WINPOWER

HEAVY DUTY GENERATORS

OPERATOR INSTRUCTION MANUAL

HOV5000VE

WARNING **DANGER**

READ INSTRUCTIONS CAREFULLY AND FOLLOW RULES FOR SAFE OPERATION. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY.

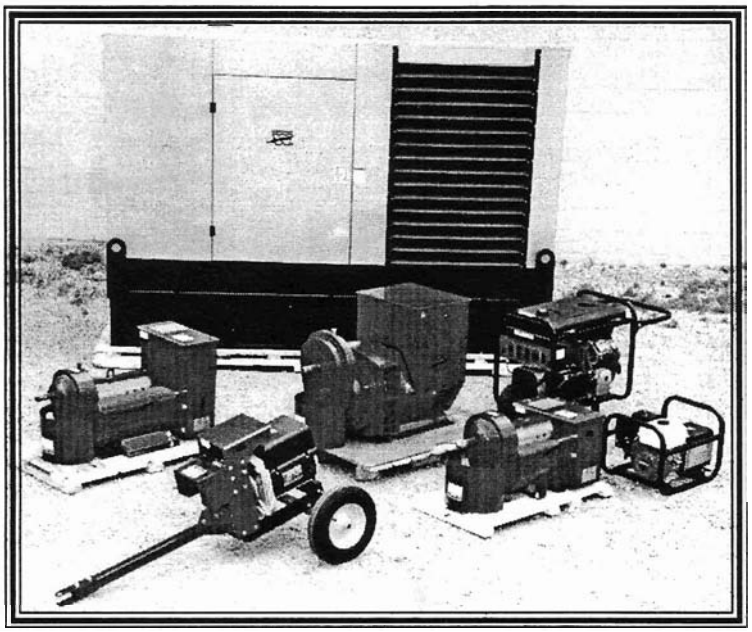
P.O. Box 495
St. Peter, MN 56082
Phone: 507-357-6700
Fax: 507-357-6580

Congratulations on your choice of a Winpower heavy duty generator set. You have selected a high-quality, precision-engineered generator set designed and tested to give you years of satisfactory portable service.
To get the best performance from you new engine generator set, **it is important that you carefully read and follow the operating instructions in this manual.**

Fill out the enclosed warranty information sheet and mail back to us as soon as possible.

Did you know?.....
Winpower offers a very attractive port-ability wheel kit:
Item PK280 fits the HOV5500VE.

Winpower is your one stop shopping place for heavy duty generators. We offer air cooled portables, tractor driven PTO generators and larger diesel self contained units. See your dealer for details or call the factory.



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Copy you model and serial number here.
No other Winpower generator has the same serial number as yours. It is important that you record the number and other vital information here. If you should ever need to contact us on this unit it will help us to respond to your needs faster.

MODEL _____
SERIAL NUMBER _____
PURCHASE DATE _____
DEALER _____

INTRODUCTION

Thank you for purchasing a WINPOWER generator. This manual covers the operation and maintenance of the HOV Models. It contains the latest product information available at the time of printing. WINPOWER INC. reserves the right to make changes at any time without notice and without incurring any obligation.

WARNING! Indicates a possibility that personal injury, equipment damage, or other property damage could occur if the instructions are not followed.

CAUTION! Indicates a possibility that personal injury, equipment damage, or other property damage could occur if the instructions are not followed.

NOTE: Lists helpful information which should assist you in getting satisfactory performance from your new generator.

If you have a problem with your generator, or have any questions about the generator, consult an authorized Winpower distributor, dealer, or service center. Should you require additional information, please consult the factory service department.

The Winpower generator is designed to give safe and dependable service if operated according to the instructions given in this manual. Read and understand the owner's operation and service manual before operating the generator. Failure to do so could result in personal injury or equipment damage.

This manual covers our latest compact portable generator 5000 watt HOV series unit. Winpower builds four different model types -EL, HOV, COV & CHD series. All use the same heavy-duty generator designs, but are offered with various engines and differing levels of features. This manual is for the HOV model only. The description and features are listed in the following paragraphs.

The most basic model group is the **EL Series**. The EL series is designed to provide a heavy-duty generator set with essential features but avoiding the cost of unused features. Primary applications for the EL series are for infrequent or medium duty loads where the initial cost is critical and unit will be operated less than 50 to 100 hours per year. Typical uses might be for farm, ranch or home standby or portable field power away from convenient utility or where running an extension cord is impractical. The EL Series have premium engines, but use their manufacturers entry level offerings to minimize cost.

The **HOV5000VE** is the Premium Featured model that has a heavy duty generator. The shock isolated receptacle panel and premium OHV engine basic receptacle panel includes a 15/20 Amp **GFCI** (Ground Fault **Circuit Interrupter**) and a 30 Amp, 120/240 Volt, 4-wire **Twist lock** receptacle. Both are protected with 2 individual circuit breakers. The **OHV** (Overhead Valve) engine has a low lubricating oil safety shutdown feature. This unit is designed for regular, rugged, heavy, and severe loads and operating conditions. Each unit is crafted for the construction and rental markets where the added cost of the premium engine is offset by the increased reliability and efficiency of the generator sets' ability to stay on the job to completion..... day in and day out.

The **CHD** line is "Commercial Heavy Duty". Kohler Command Series engine features full pressure lubricaton with spin on oil filter. Overhead valve engine assures reliable starting, cooler running, and less vibration. Electric Start and low oil shutdown are standard on this model.

The **COV** line is the Premium Featured model group that has the same heavy duty generators, but includes a full control panel with features like Econ-O-Mizer auto idle, Dual Voltage, Switchable Full Power, Twist lock receptacles, 4-wire receptacles and premium engine offerings. These units are designed for regular, rugged, heavy, and severe loads and operating conditions. These units are also made to serve faithfully in the construction and rental markets where the added cost of the heavy duty features are offset by the increased convenience, reliability and reduced noise & wear on engine.

MODEL FEATURES

MODEL	ENGINE MFR/MODEL	HP	FUEL TANK	LUBE OIL**	START TYPE	WATTS MAX / RATED	AMPS @ 120/240V	FEATURES*
HOV5000VE	VANGUARD	9.0	18.0 QT	2.4 PTS	RECOIL	5000 / 4500	37.5 / 18.8	1, 2L, 3, 4

** LUBE OIL – CAPACITY LISTED FOR CONVENIENCE ONLY – USE ENGINE MFRS RECOMMENDATION

*FEATURES – LISTED BELOW BY REFERENCE NUMBER WITH EXPLANATION –

1. Full protective 'roll cage' carrying frame
2. Low lubricating oil shutdown (lube oil **L**evel or **P**ressure)
3. Overhead valve, cast iron sleeved engine
4. Extended run, frame mounted fuel tank - shock isolated

SAFETY PRECAUTIONS

LEARN GENERATOR SAFETY

Improper use of maintenance can result in injury.

Carefully read this manual. Learn how to operate your generator correctly. Also pay attention to point of use safety messages in this manual.

WARNING ⚠ **DANGER**

UNAUTHORIZED MODIFICATIONS TO THE GENERATOR MAY IMPAIR THE FUNCTION AND/OR SAFETY AND AFFECT MACHINE LIFE. USE ONLY APPROVED ACCESSORIES ON THE GENERATOR.

DO NOT let any one operate the generator without proper instruction.

PROTECT PEOPLE AND PETS

KEEP PEOPLE AND PETS OUT OF THE AREA where you are using the generator.

DO NOT let children operate the generator, or handle electrical power cords.

OPERATION OF GENERATOR should be restricted to mature, properly instructed individuals.

HANDLE FUEL SAFELY - AVOID FIRES

DO NOT USE ANY OTHER FUEL than that recommended in your engine manufacturer's Operator's Manual. Handle gasoline with care: it is highly flammable. Use an approved gasoline container.

FILL THE FUEL TANK OUTDOORS.

DO NOT OVERFILL FUEL TANK.

DO NOT SMOKE while you fill fuel tank or service fuel system.

DO NOT REMOVE GAS CAP OR ADD GASOLINE to tank if engine is hot or running.

CLEAN UP spilled gasoline.

MOVE AWAY from refueling area before attempting to start generator engine.

KEEP ENGINE CLEAN. Remove grass, leaves, excess oil and dirt before you start engine.

LET ENGINE COOL before you store generator in a building.

DO NOT store generator where fuel fumes could reach and open flame or spark.

Drain gasoline before transporting generator.

REFUEL IN A SAFE PLACE. Move the generator at least 10 feet from its operating location. Open the fuel cap slowly to release any pressure which may have formed in the fuel tank. Return the generator to its original location before restarting the engine.

OPERATE ENGINE SAFELY

DO NOT RUN ENGINE in an enclosed or poorly ventilated area (inside a room, garage, barn, etc.) Exhaust gas contains carbon monoxide, an odorless and deadly poison.

DO NOT TOUCH HOT ENGINE OR MUFFLER.

OBEY ALL FIRE SAFETY REGULATIONS.
Fire prevention regulations of the U.S. Forestry jurisdiction require approved spark arrestor screen to be installed on gasoline powered products used on U.S. Forestry forests, brush and grasslands.

Your unit is not equipped with a spark arrestor muffler. See engine manufacturer for USDA Forestry approved spark arrestor kit and added maintenance instructions.

NOTE
Compliance with local, state and federal laws is the user's responsibility. Replacement spark arrestor screen kits are available for you generator from the engine dealer. If you have any questions concerning spark arrestor screens or there use, please contact your Winpower servicing dealer.

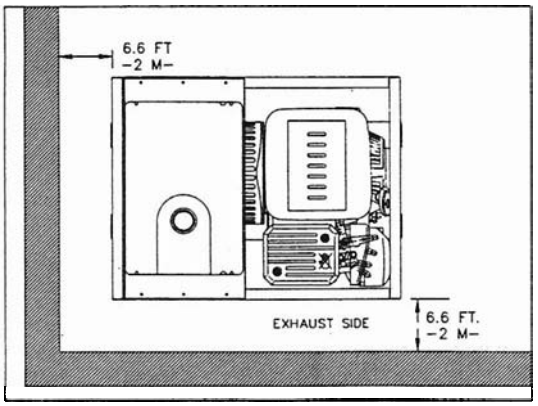
OPERATE GENERATOR SAFELY

DO NOT ATTEMPT TO CARRY GENERATOR when engine is running.

DO NOT OPERATE GENERATOR ON AN INCLINE. It should be placed on a firm, dry, level surface for proper engine operation an lubrication. Keep the area free of any flammable material such as leaves, brush or fuels.

WARNING ⚠ **DANGER**

- **AVOID ACCIDENTAL FIRES AND ENGINE OVERHEATING.**
- **DO NOT AIM ENGINE EXHAUST AT MATERIALS THAT COULD CATCH FIRE.**
- **FACE COOLING AIR INTAKE (RECOIL START AREA) AND MUFFLER SIDE OF ENGINE 6.6 FT. 2 M (OR TWO METERS) AWAY FROM BUILDINGS, OBSTRUCTIONS AND OTHER BURNABLE OBJECTS.**



SAFETY PRECAUTIONS

WARNING  **DANGER**

- **DO NOT OPERATE GENERATOR IN AREA OF FLAMMABLE MATERIALS.**
- **DO NOT ENCLOSE UNIT. IT RELIES ON FREE AIR CIRCULATION TO COOL THE ENGINE AND GENERATOR. ENCLOSING THE UNIT CAN CREATE A FIRE HAZARD RESULTING FROM ENTRAPPED GAS FUMES AND OVER-HEATING WHICH CAN RESULT IN DAMAGE TO THE ENGINE AND OTHER COMPONENTS.**
- **THESE GENERATORS ARE NOT INTENDED FOR INSTALLATION IN RV'S (RECREATIONAL VEHICLES), BOATS OR SIMILAR LOCATIONS.**

RESPECT ELECTRICITY

DO NOT TOUCH ELECTRICAL EQUIPMENT while standing on metal floors, damp concrete, or other well-grounded surfaces.

DO NOT HANDLE ELECTRICAL EQUIPMENT while wearing damp clothing (particularly wet shoes) or while skin surfaces are damp.

BE EXTRA CAUTIOUS WHEN WORKING with generator during wet weather. Generators are not waterproofed. Using a generator in a wet place or during stormy weather could result in short circuits, electric shock or electrocution.

DO NOT pour water directly over the generator, nor wash it with water.

DO NOT operate equipment when mentally or physically stressed.

DO NOT WORK on ungrounded electrical equipment.

DO NOT CONNECT GENERATOR DIRECTLY to house hold electrical circuits.

DO NOT USE ungrounded extension cords.

NEVER ALTER CORD, or plug of any appliance to be used with generator.

WARNING  **DANGER**

THESE UNITS PRODUCE 120V AND 240V WHICH MAY CAUSE FATAL ELECTRICAL SHOCK IF PRECAUTIONS ARE NOT FOLLOWED.

USE ONLY POWER CORDS that are suitable for use outdoors and are so marked. Always examine power cords for signs of fraying, damage or cracks in the insulation before using them.

DO NOT HANDLE POWER CORDS that have damaged insulation or are wet.

DO NOT, under any circumstances, connect your generator to any circuit or receptacle receiving electrical power (home, office, etc.) from any other sources as this is likely to result in a fire and damage all electrical systems.
DO NOT, under any circumstances, use the generator for any purpose that exceeds its rated capacity.

GROUND THE GENERATOR. The manufacturer has provided a grounding lug for the proper grounding of the generator. Manufacturer does not supply the required grounding conductor or grounding electrode because it would be impossible to cover every exception and meet all local code requirements for the proper grounding governing the use of your generator.

IF CONSIDERING CONNECTING GENERATOR to power existing wiring systems (house, barn, pumps, for example), **CONTACT A LICENSED ELECTRICIAN** to ensure proper, safe connection through an approved isolation switch and in compliance with local electrical, fire safety and building codes.

INSPECT GENERATOR CAREFULLY

INSPECT THE GENERATOR CAREFULLY before you operate it.

GUARDS AND SHIELDS must be in place.

KEEP NUTS, BOLTS, AND SCREWS TIGHT. Loose parts may result in personal injury or damage to the unit.

DO NOT operate the generator without an air filter. Rapid engine wear will result.

DO NOT operate the generator if the oil level is low.

VENTILATING OPENINGS such as the generator cover, air filter and muffler exhaust outlet must be cleaned periodically and kept free of debris to ensure proper operation and adequate cooling of the generator.

SERVICE GENERATOR SAFELY

KEEP generator clean.

BEFORE you service or remove parts, let the engine cool.

DO NOT work on generator while it is being operated.

DO NOT adjust generator when engine is running, unless the procedure is approved. STOP THE ENGINE.

USE ONLY identical replacement parts when servicing unit.

DO NOT ALTER EXHAUST SYSTEM. Use only Engine Manufacturer approved exhaust mufflers.

DO NOT ALTER ENGINE SETTINGS. The engine speed is controlled by a preset governor to deliver rated electrical frequency (60 HZ). Consult you Winpower servicing dealer if in doubt.

SAFETY PRECAUTIONS

STORE GENERATOR SAFELY

Before you leave the generator unattended:

1. Stop the engine by moving the Engine Ignition Switch to the OFF position.
2. Turn fuel valve to OFF position.
3. Disconnect spark plug wire.
4. Do not store generator where fuel fumes could reach an open flame or spark.

WHEN NOT IN USE, STORE GENERATOR in a cool, dry place and **AWAY FROM POSSIBLE SOURCES** of ignition such as gas water heaters, furnaces, clothes dryers, etc.

WHEN TRANSPORTING your generator, make sure it is in an upright position and that fuel valve is off and gasoline is not leaking. Secure it from sliding.

HAVE A FIRE EXTINGUISHER NEARBY

Have a multipurpose dry chemical fire extinguisher filled and handy. Know how to use it.

COMPLY WITH ALL FIRE PREVENTION REGULATIONS. We recommend you keep a fire extinguisher and long-handle shovel close by whenever using a generator in area where dry grass, leaves or other flammable materials are present.

FUELS AND LUBRICANTS

ENGINE OIL

IMPORTANT
Before starting engine for first time, add oil, as unit is shipped dry.

IMPORTANT
Operating a generator with a low oil level will cause serious engine damage.

FUEL

WARNING ⚠ **DANGER**

HANDLE FUEL CAREFULLY. IF THE ENGINE IS HOT OR RUNNING, DO NOT FILL THE FUEL TANK. DO NOT SMOKE WHILE YOU FILL THE FUEL TANK OR SERVICE THE FUEL SYSTEM.

See engine manufacturer's Operator's Manual for all engine operating and maintenance requirements.

WATTAGE CALCULATING INSTRUCTIONS

IMPORTANT
Do not exceed rated capacity of your generator. Serious damage to the generator or appliance can result from overload.

1. When matching generator wattage capacity to tool or appliance operation, starting and running wattage requirements should be calculated to insure the generator is not overloaded.
2. Two types of electrical appliances may be powered by your generator.
   a. "Resistive Load Appliances" (i.e., lights, heaters, television sets, radios) starting wattage and running wattage requirements are the same.
   b. "Inductive Load Appliance" (i.e., electric motors and hand held power tools) starting wattage may be 1.5 to 3.5 times greater than the running or operating wattage requirements.

CALCULATING WATTAGE REQUIREMENTS

Before operating the generator list all the appliances and/or tools you intend to operate at the same time. Then determine starting requirements and running wattage requirements.

1. Some tools and appliances will list on the motor label starting and running voltage and amperage requirements. Refer to the starting volts and amps shown on the label. To convert this information to wattage use the following formula: Volts x Amps = Watts

Ex. (Starting voltage and amperage for 1/4 hp drill)
120V x 10 Amps = 1200 Watts

2. Use actual listed values from the motor label if available. If only one value is shown that value is the running volt/amps. Determine the approximate starting wattage requirement by multiplying the calculated wattage by 3 times for most motor types to assure adequate generator capacity. If no label information is available use the values in the following chart as a guide.

WATTS REQUIRED TO START MOTOR

Motor Size (HP)	Running Watts	Repulsion Induction	Capacitor	Split Phase
1/6	275	600	850	2050
1/4	400	850	1050	2400
1/3	450	975	1350	2700
1/2	600	1300	1800	3600
3/4	850	1900	2600	--
1	1100	2500	3300	--

3. The starting wattage required by resistive loads is the same as running wattage and is usually listed in watts on the label. e.g. 60 watt light bulb

CALCULATING RUNNING WATTAGE REQUIREMENTS

1. Running wattage requirements are calculated the same as starting wattage. Refer to the running or operating volts and amps referenced on the motor label and calculate watts by multiplying Volts and Amps.

WATTAGE CALCULATING INSTRUCTIONS

CALCULATING TOTAL WATTAGE REQUIREMENTS

Generator capacity must be equal to or exceed total starting and running wattage load.

1. To determine total wattage load, list all appliances that may be operated by the generator at the same time.
2. List running wattage requirements of appliances that will operate in constant application.

GENERATOR APPLICATION WORKSHEET

Requirements	Running Wattage	Starting Wattage	Total Wattage
Furnace "1/8" HP	300	500	500
Lights	60	60	60
Radio	80	80	80
TV	255	255	255
TOTAL			895

3. List starting wattage requirements of appliances that may cycle on and off.
4. Compare the running and starting wattage requirements for each appliance, and list the larger wattage requirement in the column TOTAL WATTAGE.
5. Add the total wattage requirements for all appliances to determine the maximum generator load.

In the above example running and starting wattages for lights, radio and T.V. are the same values. However, the starting wattage for the furnace, which will cycle on and off, is greater than the running wattage. Therefore, total wattage load on the generator will equal the furnace starting wattage of 500 watts plus the running wattages of the lights, radio and T.V., a total of 895 watts, as shown in the TOTAL WATTAGE column.

6. Using figures calculated, use chart to compare requirements to generator capacity.

If generator capacities are not adequate to cover all requirements, deduct the least needed appliance so generator can be used without overloading.

If requirements are mandatory and cannot be reduced, obtain a larger capacity generator.

GENERATOR CAPACITY CHART

Model	Continuous Running	Maximum Wattage
HOV5000VE	5000	5500

EXTENSION CORD USAGE

When using a tool at a considerable distance from power source, a 3-conductor, grounding type extension cord of adequate size must be used for safety, and to prevent loss of power and overheating. Use the following table to determine the minimum wire size required.

NOTE
Use only three wire extension cords with a three-prong grounding type plug and three-pole receptacles which accept the tool's plug. Replace or repair damaged cords immediately.

IMPORTANT
A cord that is hot to touch is overloaded.

WIRE GAUGE CHART

EXTENSION CABLE LENGTH	120V/240V *Gauge
25 Ft. (7.62 M)	10
50 Ft. (15.24 M)	10
75 Ft. (22.86 M)	10
100 Ft. (30.48 M)	8
150 Ft. (45.27 M)	8
200 Ft. (60.94 M)	8

*American Wire Gauge Size

VOLTAGE DROP IN ELECTRIC EXTENSION CORDS

When a long electric cord is used to connect an appliance or tool to the generator a certain amount of voltage drop occurs in the extension cord which lessens the effective voltage available to the appliance or tool. The chart below has been prepared to illustrate the approximate voltage loss when an extension cord of 300 feet (approx. 100 meters) is used to connect an appliance or tool to the generator.

Nominal Cross Section mm^3	A.W.G. Gauge No. No.	Allowable Current A	No. of Strands/Strand Dia. No./mm	Resistance Ohms/100m	Current Amp. 1A	3A	5A	8A	10A	12A	15A
0.75	18	7	30/0.18	2.477	2.5V	8V	12.5V	-	-	-	
1.27	16	12	50/0.18	1.486	1.5V	5V	7.5V	12V	15V	18V	-
2.0	14	17	37/0.26	0.952	1V	3V	5V	8V	10V	12V	15V
3.5	12~10	23	45/0.32	0.517	-	1.5V	2.5V	4V	5V	6.5V	7.5V
5.5	10~8	35	70/0.32	0.332	-	1V	2V	2.5V	3.5V	4V	5V

MAXIMUM OUTPUT OPERATION

Limit operation of the generator at maximum output to 3 minutes. Additional 3 minute periods of maximum output are possible if the generator is allowed 10 minutes to cool between periods of maximum output. Cool engine by operating in the throttle position with the output load disconnected.

WARNING **DANGER**

DO NOT RUN ENGINE IN AN ENCLOSED AREA. EXHAUST GAS CONTAINS CARBON MONOXIDE, AN ODORLESS AND DEADLY POISON.

IMPORTANT
Do not start engine with AC loads connected. Damage to the generator or appliance may result.

1. GROUNDING GENERATOR

The National Electrical Code (NEC) requires that all separately derived AC systems be grounded per Article 250-26. Manufacturer has added a grounding lug type terminal per Article 250-26 (a) from the noncurrent-carrying metal parts to the conductor to be grounded. Manufacturer does not supply the required grounding conductor or grounding electrode because it would be impossible to cover every exception and all local code requirements. See your local codes and the NEC manual for the proper grounding for your application.

NOTE
As a general rule, do not use electrical equipment in wet or damp areas. Additional rules from NEC, OSHA and state codes apply to portable generators when used on construction sites.

It is the responsibility of the consumer to meet the above requirements.

IMPORTANT
The generator must be placed on a firm, level surface for proper lubrication of the engine.

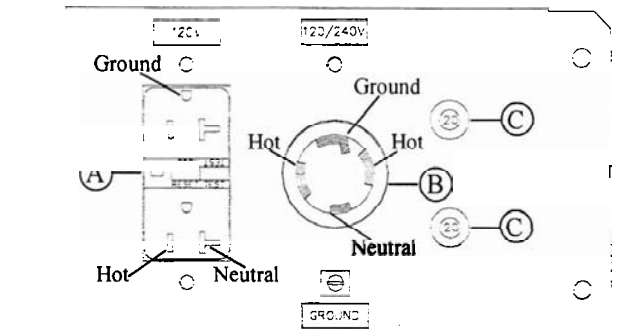
2. AC RECEPTACLES / CIRCUIT BREAKER

IMPORTANT
Do not exceed rated capacity of your generator, as serious damage to the generator or appliance is connected.

CONNECTING RECEPTACLES

IMPORTANT
Note receptacle wiring polarity to prevent equipment or generator failure.

Plug connections to all equipment should be as follows:



Location of grounding lug type terminal

AC RECEPTACLES/CIRCUIT BREAKER/GFCI

GROUND FAULT CIRCUIT INTERRUPTER (GFCI)
These GFCI outlets provide protection against ground fault currents which can cause shocks that may be fatal. A ground fault current is caused by an AC system with faulty insulation. When a person uses the defective AC system, and if that person is contacting an electrical ground, then stray current caused by faulty insulation will flow through the person's body.

When a ground fault is detected in an AC system, the GFCI outlet will "trip" and interrupt the flow of current.

Test both outlets regularly. Push the test button and all current to the outlets on that line should be interrupted. If the power is not interrupted, do not use the outlets, and have a qualified technician make the necessary repairs. Press the reset button to restore power to all the outlets.

IMPORTANT
Do not exceed maximum rated capacity of your generator, as serious damage to the generator or appliance could result.

Disconnect appliances from generator before starting engine.

The generator is equipped with a frame grounded 120V(GFCI) 15/20 amp receptacle (A), 120/240V 30 amp four hole receptacle (B). The receptacles are protected by button-type circuit breakers (C).

NOTE
Circuit breakers trip automatically under circuit overload. When a circuit breaker trips, determine the cause. Typical causes are excessive loading or electrical system shorting.

If a circuit breaker trips, locate and correct the problem, and allow circuit breaker to cool for 1 minute. Then reset circuit breaker by pushing button in.

4. OPERATING GENERATOR / AC OUTPUT

1. Make sure all power tools, extension cords, appliances are disconnected from the generator.

2. Check that equipment switches are in the "OFF" position.

3. Start engine **(See Engine Operator's Manual).**

IMPORTANT
Do not plug in extension cords to generator receptacles or attempt to operate electrical tools or appliances when engine is operating at idle or intermediate speed positions, as damage to generator or appliance could result.

4. Allow the engine to warm up 2 - 3 minutes before connecting tools or appliances.

5. Connect equipment to generator receptacle.

6. FREQUENCY (Hz)

Your generator has been factory preset to 60 cycles (one Hertz (Hz) equals one cycle/per second, the same as 120 volt household current) at 3600 rpm with throttle in FULL position, under load.

The 60 cycle output is the standard electrical frequency for the United States.

NOTE
Adjustment or changing of frequency should only be made by authorized servicing dealer.

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Engine does not start	1. Ignition switch off	1. Turn to "ON" position
	2. Fuel valve off	2. Turn to "ON" position
	3. Low on fuel or oil	3. Add fuel or oil
	4. Unit loaded during start-up	4. Remove load
	5. Faulty spark plug	5. Replace
	6. Loose wire	6. Inspect & repair
No electrical output	1. Circuit breaker	1. a] Tripped - Depress and Reset b) Defective - Replace
	2. Faulty receptacle	2. Replace
	3. Tripped G.F.C.I.	3. Reset or replace if defective
	4. Faulty power cord	4. Inspect & replace
Repeated circuit breaker tripping	1. Overload	1. Reduce load
	2. Faulty equipment or cords	2. Check for bare wires or frayed insulation on equipment

When the engine will not start:

1. Is there enough fuel?

2. Is the fuel valve on?

3. Is gasoline reaching the carburetor? To check, loosen the carburetor float bowl drain plug with the fuel valve on.

4. Is the engine ignition switch "ON"?

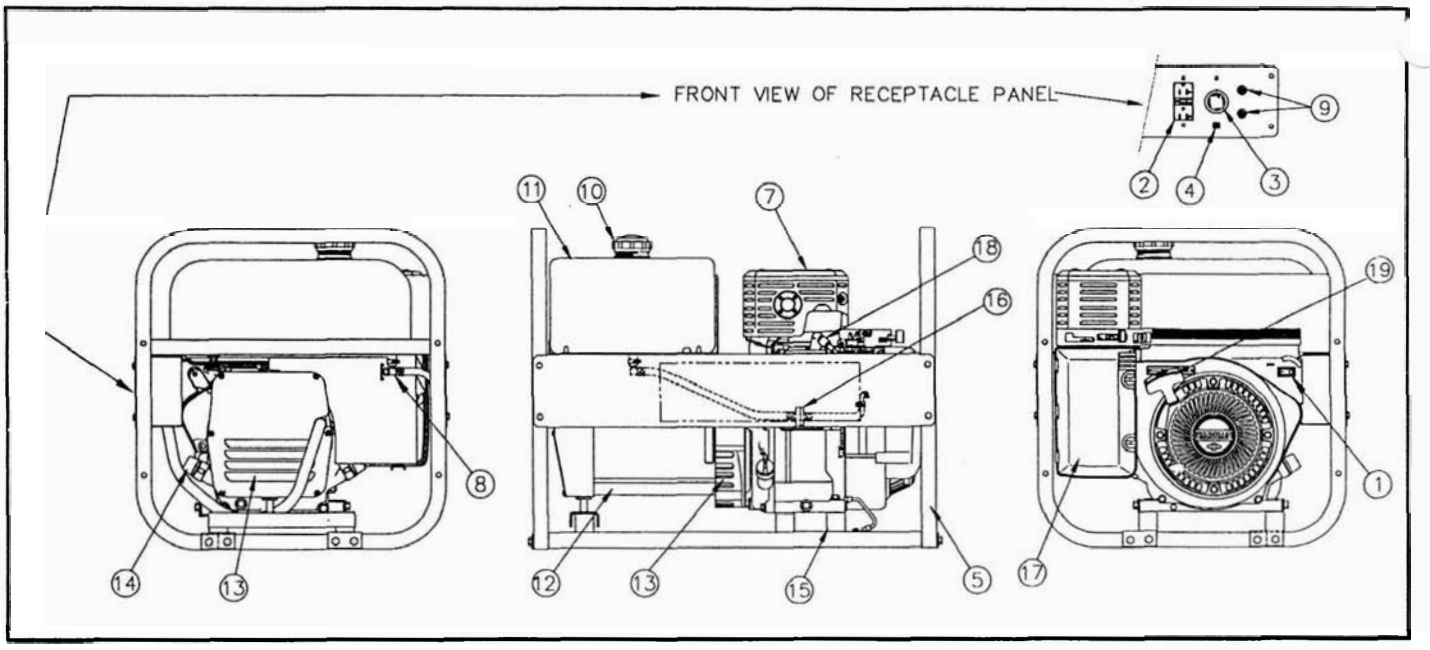
5. Is there enough oil in the engine? Oil level must be at full mark for each start - see engine manual.

6. Is the choke lever in its proper position?

7. Is there a spark at the spark plug?
   a) Remove the spark plug cap. Clean any dirt from around the spark plug base, then remove the spark plug.
   b) Install the spark plug in the plug cap.
   c) Turn the engine switch on.
   d) Ground the side electrode of the spark plug to any engine ground, pull the recoil starter to see if sparks jump across the gap.
   e) If there are no sparks, replace the spark plug. If OK, try to start the engine according to the instructions.

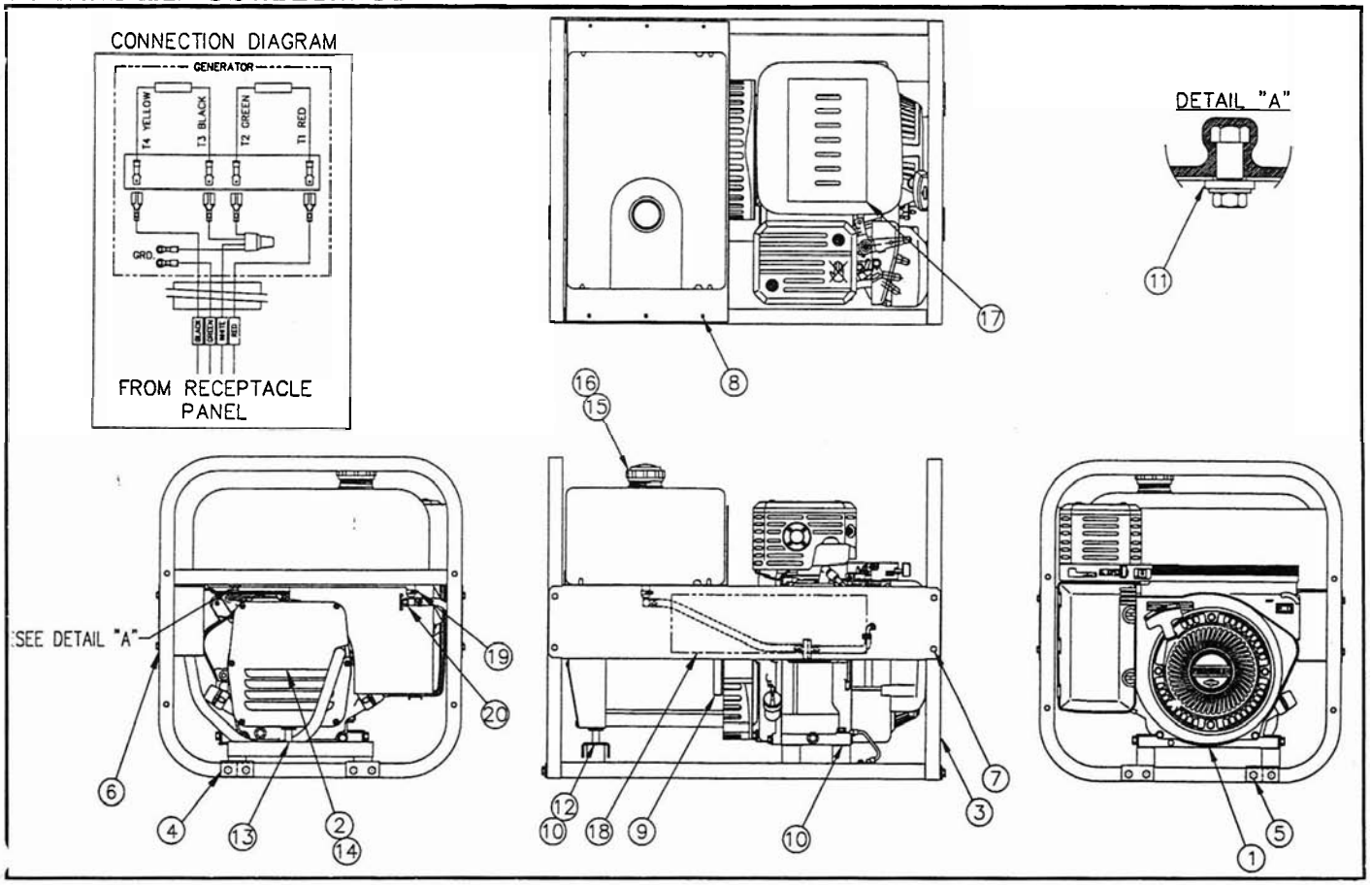
8. If the engine still does not start, take your generator set to the nearest engine dealer

GENERAL IDENTIFICATION MODEL HOV5000VE



1. **Ignition Switch - Switch to left is "OFF" -right is "ON" or "RUN"**
2. 120V / 15/20 AMP Duplex G.F.C.I. Receptacle opens (Stops electricity) when a short occurs between the electric tool and ground path to the generator to protect the operator. To rest the G.F.C.I., wait one minute and depress reset button.
3. 120/240 V.A.C. 4 Hole Twist Lock Receptacle.
4. Grounding Lug - Attachment point for adding a ground strap to an external earth ground.
5. Handle/Tube Frame - Protective carrying frame for generator.
6. Receptacle Panel - Contains wiring for receptacles, circuit breaker and control switches.
7. Muffler - Refer to engine Operator's Manual for maintenance.
   Optional Forestry Service approved Spark Arrestor - Prevents hot exhaust particles from exiting the engine (available from engine dealer).
8. Fuel Shut Off Valve - Turn clockwise to shut off fuel after shutdown.
9. AC Circuit Breakers (20 amp) - Protects receptacles and generator winding from overload. Breaker button pushed in allows electricity flow to receptacles. Breaker button out (tripped) prevents electricity flow to receptacles.
10. Fuel Tank Cap - Covers and seals fuel tank.
11. Fuel Tank - Four and one half (4.5) gallon capacity.
12. Generator Housing - Houses electricity generating components.
13. Generator Vents - Provides cooling air flow for electricity generating components.
    DO NOT BLOCK.
14. Oil Filler Cap / Dipstick - Access cap for adding or replacing engine oil. Refer the engine Operator's Manual for maintenance intervals.
15. Generator Mounts - Reduces engine vibration to the frame.
16. Fuel filter - See engine manual for maintenance/replacement.
17. Air Cleaner - See engine manual for maintenance/replacement.
18. Spark plug - See engine manual for maintenance/replacement.
19. Recoil handle - See engine manual for maintenance/replacement.

PARTS ILLUSTRATION



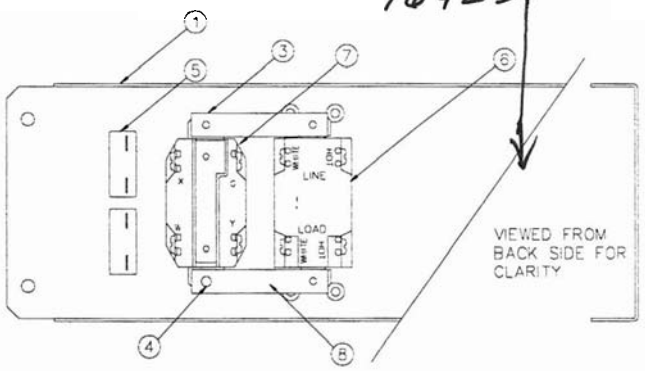
PARTS LIST FOR HOV5000VE

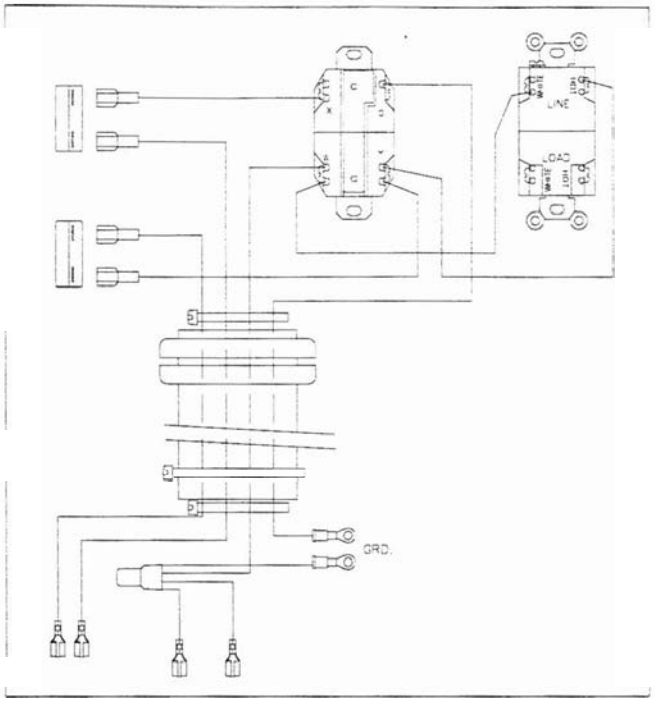
ITEM	PART NO.	DESCRIPTION	QUANTITY
1	A-300226	ENGINE	1
2	B-300043-7	GENERATOR	1
3	A-300213	CRADLE, END	2
4	A-300214	CROSSMEMBER	2
5	A-300225	BACK PLATE	2
6	A-300215	ASSEMBLY, RECEPTACLE PANEL	1
7	A-300216	SIDE, LEFT CRADLE	1
8	A-300200	SUPPORT, FUEL TANK	1
9	A-300221	BAFFLE, AIR	1
10	A-64062-000	SHOCK MOUNT	6
11	A-16133-000	LEATHER WASHER	2
12	A-300222	SUPPORT, GENERATOR	1
13	A-62825-003	SPACER, GENERATOR SUPPORT	1
14	A-62825-001	SPACER, THRU BOLT	1
15	B-64024-000	4.5 GALLON FUEL TANK	1
16	A-15482-000	CAP, FUEL TANK	1
17	A-300230	COVER, ENGINE	1
18	B-300301	DECAL, POWR-PAK	2
19	A-23917-000	GROMMET	1
20	A-98771-000	FUEL SHUT OFF VALVE	1

RECEPTACLE PANEL ASSEMBLY

PARTS ILLUSTRATION
&
WIRING DIAGRAM

Capacitor kit mounts here
16423-000

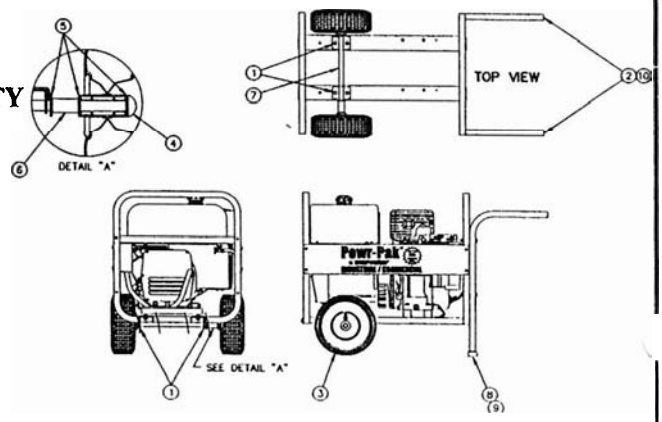




ITEM	PART NO.	DESCRIPTION	QUANTITY
1	A-300217	SIDE, RIGHT CRADLE	1
2	A-300218	COVER, RECEPTACLE PANEL (NOT SHOWN)	1
3	A-64045-009	STRAP, MOUNTING	2
4	A-64211-000	GROUND LUG	1
5	91286-001	CIRCUIT BREAKER	2
6	15147-001	RECEPTACLE, GFCI (20 AMP)	1
7	A-97360-000	RECEPTACLE	1
8	A-64045-016	STRAP, MOUNTING	1

OPTIONAL WHEEL KIT PK280
FOR MODEL HOV5500VE

	DESCRIPTION	PART NO.	QUANTITY
1	SUPPORT AXLE	300224	2
2	HANDLE, WHEEL KIT	300223	2
3	ASSEMBLY, WHEEL & TIRE	43657-001	2
4	HUBCAP	64327-000	2
5	FLAT WASHER, 1 3/8	1178-000	5
6	SPACER, TUBULAR SPLIT	62825-009	1
7	AXLE	64326-011	1
8	BUSHING, THREADED	16072-000	2
9	FOOT, RUBBER	20191-000	2
10	PLUG, TUBE	15511-000	1



MISCELLANEOUS WATTAGE REQUIREMENTS

REQUIREMENTS	TOTAL Inductive Starting Watts
Air Condition, Central	
20,000 BTU	5,800
24,000 BTU	8,750
Blanket, Electric*	400
Charger, Battery*	
4 amp	90
10 amp	200
15 amp	380
30 amp w/200 amp boost	650/3,600
60 amp w/250 amp boost	1,500/5,750
Cleaner, Grain	
1/4 HP	1.650
Coffee Maker*	1,750
Compressor, Air	
1/2 HP	3,000
1 HP	6,000
Conveyor, Portable	
1/2 HP	3,400
Cooler, Milk	2,900
Cultivator, Electric	2,100
Dehumidifier	1,450
De-Icer, Stock Tank*	1,000
Dish Washer	
Cool dry	2,100
Hot dry	1,000
Drill, Hand	
1/4 inch	350
3/8 inch	400
1/2 inch	800
Dryer, Clothes	
Gas	2,500
Electric	7,550
Dryer, Hair	300 - 1,200
Elevator, Grain (3/4 HP)	4,400
Fence, Electric* (25 mile)	
Freezer	2,900
Fry Pan, Electric	1,300

REQUIREMENTS	TOTAL Inductive Starting Watts
Furnace Fan (Gas or Fuel Oil)	
1/8 HP	800
1/6 HP	1,250
1/4 HP	1,600
1/3 HP	2,100
1/2 HP	3.225
Grinder, Bench	
6 inch	1,720
8 inch	3,900
Heater, Portable Space (Kerosene, Diesel Fuel)	
30,000 BTU	800
50,000 BTU	1,000
85,000 BTU	1,225
90,000 BTU	1,225
140,000 BTU	1,625
150,000 BTU	1,625
350,000 BTU	2,125
Iron*	1,200
Light Bulbs*	Indicated on bulb
Light, Flood	
HID	125
Metal Halide	313
Mercury Vapor (not recommended)	---
Sodium Vapor	1,250
Milker 3-1/2 cu. ft. (1/2 HP)	3,300
Mixer (Vacuum Pump) (2 HP)	10,500
Mixer, 55 gal. drum (1/4 HP)	1,900
Motors, Farm Duty Standard (e.g. conveyor, feed auger, air compressor)	
1/3 HP	1,720
1/2 HP	2,575
3/4 HP	4,500
High Torque (e.g. Barn leaners, silo unloaders, silo hoists, bunk feeders)	
1-1/2 HP	8,100
Motors, Industrial Duty Split Phase	
1/8 HP	800
1/6 HP	1,225
1/4 HP	1,600
1/3 HP	2,100

***These are resistive loads in which starting wattage requirements do not exist.**

MISCELLANEOUS WATTAGE REQUIREMENTS (CONT.)

REQUIREMENTS	TOTAL Inductive Starting Watts
Capacitor Start, Induction Run	
1/3 HP	2,020
1/2 HP	3,075
3/4 HP	4,500
Capacitor Start, Capacitor Run	
1-1/2 HP	8,100
Fan Duty	
1/8 HP	1,000
1/6 HP	1,400
1/4 HP	1,850
1/3 HP	2,400
1/2 HP	3,500
Opener, Garage Door	
1/4 HP	1,100
1/3 HP	1,400
Oven, Microwave (625 watt)	2,800
Polisher, Floor	
16 inch - 3/4 HP	4,500
20 inch - 1 HP	6,100
Pumps	
Centrifugal, 900 GHP	900
Submersible, 400 GPH	600
Sump	
1/3 HP	2,100
1/2 HP	3,200
Wet	
1/3 HP	2,150
1/2 HP	3,100
Radio*	50 - 200
Refrigerator	2,900
Saws	
Blank, 14 inch	2,500
Circular,	
6-1/2 inch	500
7-1/4 inch	900
8-1/4 inch	1,400

REQUIREMENTS	TOTAL Inductive Starting Watts
Electric Chain Saw	
12 inch, 1-1/2 HP	900
14 inch, 2 HP	1,100
Table Saw	
9 inch	4,500
10 inch	6,300
Television*	
Color	300
Black and White	100
Toaster*	
2 slice	1,050
4 slice	1,625
Trimmer, Hedge 18 inch	400
Trimmer, Nylon Line	
Standard 9 inch	350
Heavy Duty 12 inch	500
Vacuum Cleaner	
Standard	800
Deluxe	1,100
Vacuum, Wet & Dry	
1.7 HP	900
2.5 HP	1,300
Washer, Clothes	3,450
Washer, High-Pressure	
5/8 HP	4,600
1 HP	9,050
1-1/2 HP	10,310
Welder*	
70 amp	2,000
100 amp	3,600
200 amp	9,000

IMPORTANT

There are examples of appliances in this chart that are more than rated generator capacities. They are shown for reference data only. The running and additional inductive starting wattage shown in this chart are approximations. Actual wattage can usually be found on light bulbs or appliance name plate. If not, determine wattage by multiplying listed amperage by voltage.

***These are resistive loads in which starting wattage requirements do not exist.**

WINPOWER Limited Warranty

Winpower Inc. hereby warrants for one year the generator set described herein to be free from defects in material and workmanship if properly installed, serviced, and operated under normal conditions according to our instructions.

This warranty covers parts and labor and is extended to the original purchaser for a period of two years from the date of purchase. During that period, Winpower Inc. will replace free of charge upon examination by the factory, or an authorized service center, any part or parts found to be defective in material or workmanship.

This warranty does not obligate the manufacturer to bear any transportation charges in connection with the replacement or repair of defective parts or delivery of the defective generator set. This warranty does not cover rental charges for replacements while defective unit is being repaired. The replacement of parts and/or service arising out of abuse, neglect, or normal wear and tear is not covered by this warranty.

Winpower Inc. hereby disclaims any and all implied warranties, including but not limited to, warranties of merchantability and fitness for any, if and to the extent, that such disclaimer is not forbidden by any applicable law. Implied warranties, including but not limited to, warranties of merchantability and fitness for any particular purpose which Winpower Inc. is so forbidden to disclaim by an applicable law, are warranted one year from the date of purchase.

This is the purchaser's sole and exclusive remedy hereunder. Liability for consequential, incidental or special damages and/or expenses under any and all warranties are excluded to the extent exclusion is permitted by law.

All applications for warranty must have the model and serial number of the unit for which the application(s) is being filed, customer's name, address, phone number, and date of sale; otherwise the warranty/application and payment may be rejected or delayed.

SPECIFIC CONDITIONS NOT COVERED BY LIMITED WARRANTY

The generator set is equipped with an engine which is not covered by this warranty. The engine is covered exclusively by the engine manufacturer's warranty presented in the enclosed engine manual.

The generator set is intended to be used as constructed by the factory. Any modifications to the assembly, such as conversion to LP gas fuel, will void the warranty. Winpower Inc. does not warrant any modifications to the unit.