



MODEL 10000 PPG, ITEM #165967
Professional Portable Generator

M165967A



⚠ WARNING

Read this manual.

Serious injury or death can result if safety instructions are not followed.



⚠ DANGER

Fire hazard.

Do not operate in an enclosure or building. Fire or explosion will result.
Never place this product near combustible materials.



⚠ DANGER

Breathing hazard.

Poisonous fumes from engine will kill you.
Do not operate the generator in enclosed areas.
Do not operate generator near building or inside of buildings.

Fig 01600

OWNER'S MANUAL

Any Questions, Comments, or Problems?
Call Customer Service at 1-800-270-0810
Hours: Monday - Friday 7:00 AM to 5:30 PM CST
Saturdays 7:30 AM to 11:30 AM CST

THANK YOU

Thank you for purchasing a NorthStar Pro Series Generator. Your machine is designed for long life, dependability, and the top performance you demand. Please take time now to read through this manual so you can better understand the machine's operation, maintenance and safety precautions. Everyone who operates this generator must read and understand this manual. The time you take now will prolong your generator's life and prepare you for its safe operation. Enjoy the exceptional performance of your NorthStar Pro Series Generator.

IMPORTANT

Make certain the operator:

- Reads and understands the manuals pertaining to this machine.
- Is instructed in safe and proper operation of this machine.

NOTICE

K-BAR Industries Incorporated reserves the right to make improvements in design and/or changes in specifications at any time without incurring any obligation to install them on units previously sold.

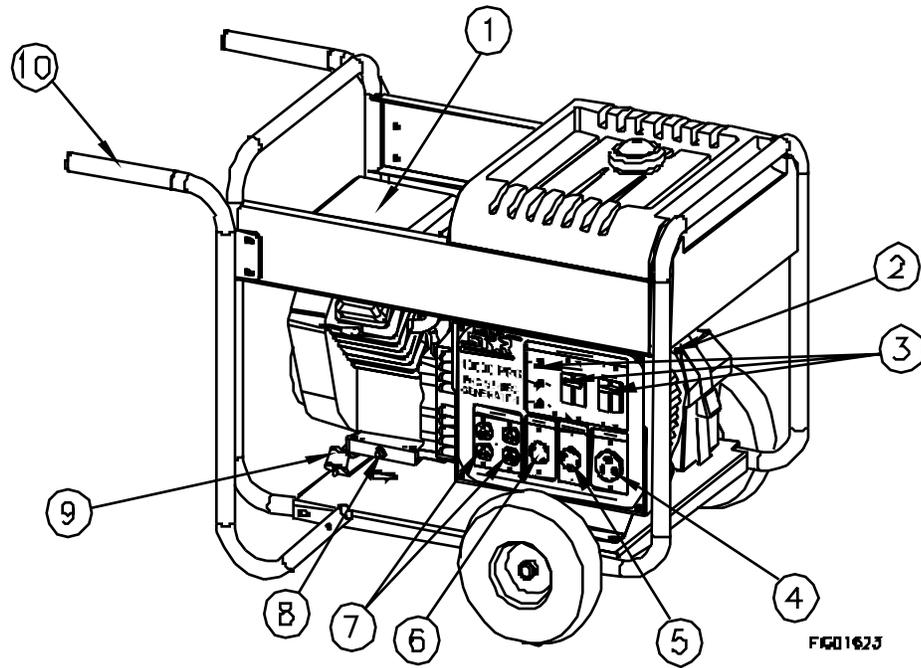
TABLE OF CONTENTS

Thank you	1
Specifications	2
Machine component identification	3
Generator features	4
Introduction	5
ANSI safety definitions	5
Rules for safe operation	5
Installation	6
Load application	6-7
Pre-start up preparation	7-8
Starting	8
Stopping	8
Engine care	8
Generator care	8-9
Troubleshooting	10

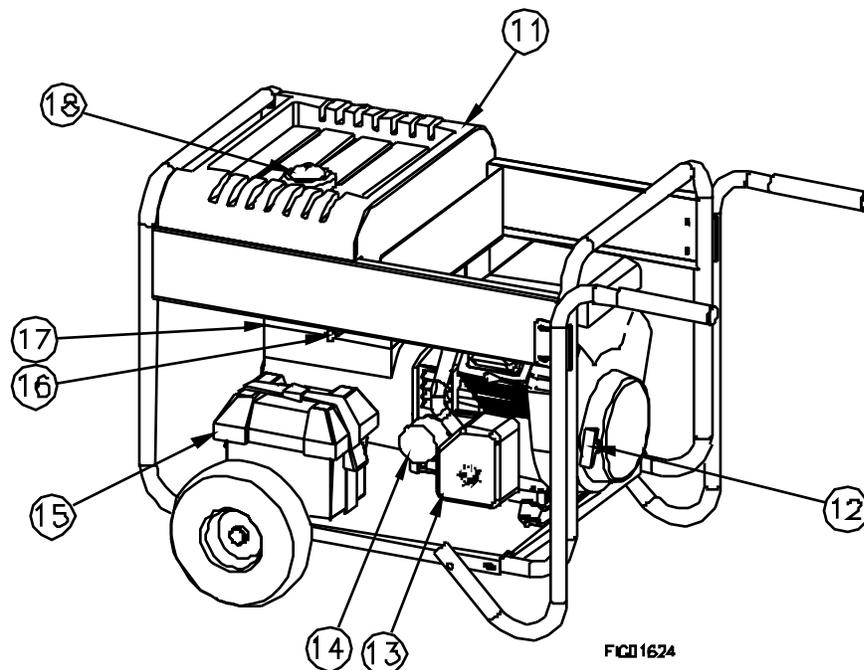
SPECIFICATIONS

Item Number	#165967
Maximum Output	10000 Watts (W)
Continuous Output	8500 Watts (W)
Voltage	120/240 Volt (V)
Phase	Single phase (4-wire)
Frequency	56.5 - 63.3 Hertz (Hz)
Power Factor	1.0 p.f.
Total Harmonic Distortion	less than 5%
Engine	18 HP Honda
Engine Speed	3390 - 3798 RPM
Fuel Type	Unleaded gasoline
Fuel Capacity	10 gallons (38.0 L)
Oil Capacity	1.6 US quarts
Starting Method	Electric start/Recoil
120 V Receptades	2 - 20 Amp (A) duplex (NEMA 5-20R) 30 Amp (A) locking receptade (NEMA L5-30R)
120/240 V Receptade	30 Amp (A) locking receptade (NEMA L14-30R) 50 Amp (A) straight blade (NEMA 14-50R)
Circuit Breakers	40 Amp (A) thermal magnetic 30 Amp (A) thermal magnetic 30 Amp (A) thermal, push to reset 2 - 20 Amp (A) thermal, push to reset
Battery	12 VDC, 18 Amp-Hour (minimum) Group Size U1-7
Dimensions	
Length	35.75" (90.8 cm)
Width	24.25" (61.6 cm)
Height	26.25" (66.7 cm)
Dry Weight	320 lb. (136 kg)

MACHINE COMPONENT IDENTIFICATION



Ref.	Description	Ref.	Description
1	Air Cleaner	11	10.0 Gallon Gas Tank
2	Grounding Screw	12	Recoil
3	Circuit Breakers	13	Muffler & Spark Arrestor
4	120/240V, 50A Receptade	14	Oil Filter
5	120/240V, 30A Locking Rec.	15	Battery Box
6	120V, 30A Locking Rec.	16	Gas Line Valve
7	120V, 20A Duplex Rec.	17	Generator Head
8	Oil Drain Plug	18	Gas Cap with Gauge
9	Vibration Isolation Mount		
10	Wheel Kit (#165919)		



GENERATOR FEATURES

Reference 1 - Air Cleaner. Refer to your Honda Engine Owner's Manual for air cleaner care.

Reference 2 - Grounding Screw. Ground the generator via the grounding screw, to a copper pipe or rod that is driven into moist soil.

Reference 3 - Circuit Breakers. This portable single phase generator has 1 - 40 amp (A) thermal magnetic 2 pole breaker, 1 - 30 amp (A) thermal magnetic 2 pole breaker 1 - 30 amp (A) push to reset circuit breaker, and 2 - 20 amp (A) push to reset circuit breakers. Circuit breakers protect against electrical overloads.

Reference 4 - 120/240V Receptacle. This receptacle is a 120/240V 50A NEMA 14-50R receptacle. This receptacle accepts a NEMA 14-50P plug. Use this receptacle if installing a transfer switch.

Reference 5 - 120/240V Locking Receptacle. This Locking is a 120/240V 30A NEMA L14-30R receptacle. This receptacle accepts a NEMA L14-30P plug.

Reference 6 - 120V Locking Receptacle. This locking receptacle is a 120V 30A NEMA L5-30R receptacle. This receptacle accepts a NEMA L5-30P plug.

Reference 7 - 120V Receptacle. The generator has a control panel with two duplex (two receptacles in a common housing) receptacles. Each duplex is a 120 volt (V) 20 amp (A) straight blade receptacle, National Electrical Manufacturer's Association (NEMA) number 5-20R. This receptacle accepts NEMA plug numbers 5-15P and 5-20P. Each duplex is capable of drawing 20A at 120V.

ALWAYS use grounded male plugs. The neutral line of the generator is mechanically grounded to the frame. Matching NEMA male plugs must always be used.



WARNING Contact a licensed electrician to wire electrical plugs and/or cordsets. Improper wiring could result in a fire or electrical shock.

Reference 8 - Oil Drain Plug. Refer to your Vanguard engine manual for oil change recommendations.

Reference 9 - Vibration Isolation Mounts. The engine and generator head are mounted on rubber cylinders that absorb most of the engine vibration. This feature eliminates the tendency of the machine to "walk" which is common in engine powered equipment.

Reference 10 - Wheel Kit. Heavy duty wheel kit (Item # 165919).

Reference 11 - 10.0 Gallon Gas Tank. Large tank allows for extended run capabilities. **Always** allow room for gasoline expansion by not filling the gas tank completely

Reference 12 - Recoil. Optional starting method. Grasp firmly when starting engine.

Reference 13 - Muffler and Spark Arrestor.

Reference 14 - Oil Filter.

Reference 15 - Battery Box. Warning: Always wear safety glasses when working on or near the battery. The battery box provides protection for the battery and will accept the standard lawn tractor size battery (Group U1-7). The engine requires a 12 volts dc battery, with a minimum rating of 18 Amp-Hours. When installing the battery, always connect the red colored ("positive" or "+") cable first. When disconnecting the battery, always remove the black colored ("negative" or "-") cable first.



WARNING Sulfuric acid is a corrosive poison. Avoid contact with skin, eyes or clothing. Always wear safety glasses.

Reference 16 - Gas Line Valve. The generator tank has an ON-OFF valve mounted underneath the tank. Always keep this valve closed when the generator is not in use.

Reference 17 - Generator Head. The electricity producing part of the generator.

Reference 18 - Gas Cap with Gauge. The gas cap is extra large, creating a large hole for refilling and a comfortable grip. You can always monitor the fuel level without removing the cap by using the fuel level indicator built into the gas cap.

Low Oil Shutdown. The Honda engine is protected against damage resulting from low engine oil. Always check your oil level daily.

INTRODUCTION

Before starting your generator, thoroughly study the instructions and cautions in this manual to assure you are fully acquainted with the operation of all components of this generator. Proper preparation, operation and maintenance will result in operator safety, best performance and long life of the generator. For detailed engine operation and maintenance always refer to the Vanguard engine owner's manual furnished with the generator (Briggs and Stratton refer to the 18 HP engine as a 350447).

NorthStar is constantly improving its products. The specifications outlined herein are subject to change without prior notice or obligation. The purchaser and/or user assumes liability of any modification and/or alterations on this equipment from original design and manufacture.

Before using, the user shall determine the suitability of this product for its intended use and assumes liability therein.

ANSI SAFETY DEFINITIONS

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

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

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

RULES FOR SAFE OPERATIONS

Safety precautions are essential when operating this generator. Respectful and cautious operation will considerably lessen the possibilities of a personal injury. This manual will warn of specific personal injury potential, and these will be designated by the symbol:



WARNING This generator is equipped with a grounding screw, located on the generator head for your protection. Always complete the grounding path from the generator to a copper pipe/rod that is driven into moist earth, to prevent electrical shock.

ALWAYS use electrical cords that are in good condition. Worn, bare, frayed or otherwise damaged cords can cause electric shock.

NEVER operate the generator, or handle any electrical equipment while standing in water, while barefoot, while hands are wet or while in the rain or snow. Electric shock may result.

ALWAYS use a ground fault circuit interrupter (GFCI) in damp or highly electrical conductive areas and on construction job-sites to prevent electric shock.

ALWAYS remove the spark plug or spark plug wire before working on the engine or generator, to prevent accidental starting.

ALWAYS provide adequate ventilation. Do not operate generator in any enclosed or narrow space. Engines consume oxygen and give off deadly carbon monoxide poisonous gas. Improper ventilation will cause damage to generator and possible injury to people.

NEVER touch hot muffler, hot exhaust manifold or engine cooling fins.

ALWAYS remove all oil or gasoline deposits and accumulated dirt from generator and immediate area. Keep generator head and engine clean.

NEVER operate the generator under the following conditions:

- A. Excessive change in engine speed, slow or fast.
- B. Overheating in load connecting devices.
- C. Sparking or arcs from generator.
- D. Loss of electrical output.
- E. Damaged receptacles.
- F. Engine misfire.
- G. Excessive vibration.
- H. Enclosed compartments, or confined areas.
- I. Flame or smoke.
- J. Rain, snow or wet conditions.
- K. Operator non-attendance.



WARNING Check fuel system on a regular basis. Look for signs of leaks, deterioration, chafed or spongy fuel hose, loose or missing fuel hose clamps, damaged fuel tank or a defective fuel shut-off valve. Correct any defects before operation.



WARNING Keep fire extinguisher close to your generator and be familiar with how to use it. Consult your local fire department for correct extinguisher type.

INSTALLATION

OUTDOORS: Choose a location where the generator will not be exposed to rain, snow or direct sunlight. Position the generator on secure, level ground so it will not tip or slide down a hill. Place the generator so that the exhaust fumes will not be directed towards people.

The installation site must be free from water, moisture, or dust. All electrical components should be protected from excessive moisture or the insulation system will deteriorate and result in grounding or shorting out the generating system.

Foreign matters, such as dust, dirt, sand, lint, or abrasive materials can cause damage to the generator head and engine if allowed into its cooling system.

NEVER install your generator inside confined areas. Inside installation can cause health hazards or death.



DANGER Remember, exhaust fumes are deadly carbon monoxide gas, and must be vented to the outside where there are no people. Cooling air of sufficient amounts must be allowed to flow in and exhausted out to ensure proper cooling of the engine and generator head.

LOAD APPLICATION

It is important to determine the total electrical load before it is connected to the generator. The two major factors in determining the life of a generator head are: heat build up, caused by overloading the generator; and corrosive contaminants that attack the wiring insulation. If the generator is overloaded, the wires become excessively hot and cause the insulation to break down, reducing its ability to resist corrosive contaminants. Over time the effectiveness of the insulation is eliminated and a dead short can result.

Always compare the generator nameplate data with that of the equipment to be used to ensure that watts, volts, amperage, and frequency requirements are suitable for operating equipment. The wattage listed on the equipment nameplate is its rated output. However, some equipment may require three to ten times more wattage than its rating on the nameplate, as the wattage is influenced by the equipment efficiency, power factor and starting system. **NOTE:** If wattage is not given on equipment nameplate, approximate wattage may be determined by multiplying nameplate voltage by nameplate amperage.

$$\text{VOLTS} \times \text{AMPS} = \text{WATTS}$$

$$\text{Example: } 120\text{V} \times 5\text{A} = 600\text{W}$$

When connecting a resistive load such as incandescent lights, heaters or common electric power

tools, a capacity of up to the generator full rated wattage output can be used.

When connecting a resistive-inductive load such as a fluorescent or mercury light, transformers or inductive coils, a capacity of up to 0.6 times the generator's full rated output can be used.

Always allow the generator to reach operating speed before a load is applied.

STARTING ELECTRIC MOTORS

Electric motors require much more current (amps) to start than to run. Some motors, particularly low cost split-phase motors, are very hard to start and require 5 to 7 times more current to start than to run. Capacitor motors are easier to start and usually require 2 to 4 times as much current to start as to run. Repulsion Induction motors are the easiest to start and require 1.5 to 2.5 times as much to start as to run.

Most fractional motors take about the same amount of current to run them whether they are of Repulsion-Induction (RI), Capacitor (Cap), or Split-Phase (SP) type. The following chart shows the approximate current required to start and run various types and sizes of 120 volt 60 cycle electric motors under various conditions.

120V, 60 Hz Motors		Starting Amps		
Hp motor	Running Watts	RI type	Cap type	SP type
1/6	525	7-11	9-18	16-22
1/4	700	9-15	12-23	22-32
1/3	875	11-18	14-29	26-35
1/2	1175	15-25	20-40	NA
1	1925	24-40	32-64	NA
1 1/2	2400	30-50	40-80	NA
2	2900	36-60	48-96	NA
3	4075	51-85	68-136	NA
5	6750	84-140	112-224	NA

The figures given above are for an average load such as a blower or fan. If the electric motor is connected to a hard starting load, such as an air compressor, it will require more starting current. If it is connected to a light load, such as a power saw, it will require less starting current. The exact requirement will also vary with the brand or design of the motor.

Generators respond to severe overloading differently than the power line. When overloaded, the engine is not able to supply enough power to bring the electric motor up to operating speed. The generator responds to the high initial starting current, but the engine speed drops sharply. The overload may stall the engine. If allowed to operate at very low speeds, the electric motor starting winding will burn out in a short time. The generator head winding might also be damaged.

Running the generator under these conditions may result in damage to the generator stator as well as the motor windings. Because the heavy surge of current is required for only an instant, the generator will not be damaged if it can bring the motor up to speed in a few seconds. If difficulties in starting a motor are experienced, turn off all other electrical loads and if possible reduce the load on the electric motor.

EXTENSION CORDS

When electric power is to be provided to various loads at some distance from the generator, extension cords can be used. These cords should be sized to allow for distance in length and amperage so that the voltage drop between the set and point of use is held to a minimum.

Current/Power		Maximum Extension Cord Length			
Amps at 240V	Load (watts)	#10 Ga. Cord	#12 Ga. Cord	#14 Ga. Cord	#16 Ga. Cord
10	2400	250'	150'	100'	75'
20	4800	125'	75'	50'	25'
30	7200	60'	35'	25'	10'
40	9600	30'	15'	10'	*
50	12000	15'	*	*	*

*Not recommended

CAUTION: Equipment damage may result from the low voltage caused by using an extension cord with a small wire size.

For Determining Generator Load Requirements	
Device	Running Watts
Air Conditioner (12,000 Btu)	1700 (a)
Battery Charger (20 Amp)	500
Belt Sander (3")	1000
Chain Saw	1200
Circular Saw (6-1/2")	900
Coffee Maker	1000
Compressor (1 HP)	2000 (a)
Compressor (3/4 HP)	1800 (a)
Compressor (1/2 HP)	1400 (a)
Curling Iron	700
Dishwasher	1200
Edge Trimmer	500
Electric Nail Gun	1200
Electric Range (one element)	1500
Electric Skillet	1250
Furnace Fan (1/3 HP)	1200 (a)
Freezer	800 (b)
Hair Dryer	1200
Hand Drill (1")	1100
Hand Drill (1/2")	875
Hand Drill (3/8")	500
Hand Drill (1/4")	250
Hedge Trimmer	450
Home Computer	150

Load Requirements, continued	
Impact Wrench	500
Jet Pump	800
Lawn Mower	1200
Light Bulb	100
Microwave Oven	700
Milk Cooler	1100 (a)
Oil Burner on Furnace	300
Oil Fired Space Htr (140,000 Btu)	400
Oil Fired Space Htr (85,000 Btu)	225
Oil Fired Space Htr (30,000 Btu)	150
Oven	4500
Paint Sprayer, Airless (1/3 HP)	600 (a)
Paint Sprayer, Airless (handheld)	150
Radio	200
Refrigerator	600 (b)
Slow Cooker	200
Submersible Pump (1-1/2 HP)	2800 (a)
Submersible Pump (1 HP)	2000 (a)
Submersible Pump (1/2 HP)	1500 (a)
Table Saw (10")	2000 (a)
Television	500
Toaster	1000
Vacuum cleaner	250
VCR	70
Water Heater	3000
Weed Trimmer	500

(a) Hard-starting motors require 3 to 5 times the rated running watts.

(b) These loads may require up to 15 minutes to restart due to their normal build up of compressor head pressure.

NOTE: For extremely hard to start loads such as air conditioners and air compressors, consult the equipment dealer to determine the maximum wattage.

PRE-START PREPARATIONS

Your generator has been thoroughly tested prior to shipment from the factory. A factory test report has been included with this manual. However, damage can occur during shipping, so be sure to check for damaged parts or loose or missing nuts and bolts. If the aforementioned problems occur, call Customer Service at 1-800-270-0810.

GROUNDING - All units must be grounded. Drive a 3/4" or 1" copper pipe or rod into the ground close to the machine. The pipe/rod must penetrate moist earth. Connect an approved ground clamp to the pipe. Run a 10 Ga. wire from the clamp to the generator grounding screw located on the generator head. Do not connect to a water pipe or a ground used by a radio system.

CAUTION: The engine has been shipped without oil. Fill the crankcase with oil before trying to start. Low oil shutdown prevents your generator from starting without sufficient oil.

OPERATING SPEED

The generator must be run at the correct speed in order to produce the proper electrical voltage and frequency. The speed of the engine was carefully adjusted at the factory so that the generator produces the proper voltage and frequency.

The output voltage should be checked to ensure the generator is working properly before connecting a load to the generator. Failure to do so could result in damage to equipment plugged into the unit and possible injury to the individual.

All engines have a tendency to slow down when a load is applied. When the electrical load is connected to the generator, the engine is more heavily loaded, and as a result the speed drops slightly. This slight decrease in speed, together with the voltage drop within the generator itself, results in a slightly lower voltage when the generator is loaded to its full capacity than when it is running with no load. The slight variation has no appreciable effect in the operation of motors, lights and most appliances. Electronic equipment and docks will be affected if correct RPM is not maintained. See Load vs. Output chart.

Load	Output		
	Speed (RPM)	Frequency (Hz)	Generator Voltage at 120V Receptacle
Percent of Generator Output			
0 %	3750	62.5	129V
50 %	3600	60.0	120V
100 %	3540	59.0	112V

Output voltage should be checked periodically to ensure continued proper operation of the generating plant and appliances. It can be checked with a portable meter. Frequency can be checked by using an electric clock with a sweep second hand. Timed against a wristwatch or a stopwatch, the dock should be correct within +/- 2 seconds per minute. All speed setting adjustments should be done by a qualified technician.

BEFORE STARTING

1. Make sure the generator is positioned on firm level surface.
2. Check the crankcase for oil and maintain at a proper level.
3. Check fuel level and fill tank 7/8 full with fresh unleaded automotive gasoline. Never fill fuel tank completely to the top. Always wipe up and remove any spilled gasoline.
4. Make sure that the exhaust fumes are directed away from people.

STARTING - MANUAL

1. Disconnect all loads to generator.
2. Turn gas line valve to ON position.
3. Turn key to the ON position.
4. For cold engine, move choke lever to full choke position, for warm engine, move choke lever to half choke or to RUN position.
5. Firmly grasp recoil handle and pull.
6. When engine starts, move choke lever to RUN position.
7. Loads may now be connected to generator.

STARTING - ELECTRIC

1. Disconnect all loads to generator.
2. Turn gas line valve to ON position.
3. For cold engine, move choke lever to full choke position, for warm engine, move choke lever to half choke or to RUN position.
4. Turn key to start position.
5. When engine starts, move choke lever to RUN position.
6. Loads may now be connected to generator.

STOPPING

1. Disconnect all loads to generator.
2. Turn engine key switch to OFF position.
3. Turn gas line valve to OFF position.

ENGINE CARE

Refer to your Engine Owner's Manual for proper care and maintenance.

NOTE: When changing the oil on a hot engine, the oil might overshoot the oil drain hole on the generator base. Use a deflector (piece of cardboard or paper) to direct the oil down the hole.

GENERATOR CARE

The generator head is a two pole, 3600 RPM, 60 Hz, brushless, revolving field and synchronous type with one sealed radial roller bearing. The rotor of the generator head is directly connected to the engine crankshaft and the stator is rigidly coupled to the engine casting via the generator head casting.

Exercising the Generator - The generator should be operated every four weeks. Warm the unit up by starting the engine and letting it run for 10 to 15 minutes. This will dry out any moisture that has accumulated in the windings. If left, this moisture can cause corrosion in the winding. Frequent operation of the engine/generator will also ensure that the set is operating properly should it be needed in an emergency.

Generator Maintenance - The generator head is brushless and maintenance free. Any major generator service, including the installation or replacement of parts, should be performed by a qualified electrical service technician. **USE ONLY FACTORY APPROVED REPAIR PARTS.** Obtain factory parts from Customer Service at 1-800-270-0810.

A. Bearing - The bearing used in these generators is a heavy duty sealed roller bearing. They require no maintenance or lubrication.

B. Receptacles - Quality receptacles have been utilized. If a receptacle should become cracked or otherwise damaged, replace it. Using cracked or damaged receptacles can be both dangerous to the operator and destructive to the equipment.



WARNING, Stand-by Operation

If your generator is to be used as a standby electric power source in case of utility failure, it must be installed by a registered and licensed electrician and in compliance with all applicable state and local electrical codes. Also, local Fire Departments must be consulted concerning proper and safe handling procedures for gasoline. **NEVER** connect any generator to any existing electrical system without an isolating, UL approved transfer switch installed by a licensed electrician.

TROUBLESHOOTING

Problem	Possible Causes	Possible Remedies
Engine will not start.	<ul style="list-style-type: none"> a) Low oil level. b) Fouled spark plug. c) Out of fuel. d) Stop switch in OFF position. 	<ul style="list-style-type: none"> a) Fill crankcase to proper oil level. b) Clean or replace spark plug. c) Fill fuel tank. d) Place switch in ON position.
Voltage too low.	<ul style="list-style-type: none"> a) Engine speed too slow. b) Generator is overloaded. 	<ul style="list-style-type: none"> a) Bring generator to a qualified technician for adjustment. b) Reduce the load. (See Load Application section of this manual.)
Circuit breaker trips.	<ul style="list-style-type: none"> a) Defective load connected to generator. b) Defective receptade. c) Generator overloaded. 	<ul style="list-style-type: none"> a) Disconnect load. b) Replace receptade. c) Reduce the load. (See Load Application section of this manual.)
Voltage too high.	<ul style="list-style-type: none"> a) Engine speed too high. 	<ul style="list-style-type: none"> a) Bring generator to a qualified technician for adjustment.
Generator overheating.	<ul style="list-style-type: none"> a) Generator is overloaded. b) Insufficient ventilation. 	<ul style="list-style-type: none"> a) Reduce the load. (See Load Application section of this manual.) b) Make sure there is at least 3 feet of clearance on all sides of generator.
No output voltage.	<ul style="list-style-type: none"> a) Defective load connected to generator. b) Broken or loose wire. c) Defective receptade. d) Defective stator. e) Defective rotor. f) Defective capadtor. 	<ul style="list-style-type: none"> a) Disconnect load. b) Bring generator to a qualified technician for repair. c) Replace receptade. d) Bring generator to a qualified technician for repair. e) Bring generator to a qualified technician for repair. f) Bring generator to a qualified technician for repair.
Engine lacks power.	<ul style="list-style-type: none"> a) Generator is overloaded. b) Dirty air filter. 	<ul style="list-style-type: none"> a) Reduce the load. (See Load Application section of this manual.) b) Clean or replace air filter.
Engine shuts down during operation.	<ul style="list-style-type: none"> a) Out of fuel. b) Low oil level. 	<ul style="list-style-type: none"> a) Fill fuel tank. b) Fill crankcase to proper oil level.