

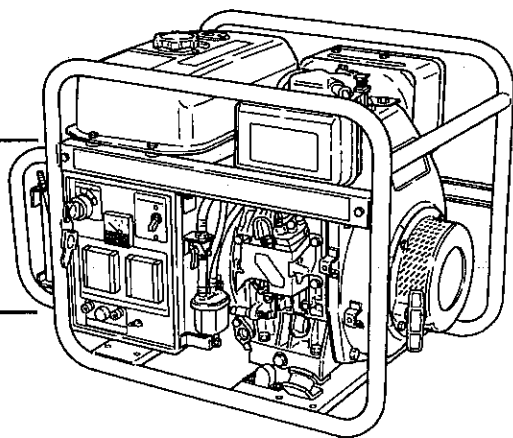
Robin Generator



MODEL

RGD2510
RGD3310

INSTRUCTIONS for USE



3779020103



FOREWORD

Thank you for purchasing a Robin generator.

This manual covers operation and maintenance of the Robin generators. All information in this publication is based on the latest production information available at the time of approval for printing.

Pay special attention to statements preceded by the following words:

WARNING

Indicates a strong possibility of severe personal injury, loss of life and equipment damage if instructions are not followed.

[CAUTION]

Indicates a possibility of personal injury or equipment damage if instructions are not followed.

NOTE:

Gives helpful information.

If a problem should arise, or if you have any questions about the generator, consult an authorized dealer.






WARNING


- **The generator is designed to give safe and dependable service if operated according to instructions.**
- **Do not operate the generator before you have read and understood the instructions. Failure to do so could result in death, personal injury or equipment damage.**


CONTENTS


1. SAFETY PRECAUTIONS	1
2. SPECIFICATIONS	4
3. COMPONENTS	5
4. PRE-OPERATION CHECKS	6
5. OPERATING PROCEDURES	11
6. WATTAGE INFORMATION	21
7. MAINTENANCE SCHEDULE	23
8. "HOW-TO" MAINTENANCE	24
9. PREPARATION FOR STORAGE	28
10. TROUBLESHOOTING	29
11. WIRING DIAGRAM	30
12. OPTIONAL PARTS	37


1. SAFETY PRECAUTIONS


-  Do not operate the generator near diesel fuel, gasoline or gaseous fuel because of the potential danger of explosion or fire. Do not fill the fuel tank with fuel while the engine is running. Do not smoke nor use open flame near the fuel tank. Be careful not to spill fuel during refueling. If fuel is spilt, wipe it off and let dry before starting the engine.
-  Do not place inflammables near the generator. Be careful not to place fuel, matches, gunpowder, oily cloths, straw, trash, or any other inflammables near the generator.
-  Do not operate the generator inside a room, cave, tunnel, or other insufficiently ventilated area. Always operate it in a well-ventilated area, otherwise the engine may become overheated, and the poisonous carbon monoxide gas contained in the exhaust gases will endanger human lives. Keep the generator at least 1 meter (3 feet) away from any structure or building during use. If the generator must be used indoors, the area must be well-ventilated and extreme caution must be taken regarding the discharge of exhaust gases.
-  Do not enclose the generator nor cover it with a box. The generator has a built-in forced air cooling system, and may become overheated if it is enclosed. If generator has been covered to protect it from the weather during non use, be sure to remove it and keep it well away from the area during generator use.
-  Operate the generator on a level surface. It is not necessary to prepare a special foundation for the generator. However, the generator will vibrate on an irregular surface, so choose a level place without surface irregularities. If the generator is tilted or moved during operation, fuel may spill and/ or the generator may tip over, causing a hazardous situation. Proper lubrication cannot be expected if the generator is operated on a steep incline or slope. In such a case, piston seizure may occur even if the oil is above the upper level.


-
-  Pay attention to the wiring or extension cords from the generator to the connected device.
If the wire is under the generator or in contact with a vibrating part, it may break and possibly cause a fire, generator burnout, or electric shock hazard. Replace damaged or worn cords immediately.


 -  Do not operate in rain, in wet or damp conditions, or with wet hands.
The operator may suffer severe electric shock if the generator is wet due to rain or snow.


 -  If wet, wipe and dry it well before starting. Do not pour water directly over the generator, nor wash it with water.

 -  Be extremely careful that all necessary electrical grounding procedures are followed during each and every use. Failure to do so can be fatal.

 -  Do not contact the generator to a commercial power line. Connection to a commercial power line may short circuit the generator and ruin it or cause electric shock hazard. Use the transfer switch for connecting to domestic circuit.

 -  No smoking while handling the battery.
The battery emits flammable hydrogen gas, which can explode if exposed to electric arcing or open flame.
Keep the area well-ventilated and keep open flames/sparks away when handling the battery.

 -  Engine becomes extremely hot during and for some time after operation.
Keep combustible materials well away from generator area.
Be very careful not to touch any parts of the hot engine especially the muffler area or serious burns may result.

 -  Keep children and all bystanders at a safe distance from work areas.

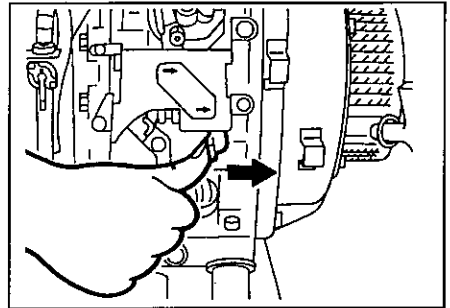
! It is absolutely essential that you know the safe and proper use of the power tool or appliance that you intend to use. All operators must read, understand and follow the tool/appliance owners manual. Tool and appliance applications and limitations must be understood. Follow all directions given on labels and warnings. Keep all instruction manuals and literature in a safe place for future reference.

! Use only "LISTED" extension cords.
When a tool or appliance is used outdoors, use only extension cords marked "For Outdoor Use". Extension cords, when not in use should be stored in a dry and well ventilated area.

! Always switch off generator's no-fuse breaker and disconnect tools or appliances when not in use, before servicing, adjusting, or installing accessories and attachments.

[CAUTION]

In case that the engine dose not stop by turning key switch to "OFF" , then push the stop lever right side until the engine stops completely.
After that consult with your nearest Robin dealer or service shop.



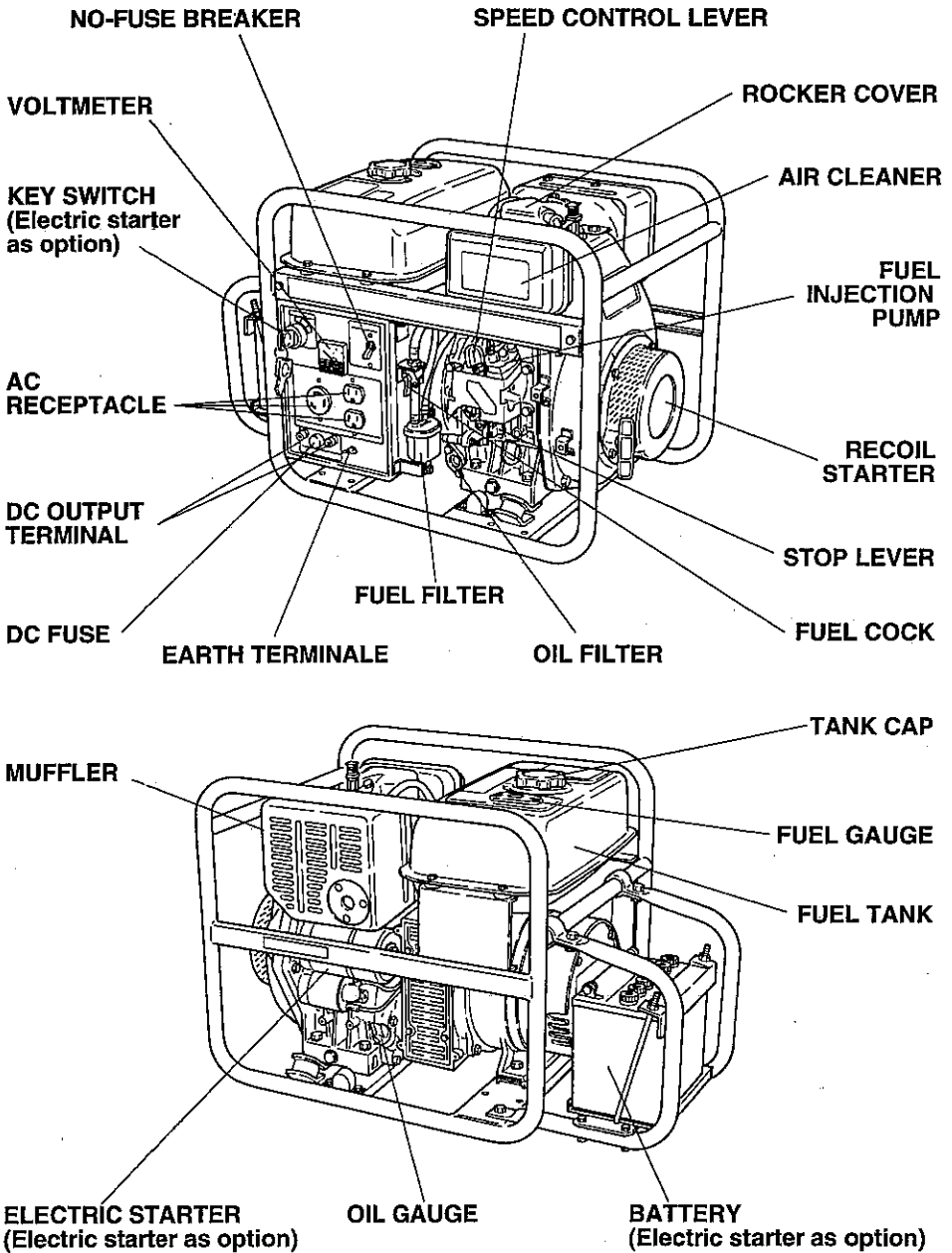
2. SPECIFICATIONS

MODEL		RGD2510	RGD3310	
ALTERNATOR	Type	Brushless, Self-exciting, 2-poles, Single phase		
	Voltage regulator	Condenser type		
	Rated voltage	50 Hz	110 V, 220 V, 240 V, 110 V / 220 V	
		60 Hz	110 V, 120 V, 240 V, 110 V / 220 V, 120 V / 240 V	
	Maximum output	50 Hz	2.3 kW	3.0 kW
		60 Hz	2.5 kW	3.3 kW
	Rated output	50 Hz	2.0 kW	2.7 kW
		60 Hz	2.2 kW	3.0 kW
	Rated power factor	1.0		
DC output	12V - 8.3A			
Over current protector	No-fuse breaker			
ENGINE	Model	DY23-2D	DY27-2D	
	Type	Air-cooled, 4 cycle, Diesel engine		
	Displacement	230 mL	265 mL	
	Fuel	Diesel light oil		
	Fuel tank capacity	7.8 L		
	Rated continuous operation (Approx.)	50 Hz	8.4 hours	6.6 hours
		60 Hz	7.1 hours	6.0 hours
	Starting system	Recoil starter (Electric starter as Option)		
Dimensions	Length	536 mm (709 mm)*		
	Width	400 mm		
	Height	458 mm		
Dry Weight (Electric starter type)		55 kg	58.5 kg	

Specifications are subject to change without notice.

* : Electric starter is available as option

3. COMPONENTS

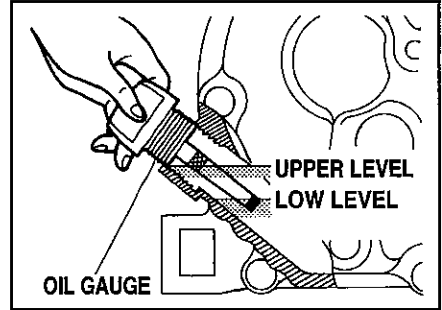


4. PRE-OPERATION CHECKS

CHECK ENGINE OIL.

Before checking or refilling oil, be sure generator is located on stable and level surface with engine stopped.

- Remove oil filler cap and check the engine oil level.
- If oil level is below the lower level line, refill with suitable oil (see table) to upper level line. Do not screw in the oil filler cap when checking oil level.
- Change oil if contaminated.
(See "How-To" Maintenance.)

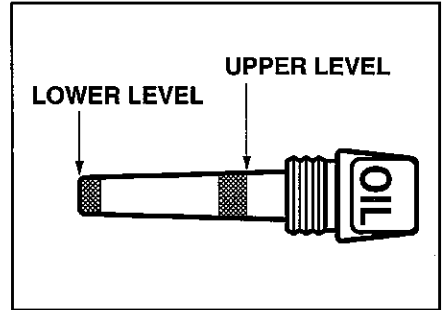


Oil capacity

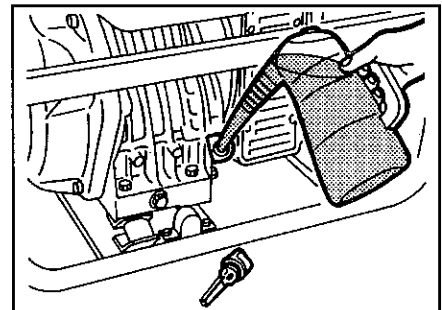
RGD2510 0.9 L
RGD3310

Recommended engine oil :

Use diesel engine oil of class "CC" or "CD" (API ranking) according to the table below :



Temperature	Viscosity grade of oil
+10°C to +40°C (+50°F to +104°F)	SAE 30
-10°C to +20°C (+14°F to +68°F)	SAE 10W-30



[CAUTION]

- Do not use gasoline engine oil.
Use diesel engine oil only.
- Low grade oil or deteriorated oil cause engine trouble and shorten engine life.
- Do not screw in the oil gauge when checking oil level.

CHECK ENGINE FUEL.

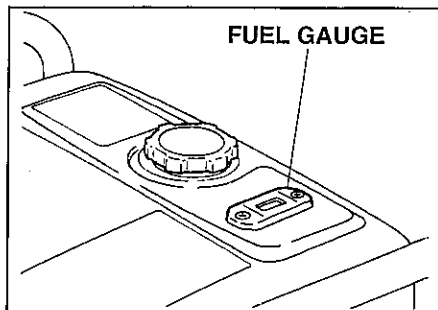
⚠ WARNING

Do not refuel while smoking or near open flame or other such potential fire hazards. Otherwise fire accident may occur.

- Check fuel level at fuel level gauge.
- If fuel level is low, refill with automobile diesel fuel.

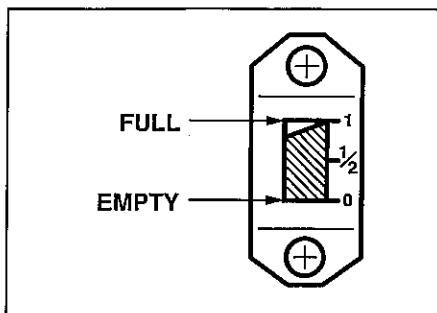
[CAUTION]

Use automobile diesel fuel only.



Fuel tank capacity

RGD2510 7.8 L
RGD3310 7.8 L



⚠ WARNING

Make sure you review each warning in order to prevent fire hazard.

- Do not refill tank while engine is running or hot.
- Close fuel cock before refueling with fuel.
- Be careful not to admit dust, dirt, water or other foreign objects into fuel.
- Wipe off spilt fuel thoroughly before starting engine.
- Keep open flames away.

AIR DISCHARGE FROM FUEL LINE

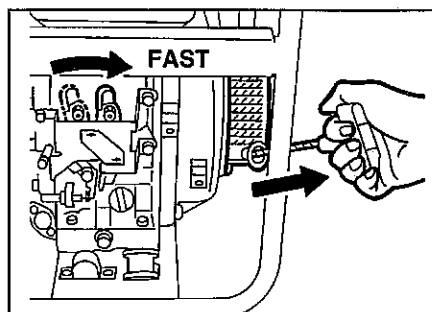
Air discharge from fuel line is required only when starting the engine in the following conditions :

- Starting the brand new engine for the first time.
- Restarting the engine after the engine has stopped due to fuel shortage.
- Starting the engine after the fuel filter cleaning.

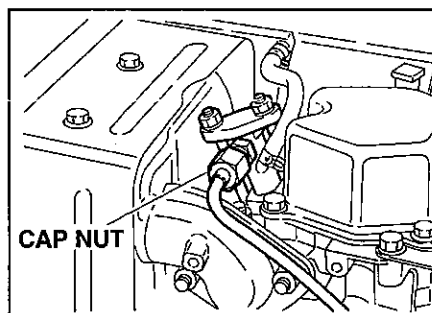
Air discharging procedure

Set the speed control lever at "FAST" speed position and pull the recoil starter handle slowly 2 or 3 times.

Air will be discharged from fuel line automatically.



- If the fuel tank is refilled before it is emptied, air discharge work is unnecessary.
- If the high pressure pipe is disassembled for the purpose of servicing injection nozzle, discharge air from the high pressure pipe by the following procedure :
Set the speed control lever at "FAST" speed position and detach the cap nut of the high pressure pipe on the side of the nozzle, and pull the recoil starter handle slowly until sufficient fuel is injected.



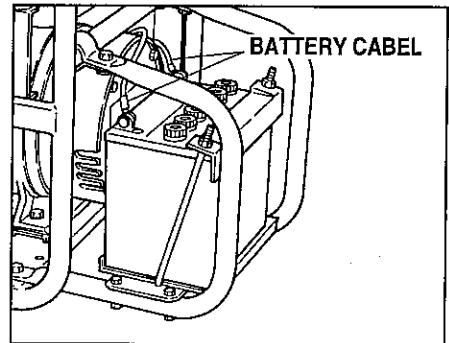
[CAUTION]

When discharging air from fuel line, be sure to fill fuel tank with enough fuel (at least 2 L).

BATTERY INSTALLATION

Recommended Battery :

Type	Storage Battery
Capacity	12 V-24 AH
Size (mm)	185 L x 125 W x 175 H



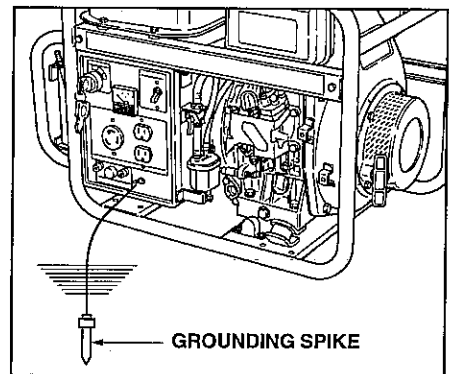
- 1) Install the recommended battery in position by means of the bracket and long bolts (accessory).
- 2) Only after checking the key switch is in the "O" (STOP) position, securely connect the battery cable (from the starter motor) to the positive (+) terminal. Then connect the other cable with the negative (-) terminal.

[CAUTION]

Battery cables should connect to the correct terminal without fail.

GROUNDING THE GENERATOR

- To ground the generator to the earth, connect the grounding lug of the generator to the grounding spike driven into the earth or to the conductor which has been already grounded to the earth.
- If such grounding conductor or grounding electrode is unavailable, connect the grounding lug of the generator to the grounding terminal of the using electric tool or appliance.



CHECKING COMPONENT PARTS

Check following items before starting engine :

- Fuel leakage from fuel hose, etc.
- Bolts and nuts for looseness.
- Components for damage or breakage.
- Generator not resting on or against any adjacent wiring.

CHECK GENERATOR SURROUNDINGS.

WARNING

Make sure you review each warning in order to prevent fire hazard.

- **Keep area clear of inflammables or other hazardous materials.**
- **Keep generator at least 3 feet (1 meter) away from buildings or other structures.**
- **Only operate generator in a dry, well ventilated area.**
- **Keep exhaust pipe clear of foreign objects.**
- **Keep generator away from open flame. No smoking!**
- **Keep generator on a stable and level surface.**
- **Do not block generator air vents with paper or other material.**

5. OPERATING PROCEDURES

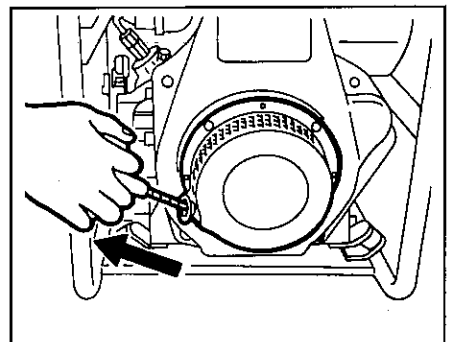
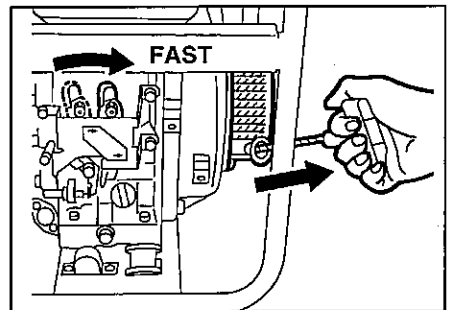
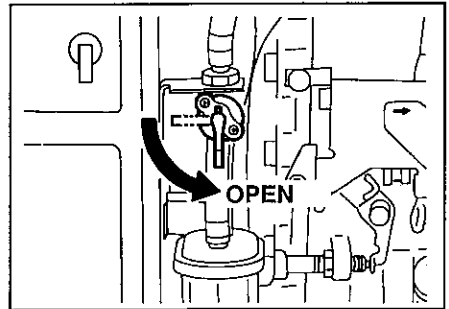
⚠ WARNING

- Before starting the engine, check that no obstructions around the generator.
- Make sure that no appliance is connected to the generator when starting up. Starting the generator with an appliance connected and switched on may result in damage to the generator and/or appliance.

STARTING THE ENGINE

1. Starting by recoil starter

- (a) Check the oil and fuel level.
- (b) Turn the fuel cock to "OPEN" position.
- (c) Make sure no appliance is connected to the generator.
- (d) Turn the no-fuse breaker to the "OFF" position.
- (e) Set the speed control lever to "FAST" speed position.
- (f) Pull the recoil starter handle slowly and when you feel resistance, return it to its original position. Pull the starter handle swiftly with both hands until the red mark on the rope appears.



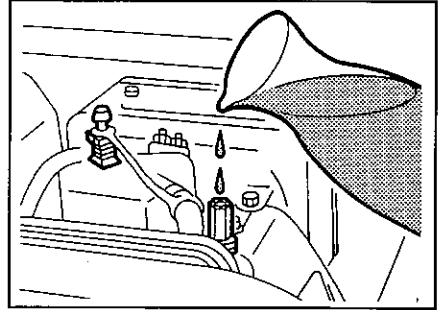
[CAUTION]

- Be sure to pull the recoil starter handle forcibly.
- Do not pull out the rope all the way.

(g) After the engine starts, allow the starter handle to return to its original position while still holding the handle.

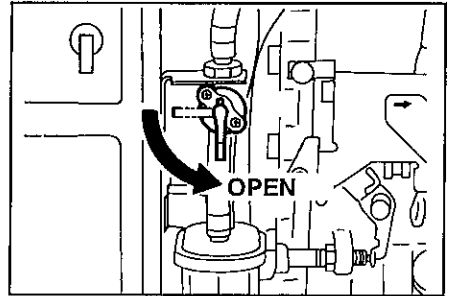
(h) Warm up the engine without a load for a 2 or 3 minutes.

(i) If the engine dose not start yet, pour 2 to 3 cc of diesel fuel into an auxiliary fuel inlet locating by the side of the rocker cover while pulling recoil starter handle slowly. Return the plug in the inlet port and start the engine.

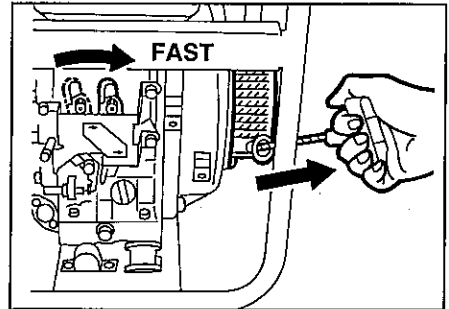


2. Starting by key switch

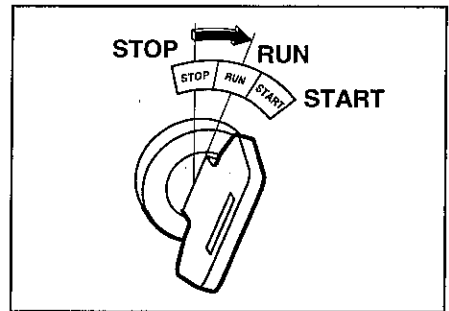
- (a) Check the oil and fuel level.
- (b) Turn the fuel cock to "OPEN" position.
- (c) Make sure no appliance is connected to the generator.
- (d) Turn the no-fuse breaker to the "OFF" position.



- (e) Set the speed control lever to "FAST" speed position.
- (f) Insert the key into the key switch and turn it clockwise to the "ON" position to start the engine.



- (g) Then turn the key further to the a "START" position. The engine will be started by starting motor.



- (h) After starting engine, allow the engine warm up for 2 or 3 minutes.

[CAUTION]

- Do not run the starting motor over 5 seconds continuously.
- If the engine fails to start, return the key to the "ON" position and wait about 10 seconds then start again.
- Do not turn the key switch to "START" when the engine is running to prevent damage of starting motor.
- When starting the engine by recoil starter, set the key switch at the "ON" position and pull the starter handle.
- After stopping the engine, be sure to set the key switch at the "STOP" position.

USING ELECTRIC POWER

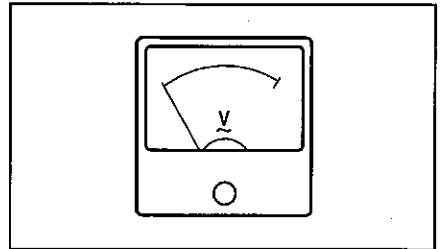
⚠ WARNING

- Make sure that the appliance is switched OFF before connecting it to the generator.
- Do not move the generator while it is running.
- Be sure to ground the generator if the connected appliance is grounded. Failure to ground unit may lead to electrical shock.

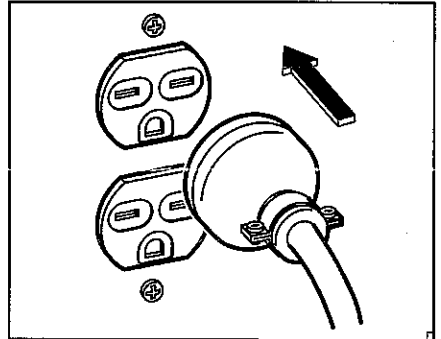
(1) AC APPLICATION

(a) Check the voltmeter for proper voltage.

- This generator is thoroughly tested and adjusted in the factory. If the generator does not produce the specified voltage, consult your nearest Robin dealer or service shop.

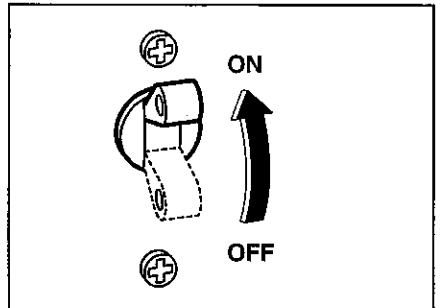


(b) Turn off the switch (es) of the electrical appliance (s) before connecting to the generator.



(c) Insert the plug (s) of the electrical appliance (s) into the receptacle.

(d) Turn the no-fuse breaker to the position "ON".



- Check the amperage of the receptacles used referring to **TABLE 1**, and be sure not to take a current exceeding the specified amperage.
- Be sure that the total wattage of all appliances dose not exceed the rated output of the generator.

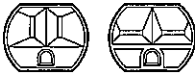
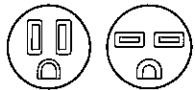


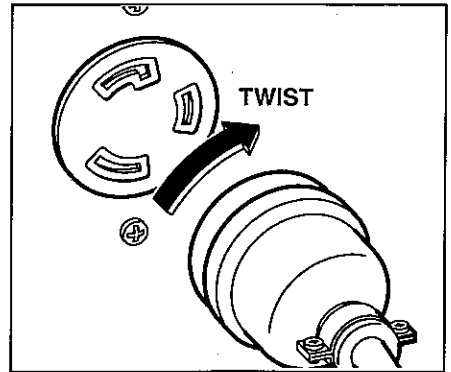
	up to total 15 ampere from two receptacles
	up to 15 ampere
	up to 20 ampere
	up to 30 amperes

TABLE 1

⚠ WARNING

- To take power out from the **TWIST LOCK RECEPTACLE**, insert the plug into the receptacle, and turn it clockwise to the lock position.
- Be sure to ground the generator if the connected electrical device is grounded.



NOTE :

When the no-fuse breaker turns off during operation, the generator is over loaded or the appliance is defective. Stop the generator immediately, check the appliance and / or generator for overloading or detect and have repaired as necessary by Robin dealer or service shop.

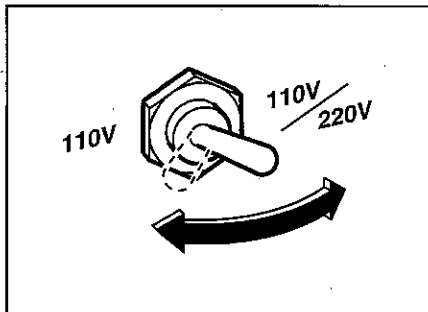
FULL POWER SWITCH

Select the voltage using the FULL POWER SWITCH in accordance with the electrical appliance.

Refer to **TABLE 2**.

[CAUTION]

Change the FULL POWER SWITCH after turning the no-fuse breaker to "OFF".



NOTE :

Voltmeter always indicates the lower voltage whichever the FULL POWER SWITCH is set.

Switch position	Lower Voltage Receptacle	Higher Voltage Receptacle
110V or 120V	Activated full rated output	N.A
110/220V or 120/240V	Activated half of rated output	Activated full rated output

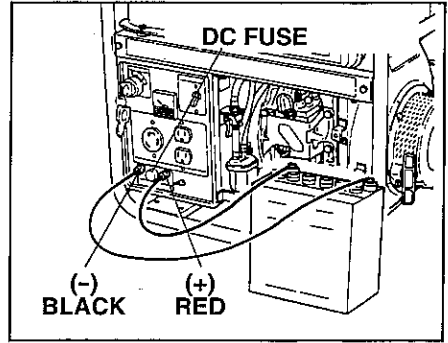
TABLE 2

(2) DC APPLICATION

DC output capacity of generator is 12V-8.3 A (100 W) .

Use DC output for charging batteries only.

- Connect positive (red) terminal on generator to positive (+) terminal on battery.
- Connect negative (black) terminal on generator to negative (-) terminal on battery.
- Both AC and DC output can be used at the same time if the total output is within rated output of the generator.

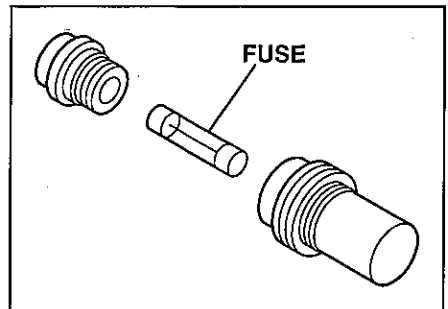


SAFETY PRECAUTIONS WHILE CHARGING

- An explosive hydrogen gas is discharged through vent holes in the battery during the charging process. Do not allow spark or open flame around the generator or battery during the charging process.
- Electrolyte fluid can burn eyes and clothing. Be extremely careful to avoid contact. If injured, wash the affected area immediately with large quantities of water and consult a doctor for treatment.
- When charging a large capacity battery or totally discharged battery, excessive current may force the DC out. In such cases, use a battery charger to charge a large battery with AC output.

(3) FUSE REPLACEMENT

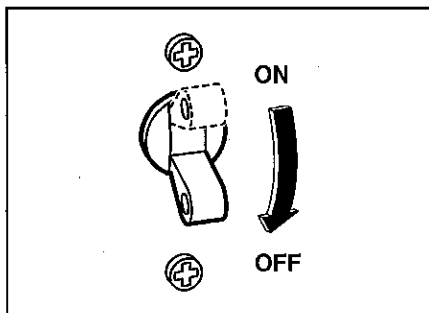
- If a fuse burns out, check for the cause of trouble, and make the necessary repairs before installing the new fuse.
- Be sure to use the correct fuse. An incorrect fuse may cause damage to the generator.
- The fuse rating for DC output is 10A.



STOPPING THE GENERATOR

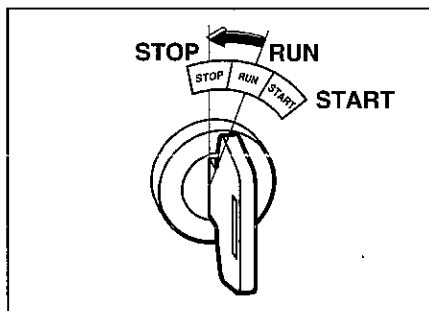
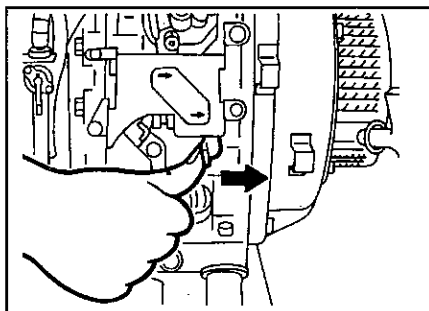
[CAUTION]

Damage to the generator or appliance may result if generator is stopped under load. (With tools or appliances connected.)



1. Stopping by speed control lever

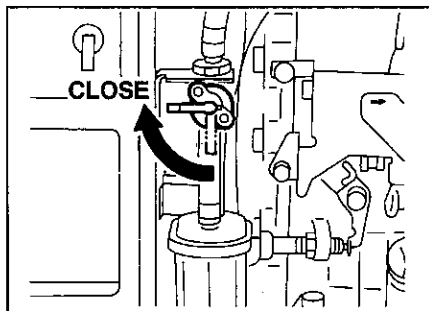
- (a) Turn off the power switch of the appliance or disconnect all power cords from generator receptacles including DC12 volt terminals if they are being used.
- (b) Turn the no-fuse breaker to the "OFF" position.
- (c) Push the stop lever to the "STOP" position.



[CAUTION]

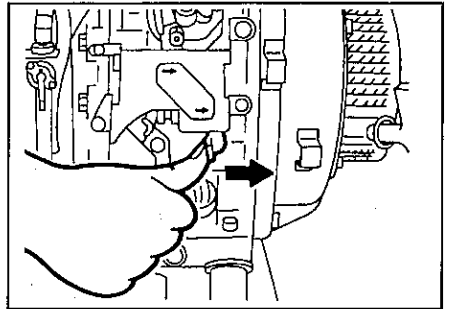
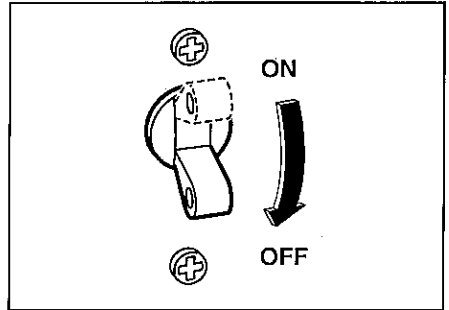
If your engine is an electric starter type, be sure to turn the key switch to "OFF" position after stopping.

- (d) Then turn the fuel cock to "CLOSE" position.



2. For the engine with oil sensor

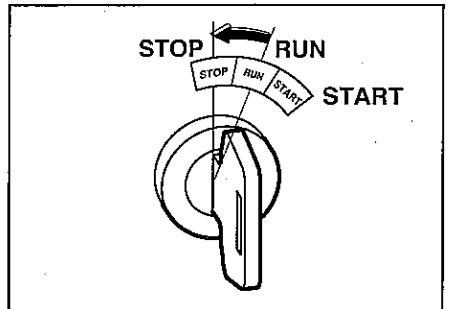
- (a) Turn off the power switch of the appliance or disconnect all power cords from generator receptacles including DC12 volt terminals if they are being used.
- (b) Turn the no-fuse breaker to the "OFF" position.
- (c) Push the stop lever to the "STOP" position.
If your engine is an electric starter type, turn the key switch to "OFF" position (Then, engine automatically stops.)



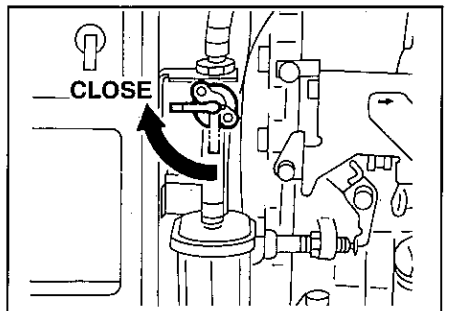
[CAUTION]

If the engine does not stop by turning key switch to "OFF", stop it in the following procedures :

- Push the red stop lever right side until the engine stops completely.
- After stopping, consult your nearest Robin dealer or service shop.



- (d) Then turn the fuel cock to "CLOSE" position.



OIL SENSOR (OPTION)

- (a) The oil sensor detects the fall in oil level in the crankcase and automatically stops the engine when the oil level falls below a predetermined level.
- (b) When engine has stopped automatically, switch off generator's no-fuse breaker, check the oil level.
Refill engine oil to the upper level and restart the engine.
- (c) If the engine does not start by usual starting procedures, check the oil level.

[CAUTION]

Do not remove OIL SENSOR PROBE when refilling with oil.

6. WATTAGE INFORMATION

Some appliances need a "surge" of energy when starting.

This means that the amount of electrical power needed to start the appliance may exceed the amount needed to maintain its use.

Electrical appliances and tools normally come with a label indicating voltage, cycles/Hz, amperage (amps) and electrical power needed to run the appliance or tool.

Check with your nearest dealer or service center with questions regarding power surge of certain appliances or power tools.

- Electrical loads such as incandescent lamps and hot plates require the same wattage to start as is needed to maintain use.
- Loads such as fluorescent lamps require 1.2 to 2 times the indicated wattage during start-up.
- Loads for mercury lamps require 2 to 3 times the indicated wattage during start-up.
- Electrical motors require a large starting current. Power requirements depend on the type of motor and its use. Once enough "surge" is attained to start the motor, the appliance will require only 50% to 30% of the wattage to continue running.
- Most electrical tools require 1.2 to 3 times their wattage for running under load during use. For example, a 5,000 watt generator can power a 1800 to 4000 watt electrical tool.
- Loads such as submersible pumps and air compressors require a very large force to start. They need 3 to 5 times the normal running wattage in order to start. For example, a 5,000 watt generator would only be able to drive a 1,000 to 1,700 watt pump.

NOTE :

The following wattage chart is general guide only. Refer to your specific appliance for correct wattage.

To determine the total wattage required to run a particular electrical appliance or tool, multiply the voltage figure of the appliance/tool by the amperage (amps) figure of same. The voltage and amperage (amps) information can be found on a name plate which is normally attached to electrical appliances and tools.

Applications	Applicable Wattage (W)			
	RGD2510		RGD3310	
	50Hz	60Hz	50Hz	60Hz
Incandescent lamp	2,000	2,200	2,700	3,000
Fluorescent lamp, Electric tool	1,400	1,500	1,800	2,100
Mercury lamp	1,200	1,300	1,600	1,800
Pump, compressor	600	650	800	900

VOLTAGE DROP IN ELECTRIC EXTENSION CORDS

When a long electric extension cord is used to connect an appliance or tool with the generator, a certain amount of voltage drop occurs in the extension cord which lessens the effective voltage available to the appliance or tool.

The chart below has been prepared to illustrate the approximate voltage loss when an extension cord of 300 feet (approx. 100 meters) is used to connect an appliance or tool to the generator.

Nominal cross section	A.W.G. Gauge No.	Allowable current	No. of strands / strands dia.	Resistance	Current Amp.							
					1A	3A	5A	8A	10A	12A	15A	
mm ²	No.	A	No./mm	Ω/100m	1A	3A	5A	8A	10A	12A	15A	Voltage drop
0.75	18	7	30/0.18	2.477	2.5V	8V	12.5V	—	—	—	—	
1.27	16	12	50/0.18	1.486	1.5V	5V	7.5V	12V	15V	18V	—	
2.0	14	17	37/0.26	0.952	1V	3V	5V	8V	10V	12V	15V	
3.5	12 to 10	23	45/0.32	0.517	—	1.5V	2.5V	4V	5V	6.5V	7.5V	
5.5	10 to 8	35	70/0.32	0.332	—	1V	2V	2.5V	3.5V	4V	5V	

7. MAINTENANCE SCHEDULE

<p>DAILY</p>	<ul style="list-style-type: none"> ■ Check oil level. ■ Check all components according to "PRE-OPERATION CHECKS."
<p>EVERY 100 HOURS</p>	<ul style="list-style-type: none"> ■ Change engine oil. *Change more often if used in dusty or dirty environments. ■ Clean oil filter. ■ Check battery electrolyte level. (Electric starter type) ■ Clean air cleaner elements.
<p>EVERY 300 HOURS</p>	<ul style="list-style-type: none"> ■ Drain water from fuel filter.
<p>EVERY 500 HOURS</p>	<ul style="list-style-type: none"> ■ Check and adjust valve clearance. ■ Check and clean fuel injection nozzle.
<p>EVERY 1,000 HOURS</p>	<ul style="list-style-type: none"> ■ Check and adjust valve seat. ■ Check rotor and stator. ■ Replace fuel filter. ■ Replace engine mount rubber. ■ Overhaul engine.
<p>EVERY 2 YEARS</p>	<ul style="list-style-type: none"> ■ Replace rubber fuel pipes.

NOTE : (*)

- Initial oil change should be performed after first twenty (20) hours of use. Thereafter change oil every 100 hours.
- Before changing the oil, check for a suitable way to dispose of the old oil. Do not pour it down sewage drains, onto garden soil or into open streams. Your local zoning or environmental regulations will give you more detailed instructions on proper disposal.

8. "HOW-TO" MAINTENANCE

ENGINE OIL CHANGE

Intervals for oil change

Initial oil change : After first 25 hours of operation

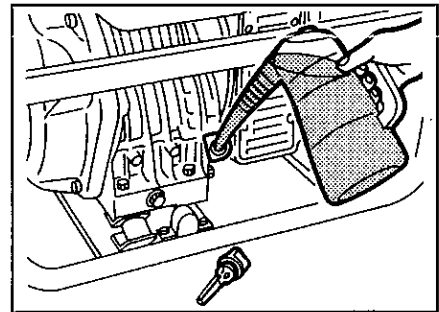
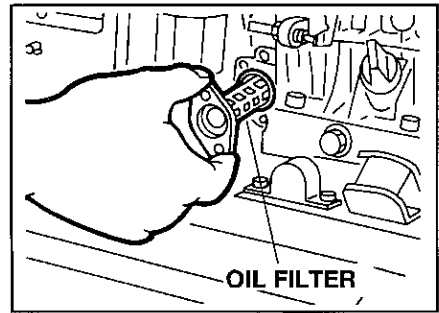
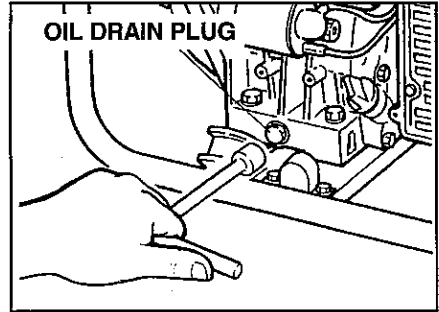
Thereafter : Every 100 hours of operation

Recommended engine oil

Use diesel engine oil of class "CC" or "CD" (API ranking) according to the table below :

Temperature	Viscosity grade of oil
+10°C to +40°C (+50°F to +104°F)	SAE 30
-10°C to +20°C (+14°F to +68°F)	SAE 10W-30

- Remove drain plug from the generator base and drain oil thoroughly. It is advisable to drain oil while the engine is warm, and remove the oil gauge for quick discharging.
- Remove oil filter from the crankcase, and clean it in the clean fuel.
- Replace the oil filter and drain plug firmly.
- Pour fresh oil into the oil filter neck up to the upper level mark of the oil gauge.
- Replace the oil gauge firmly.



[CAUTION]

- Do not use gasoline engine oil. Use diesel engine oil only.
- Do not screw in the fuel gauge when checking oil level.

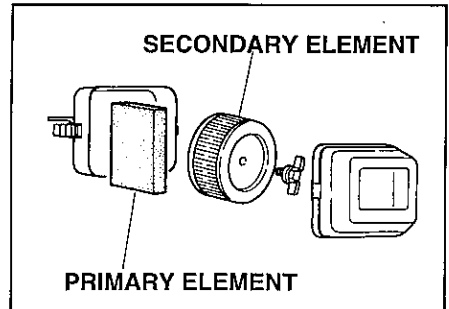
CLEANING AIR CLEANER

If the air cleaner elements are dirty or clogged with dust, the engine performs poorly and sometimes results in shortening of engine life. Always keep the air cleaner elements clean.

- Every 100 hours of operation, clean the primary and secondary elements with detergent and water.
- Dry the elements thoroughly and then replace them into the air cleaner.
- When operating the generator under extremely dusty conditions, clean the air cleaner elements every 30 to 50 hours operation.

[CAUTION]

- Do not clean elements in kerosene, gasoline, diesel fuel or any other kinds of oil.
- Do not wet elements before replacing into the air cleaner.



CHANGING FUEL FILTER

Fuel injection pump is a very delicate mechanism. If dust or water is contained in the fuel, the plunger in the injection pump may be damaged or seized up. Therefore, clean or replace fuel filter periodically.

⚠ WARNING

Do not smoke while draining fuel and cleaning fuel filter otherwise a fire accident may occur.

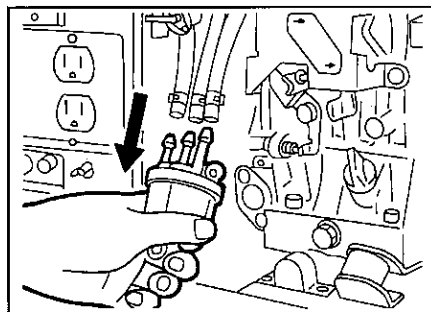
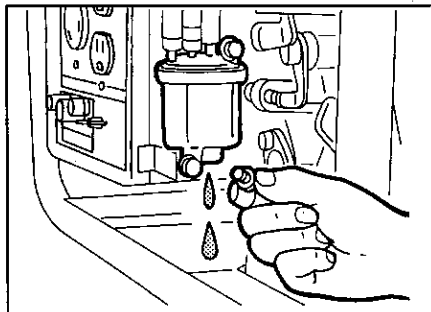
(a) Drain fuel from fuel tanks and lines by removing fuel filter.

(b) Every 300 hours of operation, drain water from fuel filter.

(c) After every 1000 hours of operation, replace the fuel filter with a new one.

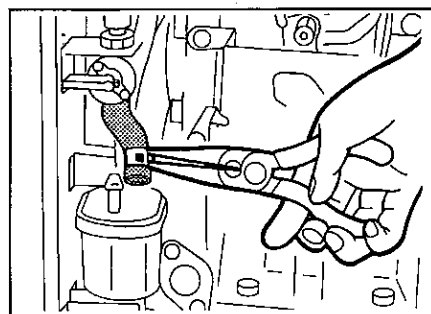
(d) After cleaning or replacing fuel filter, refill the fuel and turn the fuel cock to "OPEN" position.

For starting engine, wait one minute until air is bled from the fuel lines automatically.



FUEL PIPE REPLACEMENT

Replace rubber fuel pipes every 2 years. If a fuel leak is found from a crack in fuel pipe, replace the all rubber pipes at once.

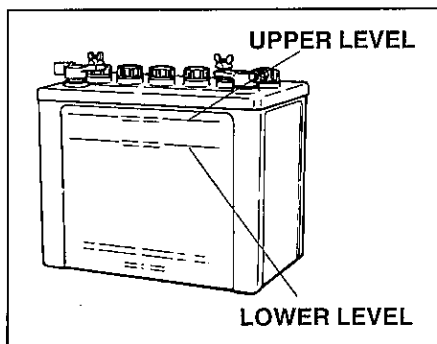


BATTERY MAINTENANCE (Electric starter type)

Check battery electrolyte level before everyday operation.

If battery electrolyte level is low, add distilled water in the following procedures:

- (a) Remove filler caps from the battery.
- (b) Fill each compartment with distilled water up to the upper level mark.



[CAUTION]

- Battery electrolyte is strong enough to cause sight loss, burn skin, or damage clothing.
If electrolyte gets in your eyes, flush them right away with large quantity of water, and consult a doctor immediately for treatment.
- Be sure to connect the positive battery cable with red mark to the positive terminal of the battery.

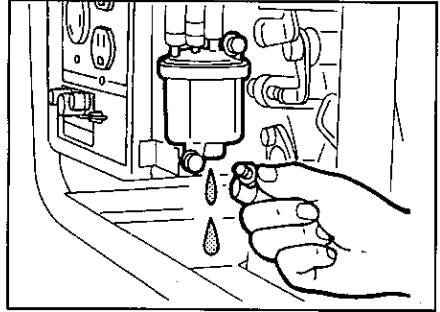
9. PREPARATION FOR STORAGE

DISCHARGE FUEL. (NO SMOKING !)

- Remove the drain screw of the fuel filter.
- Open the fuel cock.

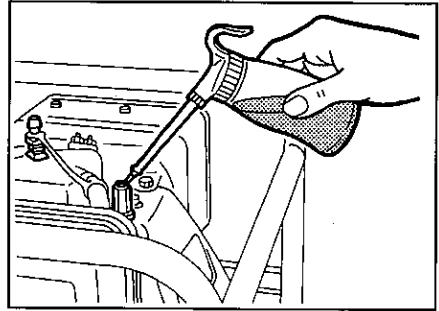
⚠ WARNING

Do not smoke while discharging fuel, otherwise the fire accident may occur.



LUBRICATING ENGINE OIL

- Change engine oil with fresh oil.
- Pour 4 to 5 cc engine oil into the auxiliary fuel inlet and pull the recoil starter handle slowly 2 or 3 times. (Do not start the engine.)



CLEAN AND STORE

- Pull the starter handle slowly until resistance is felt and leave it in that position.
- Disconnect battery and charge it. (Electric Starter type)
- Clean the engine thoroughly with an oiled cloth, put the cover on, and store the generator indoors in a well-ventilated low humidity area.

BATTERY CHARGING (Electric Starter type)

- The battery discharges itself even when not connected, therefore, it is necessary to recharge once a month.

10. TROUBLESHOOTING

When generator engine fails to start after several attempts, or if no electricity is available at the output socket, check the following chart. If your generator still fails to start or generate electricity, contact your nearest Robin dealer or service shop for further information or corrective procedures.

When Engine Fails to Start :

Check fuel level.		Refill fuel tank making sure not to overfill.
Check if fuel cock is in CLOSE position.	↔	Turn the fuel cock to OPEN position.
Check if water is entered into fuel filter.		Drain water from fuel filter.
Check to make sure generator is not connected to an appliance.		If connected, turn off the power switch of the connected appliance and unplug.
Check engine oil level. (Check if low oil warning lamp is turned on.)		If oil level is low, refill with oil to upper level line of the oil gauge.
Check if battery is connected in reverse polarity.	↔	Correct the connection of battery cables.
Check if battery is discharged.		Charge the battery or replace it with a new one.

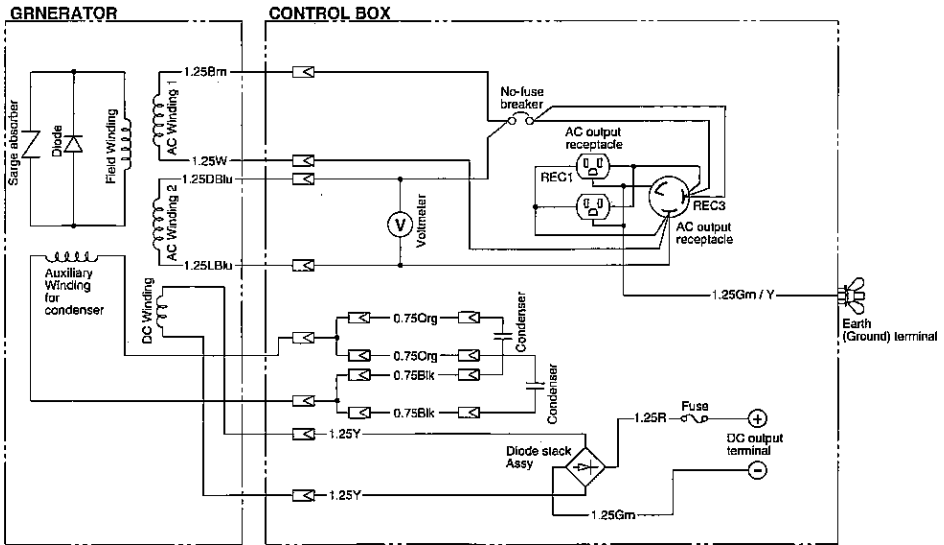
When No Electricity Is Generated at Receptacle :

Check to make sure no-fuse breaker or no-fuse breaker is in the "ON" position.	↔	After making sure that the total wattage of the electrical appliance is within permissible limits and there are no defects in the appliance, turn the AC breaker to the "ON" position. If breakers continue to actuate, consult your nearest servicing dealer.
Check AC plug for loose connection.		Secure connection if necessary.
Check to see if engine starting was attempted with appliances already connected to generator and AC breaker was in the "ON" position.	↔	Turn off switch on the appliance, turn AC breaker "OFF", and disconnect cable from receptacle. Reconnect after generator has been started properly.

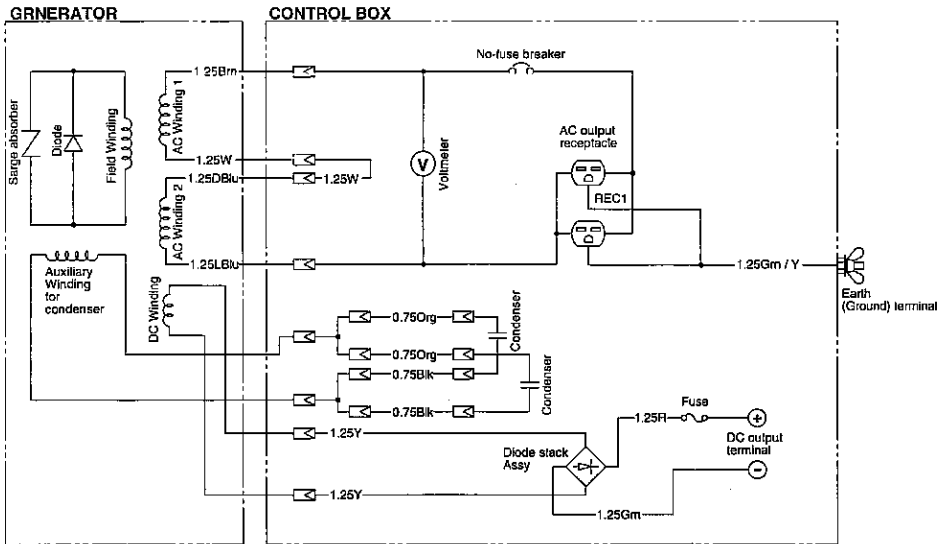
If your generator still fails to start or generate electricity, contact your nearest Robin dealer or service shop for further information or corrective procedures.

11. WIRING DIAGRAM

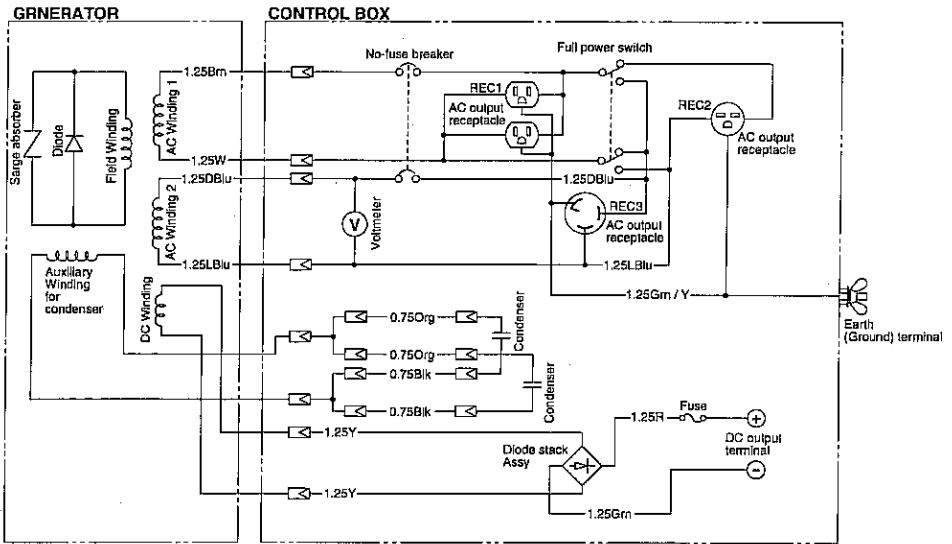
1. RGD2510 (110V, 120V)



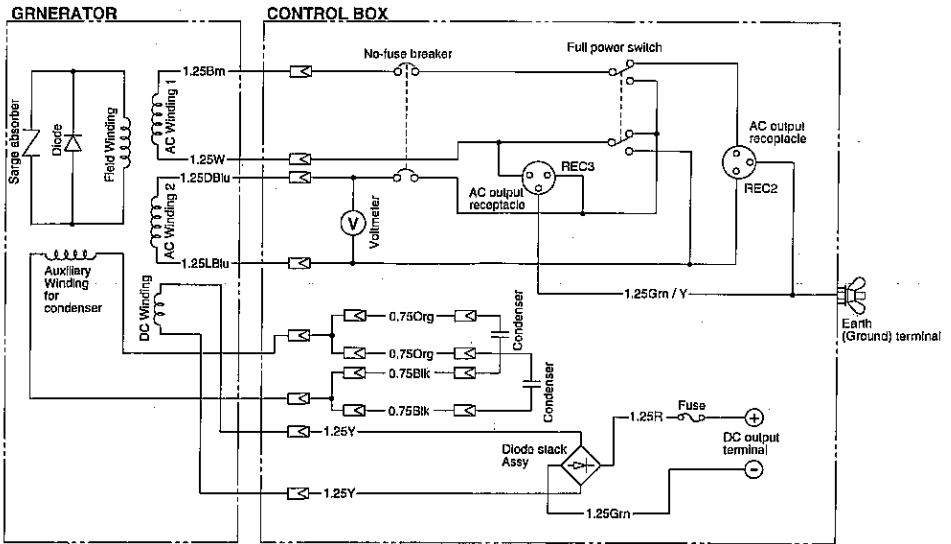
2. RGD2510 (220V, 240V)



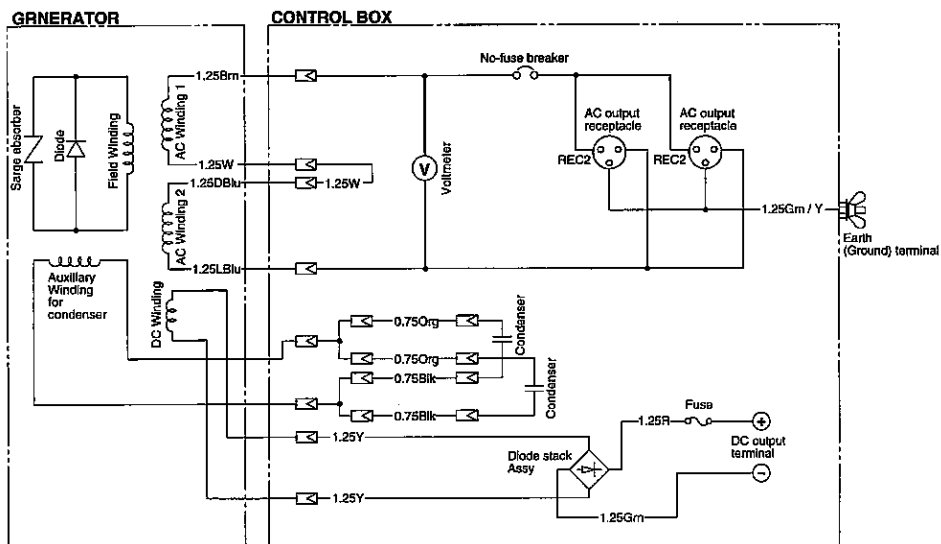
3. RGD2510 (110V/120V)



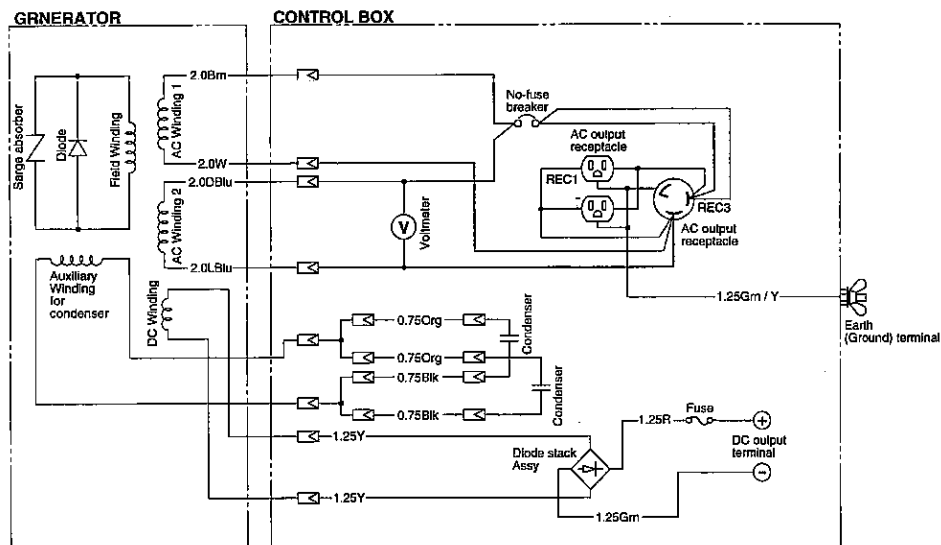
4. RGD2510 (U.K., 50Hz-110V/220V, BS)



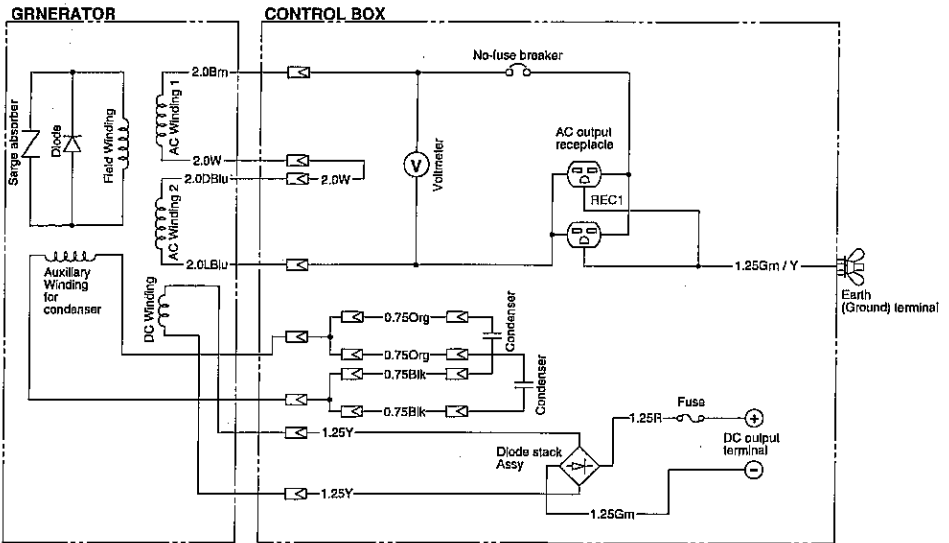
5. RGD2510 (EUROPE)



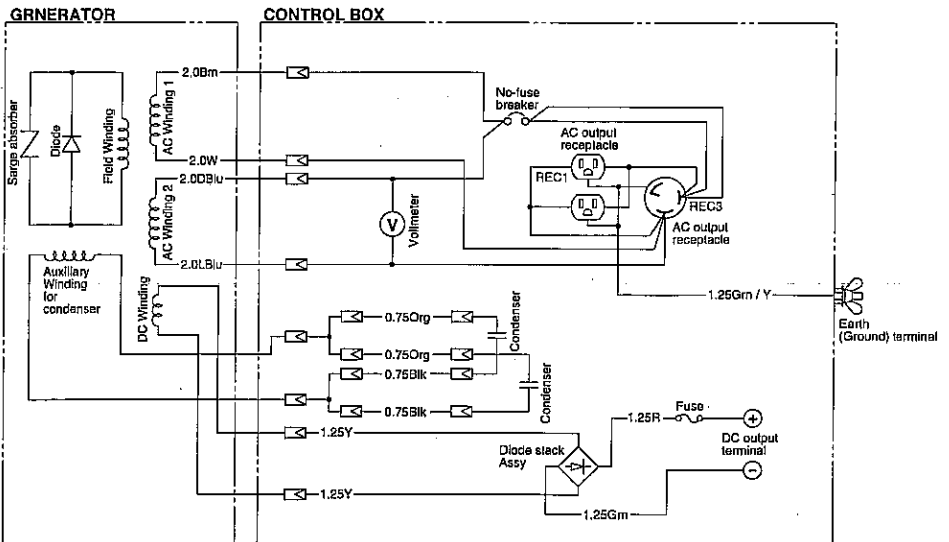
6. RGD3310 (110V, 120V)



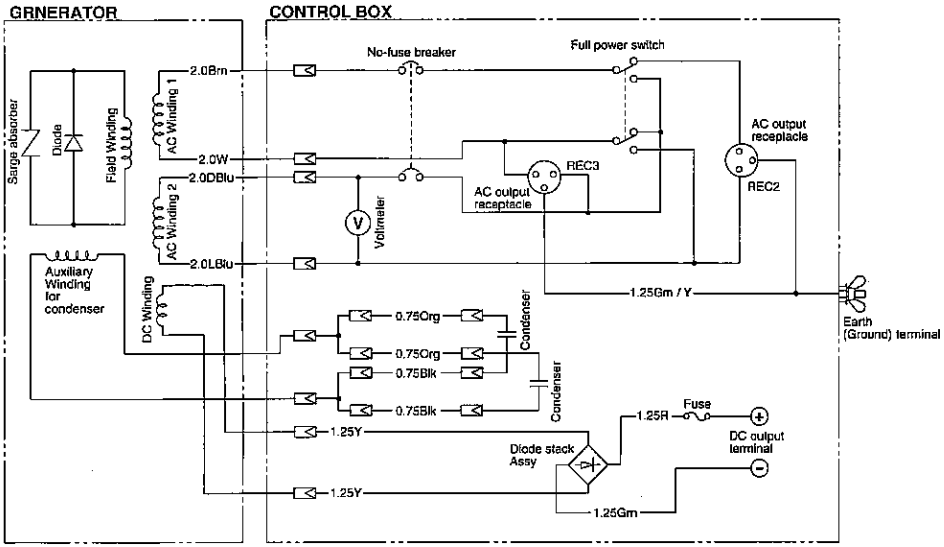
7. RGD3310 (220V, 240V)



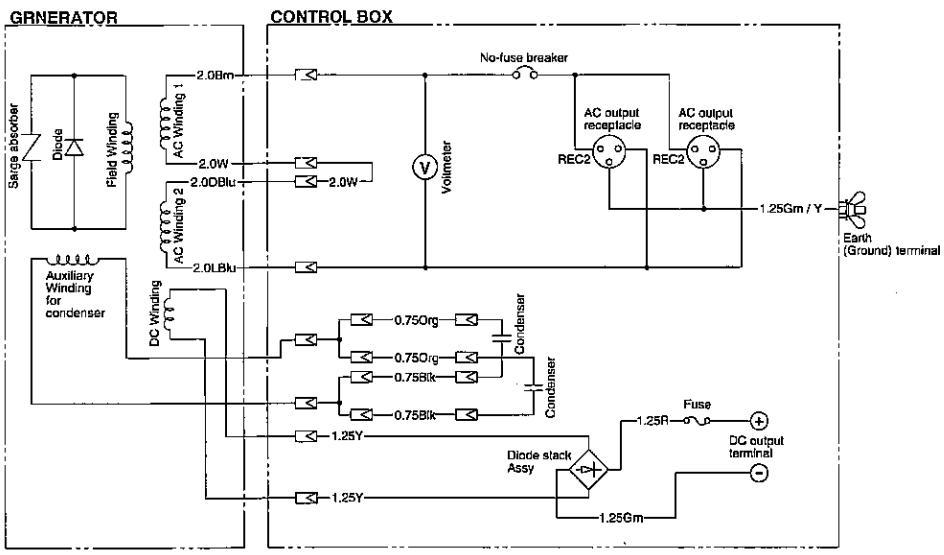
8. RGD3310 (110V/220V)



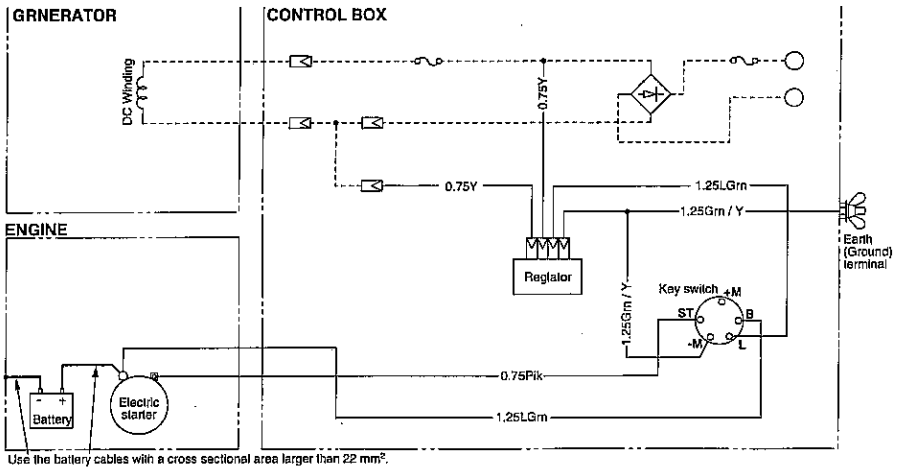
9. RGD3310 (U.K., 50Hz-110V/220V, BS)



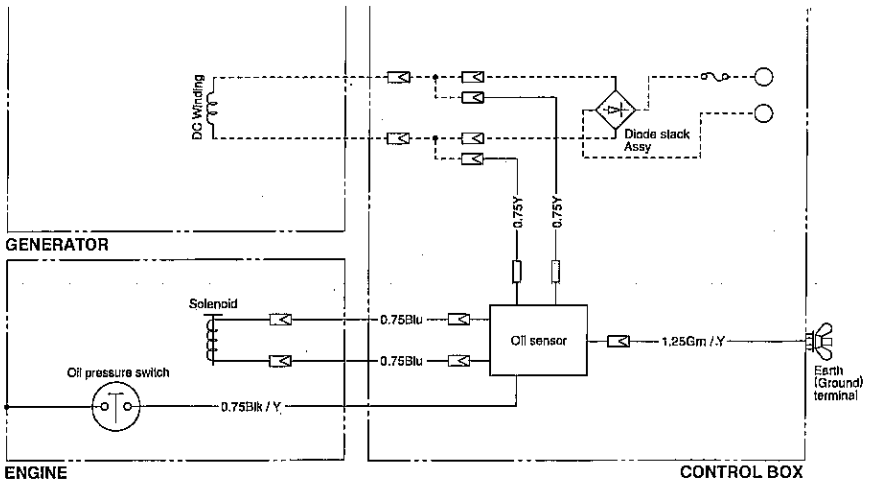
10. RGD3310 (EUROPE)



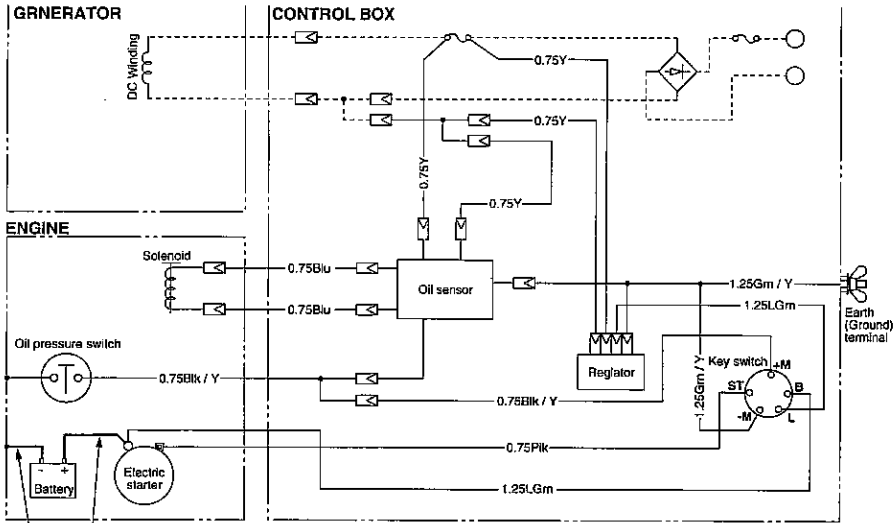
11. ELECTRIC STARTER TYPE (option)



12. TYPE WITH OIL SENSOR (option)



13. ELECTRIC STARTER TYPE WITH OIL SENSOR (option)



Use the battery cables with a cross sectional area larger than 22 mm².

Wiring color cord

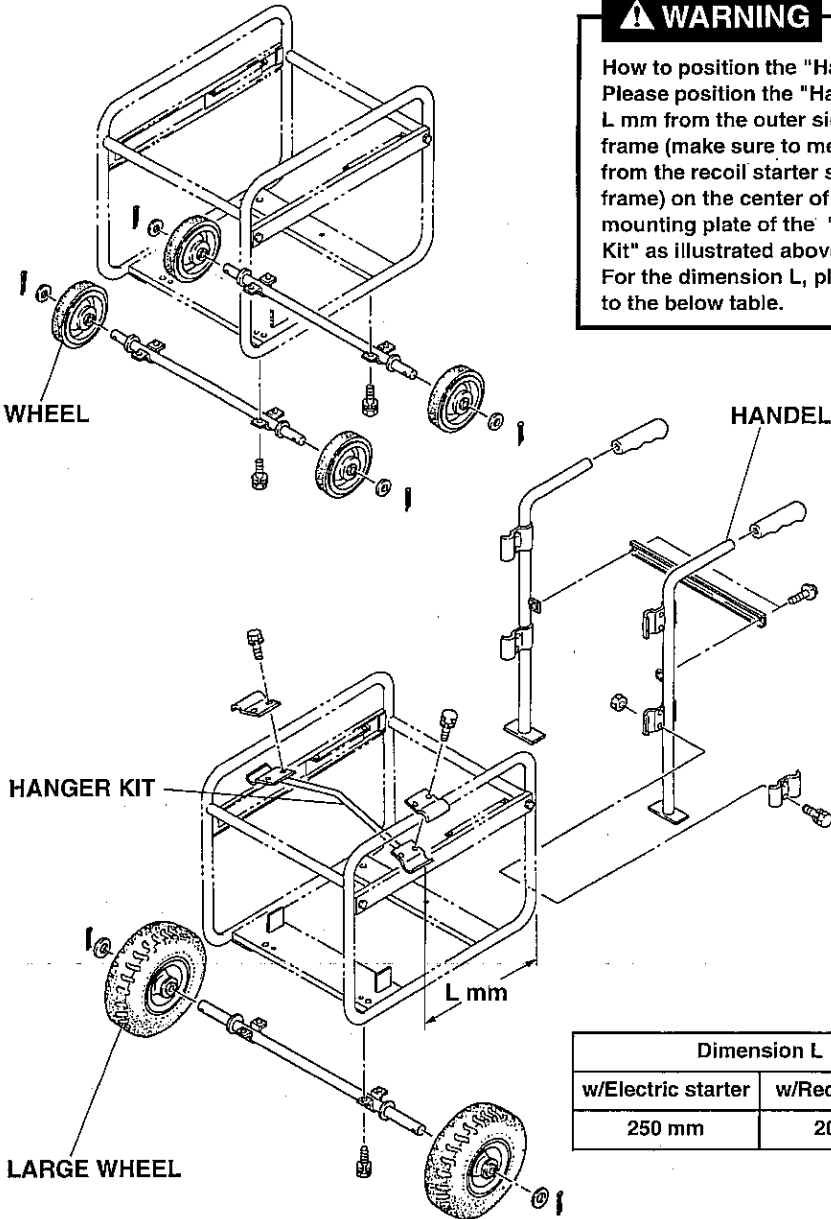
Blk : Black	Brn/W : Brown/White	R : Red
Blk/W : Black/White	Grn : Green	W : White
Blu : Blue	Grn/W : Green/White	Y : Yellow
LBlu : Light blue	Org : Orange	
Brn : Brown	Gry : Gray	

12. OPTIONAL PARTS

HOW TO INSTALL THE WHEEL, HANDLE AND HANGER

⚠ WARNING

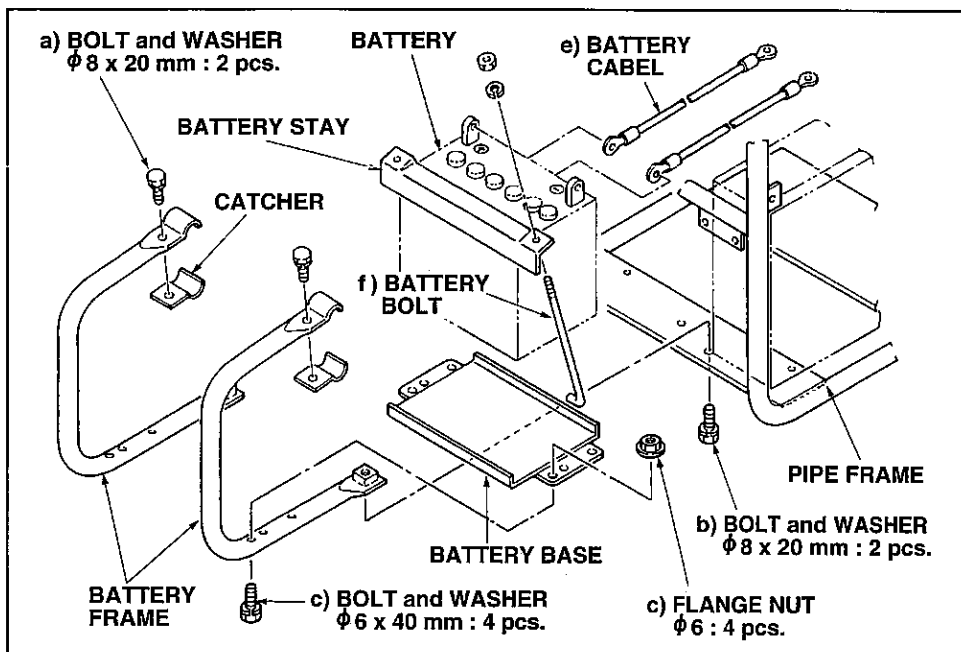
How to position the "Hanger Kit"
 Please position the "Hanger Kit"
 L mm from the outer side of the
 frame (make sure to measure
 from the recoil starter side of the
 frame) on the center of the
 mounting plate of the "Hanger
 Kit" as illustrated above.
 For the dimension L, please refer
 to the below table.

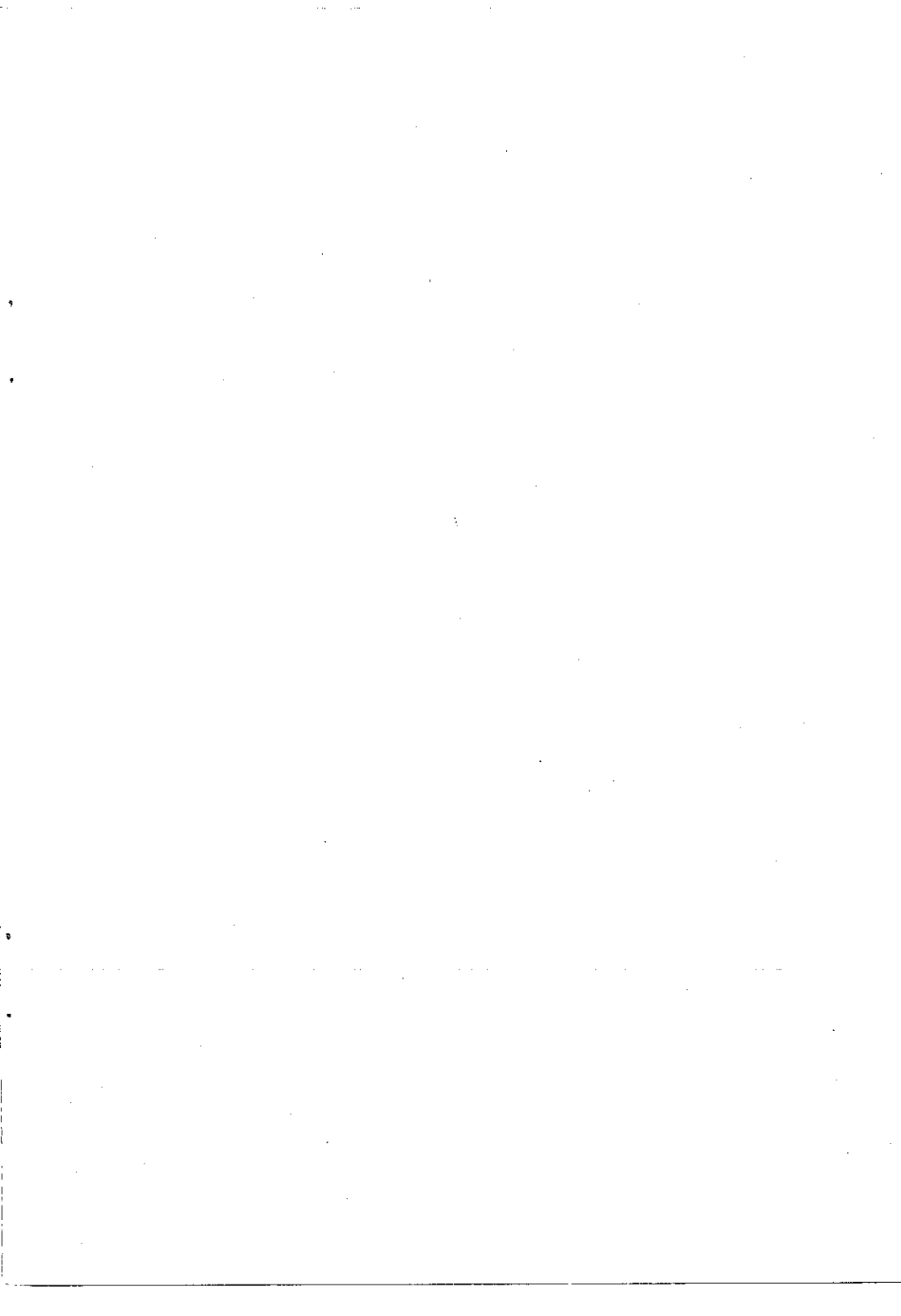


Dimension L	
w/Electric starter	w/Recoil starter
250 mm	200 mm

HOW TO INSTALL THE BATTERY FRAME AND BATTERY (Electric starter type)

- a) To the cross bar of the pipe frame under fuel tank, install the battery frame and fasten with catchers from the lower side, and tighten temporarily with bolts and washers.
Bolt and washer $8 \phi \times 20 \text{ mm}$ 2 pcs.
- b) To the base of the frame on the side of the generator, install the battery frame. From the lower side of the frame tighten the bolt and washer temporarily.
Bolt and washer $8 \phi \times 20 \text{ mm}$ 2 pcs.
- c) Put the battery base on the battery frame so as to fit to its holes, and tighten from the lower part of the battery frame with bolt and washer, and flange nuts from the upper part.
Bolt and washer $6 \phi \times 40 \text{ mm}$ 4 pcs. } Tightening torque :
Flange nut 6ϕ 4 pcs. } 50 to 60 kg-cm
- d) Tighten firmly all the bolts.
Tightening torque: 120 to 140 kg-cm)
- e) Connect the battery cable to the battery.
- f) Fix the battery with battery bolt and battery stay.
Spring washer 6ϕ 2 pcs. } Tightening torque :
Nut 6ϕ 2 pcs. } 50 to 60 kg-cm





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