50 Stator Assembly	926040	1	37	M6-1.0 Hex Nut	49813	4
4	Ball Bearing	73159	1	38	M5-0.8 x 16 Capscrew	55440	1
5	Ball Bearing	31971	1	39	M3 Lock Washer	43182	2
6	Upper Bearing Carrier	72379	1	41	2.5A.-ON Circuit Breaker	53623	1
7	Stator Stud	77006	4	42	M5 Shakeproof Washer	22769	2
8	M8-1.25 Flange Lock Nut	52858	8	43	Regulator Voltage	83049	1
9	Brush Holder	66386	1	44	M5 Lock Washer	22152	6
10	M5-0.8 x 16 Taptite	66849	2	45	M5-0.8 Hex Nut	51716	4
11	Nylon Washer	27756	4	46	20A. Circuit Breaker	90144	1
12	Generator Top Housing	86314	1	47	30A All Units Cir. Breaker	90145	1
13	Resistor	75234	1	48	#6-32 w/Lockwasher Screw	25105	4
14	M6 Flat Washer	22473	3	49	Panel Cover	86315	1
15	M6 Lock Washer	22097	5	50	M4-0.7 x 16 Screw w/Lock Washer & Flat Washer	90734	4
16	M6-1.0 x 60 Capscrew	74095	1	51	M4 Flat Washer	22985	1
17	Ground Cable	90141	2	52	Fuse Holder	32300	1
18	Shakeproof Lock Washer	22447	1	53	15A. AGC Fuse	22676	1
19	M6-1.0 x 20 Taptite	74906	4	54	6A (Start/Stop) S.P.D.T. Switch	87798	1
20	P.C.B. Controller	94039	1	55	S.P.D.T. Switch (Fuel Pump)	92113	1
21	Starter Cable	10-74260	1	56	Terminal Block	75210A	1
22	5/16 Lock Washer	22129	2	57	M4 Shakeproof Washer	23365	1
23	5/16-18 Hex Nut	22259	2	58	M4-0.7 Hex Nut	51715	1
24	Panel Sheet Metal	86316	1	59	30A. CB Rating Decal	90157	1
25	4-Pin Connector	53650	1	60	20A. CB Rating Decal	90156	1
26	Connector	91915	1	61	Cust. Connection Decal	89438A	1
27	Remote Harness	75244	1	62	Hose Clamp	31791	1
28	M6-1.0 x 12mm Capscrew w/Lock Washer	66476	2	63	M5 Flat Washer	23365	1
29	Starter Contactor	86729	1	64	M5 x 10 Taptite	74908	2
30	M4-0.7 x 16 Capscrew	75476	3	65	Bushing	23484S	1
31	M4 Lock Washer	22264	4	66	Battery Cable Boot	75763A	1
32	Battery Charge Rectifier	65795	1	67	Plastic Spacer	94070	1
33	M3-0.5 x 15 Capscrew	90987	2	68	M6-0.8 x 110 PPHMS.	94071	1
34	Panel Support Bracket	86317	1				

EXPLODED VIEW — ENGINE SHEET METAL

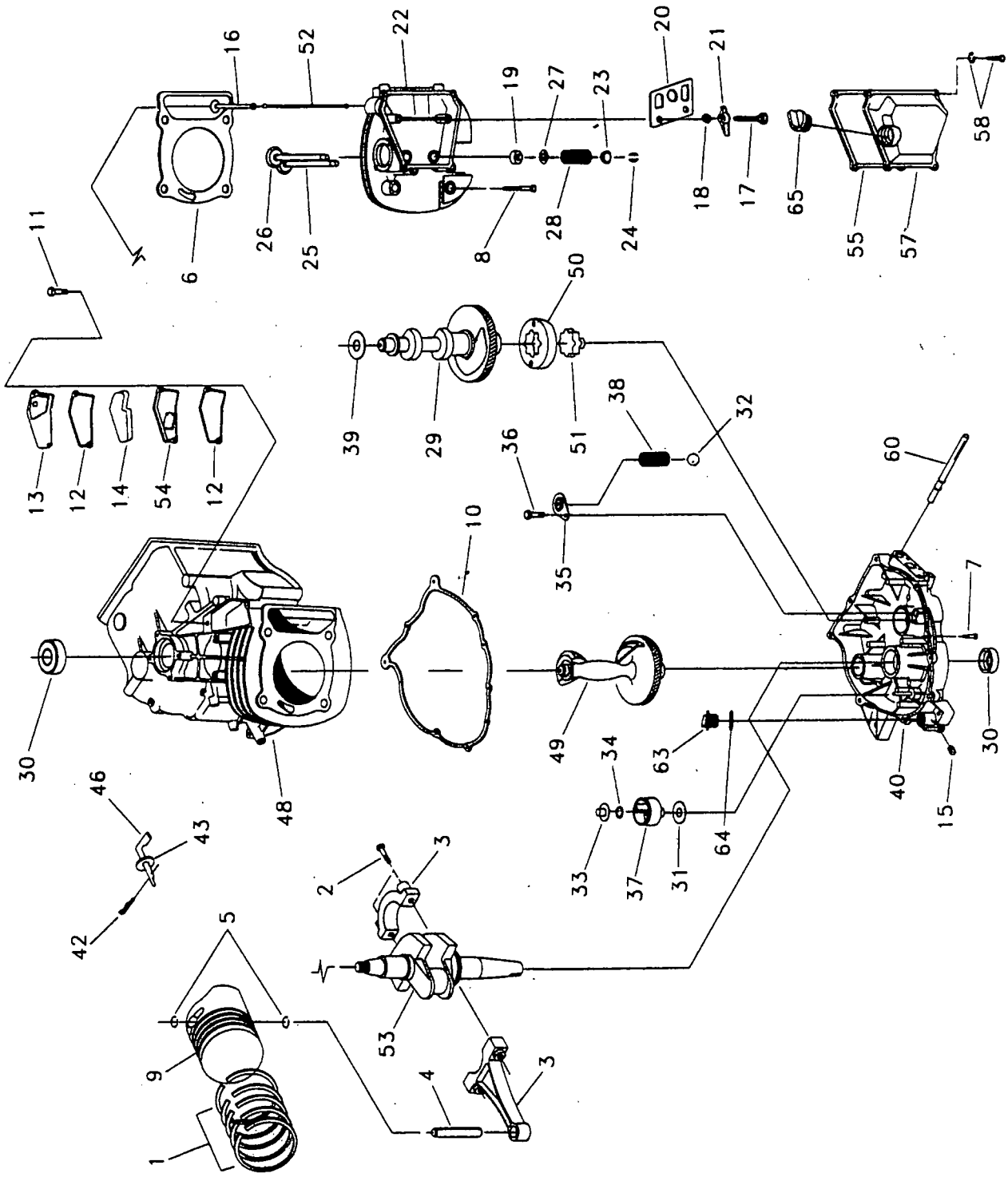


Recreational Vehicle Generator

REPAIR PARTS — ENGINE SHEET METAL

ITEM	PART NO.	QTY.	DESCRIPTION	ITEM	PART NO.	QTY.	DESCRIPTION
1	90953	1	SCROLL, FLYWHEEL	27	35467	1	CLOSE NIPPLE 3/8" NPT
2	45756	8	SCREW, TAPTITE M6-1.0 X 10 LG.	28	27738-A	1	PIPE TEE 3/8" NPT
3	90388	1	SCREW, TAPTITE M6-1.0 X 12 LG.	29	55934-T	1	CLAMP-VINYL COATED
4	91222-D	1	FLYWHEEL (21 DEG.)	30	91519	1	TUBE - DIPSTICK
5	67198-N	1	WASHER, BELLVILLE M20	31	91520	1	ASSY., CAP AND DIPSTICK
6	67890	1	NUT, M20 X 1.5	32	91648	1	"O" RING DIA.-14 X 3 WALL
7	A4456	1	3/8" SPECIAL LOCK WASHER	33	43791	1	ELBOW, 3/8" I.D.-BRASS
8	56893	23	SCREW, CRIMPTITE #10-24 X .5 LG.	34	47290	1	HOSE, 3/8" I.D.
9	98769	1	COVER, TOP FLYWHL NP50	35	35461	1	BARB FITTING-1/4" NPT- 3/8" HOSE
10	65852	1	CLIP, HOSE RETAINER	36	69811	1	CAP - 1/4" NPT
11	91646	1	DEFLECTOR, EXH. PORT	37	90951	1	COVER-BASE, STARTER SIDE
12	A8600	1	ASSY. IGNITION COIL	38	90952	1	COVER-BASE CARB. SIDE
13	92097	2	SCREW, TAPTITE M6-1.0 X 25MM	39	91137	1	WRAPPER, ENG. SPARK PLUG
14	22717-A	1	GROMMET, RUBBER	40	90954	1	WRAPPER, STARTER SIDE
15	73132	1	BOOT, SPARK PLUG	41	90955	1	WRAPPER, REAR GEAR CASE
16	91643	1	BRACKET, INTAKE MANIFOLD SUPPORT	42	90956	1	WRAPPER, CARB. SIDE
17	22717-B	1	GROMMET, RUBBER	43	74260-10	1	ASSEMBLY., WIRE - STARTER (#16)
18	22129	8	LOCK WASHER - M8	44	90892	1	SUPPORT, OIL FILTER
19	42907	2	CAPSCR., HEX HD. M8-1.25 X 16 LG.	45	90059	1	BUSHING, RUBBER
20	57821	2	CAPSCR., HEX HD. M8-1.25 X 40 LG.	46	91160	1	WASHER, RUBBER
21	59637	2	SCREW, TAPTITE 3/8"-16 X .75 LG.	47	91161	1	BOLT, SHOULDER-M6 X 15 LG.
22	48031-E	2	HOSE CLAMP	48	49821	2	BOLT, SOCKET HD. CAPSCR. M8-1.25 X 30 LG.
23	21544	1	MOTOR, STARTER-12VOLT	49	86999	1	GASKET, OIL FILTER SUPPT.
24	74908	1	SCREW, TAPTITE M5-0.8 X 10 LG.	50	60108	1	SWITCH, OIL PRESS.-10 PSI
25	40976	2	SOCKET HD. CAPSCR., M8-1.25 X 20 LG.	51	75281	1	SWITCH, OIL TEMPERATURE
26	25034	1	PLUG, BUTTON - 1.06	52	74027	2	SCREW, PHILLIPS PAN HD. MACH. - M3-0.5 X 5 LG.
				53	43182	2	LOCK WASHER - M3
				54	70185	1	FILTER, OIL
				55	A7629	1	ENGINE, LONG BLOCK - GN410VSRV
				56	82774	1	KEY, WOODRUFF 4 X 19 DIA.

EXPLODED VIEW — GN-410 ENGINE

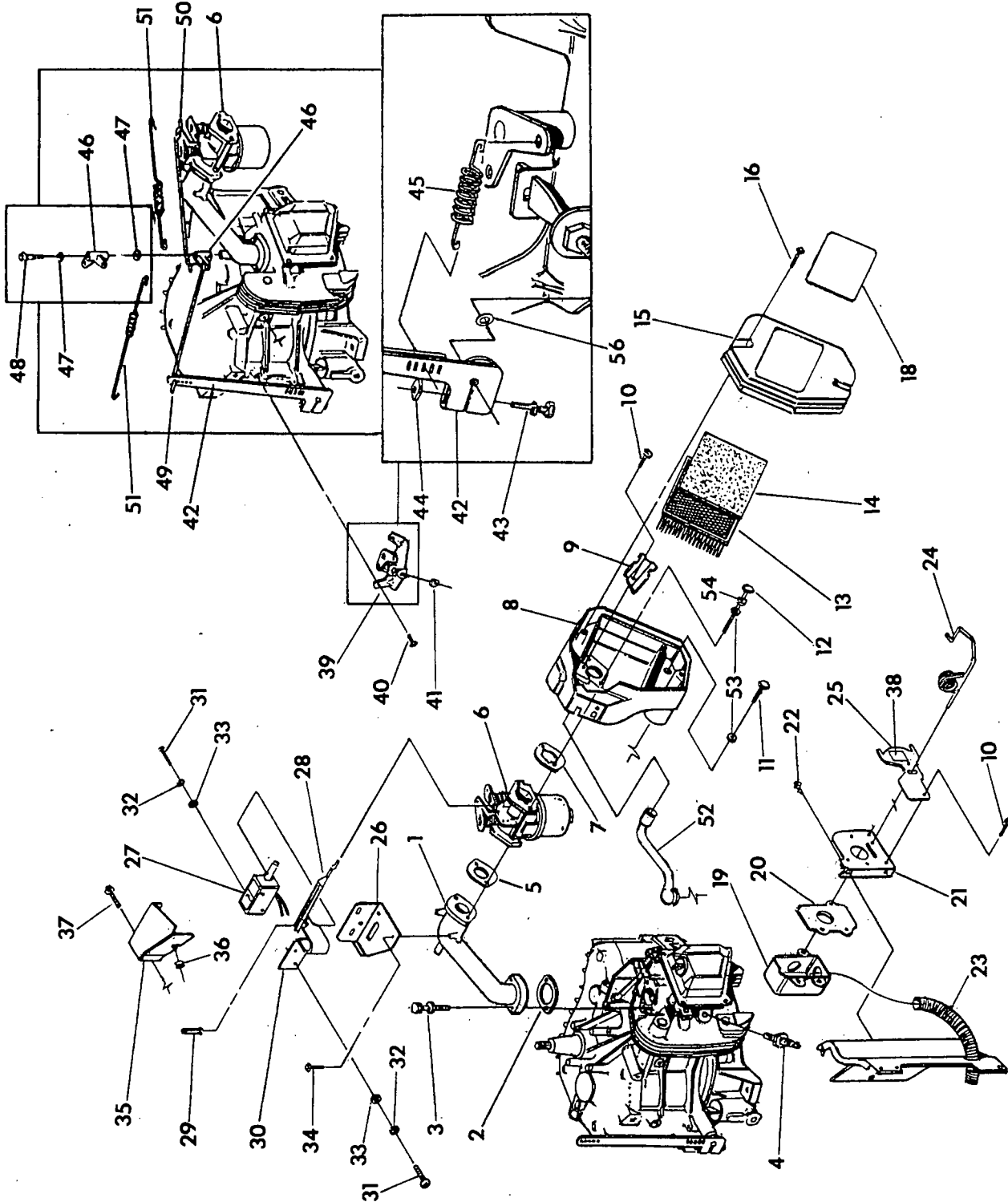


Recreational Vehicle Generator

REPAIR PARTS — GN-410 ENGINE

ITEM	DESCRIPTION	PART NO.	QTY.	ITEM	DESCRIPTION	PART NO.	QTY.
1	PISTON RING SET	21533	1	32	PRESSURE RELIEF BALL	A5776	1
2	CONNECTING ROD BOLT	71979	2	33	GOVERNOR SPOOL	A7308	1
3	CONNECTING ROD WITH CAP AND BOLT	71978	1	34	GOVERNOR RETAINER (C-RING)	78645	1
4	PISTON PIN	71980	1	35	OIL PRESSURE SPRING RETAINER	78691	1
5	PISTON PIN RETAINER	71983	2	36	M5-0.8X8MM SCREW (THD. FORMING)	74908	1
6	CYLINDER HEAD GASKET	21713B	1	37	GOVERNOR GEAR ASSEMBLY	83912	1
7	FLANGED HEX HD. CAPSCREW	73144	8	38	OIL PRESSURE SPRING	A5771	1
8	M10 X 100MM HEAD BOLT	73149	4	39	SPRING WASHER	B2104	2
9	PISTON	96699	1	40	OIL SUMP	83981	1
10	CRANKCASE GASKET	76701	1	41	SLEEVE BEARING	72654	1
11	M6 SCREW (THD. FORMING)	45756	2	42	GOVERNOR ARM "R" PIN	78658	1
12	BREATHER GASKET	80308	2	43	THRUST WASHER	78659	2
13	BREATHER COVER	80309	1	44	SLEEVE DOWEL PIN DIA. 12	78699B	1
14	OIL BREATHER SEPARATOR	80338	1	45	SLEEVE DOWEL PIN DIA. 14	78699C	2
15	PIPE PLUG-3/8"	26925	1	46	GOVERNOR ARM	83948	1
16	TAPPET	83897	2	47	DOWEL PIN DIA. 12 X 20 LONG	88590	1
17	PIVOT BALL STUD	72694	2	48	CRANKCASE SUB ASSEMBLY	89288C	1
18	JAM NUT (ROCKER ARM)	72696	2	49	BALANCER	84430	1
19	SEAL, VALVE STEM	78672	1	50	OUTER GEROTER	86002	1
20	PUSH ROD GUIDE PLATE	78694	1	51	INNER GEROTER	86026	1
21	ROCKER ARM	83907	2	52	PUSH ROD	88396B	2
22	CYLINDER HEAD W/VALVE SEATS AND GUIDES	21714	1	53	CRANKSHAFT ASSEMBLY	90416A	1
23	VALVE SPRING RETAINER	86514	2	54	BREATHER VALVE ASSEMBLY	90747	1
24	VALVE SPRING KEEPER	88515	4	55	ROCKER COVER GASKET	70987	1
25	EXHAUST VALVE	86516	1	57	ROCKER COVER W/FILL	92362	1
26	INTAKE VALVE	86517	1	58	M6-1.00 X 16MM PAN HD. SCR. AND LOCKWASHER	79246	4
27	WASHER, VALVE SPRING	89673	2	59	BEARING TUBE SHAFT	83921	1
28	VALVE SPRING	91308	2	60	OIL SCREEN PICKUP ASSEMBLY	77158	1
29	CAMSHAFT ASSEMBLY	A7081	1	61	"O" RING 14 I.D. X 2.4 THICK	80342	2
30	CAMSHAFT SEAL	72655	2	63	OIL FILL PLUG	76329	1
31	THRUST WASHER	76361	1	64	"O" RING 17.8 I.D. X 2.4 THICK	86254	1
				65	OIL FILL CAP ASSEMBLY	93064	1

EXPLODED VIEW — ENGINE ACCESSORIES



Recreational Vehicle Generator

REPAIR PARTS — ENGINE ACCESSORIES

ITEM	DESCRIPTION	PART NO.	QTY.	ITEM	DESCRIPTION	PART NO.	QTY.
1	Intake Manifold	90896	1	28	Choke Linkage	91642	1
2	Manifold Head Gasket	91039	1	29	Cotter Pin	36544	1
3	M6-1.0 x 20 Capscrew & Lock Washer Bolt	68527	2	30	Choke Heater Assy.	89473	1
4	#RC12YC Champ Spark Plug	72347	1	31	#4-40 x .19 Phillips Screw	47488	4
5	Carb./Manifold Gasket	89228	1	32	#4 Lock Washer	22159	4
6	Carburetor	91188A	1	33	#4 Flat Washer	31879	4
7	Carb./Air Filter Gasket	90970	1	34	M5 x 10 Taptite Screw	74908	2
8	Air Filter Base	73108	1	35	Choke Assy. Cover	91677	1
9	Carb. Shield Plate	91204	1	36	Rubber Grommet	22717A	1
10	#8 x .37" Plastite Screw	59635	4	37	#8 x .37 Crimptite Screw	63036	1
11	M6 x 12 Capscrew & Lock Washer Bolt	66476	2	38	Summer/Winter Decal	92252	1
12	80 Lg. Carb. Mount. Bolt	92695	2	39	Gov. Spring Adj. Brkt. Assy.	92164	1
13	Air Filter	73111	1	40	M8 x 15 Taptite Bolt	83512	2
14	Air Filter Pre-Cleaner	81646	1	41	M5-0.8 Locking Nut	83503	1
15	Air Filter Cover	73104B	1	42	Gov. Arm Lever	90968	1
16	Air Filter Cover Bolt	78609	2	43	M6 x 30 Washer/Lock Washer Bolt	83532	1
18	NP-50G (360 Eng. only) A/C Data Decal	91554	1	44	M6 Special Nut	86681	1
	NP-50G (410 Eng. only) A/C Data Decal	91554B	1	45	Governor Spring	91638	1
19	Heat Riser Box	92364	1	46	Gov. Rods Bellcrank	91633	1
20	Heat Riser Box Gasket	92363	1	47	Felt Washer	92586	2
21	Air Clnr. Support Bracket	91367	1	48	M6 x 15 Shoulder Bolt	91161	1
22	M6-1.0 x 10 Taptite Bolt	45756	2	49	Linkage Gov. Lever Bellcrank Rod	91636	1
23	7" Lg. Heat Riser Tube	92182	1	50	Carb. Link. Bellcrank Rod	91637	1
24	Winter/Summer Lever Assy.	91994	1	51	A/L Gov. Lever Bellcrank Spring	91649	
25	Summer/Winter Valve Guide Plate	91992	1	52	Breather Tube	91645	1
26	Choke Assy. Bracket	91641	1	53	M6 Flat Washer	22473	4
27	Choke Solenoid Assy.	91306	1	54	M6 Flat Washer	22097	2
				55	.26 I.D. Washer Spring	A4009	1

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board ("CARB") and Generac Corporation are pleased to explain the Emission Control System Warranty on your new recreational vehicle generator engine. In California, new recreational vehicle generator must be designed, built and equipped to meet the State's stringent anti-smog standards. Generac Corporation will warrant the emission control system on your recreational vehicle generator for the periods of time listed below provided there has been no abuse, neglect, unapproved modification, or improper maintenance of your recreational vehicle generator engine.

Your emission control system may include parts such as the carburetor, ignition system and exhaust system. Also included may be the compression release system and other emission-related assemblies.

Where a warrantable condition exists, Generac Corporation will repair your recreational vehicle generator engine at no cost to you for diagnosis, parts and labor.

MANUFACTURER'S EMISSION CONTROL SYSTEM WARRANTY COVERAGE:

Emissions control systems on 1995 and later model year recreational vehicle generator are warranted for two years as hereinafter noted. If, during such warranty period, any emission-related part on your engine is defective in materials or workmanship, the part will be repaired or replaced by Generac Corporation.

OWNER'S WARRANTY RESPONSIBILITIES:

As the recreational vehicle generator engine owner, you are responsible for the performance of the required maintenance listed in your owners manual. Generac Corporation recommends that you retain all receipts covering maintenance on your recreational vehicle generator engine, but Generac Corporation will not deny warranty solely due to the lack of receipts or for your failure to provide written evidence of the performance of all scheduled maintenance.

As the recreational vehicle generator engine owner, you should, however, be aware that Generac Corporation may deny you warranty coverage if your recreational vehicle generator engine or a part thereof has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your recreational vehicle generator engine to a Generac Corporation Authorized Service Outlet as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

Warranty service can be arranged by contacting either a Generac Corporation Authorized Service Outlet or by contacting Generac Corporation at:

GENERAC CORPORATION
P.O. BOX 8
WAUKESHA, WI 53187

IMPORTANT NOTE: This warranty statement explains your rights and obligations under the Emission Control System Warranty ("ECS Warranty") which is provided to you by Generac Corporation pursuant to California law. See also the Generac Corporation Limited Warranties for Generac Corporation which is enclosed herewith on a separate sheet and also is provided to you by Generac Corporation. The ECS Warranty applies only to the emission control system of your new engine. To the extent that there is any conflict in terms between the ECS Warranty and the Generac Corporation Warranty, the ECS Warranty shall apply except in any circumstances in which the Generac Corporation Warranty may provide a longer warranty period. Both the ECS Warranty and the Generac Corporation Warranty describe important rights and obligations with respect to your new engine.

Warranty service can only be performed by a Generac Corporation Authorized Service Outlet. At the time of requesting warranty service, evidence must be presented of the date of the sale to the original purchaser. The purchaser shall pay any charges for making service calls and/or for transporting the products to and from the place where the inspection and/or warranty work is performed. The purchaser shall be responsible for any damage or loss incurred in connection with the transportation of any engine or any part(s) thereof submitted for inspection and/or warranty work.

EMISSION CONTROL SYSTEM WARRANTY

Emission Control System Warranty ("ECS Warranty") for 1995 and Later Model Year recreational vehicle generator:

- A. **Applicability:** This warranty shall apply to 1995 and later model year recreational vehicle generator. The ECS Warranty Period ("ECS Warranty Period") shall begin on the date the new engine or equipment is delivered to its original, end-use purchaser and shall continue for 24 consecutive months thereafter.
- B. **General Emissions Warranty Coverage:** Generac Corporation warrants to the original, end-use purchaser of the new engine or equipment and to each subsequent purchaser that each of its recreational vehicle generator is:
1. Designed, built and equipped so as to conform with all applicable regulations adopted by the Air Resources Board pursuant to its authority, and
 2. Free from defects in materials and workmanship which, at any time during the ECS Warranty Period, will cause a warranted emissions - related part to fail to be identical in all material respects to the part as described in the engine manufacturer's application for certification.
- C. **The ECS Warranty only pertains to emissions-related parts on your engine, as follows:**
1. Any warranted, emissions-related parts which are not scheduled for replacement as required maintenance in the Owner's Manual shall be warranted for the ECS Warranty Period. If any such part fails during the ECS Warranty Period, it shall be repaired or replaced by Generac Corporation according to Subsection (4) below. Any such part repaired or replaced under the ECS Warranty shall be warranted for any remainder of the ECS Warranty Period.
 2. Any warranted, emissions-related part which is scheduled only for regular inspection as specified in the Owner's Manual shall be warranted for the ECS Warranty Period. A statement in such written instructions to the effect of "repair or replace as necessary" shall not reduce the ECS Warranty Period. Any such part repaired or replaced under the ECS Warranty shall be warranted for any remainder of the ECS Warranty Period.
 3. Any warranted, emissions-related part which is scheduled for replacement as required maintenance in the Owner's Manual shall be warranted for the period of time prior to first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part shall be repaired or replaced by Generac Corporation according to Subsection (4) below. Any such emissions-related part repaired or replaced under the ECS Warranty shall be warranted for the remainder of the ECS Warranty Period prior to the first scheduled replacement point for such emissions-related part.
 4. Repair or Replacement of any warranted, emissions-related part under this ECS Warranty shall be performed at no charge to the owner at a Generac Corporation Authorized Service Outlet.
 5. The owner shall not be charged for diagnostic labor which leads to the determination that a part covered by the ECS Warranty is in fact defective, provided that such diagnostic work is performed at a Generac Corporation Authorized Service Outlet.
 6. Generac Corporation shall be liable for damages to other original engine components or approved modifications proximately caused by a failure under warranty of any emission-related part covered by the ECS Warranty.
 7. Throughout the ECS Warranty Period, Generac shall maintain a supply of warranted emission-related parts sufficient to meet the expected demand for such emission-related parts.
 8. Any Generac Corporation authorized and approved emission-related replacement part may be used in the performance of any ECS warranty maintenance or repairs and will be provided without charge to the owner. Such use shall not reduce Generac Corporation ECS warranty obligations.
 9. Unapproved add-on modified parts may not be used to modify or repair a Generac Corporation engine. Such use voids this ECS Warranty and shall be sufficient grounds for disallowing an ECS Warranty claim. Generac Corporation shall not be liable hereunder for failures of any warranted parts of a Generac Corporation engine caused by the use of such an unapproved add-on or modified part.

EMISSION RELATED PARTS INCLUDE THE FOLLOWING:

1. **Fuel Metering System**
 - a. **Gasoline carburetor assembly (if so equipped)**
 - 1) Fuel Filter (if so equipped)
 - 2) Carburetor gaskets
 - 3) Fuel pump
 - b. **LP/Natural gas carburetion assembly**
 - 1) Fuel controller
 - 2) Mixer and its gaskets (if so equipped)
 - 3) Carburetor and its gaskets (if so equipped)
 - 4) Primary gas regulator (if so equipped)
 - 5) LP liquid vaporized (if so equipped)
2. **Air cleaner assembly**
 - a. Air filter element
 - b. Intake pipe
3. **Ignition system including:**
 - a. Spark plug
 - b. Ignition module
4. **Catalytic muffler (if so equipped)**
 - a. Muffler gasket (if so equipped)
 - b. Exhaust manifold (if so equipped)
5. **Crankcase breather assembly and its components.**
 - a. Breather connection tube



Generac's Three-Year Limited Warranty For Recreational Vehicle Generators

Generac warrants to the original owner and subsequent purchasers from the date of purchase by the original owner, that its generators will be free from defects in materials or workmanship for the period as set forth below. During said warranty period, Generac will, at its option, repair or replace any part which, upon examination by Generac or a Generac Authorized Distributor and/or Dealer thereof, is found to be defective from normal use and service.

This warranty is only effective, upon Generac's receipt from the original owner, a completed Warranty Registration Card, prior to the expiration of the warranty period. This card is the only valid registration identification and must be presented at time of requesting Warranty service. Claims will not be accepted without presentation of this Registration Card.

THREE YEAR WARRANTY SCHEDULE

1. All generators used in a recreational vehicles shall be warranted for a period of three (3) years or 2,000 hours of operation, whichever occurs first. All parts, labor, removal and reinstallation shall be covered for the first two years. Parts and labor on selected generator and engine parts shall be covered during the third year or 2,000 hours, whichever occurs first. These selected parts are limited to: the main Rotor and Stator, Computer Control board (if applicable) with regard to the generator; the Cylinder Block, Cylinder Head, Crankshaft, Piston, Valve, Valve Lifter, and Manifolds with regard to the engine.
2. The drive belt and pulleys (if so equipped) on air-cooled generator used in recreational vehicles shall be warranted against failure due to defective materials or normal usage for the life of the generator. For the original owner, this drive belt and pulley warranty shall include parts and labor plus \$50.00 payment upon return of the failed belt or pulley by the original owner. For succeeding owners, this drive belt warranty shall cover belt or pulley parts only.
3. Rental units, demonstrators, prime power, or commercial applications, such as construction or utility, are warranted for (1) one year or 2,000 hours, whichever comes first.
4. This transferable warranty is in effect for all Recreational Vehicle Generators purchased after Jan. 1, 1998.

THIS WARRANTY DOES NOT COVER:

- Costs of maintenance, installation, and start-up.
- Failures due to (a) normal wear and tear from GN engine, or (b) accident, misuse, abuse, negligence or improper installation.
- Products which are modified or altered in a manner not authorized by Generac in writing.
- Any incidental, consequential or indirect damages caused by defects in materials or workmanship, or any delay in repair or replacement of defective parts.
- Failure due to misapplication.
- Telephone, telegraph, teletype or other communication expense.
- Living or travel expenses of persons performing service.
- Any and all transportation/travel expenses.
- Rental equipment used while warranty repairs are being performed.
- Overtime labor.
- Starting batteries, fuses, light bulbs, and engine fluids.

****NORMAL WEAR: As with all mechanical devices, the GN-Series engines need periodic parts service and replacement to perform well. This warranty will not cover repair when normal use has exhausted the life of a part or an engine.**

There is no other express warranty. Generac hereby disclaims any and all implied warranties, including but not limited to those of merchantability and fitness for a particular purpose to the extent permitted by law. The duration of any implied warranties which cannot be disclaimed is limited to the time period (one year) as specified in the express warranty. Liability for consequential, incidental or special damages under any and all warranties is excluded to the extent permitted by law. Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

For service, see your nearest GENERAC authorized warranty service facility or call 1-800-526-2871. Warranty service can be performed only by a GENERAC authorized service facility. This warranty will not apply to service at any other facility. At the time of requesting warranty service, evidence of original purchase date must be presented.

Generac Corporation

P.O. Box 8 Waukesha, WI 53187 Telephone: (414) 473-5514 Fax: (414) 472-6505

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