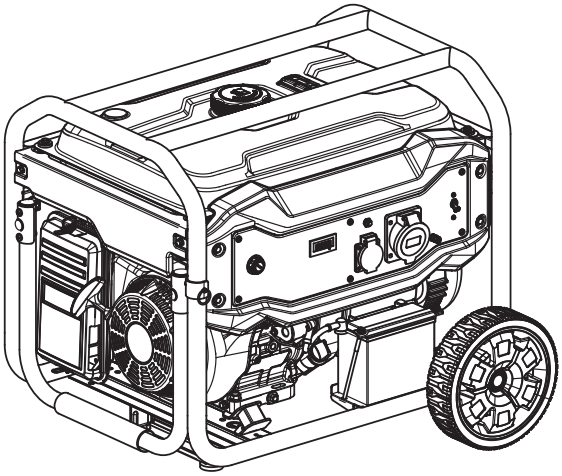
LawnMaster®



OPEN FRAME
GENERATORS

SAFETY AND OPERATING MANUAL

PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATING THE UNIT

PB SERIES GENERATORS

A STEELFORT PRODUCT

PROUDLY **NZ OWNED**

TABLE OF CONTENTS

I. OPERATOR SAFETY

SAFETY RULES

This manual contains important safety information and instructions to operate the LawnMaster Inverter Generator.

PLEASE READ THIS MANUAL CAREFULLY BEFORE USING THE UNIT.

Failure to adhere to the safety instructions could result in property damage and/or serious personal injury.

This manual should be considered a permanent part of the generator and should remain with the unit at all times. All information in this publication is based on the latest product information available at the time of printing.

Product Information and specifications can be altered and/or improved without notice.
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DANGER
Indicates a hazardous situation which, if not strictly complied with, will result in substantial property damage and or serious injury.

WARNING
Indicates a hazardous situation which, if not strictly complied with, may result in property damage

CAUTION
Indicates a hazardous situation which, if not strictly complied with, could result in property damage or personal injury.

The warnings and precautions discussed in this manual does not cover all possible conditions and or scenarios that may occur.

It must be understood by the operator that common sense and caution must be taken into consideration when operating this product, as these are factors which cannot be built into this manual.

WARNING
This generator is intended for domestic consumer use only. Damage and faults created from commercial use may void warranty. These generators are designed for full time operation. No personal modifications should be made to any part of the unit.

DANGER

TOXIC FUMES

- The exhaust of the engine contains carbon monoxide, an odorless, colorless poison gas. Using the engine in confined/indoor spaces can be extremely dangerous and life threatening.
- DO NOT use the generator inside and or in enclosed spaces EVEN IF doors and windows are open. Only use the engine in well ventilated areas and consider wind and airflow when positioning the engine.

KICKBACK

- Rapid retraction of the starter cord will pull hand and arm towards the engine faster than you can let go. Unintentional startup can result in serious injury.

FIRE

- When operating the unit, the engine may create sparks that could trigger fires.
- When operating around dry vegetation such as agricultural crops, forest, bush, grass, or other similar environments please be careful.
- This engine may not be equipped with a spark arresting muffler. In some countries and regions, a spark arrester is required by law. Please contact your local council and or fire agency for laws and regulations relating to fire prevention requirements.
- Petrol is highly flammable and explosive. A fire and or explosion from petrol can cause severe burns or result in serious personal injury including death.
- Keep flammable items away while handling petrol. Fill fuel tank outdoors and in a well ventilated area with the engine stopped.
- Always wipe spilled fuel and wait until the fuel has dried before starting the engine.
- DO NOT operate the engine with known leaks in the fuel system. Use proper fuel storage and handling procedures.
- DO NOT store fuel or other flammable materials near the generator.

- Empty the fuel tank before storing or transporting the generator. Keep fire extinguisher handy at all times.

BATTERY

- Lithium battery is maintenance free, if you have any question, please contact a local authorised dealer.

HOT SURFACE

- Running the generator will produce heat and severe burns may occur upon contact. DO NOT touch the engine while under operation or just after stopping the unit.
- Avoid contact with hot exhaust gases and or hot surfaces.
- Maintain at least 1m of clearance on all sides to ensure adequate cooling. Combustible material can catch fire upon contact. Maintain at least 3m of clearance from combustible materials.

MOVING PARTS

- Moving parts can cause severe injury. Keep hands and feet away from the unit.
- DO NOT operate engine with covers, shrouds, or guards removed.
- DO NOT wear loose-fitted clothing, dangling drawstrings or items that could become caught or entangled.
- Tie up long hair and remove jewelry. The moving parts may catch operator's hand, feet, hair and or loose clothing resulting in serious injury.

GENERAL WARNINGS

- Before use, check for loose or damaged parts, signs of oil or fuel leaks, and any other condition that may impact operation.
- Repair or replace all damaged and or defective parts immediately.
- Locate all operating controls and safety labels.
- Make sure all the safety instructions are in correct working condition.
- Operate only on level surfaces.
- DO NOT expose the generator to excessive moisture, dust, and or dirt.
- Keep all safety guards in place and in proper working order at all times.
- DO NOT allow any material to block the cooling slots.
- DO NOT allow children or untrained people to operate the unit.
- DO NOT leave the generator unattended when it is in operation. Always turn off the generator prior to leaving the area.

ELECTRIC SHOCK

- The generator produces powerful voltage and the electricity and can be dangerous and cause serious life threatening injuries if an electric shock is received.
- Please ensure that the unit is properly connected to an appropriate ground to help prevent electric shocks.
- Failure to properly ground the unit can result in electrocution, especially if the generator is equipped with a wheel kit. Consult an electrician for local grounding requirements.
- Installation should be performed by a certified electrician. Improper Installation could result in serious injury.
- To reduce the risk of electric shocks. DO NOT use electrical cords that are worn, frayed, bare or otherwise damaged.
- DO NOT touch bare wires or receptacles.
- DO NOT operate the unit in wet weather.
- Keep the generator dry and DO NOT handle generator or electrical cords while standing in water, while barefoot, or while hands or feet are wet.
- Keep children or pets away.
- DO NOT plug the unit into a building electrical system without the proper use and installation of a transfer switch installed by a qualified electrician.
- When using the generator for backup power, notify your utility company.
- Use approved transfers to isolate generator from electric utility.
- Failure to isolate the unit from the power utility could result in serious injury to the staff and utility workers due to back-feed of electrical energy.

II. GETTING STARTED

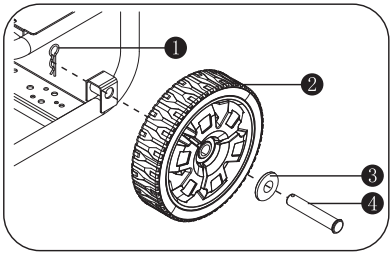
1. UNPACKING
Remove the generator from the carton.

1. Place the carton on a solid, flat surface.
2. Carefully cut each corner of the carton box from top to bottom. Fold each side flat on the ground.
3. Remove everything from the carton except the generator.

2. ASSEMBLY
Your generator may require some assembly. If you have any questions regarding the assembling process of the generator, please consult your local dealer for help.

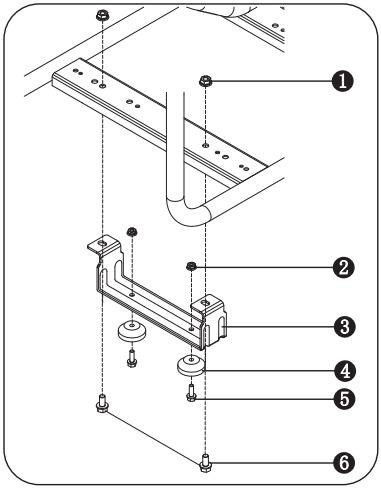
2.1 INSTALL WHEEL KIT
Put wheel stop pin through the wheel and mounting lug hole, then fix it with the clamp.

Note: A flat washer may be used to adjust the assembly clearance as needed.



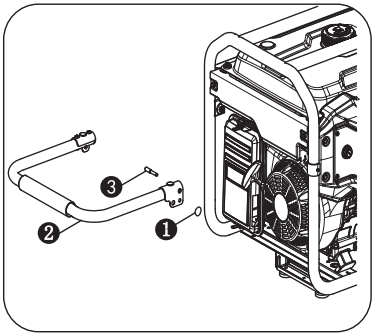
❶ Clamp ❷ Wheel
❸ Washer ❹ Wheel stop pin

2.2 INSTALL SUPPORT BRACKET
The sealed battery on the generator is fully charged and pre-installed except for the negative (black) battery cable.



❶ Support bracket nut M8
❷ Damping seat nut M6
❸ Support bracket
❹ Damping seat
❺ Damping seat nut M6 x18
❻ Support bracket bolt M8 x16

2.3 INSTALL HANDLES
Use the handle pin across the handle and its mounting lug hole, and then fix it with the clamp.



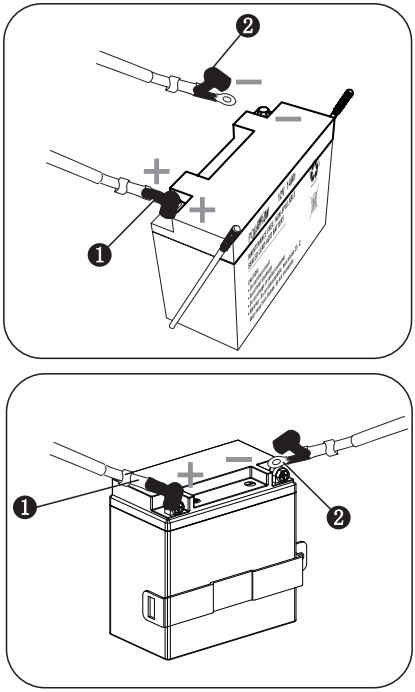
❶ Chain
❷ Push handle
❸ Pin

The sealed battery on the generator is fully charged and pre-installed except for the negative (black) battery cable.

INSTALL:

- Cut off tie wrap that is securing the loose end of negative (black) cable. Connect the negative (black) battery cable to the negative(-) terminal on the battery.
- Verify if it is correct and secure the connections between the battery and generator.

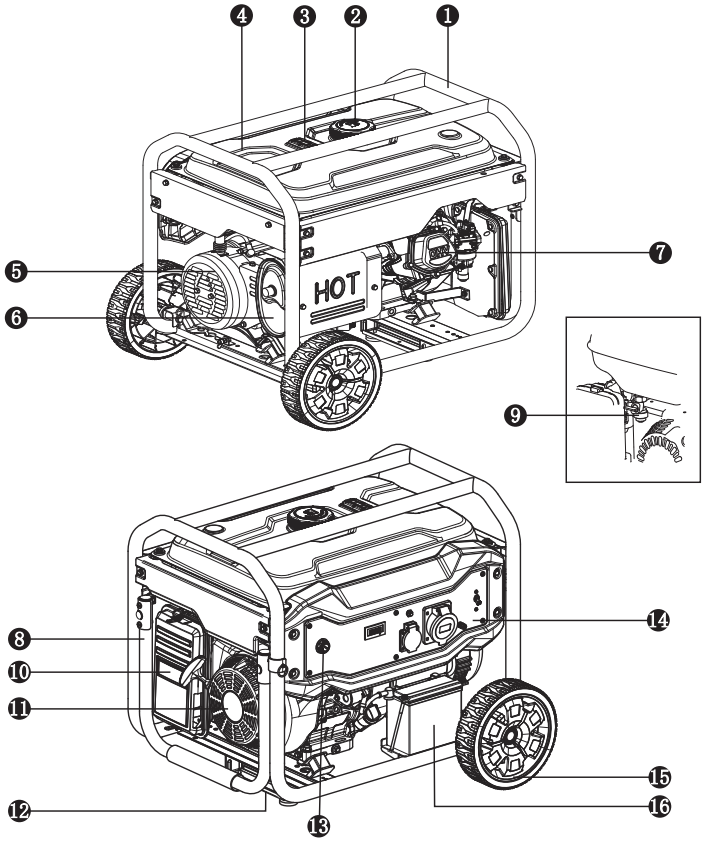
2.4 CONNECT NEGATIVE BATTERY CABLE



❶ Positive (+) terminal (red)
❷ Negative (-) terminal (black)

-

3. FEATURES & CONTROLS



❶ Rack
❷ Fuel cap
❸ Lever indicator
❹ Fuel tank
❺ End cover
❻ Muffler
❼ Cylinder head
❽ Push handle
❾ Choke lever
❿ Air filter
⓫ Starter
⓬ Support bracket
⓭ Engine switch
⓮ Control panel
⓯ Wheel
⓰ Battery

III. OPERATING

1. OPERATING ENVIRONMENT

- Only use OUTSIDE and operate the generator in well-ventilated areas. Only operate the generator on flat, level surfaces and in a clean, dry operating environments.
- Allow 1m clearance on all sides of the generator while operating outdoors.
- Operate in safe and specified areas.
- Generator's used in construction sites may be subject to additional rules and regulations.

DANGER

TOXIC FUMES

- The exhaust of the generator contains carbon monoxide, using the generator indoors can be extremely dangerous.
- DO NOT use the generator inside any buildings or any kind of enclosure, EVEN IF doors and windows are open. Place the generator in a well-ventilated and clean areas. Think of the wind direction and airflow when placing the unit for operation.

HIGH ALTITUDE

- This generator may require a high altitude carburetor kit to ensure correct operation at higher altitudes. Consult your local authorised dealer for more information on high altitude kits if you intend to operate the unit at altitudes above 5,000 feet (1,500 meters).

CAUTION

- Even with carburetor modifications, the generator horsepower will decrease by 3.5% for every 1,000 feet (300 meters) increase in altitude. The effect of altitude on horsepower will be greater than this if no carburetor modification is made.
- Operating the unit at altitudes below 5,000 feet (1,500 meters) with a modified carburetor may cause the generator to overheat and result in serious engine damage. Please restore factory specifications of the carburetor with a service dealer when planning to use the engine in a low altitude areas.

2. OPERATING CONDITION

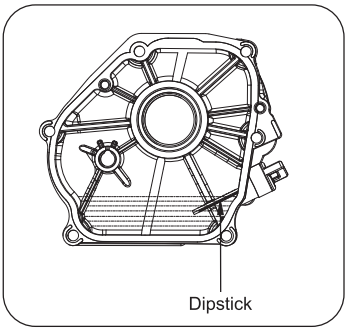
Check for loose or damaged parts, signs of oil or fuel leaks, and any other condition that may affect proper operation. Repair and or replace with genuine parts immediately.

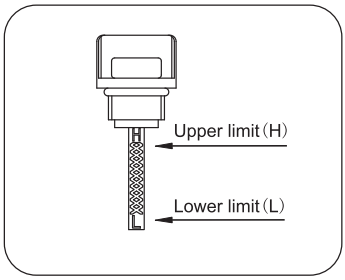
WARNING

- Failing to correct problem(s) before operation could result in property damage, and serious injury.
- Remove any excessive dirt or debris, especially around the muffler and recoil starter.
- DO NOT move or tip the generator during operation.
- Use generator only for intended use. If you have questions about intended use, ask your local dealer.

3. OIL CHECK

- Place the engine on a level surface with engine stopped.
- Remove the dipstick and wipe it clean.
- Reinstall dipstick into tube; rest on oil fill neck, DO NOT thread cap into tube.





- Remove the dipstick again and check oil level. Level should be within the upper limit and lower limit range on dipstick.
- Fill to the upper limit (marked with “H”) of the dipstick with the recommended oil if the oil level is low.
- Reinstall and fully tighten the dipstick.
- Refer to add oil instruction in MAINTENANCE section for more information.

Oil capacity (rated):
See parameters.

WARNING
- Oil is a major factor affecting performance and service life.
- We recommend using LawnMaster 4-Stroke 10W30 Oil (PP01020005). You can find more information about this in the MAINTENANCE section of this manual.
- **OIL MUST BE PLACED IN ENGINE BEFORE STARTING.** This engine is not filled with oil at the factory. Any attempt to crank or start the engine before it has been properly filled with the recommended type and amount of oil may result in engine damage and void your warranty.

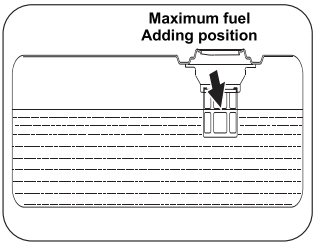
CAUTION
Operate generator only on leveled surfaces. The engine is equipped with a low oil sensor (applicable types) that will automatically stop the engine when the oil level falls below the safe limit. To avoid the inconvenience of an unexpected shutdown, fill to the upper limit and check the oil level regularly.

4. ENGINE FUEL

- With the engine stopped, check the fuel level gauge. Refill the fuel tank if necessary.
- Use clean, fresh, regular unleaded petrol.
- DO NOT mix oil with petrol.
- Always wipe up any spilled fuel.
- Be sure not to fill above the upper limit mark
- Always allow room for fuel expansion.

Fuel capacity (rated):
See parameters.

DANGER
Do not fill the fuel tank above the upper limit. Over filling will result in damage to the carbon canister (if equipped) and void your warranty.



DANGER
- Petrol is highly flammable and extremely explosive. Keep flammable items away while handling petrol. Fill fuel tank outdoors and in a well ventilated area with the generator stopped.
- Always wipe off spilled fuel and wait until the fuel has dried before starting the generator.
- DO NOT operate the generator with known leaks in the fuel system.
- Use proper fuel storage and handling procedures. DO NOT store fuel or other flammable materials nearby. Empty the fuel tank before storing or transporting the generator.
- Keep fire extinguisher handy and be prepared if a fire starts.
- NEVER use engine or carburetor cleaner products in the fuel tank or permanent damage may occur.
- It is important to prevent gum deposits from forming in essential fuel system parts, such as the carburetor, fuel filter, fuel hose or tank during storage.
- Also, experience indicates that alcohol-blended fuels (such as gasohol, ethanol or methanol) can attract moisture, which leads to separation and formation of acids during storage.
- Acidic fuel can damage the fuel system of the generating set while in storage. Be sure to review the instructions given in “Storage” section.
- Petrol/Alcohol Blends: up to 10% alcohol, 90% unleaded petrol by volume is approved as a fuel. Other petrol/alcohol blends are not approved. Damage and effects taken place from using old, stale or contaminated fuel will not be covered by warranty.

CAUTION

- To minimize gum deposits in your fuel system and to ensure easy starting, do not use petrol left over from the previous season.
- Pressure can build up in the fuel tank. Allow the generator to cool for at least two minutes before removing fuel cap. Loosen the fuel cap slowly to relieve any pressure in the tank

5. ELECTRICAL DEVICES

Disconnect all electrical devices from the generator and switch off the AC circuit breaker before starting the engine.The generator may find it hard to start with electrical devices connected.

6. GROUNDING

The generator must be properly connected to an appropriate ground. It helps prevent electrical shocks if a ground fault condition exists in the generator or in connected electrical devices, especially when the unit is equipped with a wheel kit. Proper grounding also helps dissipate static electricity, which often builds up in ungrounded devices.

DANGER

ELECTRICAL SHOCK

Failure to properly ground the generator can result in electric shock. A ground terminal on the frame of the generator has been provided. For remote grounding, connect a heavy gauge (4 mm) copper wire between the generator ground terminal and a copper rod driven into the ground.

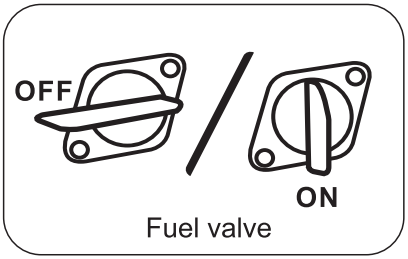
The National Electrical Code requires that the frame and external electrically conductive parts of this generator be properly connected to an approved earth ground. Local electrical codes may also require proper grounding of the unit.

We strongly recommend that you consult with a qualified electrician for grounding requirements in your area.

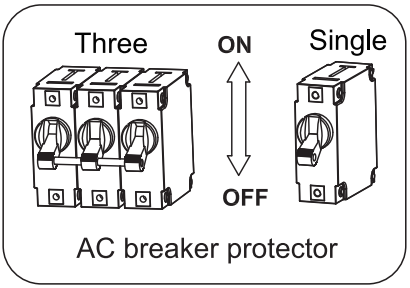
7. STARTING THE ENGINE

7.1 Perform operating checklist.

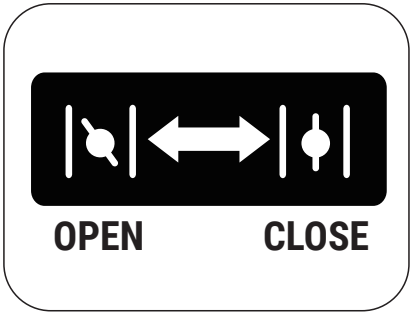
7.2 Turn fuel valve to the " ON " position.



7.3 Turn off AC breaker protector.



7.4 Pull the choke valve switch to "ON" position.

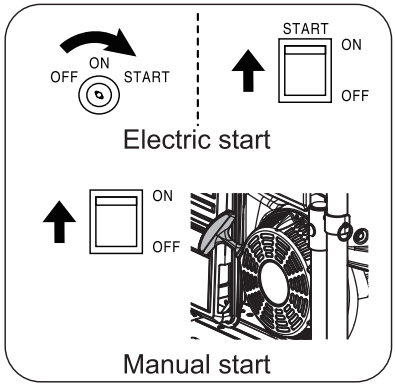


CAUTION
Choke plate should be a different width due to temperature change and other factors.

7.5 STARTING MODES

ELECTRIC START
Turn and keep the key to "START" position till the engine is started. After the engine is started, release the key to return to "RUN" position.

MANUAL START
Turn the switch to "RUN" position. Flick the switch button to the open position, and then seize the starter handle and slowly pull until there is a sense of resistance, and quickly pull to start.

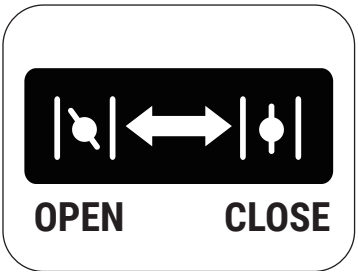


WARNING

KICKBACK
- Rapid retraction of the starter cord will pull hand and arm towards the engine faster than you can let go. Unintentional startup can result in serious injury.
- If the electric starter fails to start the engine, immediately turn off the starter. Do not attempt to restart the engine before the failure of the cause has been identified. Don't restart the engine by replacement of other storage battery without authorisation.

CAUTION
- If the engine fails to start after 3 attempts and or flames out after starting, inspect and ensure that the generator has been placed on a flat horizontal surface and has enough engine oil.
- During starting, do not turn the starting switch to "start" position for more than 5 seconds as this could damage the motor and void warranty. If the unit fails to start after the first attempt, restart only after 10 seconds has passed. After the unit has been used for a period of time, if the starting speed of the motor falls, please replace the battery.
- During the operation of the unit, the battery supplies power to the solenoid valve of the carburetor. When the unit is turned off, make sure that the starting switch is in "OFF" position, otherwise the storage battery voltage is reduced due to the operating solenoid valve of the carburetor, impacting on starting for next time.
- If the engine is equipped with an engine oil alarm, the engine may not start if the engine oil in the crankcase is lower than the minimum required level. During the operation of the unit, routinely inspect the engine oil levels. See maintenance section for further details.

7.6 When the engine operates stably, pull the choke valve to "CLOSE " position.



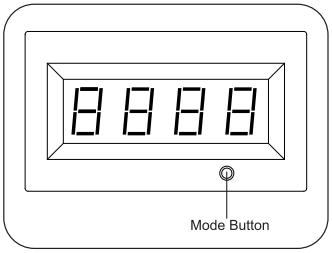
7.7 The generator may be normally loaded.

WARNING
Connect the output terminal of the generator with the electric equipment. Don't start or stop the engine when the electric equipment is in "ON" status.

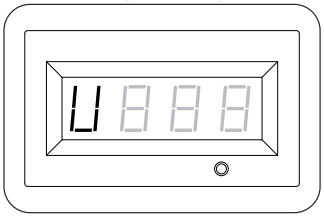
VFT METER
(If applicable)

The VFT meter can be used for displaying voltage, frequency(hertz), run time, and total run time as applicable. (Display mode depends on the configuration). The LCD displays each mode by pressing the button below the display. The display meter sets as either automatic switching mode or manual operation mode. In the manual state, press MODE BUTTON for mode switching; But in automatic mode,

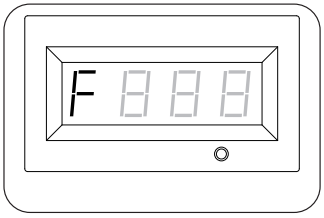
MODE BUTTON is used for reset (operate cautiously when necessary).



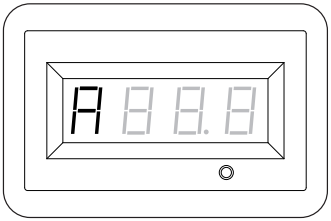
A. VOLTAGE (U):
Output Voltage of the generator.



B. FREQUENCY (F)
Output frequency in hertz



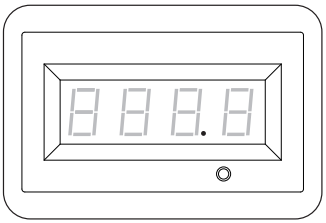
C. RUN TIME (R):
Run time of the generator for the current session.



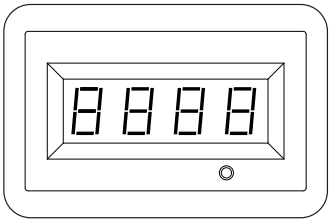
NOTE: If display value is less than 100, the numeric display will accurate to one decimal place. If the operation time is 100 hour or greater, the display will be “101”,”102” and so on.

D. TOTAL RUN TIME:
Total run time of the generator since first operation (display mode depends on the configuration).

1) The display value is accurate to one decimal place; or

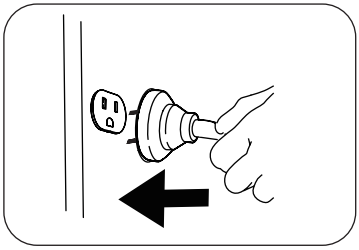


2) The display value shows as a integer.



8. CONNECT ELECTRICAL DEVICES

Inspect power cord for damage before using. There is a hazard of electrical shock from crushing, cutting or heat damage.



DANGER

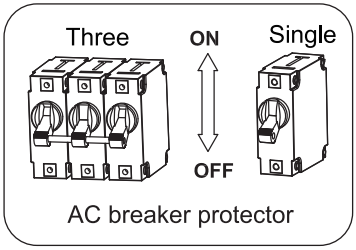
ELECTRICAL SHOCK

- To reduce the risk of electrical shock, DO NOT use electrical cords that are worn, frayed, bare or otherwise damaged.
- DO NOT touch bare wires or receptacles.
- DO NOT handle generator or electrical cords while standing in water, or barefoot, or while hands or feet are wet.

1. Allow the engine to stabilise and warm up for a few minutes after starting.
2. Make sure the electrical devices in "OFF" position and the load current is not higher than the maximum withstanding current of single socket.

CAUTION
If the current of a single load is higher than the maximum withstanding current of single socket, please connect the load with the terminal.

3. Turn the AC breaker protector to "ON" position.



CAUTION
If connected devices overheat, turn them off and disconnect them from generator.

9. BEARING CAPACITY

You must make sure your generator can supply enough rated (running) and surge (starting) watts for the electrical devices you plan to power at the same time. Follow these simple steps to calculate the running and starting watts that are necessary for your purposes.

WARNING

- DO NOT overload the generator.
- Exceeding the generator's capacity can damage the generator and/or electrical devices connected to it. Faults and damaged caused by overloading may void warranty.

1. Select the electrical devices you will power at the same time.
2. The amount of power you need to run all the devices is the total rated (running) watts of these items.
3. Identify how many surge (starting) watts you will need. Surge wattage is the short burst of power needed to start electric power tools and or appliances. Because not all motors start at the same time, total surge watts can be estimated by adding only the electrical device(s) with the highest additional surge watts to the total rated watts from step 2.

WATTAGE REFERENCE CHART

Electric equipment		Rate power(W)
Appliances	Tablet computer27''	120
	Energy saving lamb	5-50
	Electric cooker	1000
	computer	400
	refrigerator	50
	Washing machine	250
	Electric fan	50
	Air-conditioner 2HP	1600
Electric tooling	Electric welding machine	2500
	Electric hammer	1000
	Water pump	800

WARNING
You must isolate the generator from electric utility by opening the electrical system's main circuit breaker or main switch if the generator is used for backup power. Failure to isolate the generator from the power utility may result in injury or death to electric utility workers and damage to the generator due to the backfeed of electrical energy.

10. CHARGING THE BATTERY

(Applicable Types)

- Charge the battery by battery charging socket, and keep the full charge of the battery for use at any time.
- Charge the battery in dry environment.

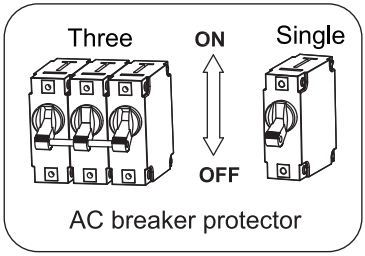
WARNING
Batteries give off explosive hydrogen gas while recharging. An explosive mixture will remain around the battery for a long time after it has been charged. The slightest spark can ignite the hydrogen and cause an explosion, resulting in serious injury.

WARNING
- DO NOT allow smoking, open flame, sparks or any other source of heat around a battery. Wear protective goggles, rubber apron and rubber gloves when working around a battery.
- Battery electrolyte fluid is an extremely caustic sulfuric acid solution that can cause severe burns. If spill occurs flush area with clear water immediately.
- To recharge Volt batteries, proceed as follows:
- Check fluid level in all battery cells. If necessary, add ONLY distilled water to cover separators in battery cells.
- DO NOT use tap water.
- If the battery is equipped with vent caps, make sure they are installed and are tight.
- If necessary, clean battery terminals.
- Connect charging circuit to power output panel socket with marked "12-VOLTS D.C".
- Connect battery charge cable clamp with red handle to the positive(+) battery terminal.
- Connect battery charge cable clamp with black handle to the negative(-) battery terminal
- Start engine. Let the engine run while battery recharges.
- When battery has charged, shut down engine.

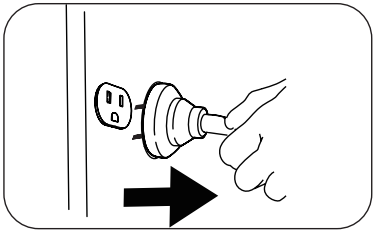
CAUTION
Use an automotive hydrometer to test battery state of charge and condition. Follow the hydrometer manufacturer's instructions carefully. Generally, a battery is considered to be at 100% state of charge when specific gravity of its fluid (as measured by hydrometer) is 1.260 or higher.

11. STOPPING THE ENGINE

1. Remove all the load on generator
2. Turn-off AC breaker protector



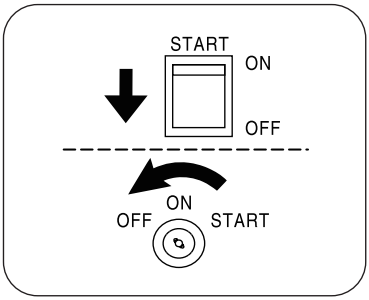
Remove the plug of all electric equipment from the generator panel.



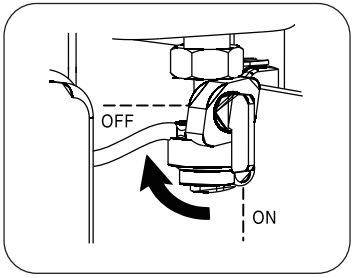
WARNING
NEVER stop the engine with electrical devices connected and with the connected devices turned “ON”.

3. Allow the generator run at no load for a few minutes to stabilise internal temperatures of the engine and generator.

4. Turn off the flameout switch (turn the engine switch to “OFF” position).



5. Turn fuel valve to “OFF” position.



12. LONG DISTANCE CONTROL
(Applicable Types)

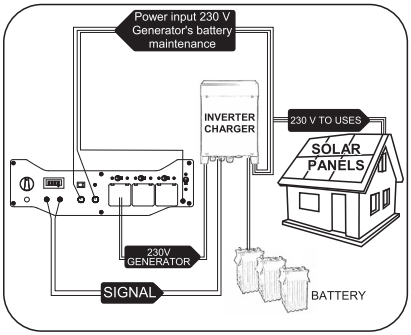
STEP 1.

Installation of the generator is extremely simple. Both the start-up and stop functions are built into the generator itself and so it is not necessary to have an external control box.

The generator can be started by a remote signal through the normal open contact photovoltaic installations.

It is imperative that the inverter charger is available in order to do the startup process of the generator. Below is an example of an off grid photovoltaic installation.

Note: The following diagram is only indicative, a general idea to understand the operation process. Consult a professional and or installer to perform correct installation.



STEP 2.

Understanding The General Operation.

The generator is designed to support photovoltaic installations. The generator will provide power when the solar energy is not enough.

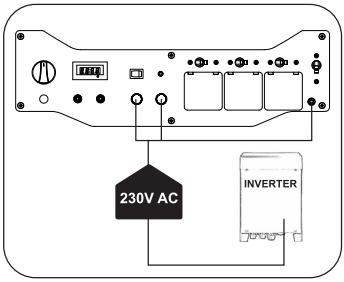
This generator has been designed for an automatic start and stop, commanded by an inverter/charger.

The inverter/charger can detect low battery levels during operation. Similarly, the inverter charger will send a stop signal to the generator if charging is required. Not all inverter/chargers remotes from generator connect with each other, consult your local service dealer for more information.

230 V power input connection:
The automatic mode of the generator consumes very little power when active.

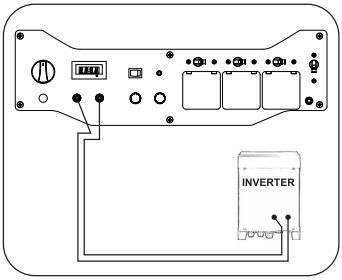
This consumption is fed from the generator's battery, it is essential to connect a 230 V power input otherwise the battery would be discharged within a few hours.

This connection comes from the 230 V inverter output and connects to the "input power 230 V" on the generator's control panel. This also gives power to the battery and charger located in the generator control panel, that is active; if the battery of the generator has low charge it will be recharged through this energy.

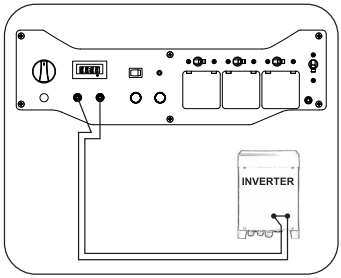


Note: Not feeding the 230 V power input means the battery will go flat within a few hours. This could lead to further damage to the cells making it an unusable battery.

Operation startup by remote contacts: the generator consists of two normal open contacts. While the inverter/charger keep the 2 contacts open, the generator is off, as the figure below:



When the inverter/charger command the generator startup, two contacts will join and the generator will initiate the start up process. The generator keeps running, while the contacts are joined.



When the contact splits again the generator will stop and remain at rest until a next start.

STEP 3.

Understanding the Generator's Startup & Stop Process

1. The startup of the generator will begin a few seconds after the outage of the power supply.
2. The system sends a signal to the choke closing the air passage.
3. The system gives power to the starting motor to start up the engine. If engine starts, the power to the starting motor will immediately stop to avoid any gear damage to the starting motor.

The maximum working time of the starting motor is 5 seconds. If the engine has not started after 5 seconds, the stating motor will be disconnected to prevent overheating. If the engine has not started after the first attempt, a second attempt can be performed after a few seconds, repeat process for a maximum 5 attempts. If the generator does not start automatically during the 5 attempts, the SIGNAL lamp will blink, showing start failure and generator pass to stop.

The engine has a temperature sensor, if the engine is hot after recent operation, the choke signal will be annulled.

NOTE: If you perform continuous auto start attempts for I or 2 minutes it may cause malfunctions to the temperature sensor. This may indicate that the temperature levels will annul the choke even though the engine temperature is not at the correct temperature for a startup without choke assistance.

NOTE: In low temperature conditions, below 50 C the engine will have much greater difficulty to start

and may require more than 3 startup attempts. In this case it would be necessary for an operator to manually start with a key. We recommend installing the equipment protected from intense cold to avoid start up failures due to temperature.

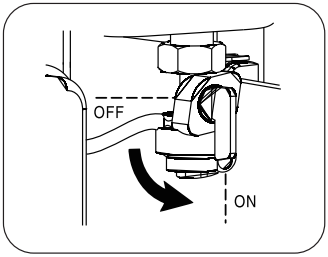
NOTE: LawnMaster is not responsible in any way for damages caused to products or equipment that may arise from the lack of supply by a generator failure.

DANGER
This equipment is not designed to protect vital equipment such as (life support equipment, extreme safety equipment or other equipment that involves a risk to persons or property in cases of lack of supply.

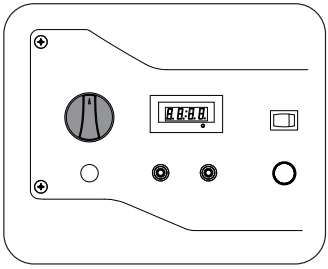
STEP 4.
Programming The Automatic Mode

The battery is extremely important for starting up in automatic mode, before programming the equipment check the battery is correct and that it is charged.

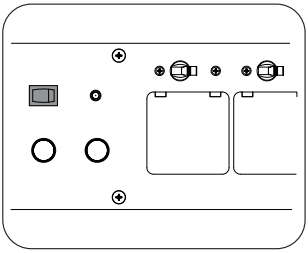
1 . Place the fuel valve switch to “ON” position.



2.Place the engine ignition key to “ON” position.

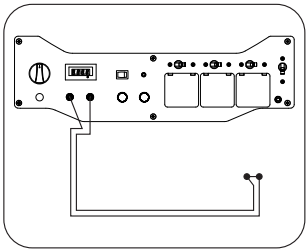


3. Push “SIGNAL MODE” switch to “ON” (auto mode).



The generator is ready for start by remote signal when inverter/charger joins the 2-signal contacts.

After connect generator definitively with the inverter/ charger you can simulate a start/stop maneuver. Join the signal contact and keep them connected, generator will start the startup process according point 9.3 of this manual.



After 5 minutes running you can separate the signal contact, the generator stops and keep waiting for next order.

IV. MAINTENANCE

It is the operator's responsibility to complete all scheduled maintenance and or servicing in a timely manner. Always correct any issues before operating the generator. Follow all inspection and maintenance recommendations that are listed in the manual.

WARNING
Improper maintenance and or failure to correct problems prior to operating the unit may cause the unit to malfunction and result in property damage and or serious personal injury. Improper maintenance and servicing may void warranty.

DANGER
Accidental starts can cause serious personal injury. Remove and ground the spark plug wire before performing any service.

CAUTION
The filter element may contain PAHs, PAHs that is harmful for your health. Please wear gloves for protection during air filter maintenance.

1. MAINTENANCE SCHEDULE

Before servicing the generator, stop the generator, disconnect all electric devices and battery (if equipped) and allow the generator to cool down.

Follow the service intervals indicated in the chart below. Service your generator more frequently when operating in adverse conditions. Contact your local Service Dealer if the generator requires maintenance.

		Each time before use	10 hours or the first month[Note2]	50 hours or every three months[Note2]	100 hours or every six months[Note2]	300 hours or every year[Note2]
Engine oil	Inspection	√				
	Replacement		√		√	
Air filter	Inspection	√				
	Cleaning			√[Note3]		
Spark plug	Inspection and adjustment				√	
	Replacement					√
Spark extinguisher[Note1]	Cleaning				√	
Idle speed	Inspection and adjustment					√[Note4]
Valve clearance	Inspection and adjustment					√[Note4]
Carbon canister[Note1]	Inspection	Every two years[Note4]				
Low permeability oil tube[Note1]	Inspection	Every two years[Note4]				
Oil tube	Inspection	Every two years[Note4]				

Note 1: Applicable types (if available).
Note 2: Before each season and after then (whichever comes first).
Note 3: Service more frequently under severe, dusty, dirty conditions.
Note 4: To be performed by knowledgeable, experienced owners or the authorised dealer.

2. GENERATOR MAINTENANCE

- Make certain that the generator is kept clean and stored properly.
- Use a damp cloth to clean exterior surfaces of the generator.
- Use an compressed air (25 PSI) to clear dirt and debris from the generator.
- Inspect all air vents and cooling slots to ensure that they are clean and unobstructed.

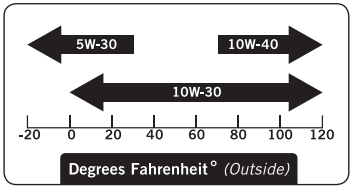
WARNING

- DO NOT use water to clean the generator. Water can enter the generator through the cooling slots and damage the generator windings.
- DO NOT modify the generator in any way.
- DO NOT tamper with governed speed. Generator supplies correct rated frequency and voltage when running at factory set.
- Tampering with the factory reset governor will void your warranty

3. ENGINE MAINTENANCE

3.1 ENGINE OIL

LawnMaster 10W30 Oil (PP01020005) is recommended. Other viscosities shown in the chart may be used when the average temperature in your area is within the indicated range. **OIL MUST BE PLACED IN ENGINE BEFORE STARTING.**

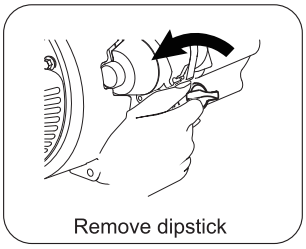


Ambient Temperature

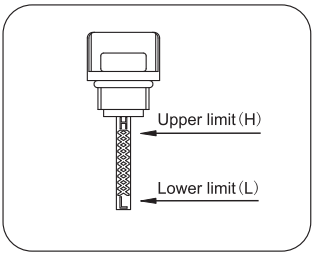
Oil capacity (rated):
See Parameters.

3.2 ADD OIL

1. Place the engine on a level surface.
2. Remove the dipstick and wipe it clean.



3. Add recommended oil to the upper limit.



CAUTION

3.4 OIL LEVEL CHECK

Reinstall dipstick into tube; rest on oil fill neck, DO NOT thread cap into tube.

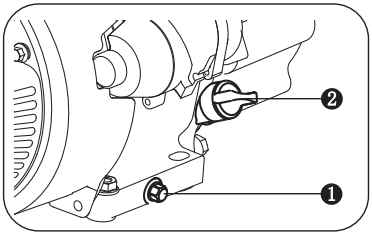
4. Fully tighten the dipstick.
5. Dispose of used oil at an approved waste management facility.

3.5 CHANGE OIL

CAUTION

Change oil when the engine is warm from operation.

1. Place the engine on a level surface.
2. Clean area around dipstick and drain plug.
3. Remove oil dipstick.

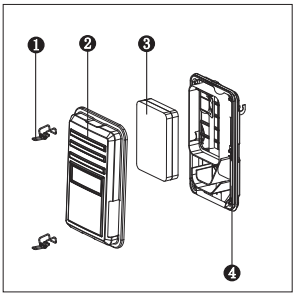


❶ Oil drain plug ❷ Dipstick

4. Remove the oil drain plug and allow the oil to drain completely.
5. Fully tighten the drain plug.
6. Add recommended oil to the upper limit (see add oil instruction above).
7.Reinstall & fully tighten the dipstick.
8. Dispose of used oil at an approved waste management facility.

WARNING
The engine is not filled with oil at the factory. Any operation before it has been properly filled with the recommended type and amount of oil may result in engine damage and void your warranty.

3.6 AIR FILTERS
1. Loosen the filter fix bolt and remove the cover of the air filter.



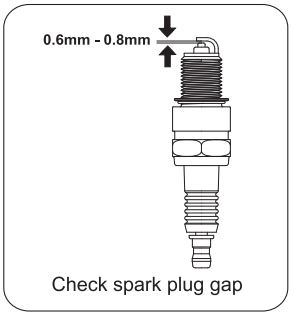
1. Air Filter Clip
2. Air filter cover
3. Foam filter element
4. Air filter body

2. Remove the foam filter element.
3. Wash in liquid detergent and warm water
4. Squeeze thoroughly dry in a clean cloth.
5. Saturate in clean engine oil.
6. Squeeze in a clean, absorbent cloth to remove all excess oil.
7. Place the filter in the assembly.
8. Fasten the air filter cover with the fix bolt, and the mounting it back to the air filter body.

WARNING
DO NOT run the engine without the air filter as this is dangerous can result in personal injury and or damage.

3.7 SPARK PLUG
1. Clean any dirt from the spark plug cap and spark plug base.
2. Remove the spark plug cap.
3. Using socket wrench to loose and remove the spark plug.
4. Inspect the spark plug and spark plug washer, if it's damaged or worn, replace with new one. Clean the spark plug with wire brush if reuse it.
5. Check spark plug gap. Carefully bend side electrode to adjust the gap if necessary.

SPARK PLUG GAP: 0.6MM - 0.8MM



6. Carefully thread the plug into the engine by hand.
7. After the spark plug is in position, use spark plug wrench to tighten the plug.

SPARK PLUG TIGHTEN TORQUE: 15-20 N.M

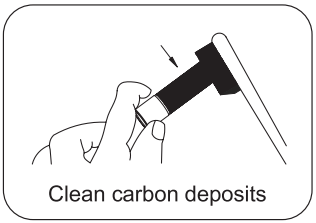
8. Attach the spark plug wire to the plug.

WARNING
Only use the recommended spark plug or equivalent. DO NOT use spark plugs that have improper heat range.

3.8 SPARK ARRESTER
(Applicable types)

1. Allow the engine to cool completely before servicing the spark arrester.
2. Remove the two bolts holding the cover plate which retains the end of the spark arrester to the muffler.
3. Remove the spark arrester screen.
4. Carefully remove the carbon deposits from the

spark arrester screen with a wire brush.



5. Replace the spark arrester if it is damaged.
6. Reinstall the spark arrester in the
7. muffler and attach with the two screws.

3.9 SPEED
The speed has been pre-set during manufacturing and should not require readjustment. Consult your local Service Dealer and or a professional to enquire about this.

WARNING
Unapproved adjustment will damage your engine and/or your electrical devices. Tampering with the factory set governor will damage your generator and void warranty.

3.10 ADJUSTMENT
- There are no other service and/or adjustment needs for your generator.
- Unapproved adjustments or tampering can damage the generator and the electrical devices that may be plugged into the unit
- Contact your local service dealer for further information.

WARNING
Tampering with the factory set governor will damage the generator and void warranty.

V. STORAGE & TRANSPORT

STORAGE
The generating set should be started at least once every two weeks and allowed to run for at least 20 minutes. Follow the instructions below for long term storage (out of service for 2 months or more).

DANGER

FIRE OR EXPLOSION
Petrol is highly flammable and extremely explosive. Empty the fuel tank and shut off the fuel valve before storing and or transporting the generator.

1. Allow the generator to cool completely before putting it away for storage.
2. Clean the generator according to the instructions in the Maintenance section.
3. Drain all fuel completely from the fuel hose and carburetor to prevent gum deposits from forming.
4. Turn off the fuel supply at the fuel valve.
5. Change the oil.
6. Remove the spark plug and pour 15 ml of oil into the cylinder. Crank the engine slowly to distribute the oil and lubricate the cylinder.
7. Reattach the spark plug.
8. Store the unit in a clean, dry area out of direct sunlight.

TRANSPORTATION
To prevent fuel spillage when transporting or during temporary storage, the generator should be secured upright in normal operating position, with the engine switch OFF. The fuel valve lever should be turned OFF.

WARNING

WHEN TRANSPORTING:
- Do not overfill the tank.
- Do not operate the generator while it is on or inside any vehicle. Take the generator out off the vehicle and use it in a well-ventilated area.
- Avoid placing the unit in exposed direct sunlight, especially inside vehicles. If the generator is left in an enclosed vehicle for many hours, high temperatures could cause fuel to vaporise resulting in a possible explosion.
- Do not drive on a rough roads for extended periods with the unit on board. If you must transport the unit through rough roads, drain the fuel beforehand.

VI. TROUBLESHOOTING

Failure	Cause	Removal method
Engine won't start.	Engine switch is "**OFF**".	Turn engine switch to the "**ON**" position.
	No Fuel.	Fill tank per instructions in this manual.
	Inadequate engine oil.	Check oil level. This engine is equipped with a low oil sensor. The engine cannot be started unless the oil level is above the prescribed lower limit.
	No ignition.	Remove the spark plug cap. Clean any dirt from around the plug base, then remove the spark plug. Install the spark plug in the plug cap. Turn the engine switch "**ON**". Grounding the electrode to any engine ground, pull the recoil starter to see if sparks jump across the gap. If there is no spark, replace the plug. Reinstall the plug and start engine according to instructions in this manual. Consult Customer Service if necessary.
Generator has no output.	No ignition.	Reset circuit breakers.
	Inadequate cord sets or extension cords.	Check cord sets or extension cords capabilities in section Controls; Cable Size in this manual. Consult Customer Service if necessary.

VII. SPECIFICATIONS (SINGLE PHASE)

Feature \ Model		PB2500(E)B		PB3000(E)B	
Engine parameter	Engine model	170F(E) - 2 or GB210(E) -2		170F(E) - 2 or GB210(E) -2	
	Style	OHV, forced cooling, four stroke, single cylinder			
	Displacement(cm^3)	208		208	
	Ignition system	TCI		TCI	
	Start style	Hand recoil or electric starting			
	Oil capacity(L)	0.6		0.6	
Series parameter	Voltage(V)	230	120(120/240)	230	120(120/240)
	Frequency(Hz)	50	60	50	60
	Rated power(kW)	2.0	2.0	2.5	2.5
	Maximum power(kW)	2.2	2.2	2.8	2.8
	Power factor	1.0		1.0	
	Insulation rate	F		F	
	Fuel capacity(L)	13		13	
	Max. site ambient temperature(℃)	40		40	
	Max. site altitude of installation(m)	1500		1500	
	Measured sound pressure level(dB(A))	≤73		≤73	
	Measurement uncertainty(dB(A))	≤1.5		≤1.5	
	Guaranteed sound power level(dB(A))	≤96		≤96	
	Net weight(kg)	PB2500B：42 PB2500EB：51		PB3000B：46 PB3000EB：53	

Feature \ Model		PB3300(E)B		PB3700(E)B		PB4000B
Engine parameter	Engine model	170F(E) - 2 or GB210(E) -2		GB225(E)-2		GB225-2
	Style	OHV, forced cooling, four stroke, single cylinder				
	Displacement(cm^3)	208		224		224
	Ignition system	TCI		TCI		TCI
	Start style	Hand recoil or electric starting				Hand recoil
	Oil capacity(L)	0.6		0.6		0.6
Series parameter	Voltage(V)	230	120(120/240)	230	120(120/240)	120(240)
	Frequency(Hz)	50	60	50	60	60
	Rated power(kW)	2.8	3.0	3.0	3.3	3.6
	Maximum power(kW)	3.0	3.3	3.3	3.7	4.0
	Power factor	1.0		1.0		1.0
	Insulation rate	F		F		F
	Fuel capacity(L)	13		13		13
	Max. site ambient temperature(℃)	40		40		40
	Max. site altitude of installation(m)	1500		1500		1500
	Measured sound pressure level(dB(A))	≤73		≤74		≤73
	Measurement uncertainty(dB(A))	≤1.5		≤1.5		≤1.5
	Guaranteed sound power level(dB(A))	≤96		≤97		≤96
	Net weight(kg)	PB3300B：53 PB3300EB：56		PB3700B: 53 PB3700EB: 56		PB4000B：53

VII. SPECIFICATIONS

Feature \ Model		PB5000(E)B		PH5500(E)B		PB6000(E)B		PB7000(E)B	
Engine parameter	Engine model	GB270(E)-2 or GB270B(E)-2		FH300(E)-3		190F(E)-2 or GB420(E)-2		190F(E)-2 or GB420(E)-2	
	Style	OHV, forced cooling, four stroke, single cylinder							
	Displacement(cm^3)	272		292		420		420	
	Ignition system	TCI		TCI		TCI		TCI	
	Start style	Hand recoil or electric starting							
	Oil capacity(L)	0.6/1.0		1.1		1.1		1.1	
Series parameter	Voltage(V)	230	120(120/240)	230	120(120/240)	220/230	120(120/240)	230	120(120/240)
	Frequency(Hz)	50	60	50	60	50	60	50	60
	Rated power(kW)	4.0	4.5	4	4.5	5.0	5.5	6.0	6.5
	Maximum power(kW)	4.5	5.0	4.5	5	5.5	6.0	6.5	7.0
	Power factor	1.0		1.0		1.0		1.0	
	Insulation rate	F		F		F		F	
	Fuel capacity(L)	13		23		23		23	
	Max. site ambient temperature(℃)	40		40		40		40	
	Max. site altitude of installation(m)	1500		1500		1500		1500	
	Measured sound pressure level(dB(A))	≤74		≤74		≤74		≤74	
	Measurement uncertainty(dB(A))	≤1.5		≤1.5		≤1.5		≤1.5	
	Guaranteed sound power level(dB(A))	≤97		≤97		≤97		≤97	
	Net weight(kg)	PB5000B: 57 PB5000EB: 62		PH5500B: 82 PH5500EB: 84		PB6000B: 85 PB6000EB: 87		PB7000B: 88 PB7000EB: 90	

Feature \ Model		PB7500EB		PB8000(E)B		PH8500(E)B		PB9000EB	
Engine parameter	Engine model	GB420E-2		GB420(E)-2		FH440(E)-3		GB460E-2	
	Style	OHV, forced cooling, four stroke, single cylinder							
	Displacement(cm^3)	420		420		439		459	
	Ignition system	TCI		TCI		TCI		TCI	
	Start style	Hand recoil or electric starting							
	Oil capacity(L)	1.1		1.1		1.1			
Series parameter	Voltage(V)	120(120/240)		230	240(120/240)	230	120(120/240)	230	120(120/240)
	Frequency(Hz)	60		50	60	50	60	50	60
	Rated power(kW)	7.0		6.5	7.0	7.5	8.0	8.0	8.5
	Maximum power(kW)	7.5		7.0	7.5	8.0	8.5	8.5	9.0
	Power factor	1.0		1.0		1.0		1.0	
	Insulation rate	F		F		F		F	
	Fuel capacity(L)	23		23		23		23	
	Max. site ambient temperature(℃)	40		40		40		40	
	Max. site altitude of installation(m)	1500		1500		1500		1500	
	Measured sound pressure level(dB(A))	≤74		≤74		≤74		≤74	
	Measurement uncertainty(dB(A))	≤1.5		≤1.5		≤1.5		≤1.5	
	Guaranteed sound power level(dB(A))	≤97		≤97		≤97		≤97	
	Net weight(kg)	PB7500B: - PB7500EB: 92		PB8000B: 89 PB8000EB: 91		PH8500B: 96 PH8500(E)B: 100		PB9000EB:98 (Push handle included)	

2. SPECIFICATIONS (THREE PHASE)

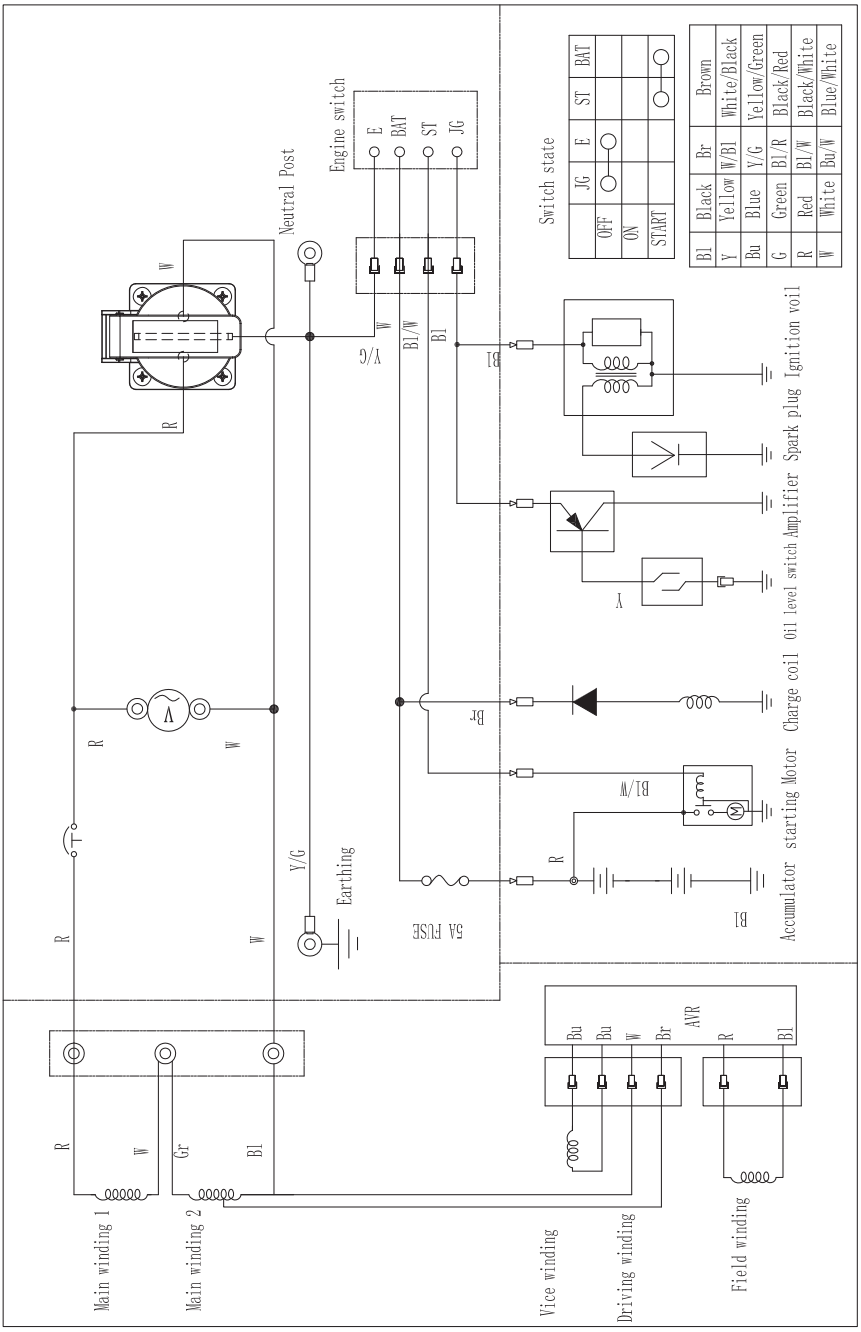
Feature \ Model		PH8503(E)B	
Engine parameter	Engine model	FH440(E)-3	
	Style	OHV, forced cooling, four stroke, single cylinder	
	Displacement(cm^3)	439	
	Ignition system	TCI	
	Start style	Hand recoil or electric starting	
	Oil capacity(L)	1.1	
Series parameter	Voltage(V)	400	400
	Frequency(Hz)	50	60
	Rated power(kW)	7.5	8.0
	Maximum power(kW)	8.0	8.5
	Power factor	0.8	
	Insulation rate	F	
	Fuel capacity(L)	23	
	Max. site ambient temperature(℃)	40	
	Max. site altitude of installation(m)	1500	
	Measured sound pressure level(dB(A))	≤74	
	Measurement uncertainty(dB(A))	≤1.5	
	Guaranteed sound power level(dB(A))	≤97	
	Net weight(kg)	PH8503B: 96 PH8503EB: 101	

The air-fuel ratio will be more rich in higher altitude area, which will led to lower performance of engine, and higher consuming of fuel.

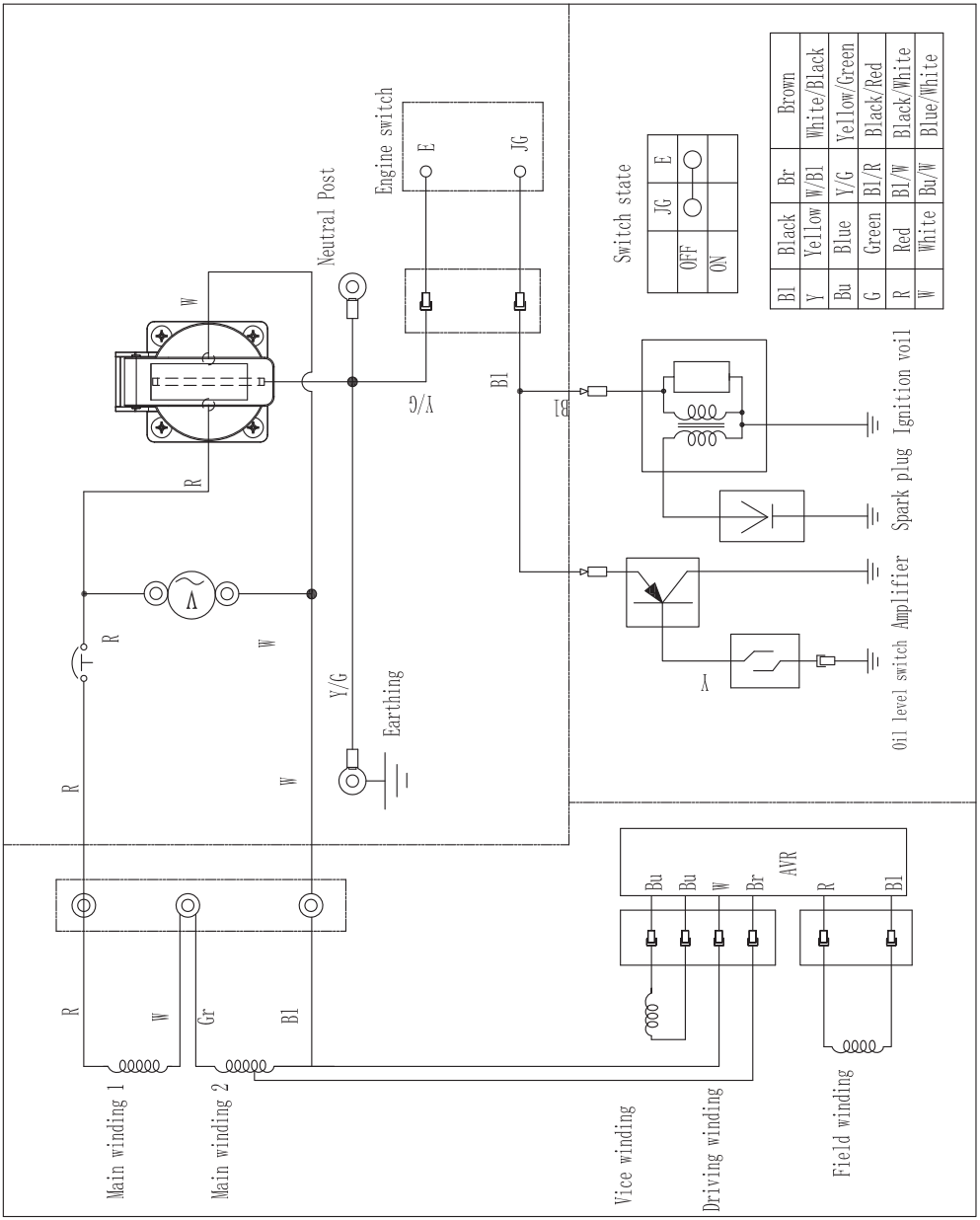
The output of generator should be measured according to the real operation condition such as temperature, pressure and humidity etc.

Notes: The generating set with different specification and configurations may have different parameters and may change at any time without notice. Please consult the local dealer for detailed information.

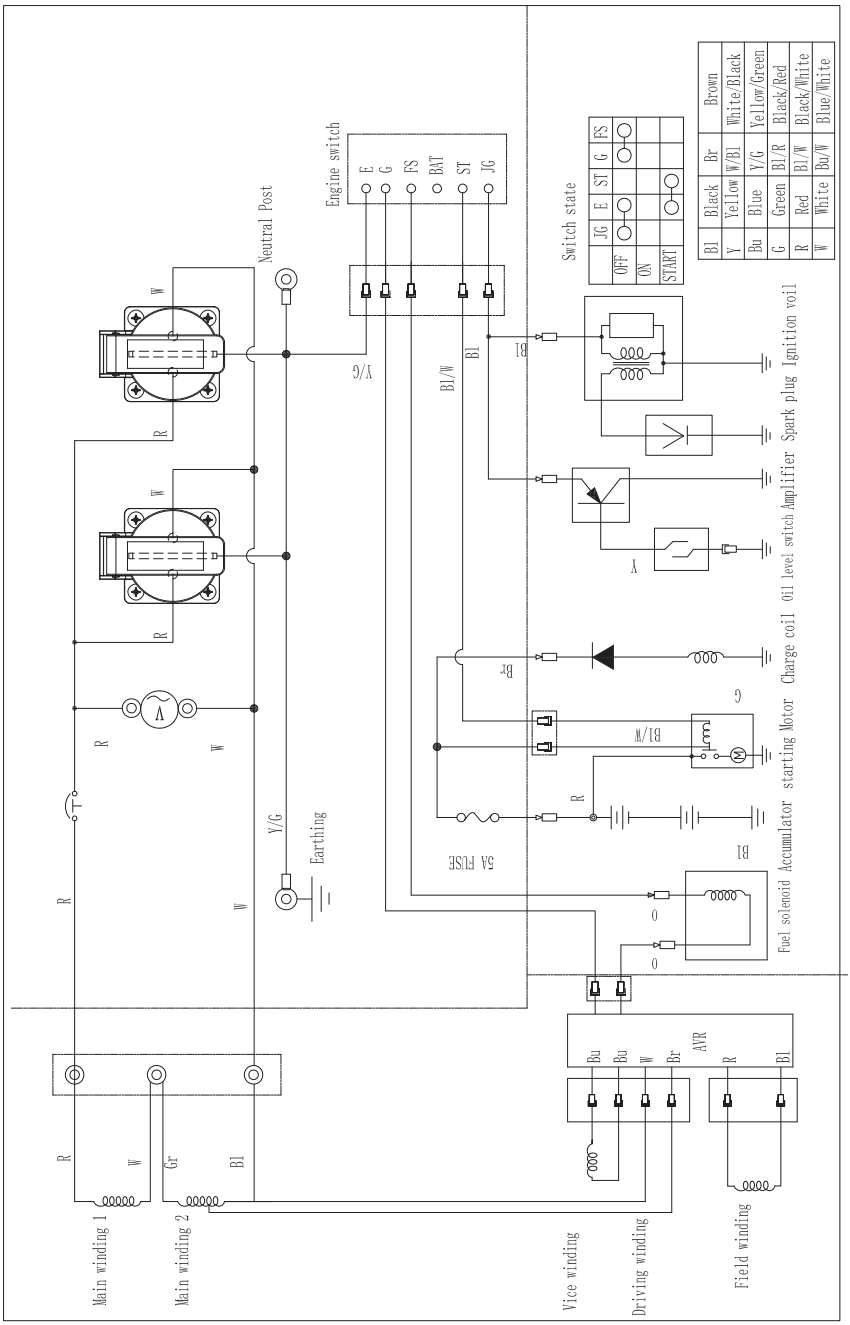
3. WIRING DIAGRAMS - 2-3 6KW ELECTRIC START



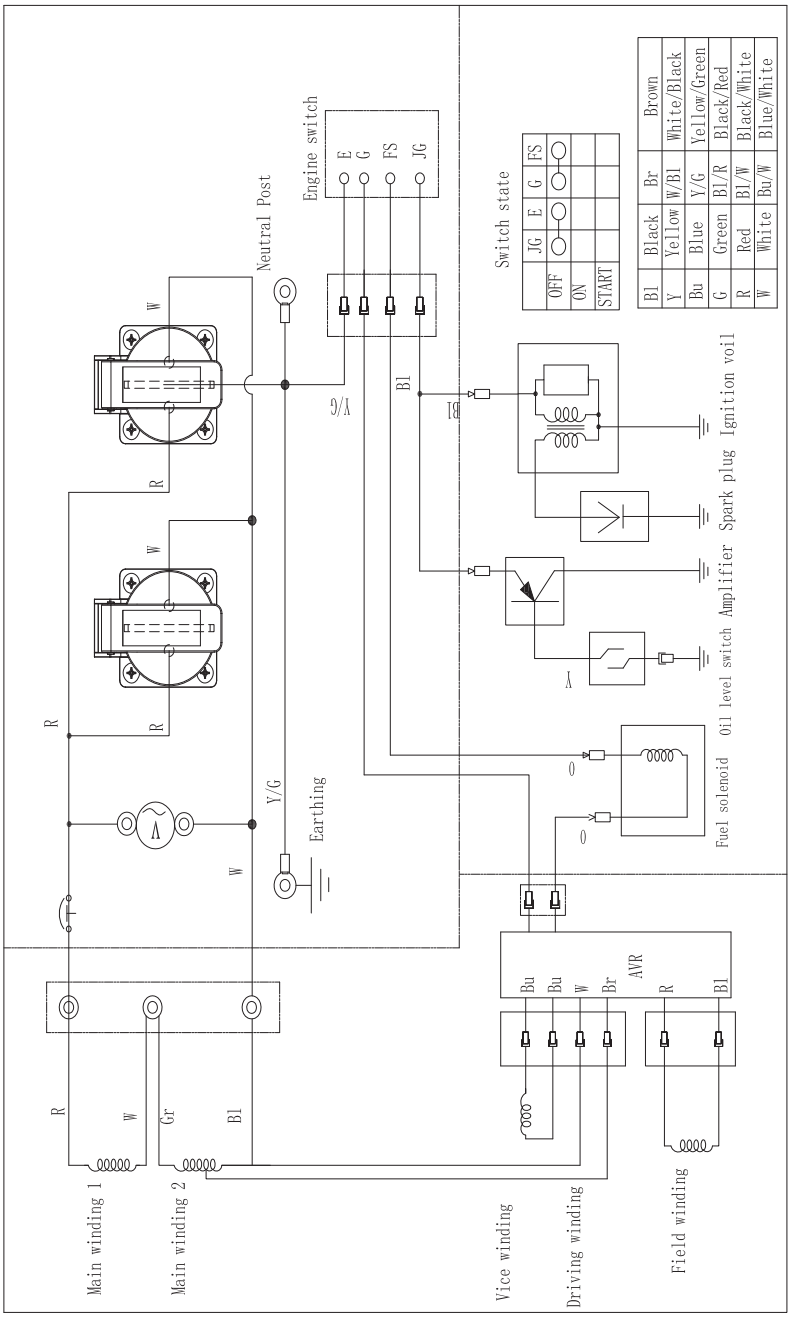
2-3 6KW RECOIL START



4-8 KW ELECTRIC START



4-8 KW RECOIL START



NOTE: Because of the difference in generators, the wiring diagram is only for reference.

VIII. WARRANTY

3-YEAR DOMESTIC CONDITIONAL WARRANTY

UP TO 90 DAYS FOR COMMERCIAL USE.

LawnMaster Dealer extended warranty period for items that are:

- Registered at the time of sale.
- Serviced by an Authorised LawnMaster Service Dealer in accordance with the service schedule using Genuine parts and oils (proof required).
- Meeting all other warranty requirements.

LAWNMASTER LIMITED WARRANTY

The warranty applies to all new LawnMaster products that are identified by their unit serial number.

In order to be eligible for the LawnMaster limited warranty, you must have, maintenance performed according to the schedule contained in the relevant owner's manual that is supplied with the product, and ongoing maintenance performed by an authorised LawnMaster dealer.

Steelfort will recognise your statutory rights under the Consumers Guarantee Act 1993. To ensure the safe operation of this product, we strongly recommend that you only use an authorised LawnMaster dealer for all maintenance and servicing requirements. Authorised LawnMaster Dealers have access to special tools, training, and genuine parts that are required to maintain your LawnMaster product for peak operating conditions. The purchaser must keep an accurate record of all service and maintenance. This may be requested when assessing any future warranty claims.

To qualify for the LawnMaster extended Warranty, a warranty registration must be completed online through the Steelfort website (www.steelfort.co.nz) within ten (10) days following the date of purchase.

Proof of purchase documentation are required and must include the engine serial number and frame serial number as appropriate for all warranty claims.

Authorised LawnMaster dealers are able to repair and or replace parts that are defective within the limits of this warranty at no expense to the owner, and this includes the cost for replacement parts and or labour. Consumable items such as, but not limited to, oils, coolants, filters and spark plugs maybe an additional charge at the expense of the owner. All defective parts will be replaced and become the property of Steelfort.

Transportation costs related to freight and or delivery of replacement parts, and or whole goods maybe an additional charge at the expense of the owner.

WARRANTY EXCLUSIONS

- Any damage which results from neglect of periodic maintenance specified by Steelfort.
- Any damage resulting from repair or maintenance by methods other than specified by Steelfort.
- Any product which has participated in a competition racing or rally event.
- Any damage which results from misuse and or use beyond the limitations of the intended purpose specified by Steelfort, such as overloading, and or under abnormal conditions.
- Any damage resulting from the use of non-genuine parts, lubricant or fluid not approved by Steelfort.
- Any damage resulting from modification or installation in other products in a way that is not approved by Steelfort that has an influence on the function and/or performance of the products.
- Any damage that results from operating under conditions that are not specified in the Owner's Manual either intentionally or by error.
- Fading of painted surfaces, deterioration of plated surfaces, deterioration of rubber and plastics including, rusting due to the passage of time.
- Normal phenomena such as noise, vibration and or oil, are considered by Steelfort as not affecting the quality, function or performance of the product.
- Any damage due to improper storage and or transport.
- Consumable replacement items: Spark plugs, contact points, shear pins, fuel strainers, oil filter elements, air cleaner elements, brake shoes or pads, clutch components, fuses, motor brushes, gaskets, tube or hoses, belts, cutting blades, light bulbs, serviceable bearings. Petroleum and others fluids: Oil, grease, battery electrolyte, and radiator coolant. Other items specified by Steelfort.
- Periodical maintenance items such as cleaning, inspection and adjustments.
- Any repair and/or adjustment performed by persons other than an authorised dealer, or damage resulting therefrom. All maintenance and repairs conducted by unauthorised service dealers and or persons will void the warranty.
- Any repair and/or adjustment to correct improperly and or poor-quality work that is previously performed.

- Incidental expenses that are incurred in the warranty claim for additional expenses such as towing, communications, accommodation and meals, that are incurred due to the breakdown of the product at a remote location are not covered.

- Any expense related to personal injury and/or property damage, (exclusive of the product itself). Compensation for loss of time, commercial losses or rental costs of a substitute product during the period of adjustment.

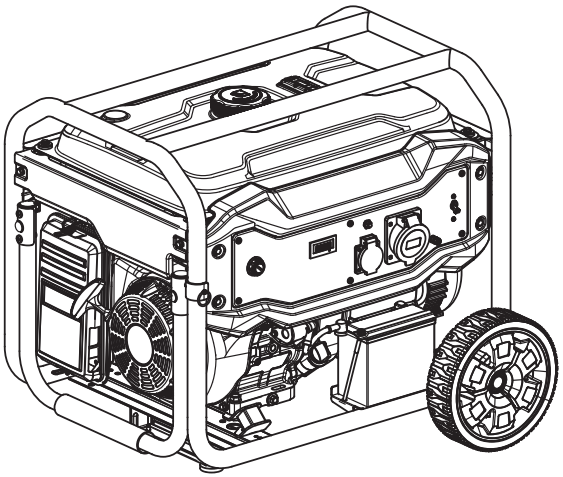
- Any damage which results from unavoidable natural disasters, fire, collision, theft, etc.

- Any normal wear or deterioration, such as that of sliding and or rotating parts caused under normal operating conditions i.e., normal wear to pistons, piston rings, cylinder bores, piston pins, valve seats, stems and bearings.

- Any damage resulting from exposure of the product to soot and smoke, medicines and chemical agents, seawater, sea breeze, salt or other environmental phenomena

DOMESTIC USE:
Personal, residential or household use only and is covered by a 3-year warranty. NOTE: These warranty conditions apply in New Zealand only.

COMMERCIAL USE:
All uses other than domestic use, including use for income-producing (including farming) or rental purposes have a 90-day warranty. NOTE: These warranty conditions apply in New Zealand only.



NOTES

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SCAN TO VIEW THE
LAWNMASTER RANGE