



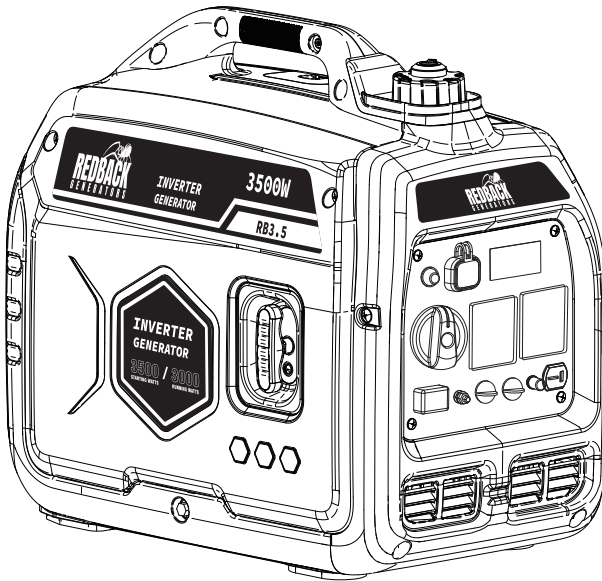
REDBACK

GENERATORS

INVERTER GENERATOR

User Manual

RB3.5



Read this User Guide carefully before using. Operate under the premise of ensuring the safety and environmental protection!

Thank you for choosing the RB3.5 Generator Set from Redback Generators, an Australian family-owned company dedicated to providing exceptional customer support. Your trust in our product is truly valued, and we look forward to serving you with excellence.

Table of Contents

Safety Warning	1
I. Safety Instructions	2
II. Names of Components	3
III. Control Functions	5
IV. Preparations	8
V. Starting up the Generator	10
VI. Shutting Down the Generator	10
VII. Using the Generator	11
VIII. Service and Maintenance	16
IX. Storage and Transport.....	21
X. Troubleshooting	22
XI. Technical Parameters.....	24
XII.Warranty	25

Safety Warning

Personal and property safeties of you and others are very vital. Read the Safety Warning in the User Guide and the decals of the generator set carefully.

The Safety Warning can alert you to those potential hazards that could harm you and others. In front of each Safety Warning, there is one of four words "DANGER", "WARNING", "ATTENTION", and "CAREFUL". Details are as follows:

DANGER Failure to follow the instruction will result in being in peril of your life or extremely serious injury.

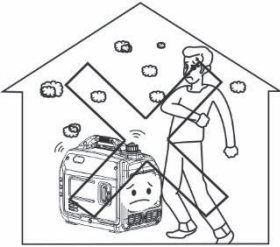
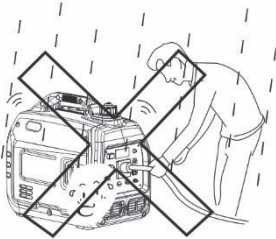
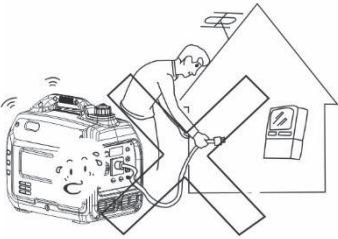



WARNING Failure to follow the instruction will result in being in peril of your life or very serious injury.

CAREFUL Failure to follow the instruction will result in minor injury.

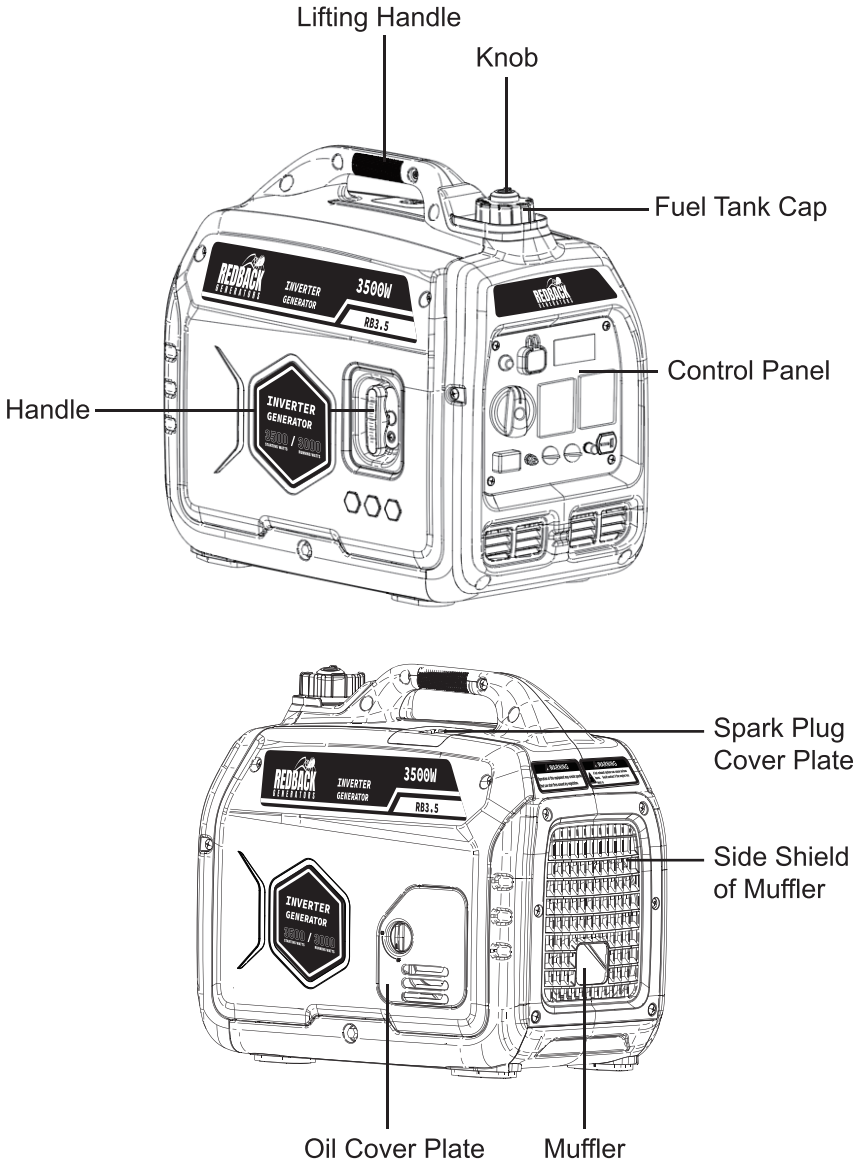
ATTENTION Failure to follow the instruction will result in the damage to your generator set and other properties.

I. Safety Instructions

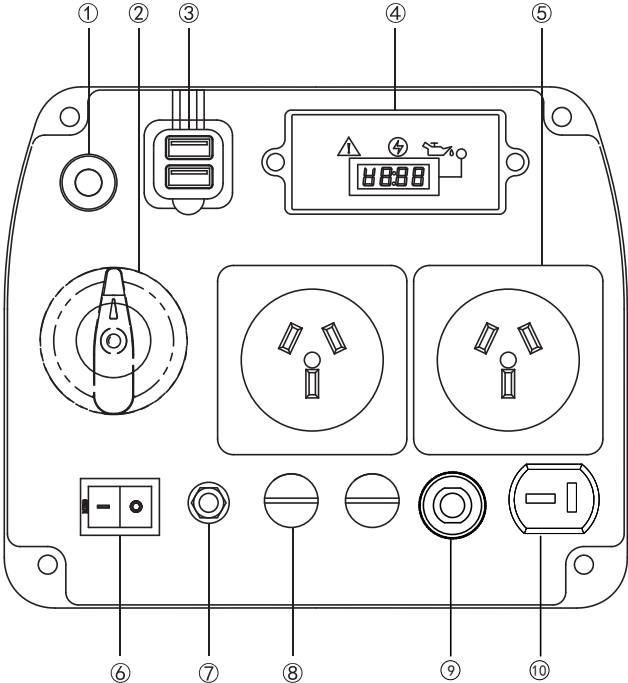
Before operating the generator, it will help you avoid accidents to read and understand the Guide and familiarize yourself with the safe operation procedures of the generator.

	
<p>Do not use indoors</p>	<p>Do not use in humid environment</p>
	
<p>Do not connect it to utility power system directly</p>	<p>Do not smoke when refueling</p>
	
<p>Do not spill when refueling</p>	<p>Shut down the generator before refueling</p>

II. Names of Components



Control Panel



① AC reset	② MULTI-switch	③ 5V USB
④ DIGITAL METER	⑤ AC socket	⑥ Low idle
⑦ Ground	⑧ Parallel	⑨ DC Circuit breaker
⑩ DC 12V		

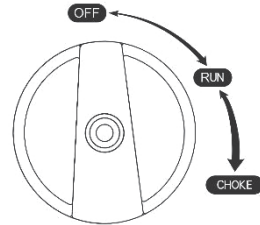
III. Control Functions

(1) Three-in-one combination switch (hereinafter referred to as combination switch)

① Engine and fuel switch: Ignition circuit is off and the fuel switch is off, the engine will be unable to run.

② Engine, fuel switch and choke valve switch: Ignition circuit is in working status, fuel switch is on and the choke valve is in fully opening status, the engine can run normally.

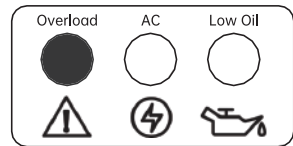
③ Engine, fuel switch and choke valve switch: Ignition circuit is in working status, fuel switch is on and choke valve is in closing status, the engine can run normally.



ATTENTION The engine is hot, it does not need to switch off the choke switch.

(2) Oil indicator (red)

When the oil in the crankcase drops below safety line, oil protection system will shut down the engine automatically, and oil alarm indicator lights up; the engine can be restarted up only after the oil is filled to oil level.



Tip: In the case of flame-out of the engine or being unable to be started up, turn the combination switch to "RUN" position, and then pull startup handle. If oil indicator flashes a few seconds, the oil volume is insufficient, fill oil and restart.

(3) Overload indicator (red)

When the overload indicator lights up, the generator has detected that the output of connected electrical equipment has been overloaded, causing frequency converter to be overheated or AC voltage to rise. At this

moment, AC protector works and stops generating, to protect the generator and connected electrical equipment. AC indicator (green) is off and overload indicator (red) lights up, but the engine will not stop running. When overload indicator is on and the generator has no output, take the following counter measures:

- ① Switch off electrical equipment connected, and shut down the generator.
- ② Reduce total power of electrical equipment connected to the range of rated output.
- ③ Check whether there is any foreign matter blocking in cooling air inlet, and whether there is any abnormality in related control components. If there is any problem, eliminate it immediately.
- ④ After checking, restart the engine.

Tip: When using electrical equipment with high starting current (such as compressors, submersible pump, etc.), the overload indicator may start to light up for a few seconds at the beginning, but this is not the failure mentioned earlier.

(4) AC indicator (green)

The AC indicator lights when the engine is started and output normally.

(5) DC protection

When electronic equipment connected to DC of the generator is running, if current is beyond overload current, DC switch automatically cuts out to "OFF" position. To operate the DC output again, press DC switch to "ON" position.

- 1) "ON" DC Outputs normally.
- 2) "OFF" DC does not output.

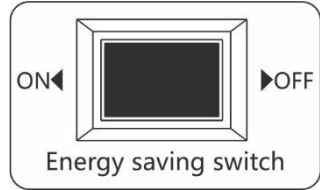


ATTENTION If DC protection is in off status, reduce the load of electronic device connected to rated output current and ensure it's in ON position. If DC output is still in off status, stop using electronic device directly and consult with us.

(6) Energy-saving switch (ECO Switch)

1) "ON"

When energy-saving switch is set to "ON" position, the device controls engine speed based on the load connected, thus very good fuel consumption and low noise can be obtained.



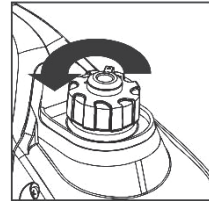
2) "OFF"

When the energy-saving switch is set to the "OFF" position, the engine will run at rated speed, regardless of whether being connected to a load.

Tip: When using inductive appliances such as air compressor and submersible pump, the energy-saving switch must be in "OFF" position, because it requires great startup current.

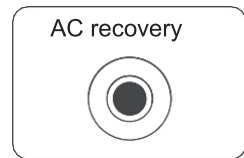
(7) Fuel tank cap

Remove fuel cap by unscrewing counterclockwise.



(8) AC recovery (AC Reset)

When the output is overloaded, the generator will protect automatically to cut out output. Reduce the load, press the AC recovery switch, and the generator will resume output.



(9) Grounding terminal

Grounding terminal shall be connected to grounding wire to prevent electric shock. When an electrical appliance is grounded, the generator must be grounded.



IV. Preparations

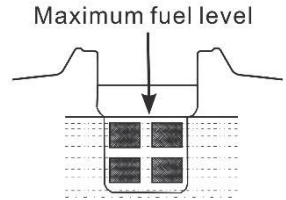
(1) Fuel

DANGER

- Fuel is flammable and toxic, read the Safety Instruction carefully before refueling;
- Do not fuel too full, otherwise fuel will spill after fuel tank is warmed;
- After refueling, confirm that the fuel tank cap has been tightened.

ATTENTION

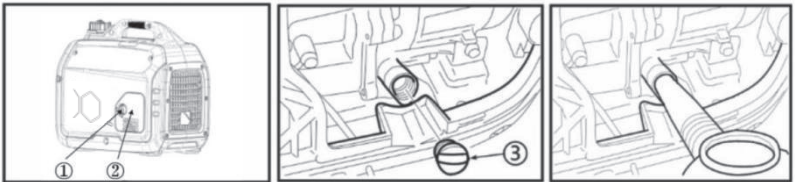
- After refueling, dry petrol residue with a clean and soft cloth in time to avoid damaging plastic enclosure;
- Unleaded petrol must be used, as leaded petrol can seriously damage internal parts of the generator;
- Remove fuel tank cap, and add petrol to red horizontal indicating line oil level.
- Fuel tank capacity: 4L



(2) Oil

No oil is filled into this generator when being delivered. Do not start up the generator without filling sufficient oil.

- 1) Place the generator onto a horizontal plane surface;
- 2) Unscrew the knob ① to remove oil cover plate ② ;
- 3) Unscrew oil dipstick ③;



- 4) Fill in 0.35L oil (SAE 10W/30 oil is recommended, of which the grade is API standard Type SE or higher);

5) Reassemble oil cover plate and tighten the knob.

(3) Pre-use inspection

WARNING

Even if the generator is not in service, its important component may suddenly fail. Before the generator is started up, if any of following components is unable to work properly, inspect and repair carefully.

Tip: The condition of the generator shall be inspected before using every time.

Pre-operation inspection

Fuel

- Check fuel level in fuel tank of the generator, and fuel it if necessary.

Oil

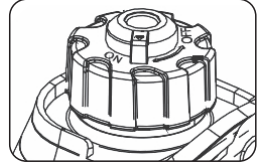
- Check oil level of the generator, and fill oil if necessary;
- Check whether there is oil leaking.

Abnormal conditions during operation

- Check operating condition of the generator;
- If there is any need, do not hesitate to consult with us.

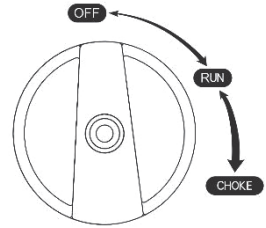
V. Starting up the Generator

- (1) Remove the load from all output ends;
- (2) Switch energy-saving switch to "OFF";
- (3) Turn ventilation knob of fuel tank cap to "ON";



- (4) Turn combination switch control to "CHOKE VALVE" position;

1. Fuel is on;
2. Ignition system is on;
3. The choke valve is closed, and it is in normal cool-generator OFF status.



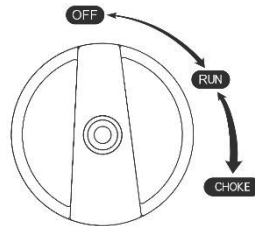
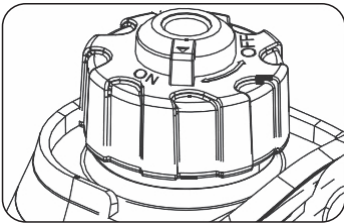
Tip: When hot engine is started up, it is unnecessary to close the choke valve, but turn the combination switch to "RUN".

- (5) First gently pull startup handle, until guy cable is hooked tight, and then pull it with effort.

Tip: When pulling the hand starter, hold generator carrying handle firm, to prevent the generator from overturning.

VI. Shutting Down the Generator

- (1) Turn the combination switch to "OFF" position;
- (2) After the generator has completely cooled down, turn ventilation knob on fuel tank cap to "OFF".



VII. Using the Generator

(1) Service environment of the generator

- Applicable temperature: -5 ~ 40°C;
- Applicable humidity: below 95%;
- Applicable altitude: regions below 1,500 m (It shall be used by reducing power in regions above 1,000 m).

Standard atmospheric condition

- Ambient temperature T_r : 298k (25°C)
- Relative air humidity Φ_r : 30%
- Absolute atmospheric pressure P_r : 100kPa

When actual environmental condition is inconsistent with the condition of output power of the generator set:

- Every 5°C of increase in ambient temperature will reduce the power of generator by about 2%
- Every 30% of increase in relative humidity of air will reduce the power of generator by about 1.5%
- Every 300 m rising of ASL will reduce the power the generator by about 4.5%

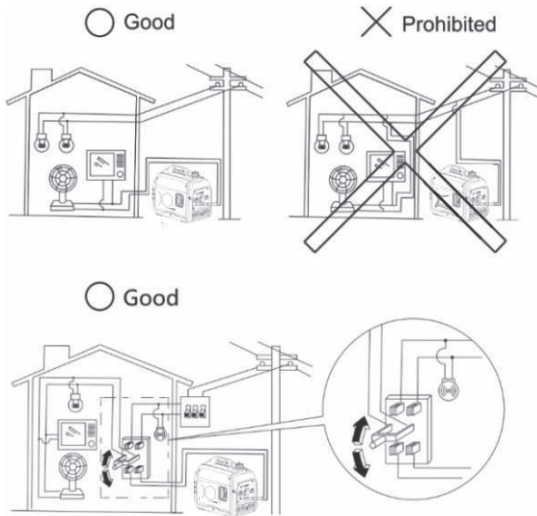
(2) Generator wiring

- When the generator is connected to household power source as a backup power supply, the connection shall be carried out by a professional electrician or a person familiar with electricity.
- After connecting the load to the generator, check carefully whether electrical connection is safe and reliable. Improper electrical connection may cause generator damage, burning or fire.
- Avoid connecting this generator to commercial power outlet.
- When extending the cable, be sure not to exceed its length.

① 60m cross-section area is 1.5mm²

② 100m cross-section area is 2.5mm²

- The appearance of extension cable shall be protected by a layer of tough and elastic rubber cover (IEC25) or other substitutes



Connection of AC power

WARNING All electrical equipment shall be disconnected before inserting the plug.

ATTENTION

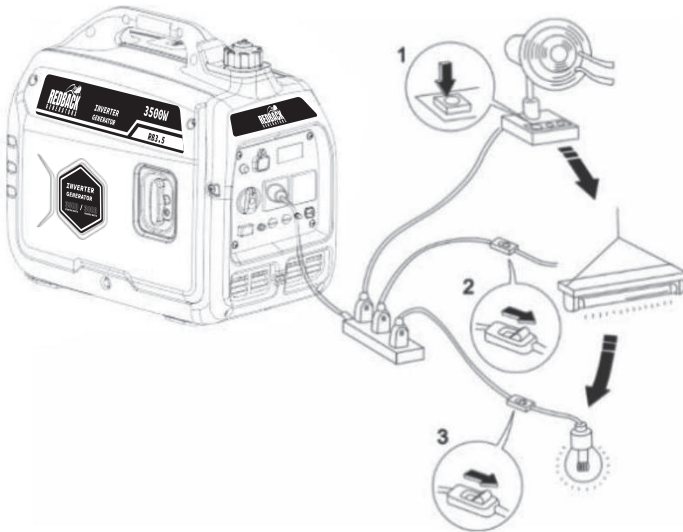
- Make sure that all electrical equipment, including wires and plugs, are in good condition before connecting to the generator;
- Make sure that all loads driven by the generator are within rated load range;
- Make sure that load current is within rated current range of rated socket.

Tip: Make sure that the generator set is grounded, and if electrical equipment requires grounding, the generator set must be grounded.

① Start up the engine

- ② Turn energy-saving switch to "ON";
- ③ Insert the plug into AC outlet;
- ④ Make sure that AC indicator is lit up;
- ⑤ Switch on electrical equipment.

Tip: Before increasing engine speed, energy-saving switch must be switched to "OFF". If the generator set supplies power to multi loads or electrical equipment, start from large to small according to the size of each electrical equipment.

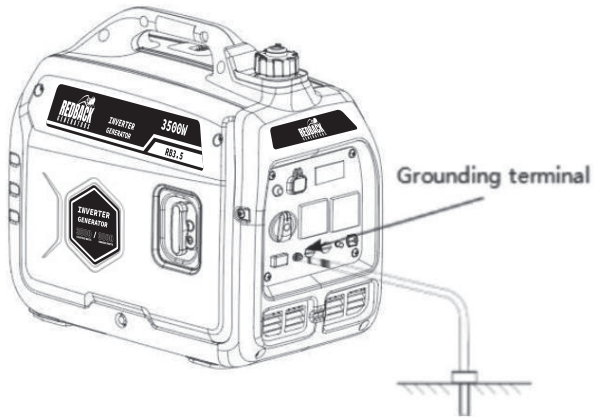


(3) Generator grounding

In order to prevent any damage to the generator caused by electric shock or improper electrical application, it is recommended that the generator is grounded with good conductor with insulating sheath.

- ① Please use grounding wire with sufficient electrical energy capacity;
- ② Connect one end of grounding wire reliable to grounding bolt on control panel of the generator set;





- ③ Insert grounding body (iron rod with a diameter of 5 ~ 10mm) 200mm deep into the earth and lead it out with conductor;



- ④ Connect the other end of the grounding wire reliable to the lead wire of grounding body.

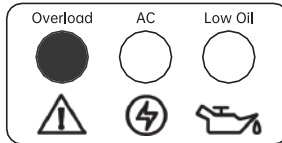
(5) Range of application

Before using the generator, make sure that total load is within rated load range of the generator, otherwise the generator may be damaged.

AC				DC 
Power Factor	1	0.8~0.95	0.4~0.75 (Efficiency0.85)	
Output Power	≤3000W	≤2400W	≤1200W	Rated Voltage 12V

Tip:

- AC and DC can be used at the same time, but total power amount shall not exceed rated output power.
- When total power exceeds rated power, overload indicator will light up.



VIII. Service and Maintenance

Good maintenance and service is the best guarantee for safe, economical and zero-failure operation. It also contributes to environmental protection. In order to keep the generator in good condition, you must inspect and maintain it regularly. The maintenance schedule is as follows: **(Record on separate log book):**

Maintenance cycle		Each	First maintenance is carried out after 1 month or 20 hours of use	Afterwards, the maintenance is carried out every three months or every 50 hours	Every year or use of 100 hours
Item					
Engine oil	Check - fill	√			
	Replace		√	√	
Gearbox gear oil (if any)	Check oil level	√			
	Replace		√	√	
Air filter	Inspection	√			
	clean		√		
	Replace			√	
Settling bowl (if any)	Clean				√
Spark plug	Clean-adjust				√*
Spark eliminator	Clean			√	
Idle speed (if any) **	Check-adjust				√
Valve clearance **	Check-adjust				√
Fuel tank and fuel filter ***	Clean				√
Fuel hose	Inspection	Every two years (Please replace if necessary)			
Cylinder head, piston	Remove carbon deposit **	Displacement <225cc, every 125 hours; displacement ≥225cc, every 250 hours.			
<p>* These items shall be replaced if necessary;</p> <p>** These items shall be maintained by the dealer authorized by the Company, unless the user has proper tools and maintenance ability.</p>					

ATTENTION

- If it often works under high temperature or high load, oil shall be changed every 25 hours;
- If it often works in dusty or harsh environment, air filter shall be cleaned every 10 hours. If necessary, the air filter element shall be replaced every 25 hours;
- It shall be maintained on spot-inspection cycle and time, whichever is earlier;
- If maintenance cycle time has elapsed, perform the maintenance as soon as possible as per the table above.

! WARNING

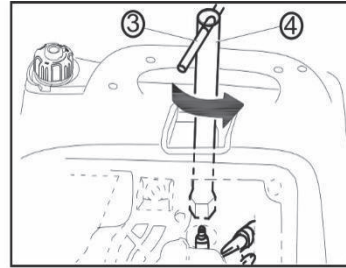
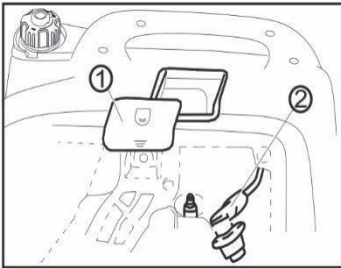
Shut down the engine first before performing any maintenance. The engine shall be placed in a horizontal position. In order to prevent the engine from starting up, separate spark plug cap shall be separated from spark plug.

Do not use it indoors or use it in a tunnel, cave or other places ventilated poorly. Make sure that work area is well ventilated. Exhaust gas from the engine contains toxic gases, carbon oxides, and the inhalation can cause shock, loss of consciousness, and even death.

(1) Spark plug inspection

Spark plug is an important part of the generator, which must be inspected regularly.

- ① Remove decorative cover and spark plug cap of the generator;
- ② Insert the screwdriver into the sleeve, screw it counterclockwise, then remove the spark plug;



- ③ Check whether there is discoloration, and remove carbon deposits.

Check whether there is little pale to moderate brown on ceramic cores around center electrode of the spark plug;

- ④ Check the model of spark plug and clearance.

0.7~0.8mm



Standard spark: A5RTC
Spark plug gap: 0.7-0.8mm

Tip: The spark plug clearance is required to be measured by line thickness gauge, which shall be adjusted if necessary.

⑤ Installation of spark plug

Spark cold torque: 12.5 N.m

Tip: If there is no torque wrench when installing the spark plug, a better estimation method is to screw it 1/4-1/2 turns by force after screwing it in place, but the spark plug shall be screwed to specified torque as soon as possible.

(2) Adjustment of the carburetor

The carburetor is an important component of the engine. The adjustment shall be carried out by a technician with professional knowledge, professional data and equipment, to ensure that the adjustment is proper.

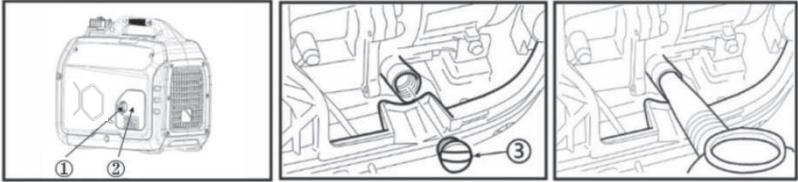
(3) Replacement of oil

WARNING Do not drain the oil immediately after turning off the generator. Oil temperature is very high, when operating, take care to avoid scalding.

1) . Place the generator on a horizontal plane surface, start up the generator, run for a few minutes to increase its temperature then shut down the engine turn the three-in-one combination switch knob to "OFF";

2) . Unscrew the knob ①, remove oil cover plate②;

3) . Unscrew oil dipstick ③;



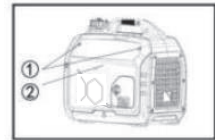
4) . Place an oil pan under the engine, tilt the generator to quickly pour out oil;

5) . Place the generator to a horizontal plane surface.

ATTENTION: When filling oil, do not tilt the generator frequently to prevent damage to the machine by filling too much oil.

6) . Refill oil to a proper level;

Recommended oil: SAE S10W/30
 Oil grade: API standard
 Model: SJ or higher
 Volume: 0.45L

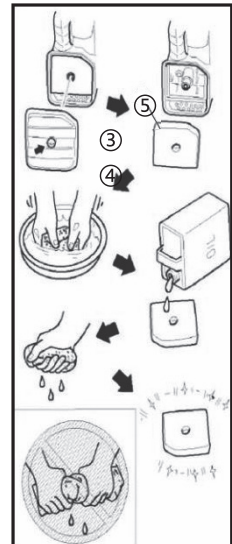


7) . Tighten oil dipstick, cover external cover plate and tighten the knob.

(4) Air filter

Dirty air filter may prevent air from flowing into the carburetor. In order to prevent failure of the carburetor, maintain air cleaner regularly. If being used in a dusty environment, it shall be maintained frequently.

- 1). Unscrew the knob ①, remove cover ②;
- 2). Remove screws ③, remove cover plate of air cleaner ④;



- 3). Remove filter cleaner element ⑤;
- 4). Clean filter cleaner element with cleaning solvent and blow it dry;
- 5). Drip a few drops of oil to foam filter element and squeeze off excess oil. The filter element shall be wet, but there shall not be oil dripping;

ATTENTION Be sure not to twist the filter element forcibly to avoid damage.

- 6). Refit filter element;

Tip: Make sure that the surface of filter element is in close contact with air cleaner, and there shall be no gap leaking air.

Be sure not to start the engine before air cleaner is assembled, because it will generate excessive toxic gas and wear the cylinder;

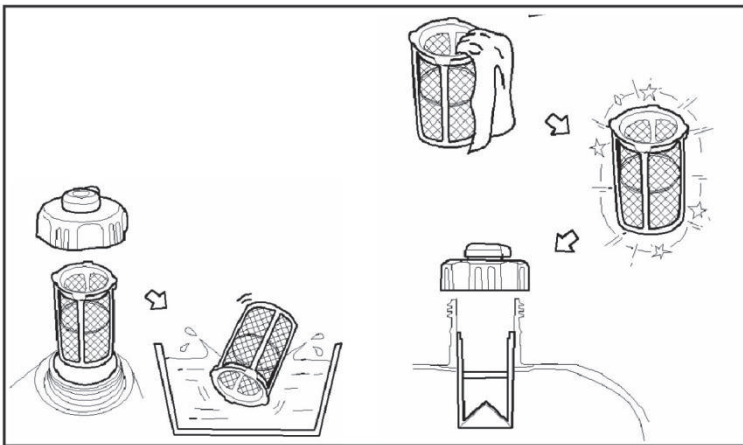
- 7). Refit air filter cap and tighten screws;
- 8). Refit air filter cover and tighten the knob.

(5) Fuel filter screen

WARNING Be sure not to open fuel tank of the generator in a place where smoking or with flame.

1. Remove fuel tank cap and fuel tank filter screen;
2. Clean fuel tank filter screen with gasoline;
3. Wipe filter screen dry, and put it back into fuel tank;
4. Refit fuel tank cap.

ATTENTION: Be sure to screw fuel tank cap tightly.

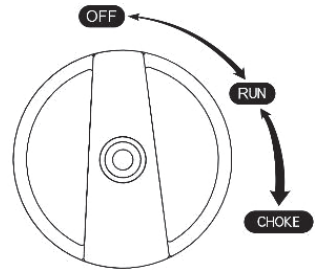


IX. Storage and Transport

(1) Generator storage

For long term storage, take measures as follows to prevent aging:

- 1). Turn the three-in-one switch to "OFF".
- 2). Open fuel tank cap, take out fuel filter screen. Pump all fuel in fuel tank into special fuel tank, then refit fuel tank cap back;
- 3). Start up the engine to burn off fuel in the carburetor, then shut it down;



Tip: Do not connect any electrical equipment. Running time of the engine depends on remaining fuel in the fuel tank.

- 4). Remove bolts of right enclosure;
- 5). Unscrew fuel drain bolt on the carburetor, and drain fuel in the carburetor into special fuel tank.
- 6). Turn three-in-one switch to "OFF";
- 7). Tighten fuel drain bolt;
- 8). Refit right enclosure and tighten bolts;
- 9). After the engine is completely cooled down, switch off ventilation knob of fuel tank cap;
- 10). Unscrew oil dipstick, drain oil in the crankcase off. Fill new oil to upper oil limit, then refit oil dipstick.
- 11). Remove spark plug, to pour a spoon of clean oil into combustion chamber. Rotate the crankshaft a few turns to distribute oil everywhere, then refit spark plug;
- 12). Gently pull startup handle until you feel resistance, allowing both inlet valve and exhaust valve to be closed;
- 13). Place the generator set in a clean and dry area.

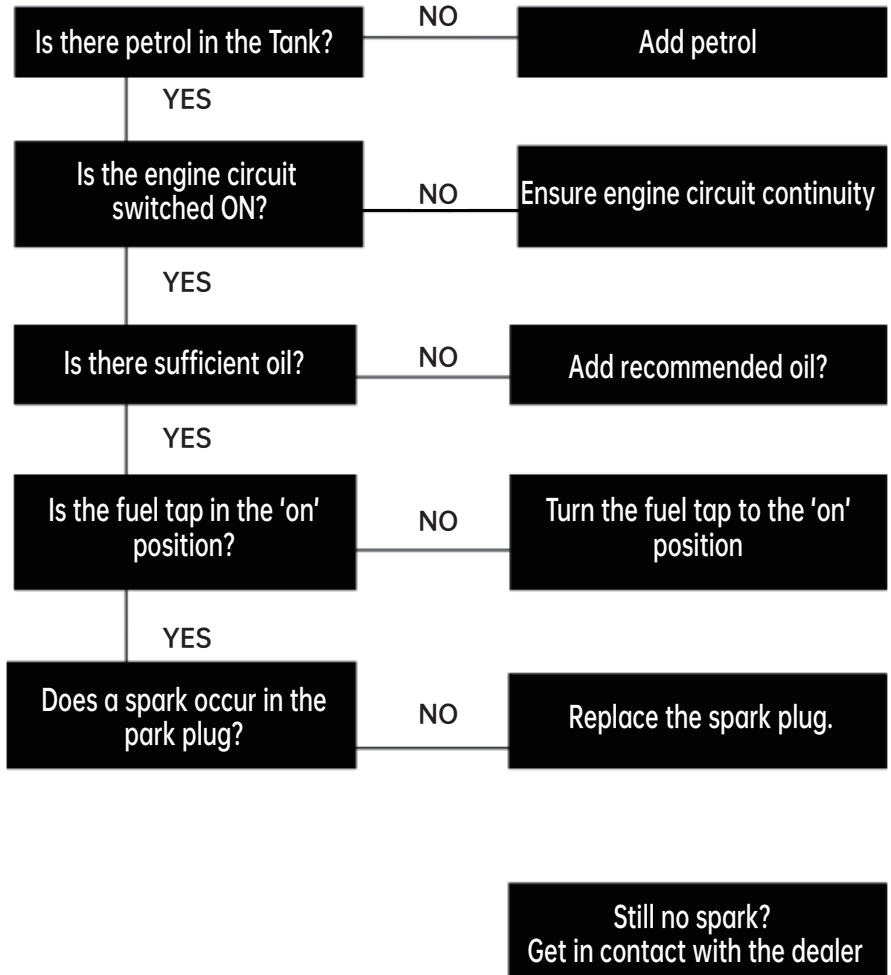
(2)Generator transport

- When the generator set is transported, ensure that there is no fuel spilling;

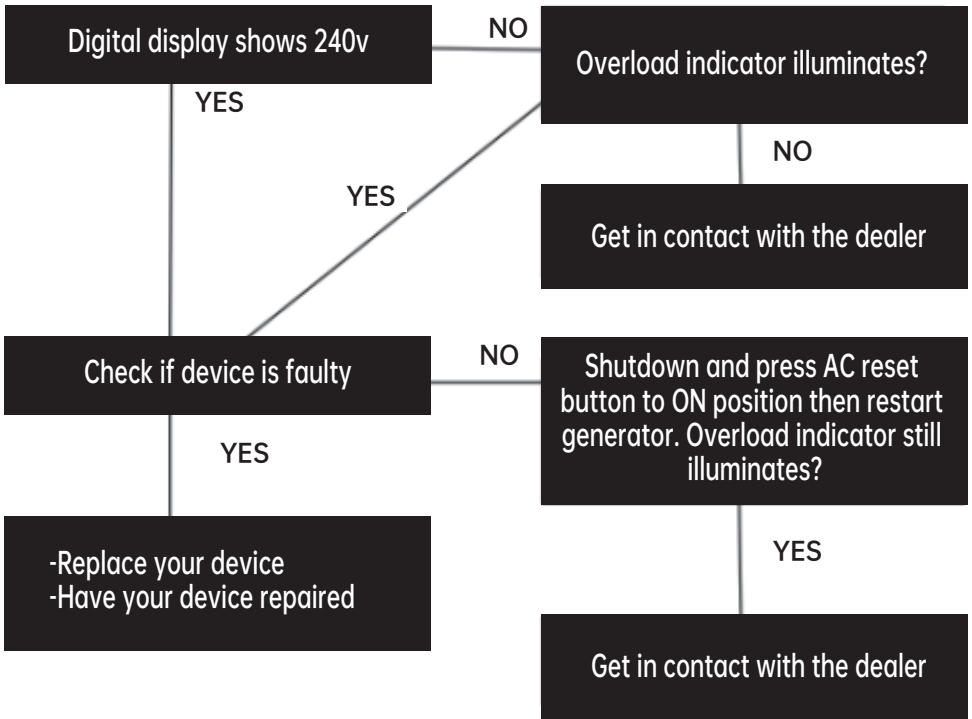
- Do not fill excessive fuel into fuel tank;
- Do not run the generator and avoid direct sunlight;
- Do not transport the generator set on rough road for long time.

X. Troubleshooting

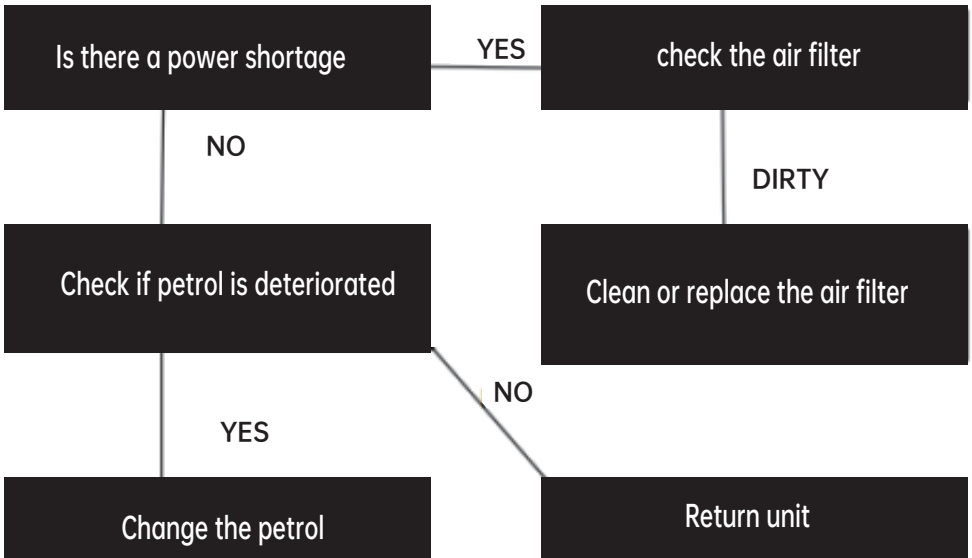
Engine does not start



Connected device does not work



Power Insufficient



XI. Technical Parameters

Engine	Engine type	Single-cylinder, four-stroke, air-cooled, overhead valve, tilted 25° of the center of gasoline engine cylinder
	Bore size × Stroke (mm)	64×45
	Displacement (cc)	145
	Compression ratio	8.7± 0.2
	Gas distribution mode	OHV
	Cooling mode	Forced cooling wind
	Output power (kW/r/min)	3.8/4650
	Starting method	Recoil start
	Fuel tank volume (L)	3.7
	Fuel type and grade	Vehicle-use unleaded gasoline
	Lubricating oil capacity	0.45
	Lubricating oil model	SAE 10W /30
	Lubrication mode	Splash lubrication
	Noise dB (at 7m)	53-57
Generator	Rated power (kW)	3.0
	Rated voltage (V)	240
	Rated frequency (Hz)	50
	Rated power factor	1
	Phase number	Single phase
	DC output	12V 8.3A
Configuration	Motor	Brushless (permanent magnet)
	Voltage regulation	Inverter regulation
	Frequency regulation	Inverter regulation
Overall dimension (mm)		480x290x440
Net weight (kg)		21.5

XII. Warranty

YOUR RECEIPT MUST BE RETAINED AT ALL TIMES FOR WARRANTY.

Responsibilities of The Consumer Under This Warranty

Deliver or ship the REDBACK Generator covered under this warranty to iTechworld.

12-month warranty or 500 hours whichever comes first. Not for commercial use, domestic use only. Must be serviced in line with the maintenance schedule provided in this user guide by a third party that is a qualified small engine mechanic. Receipts must be maintained with full details of work carried out as proof to maintain the warranty.

Freight costs, if any, to and from iTechworld will be paid by the owner. Use reasonable care in operation, and storage of the product as explained in this user guide.

The benefits provided under this warranty are in addition to other rights and remedies which are available to you under law. The warranty covers manufacturer defects in materials, workmanship and finish under normal use.

Our goods come with guarantees that cannot be excluded under Australian Consumer law and Consumer Guarantees Act 1993 (NZ).

CONTACT

iTechworld
Redback Generators

281 Great Eastern HWY
Burswood WA 6100

1300 483 249

www.itechworld.com.au
service@itechworld.com.au



REDBACK
GENERATORS