



8896231
8896322
8896324

Petrol/LPG/CNG Generator



Owner's Manual

Version 08/2022

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Introduction

Dear customer,

Thank you for the confidence you have shown in the **HERON**[®] brand by purchasing this generator.

This product has been tested for reliability, safety and quality according to the prescribed relevant norms and regulations of the European Union with additional testing for compliance with NZ/Aus standards.

Contact our customer and consulting centre for any questions at:

www.madalbal.co.nz

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Distributed in New Zealand/Australia By: Madal Bal NZ, 57 Grey Street, Onehunga, Auckland 1061, New Zealand

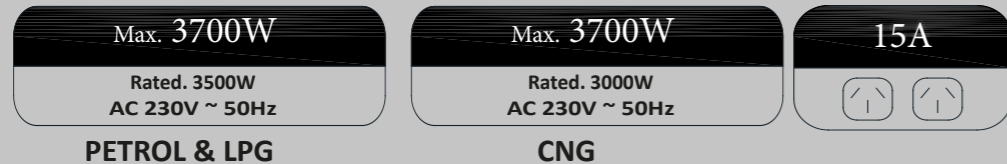
Date of issue: update July 2022

I. Description - use of generators

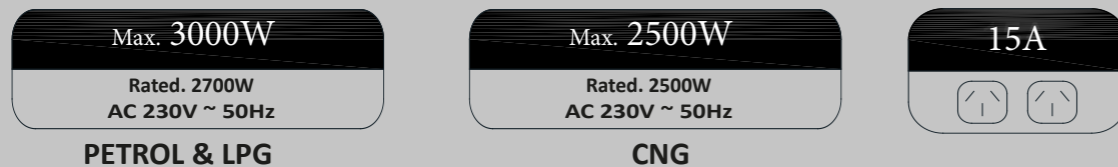


HERON™ generators are intended for powering tools or other electrical appliances in locations where mains power is not available.

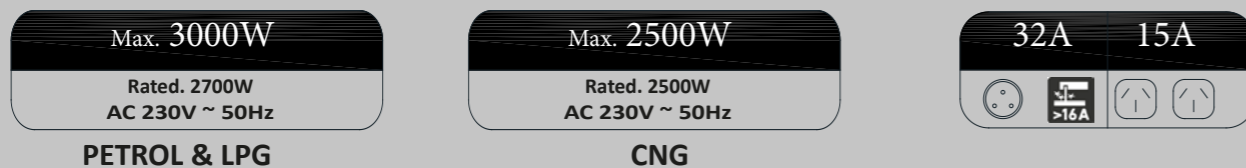
HERON® Model 8896231 Digital Inverter Generator combines user comfort, derived from its small size and weight, with a substantial power output of 3 700 W for powering tools for work on construction sites, in mobile service centres, as well as other electrical appliances that are sensitive to frequency fluctuations for recreational purposes.



HERON® Model 8896322 conventional Generator has sufficient power output (3 000 W) for powering power tools for work on construction sites, in mobile service centres, as well as other electrical appliances that are NOT sensitive to frequency fluctuations. Good for wherever you need power.



The most powerful **HERON®** model 8896324 with an operating electrical power output of 7 500 W is equipped, with two 15 A/230 V sockets and also a 32 A/230 V socket for powering larger electrical items. Example: a welding unit which cannot be connected to a 15 A/230 V power socket, which on these generators is protected by a 15A circuit breaker. Thanks to the 32 A/230 V socket, the generator can also be used for powering electrical distribution grids (TN-C-S or TN-C grids) as a backup power source.



The generators have an electrical start (only model 8896324) making starting easy with the simple press of a button. It is also possible to start the generators manually (using the pull cord) in the event that the gel 12 V battery (AGM) is flat.



The generators are equipped with a digital counter of total operational hours from the first start, operational hours from the previous start, current voltage and frequency. All values can be displayed on the digital readout.



The electronic input voltage regulation system AVR limits voltage fluctuations, which could result in damage to the connected electrical appliances. Conditions for powering sensitive electrical appliances (computers, TVs, office equipment, etc.) are provided in the following pages.



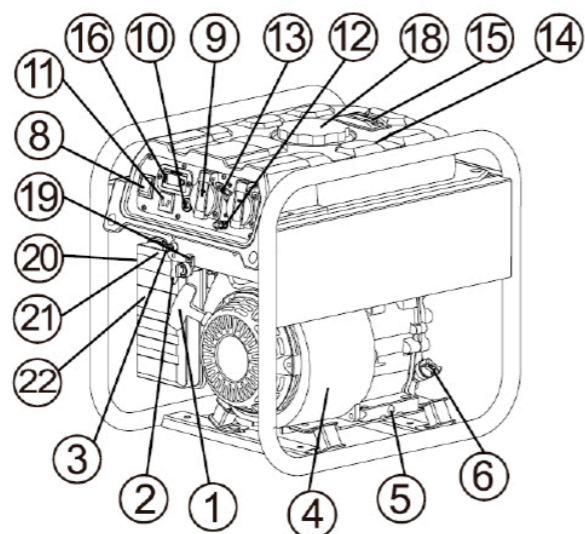
The generators are equipped with an output socket 12 V/8.3 A DC for charging car batteries.



Thanks to the new advanced design of the muffler and the construction of the generators, they have a reduced noise level.

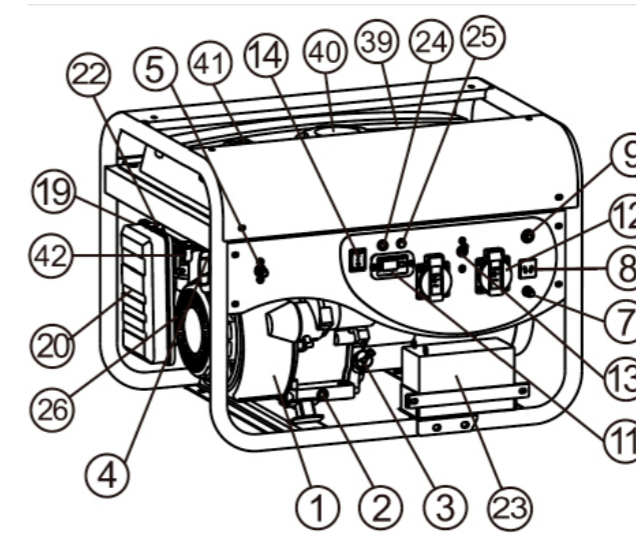
The convenient folding handles combined with the solid rubber wheels allow the generator to be easily moved and repositioned where the power is need.





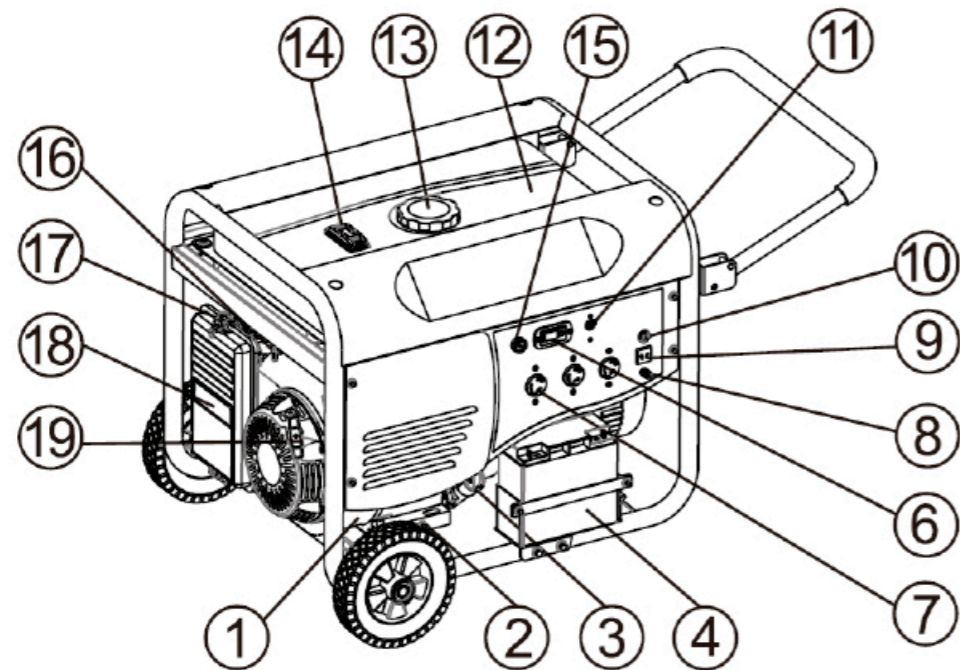
Model# 8896231

1. Recoil starter knob
2. Manual switch of gas inlet
3. Gas inlet
4. Engine
5. Oil drain plug
6. Oil filler cap
7. Battery (not equipped)
8. Engine switch
9. AC receptacle
10. DC circuit breaker
11. DC 12v receptacle
12. Ground (Earth) terminal
13. AC breaker
14. Fuel tank
15. Fuel meter assy
16. Hz/HN display
17. Handle bolt (not equipped)
18. Fuel tank cap
19. Fuel stop cock
20. Carburetor assy
21. Choke lever
22. Air filter



Model # 8896322

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Engine 2. Oil drain plug 3. Oil filler cap 4. Manual switch for gas inlet 5. Gas inlet 6. ATS Output (not equipped) 7. Ground (Earth) terminal 8. DC12V Receptacle 9. DC circuit Breaker 10. ATS Connector (not equipped) 11. Hz/H/V Display 12. AC Outlet X2 13. AC Breaker 14. Engine switch 15. Small front cover (not equipped) 16. Big front cover (not equipped) 17. Bolt for front cover (not equipped) 18. Fan (not equipped) 19. LPG/CNG switch 20. Air filter 21. Axle with brake (not equipped) 22. Choke lever 23. Battery 24. Oil Alarm 25. Pilot lamp 26. Recoil starter 27. ATS controller (not equipped) 28. ATS model switch (not equipped) 29. ATS stop/start switch (not equipped) 30. City power indicator (not equipped) 31. Generator indicator (not equipped) 32. Output indicator (not equipped) 33. Loads terminal (not equipped) | <ol style="list-style-type: none"> 34. Generator terminal (not equipped) 35. City power terminal (not equipped) 36. ATS Connector (not equipped) 37. Grounding terminal (not equipped) 38. Fuse (not equipped) 39. Fuel tank 40. Fuel tank cap 41. Fuel meter assy 42. Fuel cock |
|---|---|



Model: 8896324

1. Engine
2. Oil drain plug
3. Oil filler cap
4. Battery
5. ATS Output
6. Hz/H/V Calculagraph
7. AC receptacle
8. Ground (Earth) terminal
9. DC12V Receptacle
10. DC circuit Breaker
11. AC Breaker
12. Fuel tank
13. Fuel tank cap
14. Fuel level gauge
15. Engine switch
16. Fuel cock
17. Choke lever
18. Air filter
19. Recoil starter knob
20. ATS Connector
21. Volt Meter
22. ATS controller
23. ATS model switch
24. ATS stop/start switch
25. City power indicator
26. Generator indicator
27. Output indicator
28. Loads terminal
29. Generator terminal
30. City power terminal
31. ATS Connector
32. Grounding terminal
33. Fuse

Assembly Model 8896231

Tools Required

1. Adjustable wrench
2. Philips screwdriver

Instructions: Very little assembly is required for this model

Note: All hardware specified is provided with the assembly kit

1. Remove the generator body and parts box from the packaging.
2. Fill the generator with oil. (10W-30 oil, 600ml)

Assembly Model 8896322

Tools Required

1. Adjustable wrench
2. Philips screwdriver

Instructions: Very little assembly is required for this model

Note: All hardware specified is provided with the assembly kit

1. Remove the generator body and parts box from the packaging.
2. Connect the wiring to the battery (red positive and black negative). Use the small screws provided
3. Fill the generator with oil. (10W-30 oil,1100ml)

Assembly: Model 8896324

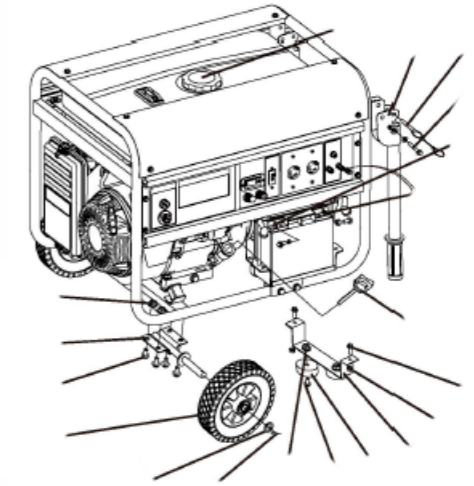
Tools Required

1. Socket set
2. Adjustable wrench
3. Philips screwdriver

Instructions:

Note: All hardware specified is provided with the assembly kit

1. Remove the generator body and parts box from the packaging.
2. Using 4 off bolts and nuts secure one axle assembly to the generator frame.
Note there are 4 pre-drilled holes in the frame for each axle located in the frame member under the engine.
3. Repeat step 2 for the second axle assembly.
4. Using 1 off bolt and nut secure one of the rubber feet to the metal foot bracket.
5. Repeat step 4 above for the second rubber foot.
6. Using 2 off bolts and nuts secure the foot assembly to the generator frame using the pre-drilled holes in the frame member under the alternator end of the machine.
7. Using 1 off bolt and nut secure one of the arm assemblies to the generator frame. (Use the ball lock pin provided with the arm assembly to secure the arm in the extended or retracted position as required)
8. Repeat step 7 above with the second arm assembly.
9. Connect the wiring to the battery (red positive and black negative). Use the small screws provided.
10. Fill the generator with oil. (10W-30 Oil 1.3l)



Operation of your new generator

For Petrol Operation:

1. Fill the petrol tank (91 octane unleaded petrol)
8896231: 15l, 8896322: 25l, 8896324: 28l
2. Ensure the petrol stopcock is in the on position (See below) and the gas stopcock is in the "OFF" position

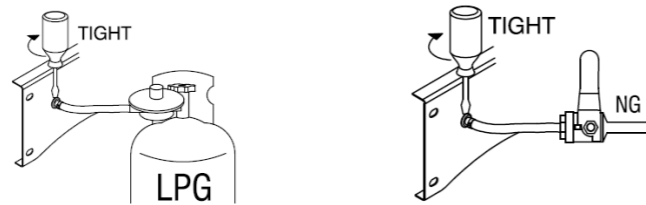


For Gas operation

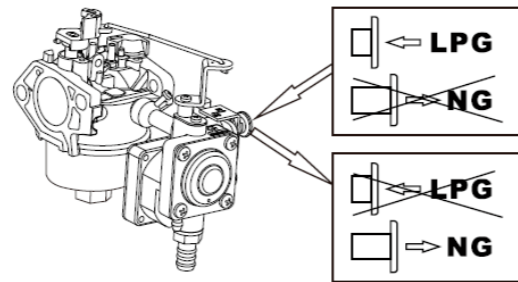
1. Connect a gas supply (LPG or CNG) to the input nipple located on the generator front panel.
Note: LPG Pressure: 2.8 - 6.0 Kpa
CNG Pressure: 2.0 - 4.2 Kpa



Typical Input Nipple



2. Ensure the gas stopcock is in the "ON" position and the petrol stopcock is in the "OFF" position.
3. Using the selector switch on the side of the carburetor set the carb to the correct fuel.
See diagram below.
4. Ensure the gas is turned on at the source.



Caution:

Ensure that the regulator provides gas to the generator at the pressures detailed in the specifications for the model being assembled.
Ensure that all connections are tight and all equipment is within its test dates and is in good condition and suitable for its intended purpose.

For both Petrol and Gas Operations

For cold start

1. Move the choke lever to the "CLOSED" position.
2. Set the circuit breaker to the "OFF" position.
3. Set the Engine switch to the "ON" position.



Circuit Breaker

Manual Start

4. Pull the rip cord to start the engine.

Electric Start

4. Push the engine switch to the "START" position, once the engine is running release the switch.
5. Once the engine is running smoothly move the choke to the "OPEN" position.
6. Connect electrical devices to the generator, ensuring that their combined power requirements is less than or equal to the capacity of the generator (e.g. do not overload the generator).
7. Set the circuit breaker to the "ON" position.

Shutting Down the Generator

1. Set the circuit breaker to the "OFF" position.
2. Set the engine switch to the "OFF" position.
3. Close all the fuel stopcocks.
4. Ensure that all gas sources are turned off at their source.
5. Allow the generator to cool prior to moving.

Warning:

- * The engine and muffler will be very hot after the engine has been run.
- * Avoid touching the engine and muffler while they are still hot with any part of your body or clothing during inspection or repair.
- * Fuel is highly flammable and poisonous.
- * Be careful during refueling.
- * Do not fill above the top of the fuel strainer or it may overflow when the fuel heats up later and expands.
- * Wipe up any spilled fuel immediately.
- * After refueling, make sure the tank cap is tightened securely.

Periodic Maintenance

Regular maintenance is most important for the best performance and safe operation.

WARNING

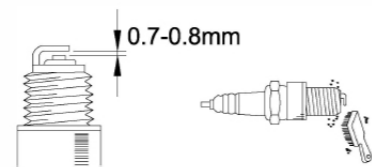
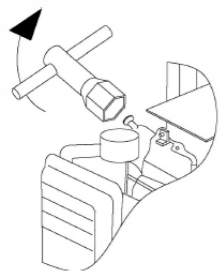
Stop the engine before performing any form of maintenance

Maintenance Intervals

Item	Pre-operation check	Initial ration or 20Hrs	Every 1 month or 20Hrs	Every 3 months or 50Hrs	Every 6 months or 100Hrs	Every 12 months or 300Hrs
Spark Plug	Remove carbon. Adjust gap. Replace if necessary.			•		
Engine Oil	Check oil level. Replace.	•	•		•	
Valve Clearance	Check and adjust when engine is cold.					•
Air filter	Clean replace if necessary.			•		
Decarbonization:	More frequently if necessary.					•
Fittings/ Fasteners:	Check all fittings and fasteners. Correct if necessary				•	
Fuel Filter:	Clean. Replace if necessary.				•	
Gas Hose	Every 18 months					

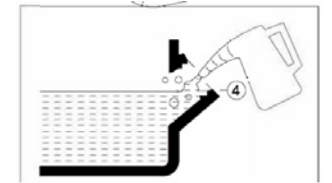
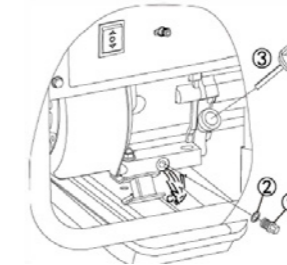
Spark Plug Inspection

- Remove the spark plug (use the plug wrench provided with the generator at time of purchase). Check for discoloration and remove the carbon.
Standard electrode color: Tan color
- Check the spark plug type and gap.
Standard Spark Plug: NGK(BP6E)
Spark Plug Gap: 0.7-0.8 mm(0.028-0.031 in)
- Install the spark plug. Spark Plug Torque: 20 N.m (2 kgf.m, 14 lbf.ft)



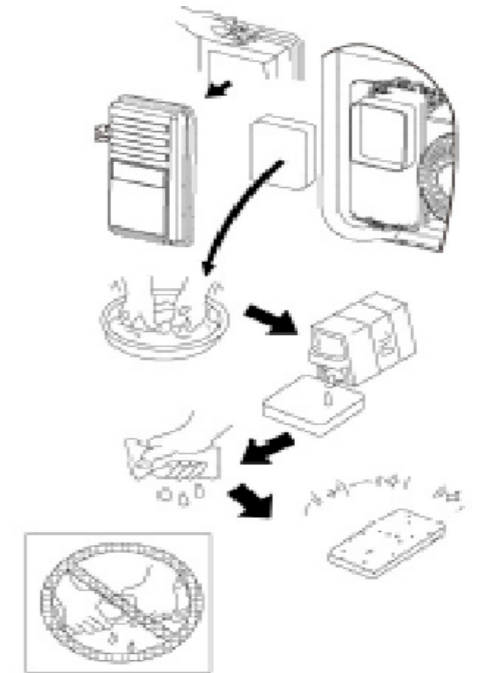
Engine Oil Replacement

- Place the machine on a level surface and warm up the engine for several minutes. Then stop the engine.
- Place an oil pan under the engine. Remove the oil drain plug so that the oil can be completely drained.
- Check the drain plug, gasket, oil filler cap and O-ring. If damaged, replace.
1: Oil drain plug
2: Gasket
3: Oil filler cap
- Reinstall the oil drain plug.
Drain Plug Torque:
30 Nm (3.0 kgf m, 22 lbf ft)
- Add engine oil to the specified level.
Recommended oil: SAE #30 or IOW-30
Oil Quantity: 8896231: 600ml, 8896322: 1100ml, 8896324:1300ml



Air Filter Maintenance

- Remove the air filter cover and element.
- Wash the element in solvent and dry.
- Oil the element and squeeze out the excess. The element should be wet but not dripping.
Recommended oil:
Foam-air-filter oil or SAE #20 motor oil CAUTION:
Do not wring out the element, this could cause it to tear.
- Insert the element into the air filter
NOTE:
Be sure the element sealing surface seats into the air filter housing so there is no air leak.



CAUTION:

The engine should never run without the element; excessive wear or damage could result.

WARNING

Never use solvent while smoking or in the vicinity of an open flame.

Fuel Filter

1. Turn the fuel cock lever to "CLOSE".
2. Using a suitable wrench, remove the cap on the underside of the stopcock. (Be careful to ensure that the small components inside are not lost.)
3. Remove the mesh screen filter from the cap assembly and clean with solvent.
4. Wipe the mesh screen dry.
5. Check the gasket. Replace if found damaged.
6. Reassemble the cap assembly back onto the stopcock. Reassemble it in the same order it was removed.

Fuel Tank Filter

1. Remove the fuel tank cap and filter.
2. Clean the filter with solvent. If damaged, replace.
3. Wipe the filter and reinsert it into the throat of the fuel tank.

Storage and Transportation

1. Allow the engine to cool completely before storage.
2. Close the manual shutoff valve on the LPG cylinder or on the CNG pipeline and disconnect from the generator set.
3. Store the generator in a dry, well-ventilated place. It is best to cover the machine if it will be stored for long periods.
4. The generator must remain in a vertical position during transport and storage. (Engine oil can drain out if not stored/transported vertically resulting in damage.)

Troubleshooting

1. Turn the fuel cock lever to "CLOSE".

Problem	Cause	Solution
Generator Fails to Start	Battery not connected or incorrectly connected (electric start models only)	Connect Battery per manual
	No Fuel	Open fuel stopcock
	No spark	Clean and reset gap or replace spark plug
	Low oil level	Fill oil to correct level
	Low fuel	Fill the fuel tank
	Battery not charged (electric start models only)	Charge battery
Generator starts on LPG/CNG but runs rough or RMP unsteady	Pressure of gas supply too high or mixer is damaged	Confirm source pressure is as per manual, or replace air-fuel mixer, or contact dealer
Generator shuts down uncommanded during operation	No Fuel	Check and refill the petrol or GAS supply
	Low engine Oil (The automatic shut down system has activated)	Fill engine oil per manual
Power Output decreasing or generator overheating	Overloading	Check total load and adjust as necessary to return the required load to within the generators specs
	GAS pressure is outside specified values	Reduce the flow rate at the GAS source
	CNG or LPG switch (located on side of Carburetor) is not correct	Change switch to reflect the GAS being used
No AC Output	CNG/LPG stopcock is not fully open	Open the stopcock completely
	Cables not properly connected	Check all connections
	Connected device is defective	Replace defective device
	AC Circuit breaker is "OFF"	Adjust loading and reset the CB
	Defective Capacitor	Replace Capacitor
	Faulty AVR	Replace AVR
	Loose Wiring	Inspect and tighten wiring
Other	Contact dealer.	

	8896231	8896322	8896324
Rated AC Voltage	230	230	230
Frequency (Hz)	50	50	50
Rated Power (KW)	3.0	2.7	7.5
Peak Power (KW)	3.7	3.0	8.2
DC Voltage	12V/8.3A		
Engine Model Number	JL2108	JL200/E	JL460/E/AT
Type	Single Cylinder,4-stroke,OHV,Forced Air-cooled		
Bore x Stroke (mm)	92x69	68x54	70x54
Displacement (cc)	459	196	207
Starting Method	Recoil/Electric		Recoil
Ignition System	Transistor Magneto (TC.I.)		
GAS pressure	LPG:2.8-6.0kpa CNG:2.0-4.2kpa		
GAS flow rate	LPG:0.36kg/kw.h CNG:0.35m3 /kw.h		

Warranty Information

01. Madal Bal Ltd (further referred to as "Heron") warrants to the original purchaser only, that the product purchased shall be free from defects in material and workmanship under normal use and service during the warranty period. The warranty is only valid with a corresponding receipt of purchase.
02. The warranty period to the purchaser commences on the payment date stated on the receipt of purchase.
03. Warranty Period duration includes stated months or hrs, whichever comes first.
Warranty Period for Domestic Use Only:
 - Domestic Warranty Hybrid Generators (Models 8896231, 8896322, 8896324) - 24 months or 500h
 - Commercial Warranty Period is 50% of the Domestic Warranty period, 12 months or 250hrs

Coverage Detail

04. Heron will replace or repair at our option, without charge for parts or labour, at a place designated by us, any parts covered found to be defective due to manufacturing or design defect, the following is a list of exclusions from this warranty;
 - Any damage which results from neglect of periodic maintenance specified by Heron.
 - Any damage which results from repair or maintenance operations by methods other than specified by Heron.
 - Any product which has participated in a competition racing or rally event.
 - Any damage which results from misuse or use beyond the limitations of the intended purpose specified by Heron, such as overloading, or use under abnormal conditions.
 - Any damage which results from use of non-genuine parts, lubricant or fluid not approved by Heron.

Warranty Information

- Any damage resulting from modification or installation in other products in a way not approved by Heron which has any influence on the function and/or performance of the products.
 - Any damage which results from operation other than 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 or oil seepage which are considered by Heron as not affecting the quality, function or performance of the product.
 - Any damage due to improper storage 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 Heron.
 - 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 there from. As a rule warranty shall not be applied to the repair or adjustment performed by persons other than an authorised dealer.
 - Any repair and/or adjustment to correct improper or poor quality work previously performed.
 - Incidental expenses incurred in the warranty claim. For example: additional expenses such as those for towing, communications, hotel and meals, incurred due to breakdown of the product at a remote location. 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 or rotating parts caused under normal operating conditions. For example: 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, sea water, sea breeze, salt or other environmental phenomena.
05. We will not cover parts that have been damaged or depreciated by misuse, abuse, poor or improper maintenance or transportation, rust or accident or service by an unauthorized facility. This warranty only covers the unit sold, no warranty is assumed for direct or consequential damage as a result of malfunction.
 06. Consumable parts such as filters, gaskets, etc. are not covered and all expenses incurred in maintaining them shall fall on the purchaser.
 07. This warranty does not obligate Madal Bal Ltd to bear any fees for transportation of any product to and from the place designated for service.

Heron products are available exclusively through participating suppliers nationwide or direct from Madal Bal NZ Ltd.

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