

*Generating Quality*



*Since 1925*

**POWR-PAK<sup>®</sup>**

*Instruction  
Manual*

**GASOLINE ELECTRIC PLANT**

**AIR-COOLED**

**MODELS**

**1000R, 2000R**

**3000R, 4000R, 5000R**

**3000RE, 4000RE, 5000RE**

**4000RE/E, 5000RE/E**

**WINPOWER**

**GENERATOR DIVISION**

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## I. INTRODUCTION

Thank you for purchasing a WINPOWER POWR-PAK alternator.

This manual covers the operation and maintenance of models 1000R, 2000R, 3000R, 4000R, 5000R, 3000RE, 4000RE, 5000RE, 4000RE/E and 5000RE/E. This manual is based upon the latest product information available at the time of printing.

WINPOWER CORPORATION, INC. reserves the right to make changes at any time without notice and without incurring any obligation.

This manual shall not be reproduced without written permission.

The manual is the only means of obtaining the necessary information for operating and servicing the alternator. It therefore should be considered as a part of the alternator and should remain with the alternator when sold.

### **WARNING!**



Indicates a strong possibility of severe personal injury, loss of life or a serious hazard condition could occur if instructions given in the manual are not followed.

### **CAUTION!**



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

### **NOTE:**

Lists helpful information which should assist you in getting satisfactory performance with your new alternator.

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

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










## II. PRECAUTIONS FOR SAFE USE

### A. To avoid fires:

#### 1. **WARNING!**



Do not store combustible material such as straw, waste paper, scrap wood, etc. Where the alternator is stored.

2. **WARNING!**  
 Do not store dangerous or flammable materials such as lubricants, celluloid, gasoline, explosives, etc. nearby.
3. **WARNING!**  
 Operate the alternator on a level surface. If the alternator is tilted or moved during use, there is the danger of fuel spillage and/or a chance the alternator will over turn.
4. **CAUTION!**  
 During operation maintain a safe distance of at least 3 feet (1 meter) from building or other equipment. When an alternator is located close to a building or nearby other equipment, heat and exhaust from the engine will cause the surrounding temperature to rise. This will reduce the cooling and could cause the engine or alternator to over heat.
5. **CAUTION!**  
 Do not enclose the alternator or cover with a structure for this will cause it to over heat, creating a possible equipment damaging condition.
6. **WARNING!**  
 Always stop the engine when refueling because of the extreme danger from the fuel vapor or spilled fuel being ignited.
7. **CAUTION!**  
 Be careful not to spill fuel when refueling. If fuel is spilled, completely wipe up and let dry before starting the engine.
8. **CAUTION!**  
 Do not overfill the fuel tank.
9. **WARNING!**  
 Never refuel in the presences of a lighted cigarette or an open fire.
10. **WARNING!**  
 Never refuel a hot engine. Always allow the engine to cool before refueling.







B. Exhaust gases:

**WARNING!**




Do not operate the alternator in locations with poor ventilation such as home interiors, warehouses, tunnels, wells, pits, tanks, ship hold, etc. Fatal levels of gaseous fumes can accumulate in poorly ventilated areas and increase the danger of carbon monoxide poisoning. Always pay strict attention to the fire codes, building codes and safety regulations if the alternator is operated inside a building.

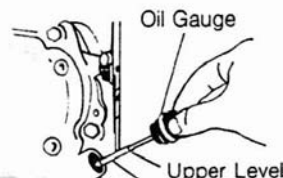
C. Other precautions:

1. **WARNING!**  
 Do not operate the alternator with wet hands. Possibility of severe electrical shock may be experienced. Do not operate in the rain or snow.
2. **CAUTION!**  
 Do not touch the muffler during operation or just after stopping for a serious burn could result. The exhaust system operates at a very high temperature.
3. **CAUTION!**  
 Do not get water on the alternator. If the unit becomes wet allow it to completely dry before operating. Also, a wet spark plug may prevent the engine from starting.
4. **CAUTION!**  
 Do not connect the alternator to the household electrical system without using a U.L. listed double throw disconnect switch. Any such installation should only be made by a licensed electrician in accordance with all city, country, province, state, regional and national electric codes.
5. **CAUTION!**  
 If you should observe an abnormal noise, odor, vibration, etc. when the unit is operating it should be stopped immediately and the reason for the condition be determined. Failure to do so could permanently damage the unit as well as associated equipment. If the cause can not be determined the unit should be taken to the nearest service center for proper diagnosis.
6. **WARNING!**  
 Make sure that the unit is grounded properly and is in accordance with all applicable regulating codes.

### III. PRESTART PROCEDURES:

A. Check the engine oil level

1. **CAUTION!**  
 Remove the oil filler cap, wipe the dip stick clean, re-insert without screwing into place to check if the engine oil level is at the top mark of the dip stick. If the oil level is below the top mark, add a high quality motor oil to raise the level back to the mark. Be sure that the unit is sitting in a level position when checking.



2. **CAUTION!**



Engine oil is a major factor affecting engine performance and service life. Use only recommended types and grades of lubricating oil.

B. Recommended lubricating oil (See engine manual):

1. Supplementary guide if engine manual is misplaced:

Summer	SAE # 20-30
Winter	SAE # 10W-30

2. **CAUTION!**



Use only high quality lubricating oil "AP1" classified "SC" or a higher grade (use only 4 stroke oil, do not use 2 stroke oil).

Using a lower grade oil may cause engine failure and will void engine warranty.

C. Oil capacity:

1000R	: 1-1/4 Pint (0.6 liters)
2000R	: 1-1/4 Pint (0.6 liters)
3000R, 3000RE	: 1-3/4 Pint (0.85 liters)
4000R, 4000RE, 4000RE/E	: 2-1/2 Pint (1.2 liters)
5000R, 5000RE, 5000RE/E	: 2-1/2 Pint (1.2 liters)

D. Oil level sensor:

1. NOTE:

All WINPOWER POWR-PAK models are equipped with an oil level sensor system excluding 1000R. When the oil level runs lower than the specified during operation the oil level sensor system automatically stops the engine to protect it from overheating and prevent damage to the engine.

If this occurs, add oil to the engine such that the level is returned to the top mark on the oil level dip stick. At this time the engine can be restarted. Failure to add oil will prevent the engine from being restarted.

2. **CAUTION!**



Running the engine with insufficient oil can cause serious engine damage.

E. Fueling of the engine:

Use regular gasoline (or unleaded).

NOTE: When refueling the following steps are recommended:

1. **WARNING!**

Always stop the engine.

2. **CAUTION!**

Disconnect and ground the spark plug lead wire.

3. NOTE:

Close the fuel valve at the base of the fuel tank.

4. NOTE:

Check the fuel strainer (never operate without a fuel strainer).

5. **CAUTION!**

Always wipe up all spilled fuel.

6. NOTE:

Replace spark plug lead wire.

7. NOTE:

Open the fuel valve.

F. Set the AC circuit breaker in the "OFF" position:

1. **WARNING!**

Before starting, disconnect all power cords from the AC receptacles on the alternator panel as well as the lead wires to the DC charging terminals (one red and one black).

2. **WARNING!**

The alternator may be hard to start if a load is connected and it is dangerous if electric tools are powered during start up. This could result in personal injury or damage the electric tools, therefore, always turn the main circuit breaker to the "OFF" position before starting the engine.

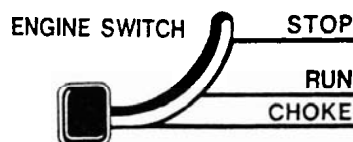
#### IV. STARTING ENGINE:

Model 1000R

A. Check oil and fuel levels.

B. Make sure the appliance is disconnected.

C. Turn engine switch to "CHOKE" position. (When engine is warm or temperature is high, start engine with the switch at "RUN" position.)



- D. Pull the hand grip on the rope until you feel the maximum resistance (If you pull the rope beyond this point the resistance will decrease). Then allow the rope to recoil to its original position and pull it again vigorously.

**CAUTION!**



Do not pull the start rope to it's maximum extended length or release the hand grip and let the rope snap back. The rope should be allowed to rewind slowly back to it's normal position.

**NOTE:**

If the engine fails to start after several attempts, repeat the starting procedures mentioned above with the engine switch placed at "RUN" position.



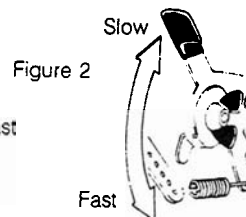
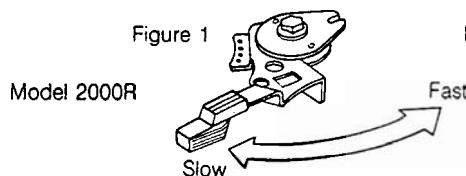
- E. After 20 to 30 seconds of warm-up is completed, turn the engine switch to "RUN" position.



Models 2000R, 3000R, 4000R, 5000R, 3000RE, 4000RE, 5000RE, 4000RE/E, and 5000RE/E


- A. Open the fuel valve. Positioning the fuel valve handle pointing downward (parallel to the fuel line) will allow fuel to flow to the carburetor.

- B. Set the governor throttle lever mid-position between Slow and Fast. See Figures 1 and 2 below.



Models  
3000R, 4000R, 5000R,  
3000RE, 4000RE,  
5000RE, 4000RE/E  
and 5000RE/E

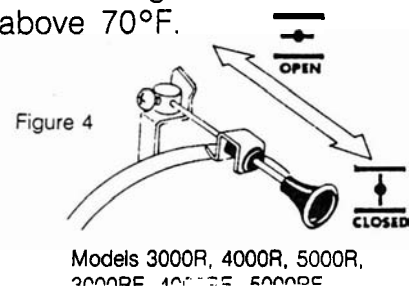
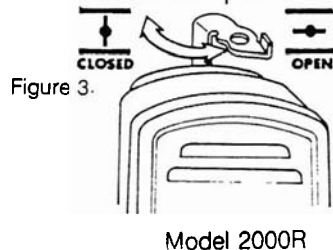
- C. On models 3000RE, 4000RE, 5000RE, 4000RE/E and 5000RE/E equipped with the "ECONOMIZER" speed control should be started with the "ECONOMIZER" switch in the "OFF" position.

- D. Set the choke in the  position. See Figures 3 and 4 below.

1. **CAUTION!**



Do not use the choke when the engine is hot or the ambient temperature is above 70°F.



Models 3000R, 4000R, 5000R,  
3000RE, 4000RE, 5000RE

E. Cranking the engine:


1. Manual start. Models 2000R, 3000R, 4000R, 5000R, 3000RE, 4000RE and 5000RE

- a. Pull the hand grip on the rope until you feel the maximum resistance (If you pull the rope beyond this point the resistance will decrease). Then allow the rope to recoil to its original position and pull it again vigorously:

**CAUTION!**



Do not pull the start rope to its maximum extended length or release the hand grip and let the rope snap back. The rope should be allowed to rewind slowly back to its normal position.

- b. When the engine speed has stabilized gradually move the choke to the  position.
- c. Allow the engine to warm up for 2 to 3 minutes prior to setting the governor throttle to the maximum position.
- d. To use the alternator the engine governor throttle (See Figures 1 and 2) must be placed in the maximum Fast position.

**NOTE:**

When the generator is not being used to supply electrical power the engine should be ran at a reduced speed to extend the engine life. This will also save fuel.

2. Engine start. Models 4000RE/E and 5000RE/E

- a. Place the engine "START" switch key in the "RUN" position. then turn the engine "START" switch key to the "START" (extreme clockwise) position until the engine starts, then release. Never crank for more than 5 second intervals and allow 10 seconds rest cycles between crank cycles.

Never crank the engine more than 5 cycles. If the engine does not start review the status of the fuel supply and oil level. If the status of both are satisfactory then review the engine manual for additional information.



## V. OPERATION

### Model 1000R

#### A. AC application

1. Check the voltmeter for proper voltage.  
The alternator is thoroughly adjusted and tested at the factory. If the alternator does not produce the specified voltage, consult your nearest alternator dealer.
2. Check the electrical appliance to see if its control switch is turned "off", then connect the appliance to the alternator by inserting the plug into the AC receptacle.
3. Then use the appliance by turning its switch "on" or "off" as required.



#### NOTE:

#### AC load limit:

The following table shows the maximum wattage of various appliances which can be connected to the alternator. Before connecting an appliance, make sure the wattage is within the alternator's load capacity.

Electrical appliance	Applicable limit
	60 Hz
Lamp, electrical heater, radio, stereo sets, etc. (Resistive load)	up to 1000W
Electric tools (Inductive load)	up to about 600W

#### CAUTION!



1. When connecting two appliances at once, make sure the total wattage does not exceed capacity. Otherwise the alternator will not operate due to excessive wattage.
2. Some power tools require a large starting current. In these cases, it may not be possible to use the alternator. Refer to page 20, or consult your dealer to obtain the necessary information.
3. When overloaded, the AC circuit breaker pops out to cut off the current. In such a case, make sure that the applied wattage of the appliance has not exceeded the wattage limit and that there are no defects in the appliance. Then push the circuit breaker back into the "ON" position.

NOTE:

Ground terminal

The alternator should be grounded by connecting a ground wire to the generator ground terminal, marked "EARTH", and an approved (U.L) ground rod.

**WARNING!**

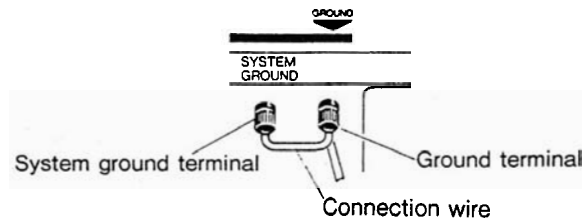


Always comply with the applicable local, state and federal codes.

**CAUTION!**



Alternator body should be grounded when the electrical appliance is grounded.



B. DC application (For charging 12V battery only)

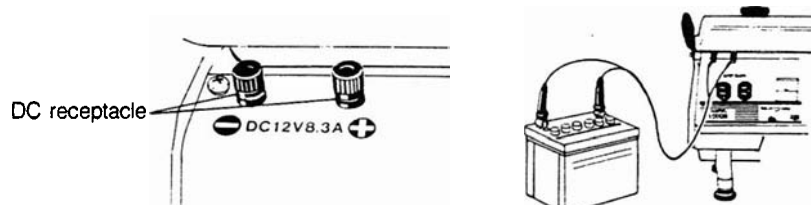
NOTE:

**DC receptacle** should only be used for charging a 12V battery.

NOTE:

Connection of battery charging cables:

Using the correct DC receptacle, connect its positive and negative terminals to the corresponding battery terminals.



NOTE:

Battery charging procedures:

1. Make the proper connection as is mentioned above, be careful not to make a incorrect connection. Be sure to disconnect all cables connected from battery to any other appliance.
2. Remove all of the battery cell caps.
3. Check the electrolyte level and add distilled water if necessary, to bring the electrolyte level to the level marked "UPPER".
4. Start engine to charge battery.

NOTE:

The charging period varies depending on the state of battery discharge. The specific gravity of a battery electrolyte indicates the state of charge in each battery cell. While charging battery, check the specific gravity with a hydrometer, using a thermometer to correct hydrometer reading for temperature. A corrected specific gravity reading of 1.26 to 1.28 in all cells indicates a fully charged battery.

**EXAMPLE:** In case of 12V-40Ah automobile battery, it takes 5 to 6 hours to bring a completely discharged battery up to a state of charge.

**WARNING!**



Charging safety:  
Batteries produce explosive hydrogen gas. This gas is emitted from the vent hole of each battery cap. Safety precautions must be observed to prevent ignition and subsequent explosion of the hydrogen gas caused by open flame or sparks.

5. Do not charge a battery in the vicinity of an open flame or lighted cigarette.
6. Be sure to perform the battery charging operation in a well-ventilated area.

**WARNING!**



Extreme care must be taken as electrolyte fluid will burn eyes, skin and clothing; If injured, use a large quality of water to clean the affected area immediately, then consult a doctor for medical treatment.

**CAUTION!**



When charging a large capacity battery, the DC load may exceed the limit of the DC circuit breaker and cause it to trip.

Wait 30 seconds before resetting the breaker.

Models 2000R, 3000R, 4000R, 5000R, 3000RE, 4000RE, 5000RE, 4000RE/E and 5000RE/E

- A. With the engine running at operating speed (throttle set in the Fast position), close the main AC circuit breaker. The A.C. power light will come "ON".
- B. Check the voltage shown on the voltmeter. The correct nominal values are listed in the table below:

Model No.	Voltmeter Reading	Full Power Switch Position	
		120 V.	120/240 V.
1000R	120	N.A.	N.A.
2000R	120	N.A.	N.A.
3000R	120	X	
3000RE	240		X#
4000R	120	X	
4000RE	240		X#
4000RE/E	240		X#
5000R	120	X	
5000RE	240		X#
5000RE/E	240		X#

# AC power light sometimes comes "ON" when a plug is connected to the 240V receptacle and when main circuit breaker is in the "OFF" position when the full power switch is in the 120 Volt position. This is due to the alternator having an isolated neutral, but will not damage the equipment or does not indicate a problem.

- C. Return the main circuit breaker to the "OFF" position.

**CAUTION!**



Insert plugs of electrical tools into mating receptacles of the alternator control panel. When the load is a combination of 120 and 240 volt extreme care should be taken to properly balance (equal amount) the 120 volt load on each leg on the alternator.

Do not exceed the alternator or receptacle ratings. When the total power switch is in the "120 V." position the largest load should always be connected to alternator thru the locking type of receptacle.

**WARNING!**



Never insert or remove plugs while the main circuit breaker is in the "ON" position. To do so can damage the receptacles, plugs or electrical equipment.

- D. To apply load to the alternator put the main circuit breaker in the "ON" position. Then switch on the connected electric loads.

## VI. STOPPING THE UNIT

### Model 1000R

- A. Turn off electrical appliance control switch and disconnect cable from receptacle.  
B. Turn engine switch to "STOP" position.



### Models 2000R, 3000R, 4000R, 5000R, 3000RE, 4000RE, 5000RE, 4000RE/E and 5000RE/E

- A. **CAUTION!**



Always place the switches of electric tools in the "OFF" position and move the alternator main circuit breaker to the "OFF" position when preparing to stop the engine.

- B. Move the engine governor throttle lever to the Slow position. Allow the engine to run at idle speed for 2 to 3 minutes to properly cool out the engine.

1. **CAUTION!**



Failure to put the circuit breaker in the "OFF" position prior to reducing the engine speed will damage the alternator and possible all connected electrical equipment.

- C. To stop the engine move the toggle lever of the engine switch to the "OFF" position and hold until the engine stops completely.

- D. Close (place lever perpendicular to the fuel line) the fuel valve at the base of the fuel tank.
- E. Pull recoil starter rope until engine reaches maximum turning resistance and then allow starter rope to recoil. This insures that the engine valves are both in the closed position and prevents cold outside air from entering the engine which can warp the valves.
- F. Disconnect all electric load plugs from the alternator panel.

NOTE: If the alternator is not to be used for an extended period, the engine should be stopped by closing the fuel valve and allowing the engine to consume the entire supply fuel from the carburetor bowl. This will prevent evaporation of the gasoline from the carburetor which will leave a residue of gum and varnish which can cause carburetor problems.

## VII. SPECIAL FEATURES

### A. ECON-O-MIZER Models

The following models 3000RE, 4000RE, 5000RE, 4000RE/E and 5000RE/E are equipped with an automatic idling system. This system can be used by placing the ECON-O-MIZER switch in the "ON" position. When in operation the engine speed is reduced whenever there is not an electrical load connected to the alternator. This results in reduced fuel consumption and noise level with the additional benefit of better fuel economy. Whenever there is a load sensed by the ECON-O-MIZER module the engine speed is automatically increased to the standard governor speed. When the ECON-O-MIZER switch is in the "OFF" position the engine runs at full governed speed. It is sometimes desirable to leave the ECON-O-MIZER "OFF" when large hard starting motors are frequently cycled "OFF" and "ON" to insure that the motors start quickly.

#### 1. **CAUTION!**



When the engine is first started or in cold ambient temperatures it will be necessary to warm the engine up for a minimum of 5 minutes to insure that engine can develop adequate horsepower to cycle up from a reduced speed to full governed speed.

2. **CAUTION!**



Operating the engine at excessive speed such that high voltage is seen across the ECON-O-MIZER solenoid coil can result in the coil overheating and burning out. Likewise, operating the engine at excessive low speed will result in unstable engine speed and poor ECON-O-MIZER performance. Please consult your dealer, distributor, service center or the factory service department prior to making any field adjustments.

3. NOTE

The ECON-O-MIZER will not operate with a shorted solenoid coil.

B. D.C. 12 volt terminals

All models are equipped with a 12 volt, 8.3 ampere output (unregulated) for charging 12 volt automotive type batteries only.

**WARNING!**



Automotive lead acid batteries produce explosive hydrogen and oxygen gases when being charged. Do not charge when sparks, flames or cigarettes are present. To prevent the possibility of creating a spark near the battery, connect the charging cables first to the battery then to the alternator. When charging is complete remove cables first from the alternator and then from the battery.

2. **CAUTION!**



Do not attempt to start an automobile engine while charging the battery for this may damage the WINPOWER alternator.

3. **WARNING!**



Always connect the positive (red) cable to the positive battery post and to the positive terminal on the alternator control panel.

Likewise, negative to negative connection is required. Do not reverse the polarity of the cables and battery posts for serious damage can occur to the WINPOWER alternator and /or the battery.



4. **CAUTION!**



The DC terminals can not be used while the AC power is in use. To do so will result in excessively high DC voltage output with frequent tripping of the DC circuit breaker. This will require a waiting cool down interval of several minutes.

C. Electric start models

The WINPOWER POWER-PAK models equipped with electric starting and charging systems are 4000RE/E and 5000RE/E.

1. **CAUTION!**  Do not attempt to start, or start, these models without a 12 volt DC battery installed at all times.
2. The recommended battery is BCI group U-1.
3. The battery should be connected positive battery post to the positive cable with the red marked terminal lug and the negative battery post to the negative cable with the black terminal lug.
4. **CAUTION!**  The battery electrolyte level should be checked daily. The battery should be removed and serviced monthly when the alternator is not being used.

## VIII. ROUTINE AND PERIODIC MAINTENANCE

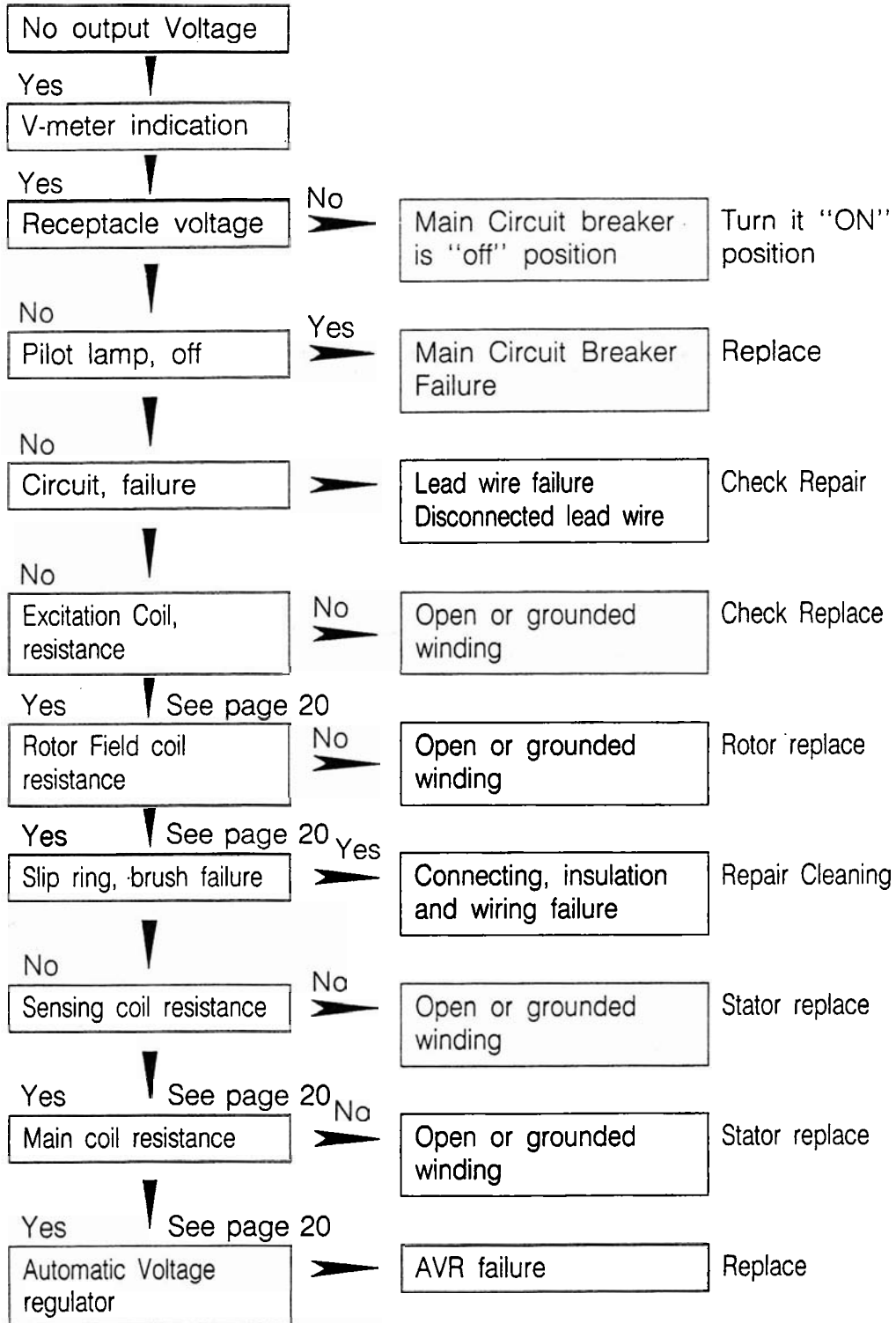
### A. Routine maintenance

Before start up perform the following routine maintenance:

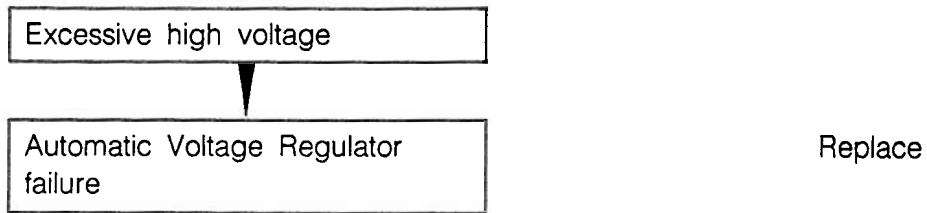
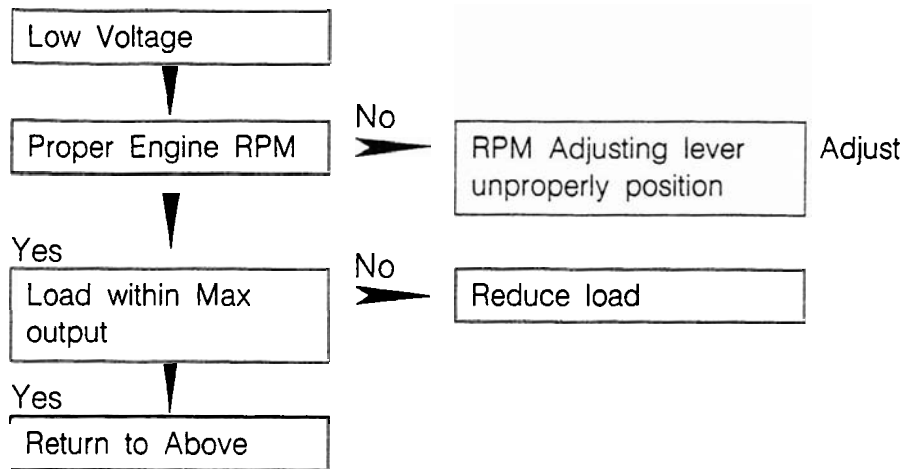
1. Check fuel supply
2. Check engine oil level - if not at full mark add as required or if at service interval start up engine to warm oil, drain and replace.
3. Check air cleaner, service if required.
4. Inspect for loose bolts and screws. Retighten all loose items. Replace all missing or broken items.
5. Inspect for fuel and lubricant leaks. Service as required to stop leakage.
6. Start up unit and check for abnormal noise and vibrations. Correct any abnormal condition.
7. Inspect exhaust system.

## IX. TROUBLE SHOOTING

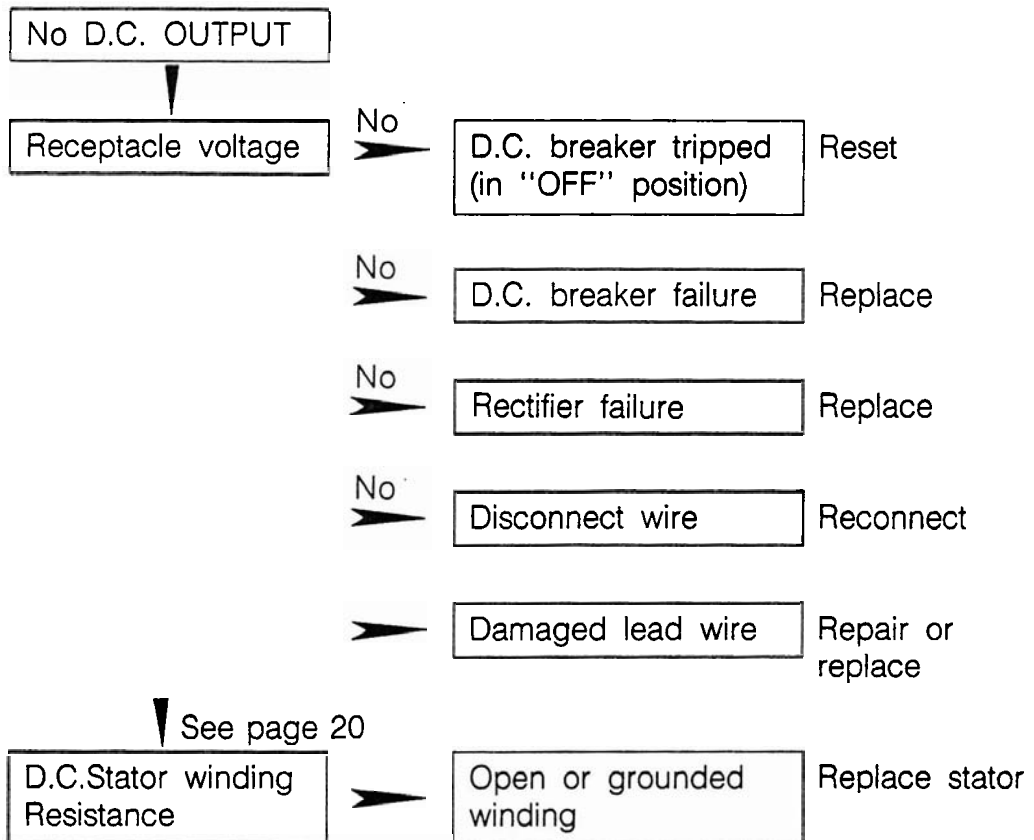
### A. A.C. OUTPUT TROUBLE SHOOTING







B. D.C. OUTPUT TROUBLE SHOOTING.



B. Periodic maintenance

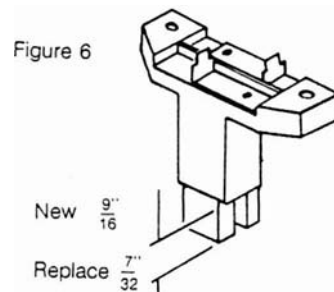
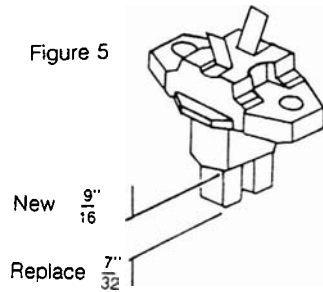
Maintenance is one of the most important factors in keeping equipment in good operating condition. Perform servicing in accordance with maintenance schedule shown in chart below:

Operating hours Items	Every 8 hours (daily)	Every 50 hours (weekly)	Every 200 hours (monthly)	Every 500 hours	Every 1000 hours
Clean & re-tighten any loose parts	○				
Check & add lubricating oil	○				
Change oil	After 20 hours (new engine)	○			
Clean spark plug		○			
Clean air cleaner		○			
Clean fuel strainer			○		
Clean spark plug gap and gap points			○		
Remove carbon from cylinder head				○	
Clean carburetor				○	
Inspect and grind intake & exhaust valve seats as necessary				○	
Overhaul				○	
Replace brushes on alternator				Check	○

\* Replace fuel line every 2 years or sooner if a leak develops.

### C. Brush maintenance

Replace alternator brushes whenever the brush length becomes less than 7/32 inch long. See Figures 5 and 6 below:



### D. Engine maintenance

Perform engine maintenance in accordance with enclosed Owner's Engine Manual.

### E. Coil resistance list (Ohms)

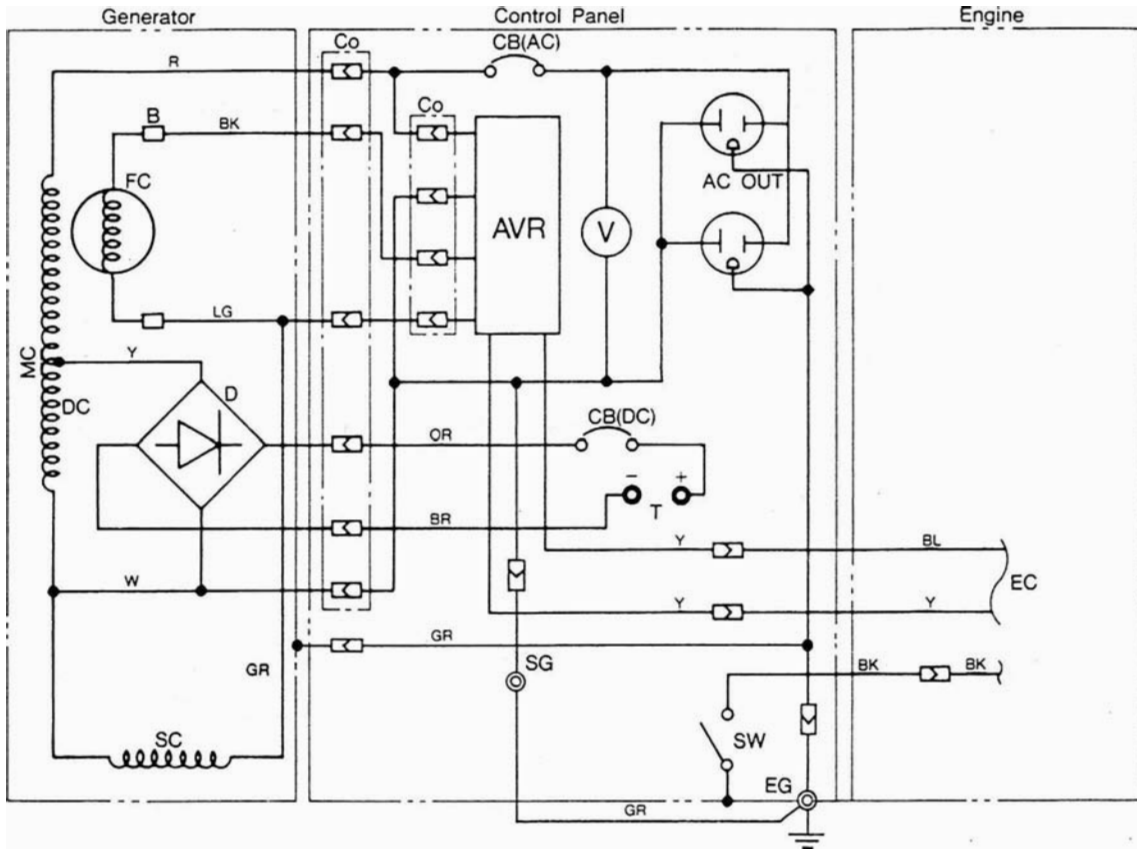
Model	Engine	Stator Core	Engine Excitation Coil	Rotor	Stator coil (60 Hz)			(D.C. Coil)
					(White-sensing green)	(Red-Main Coil white)	(Black-Main Coil yellow)	
1000R	EY15D	5.47 Dia. 2.75 lg.	blue-yellow ±20% 2.4	10.7	3.60	0.60	/	white-yellow 0.31
2000R	EY20D	6.97 Dia. 2.75 lg.	blue-yellow ±20% 2.4	9.1	2.54	0.39	/	blue-blue 0.35
3000R 3000RE	EY25-2D	8.03 Dia. 2.36 lg.	blue-skyblue ±10% 0.32	11.1	2.54	0.68	0.68	blue-blue 0.23
4000R 4000RE 4000RE/E	EY35D	8.03 Dia. 3.15 lg.	brown-brown ±20% 0.64	7.6	1.80	0.35	0.35	blue-blue 0.15
5000R 5000RE 5000RE/E	EY40D	8.03 Dia. 3.94 lg.	brown-brown ±20% 0.64	6.9	1.21	0.27	0.27	blue-blue 0.14

(measured at 20°C room temperature)

*ECONO SOLENOID  
= 250 ohms approx.*

# X. WIRING DIAGRAM

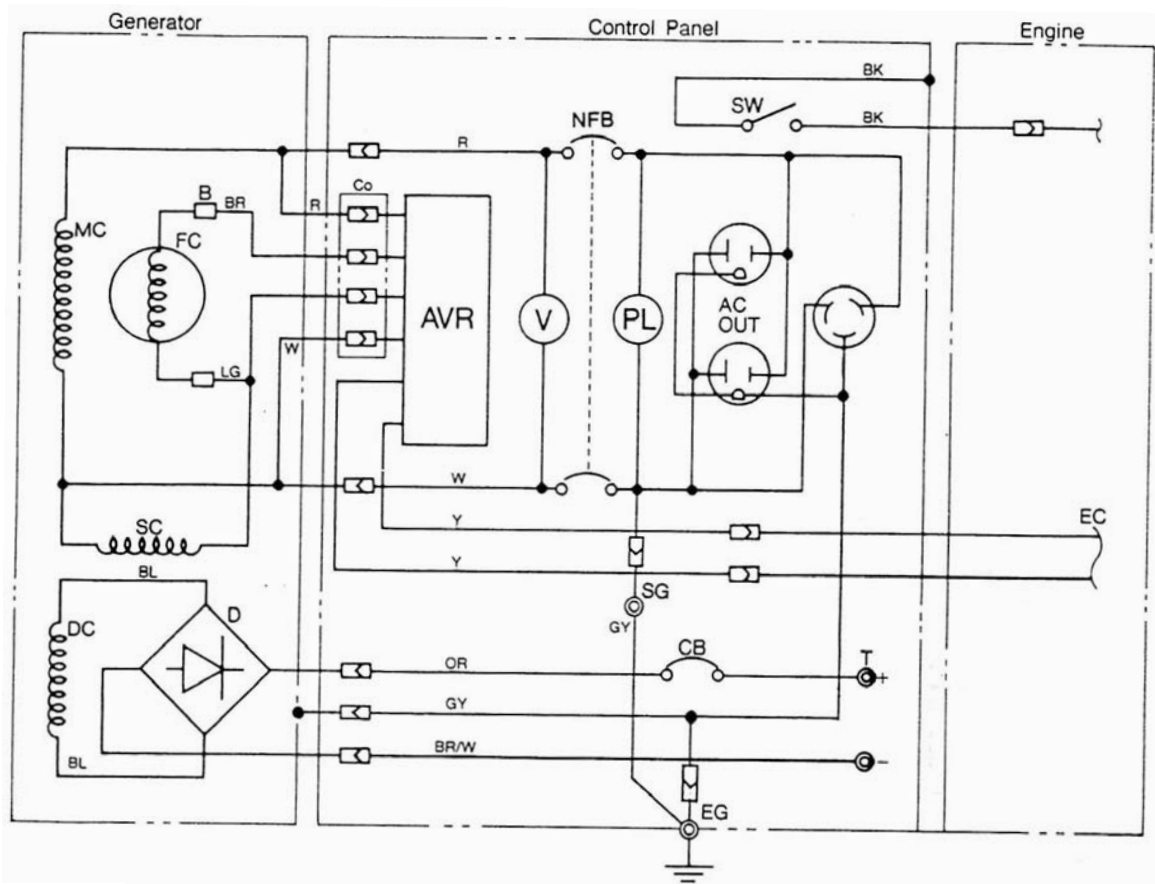
## Model 1000R



WIRE COLOR LEGEND	
Y	Yellow
W	White
R	Red
OR	Orange
GR	Green
LG	Light Green
BR	Brown
BL	Blue
BK	Black

PARTS NAMES			
MC	Main Coil	Co	Coupler
FC	Field Coil	CB (AC)	AC Circuit Breaker
SC	Sub Coil	AC OUT	AC Receptacle
DC	DC Coil	SW	Stop Switch
B	Brush	CB (DC)	DC Circuit Breaker
D	Diode Stack Assy (Rectifier)	T	DC Terminal
AVR	Automatic Voltage Regulator	EC	Exciting Coil
V	Voltmeter	SG	System Ground Terminal
		EG	Equipment Ground Terminal

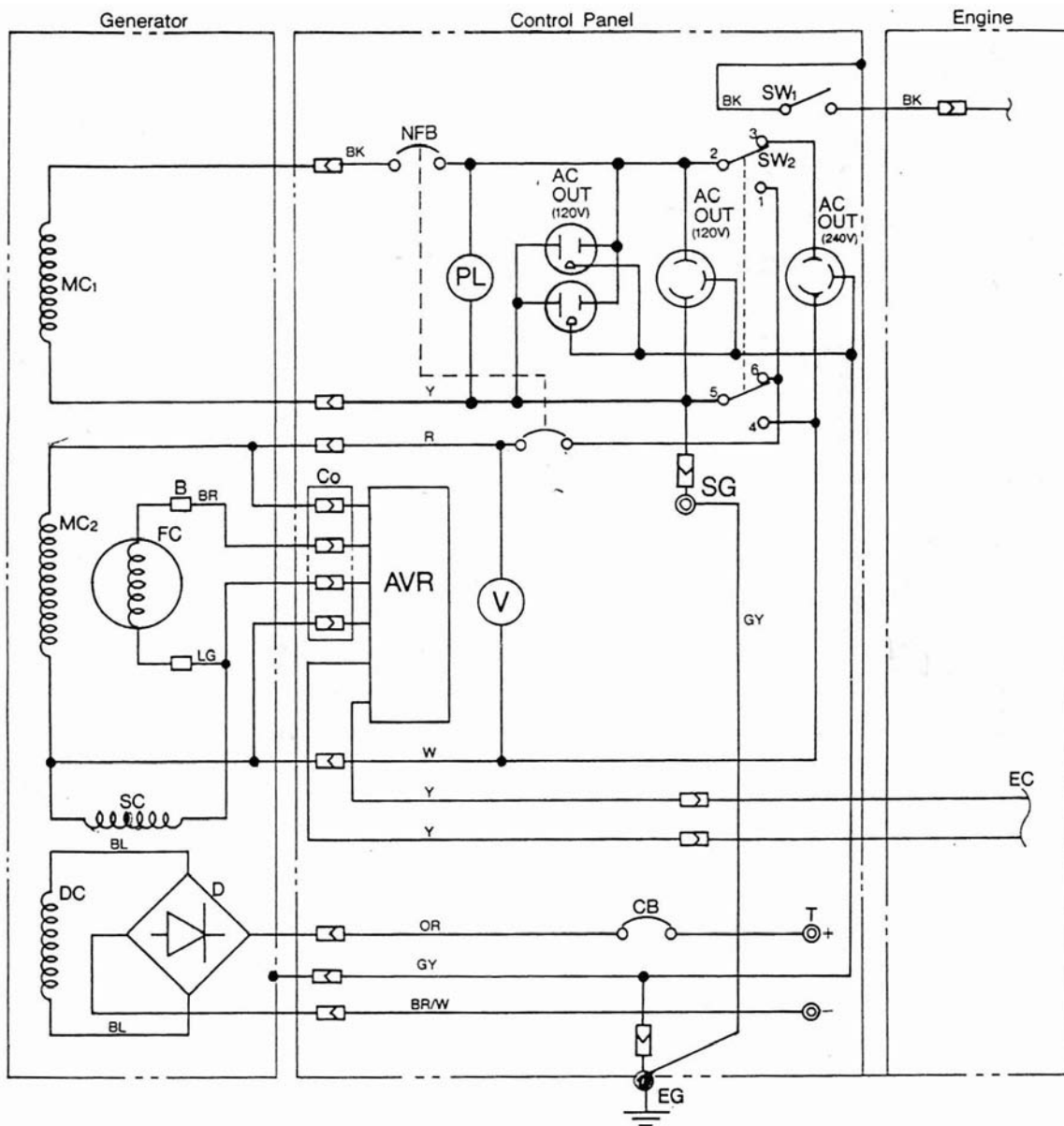
## Model 2000R



WIRE COLOR LEGEND	
Y	Yellow
W	White
R	Red
OR	Orange
GY	Gray
LG	Light Green
BR	Brown
BL	Blue
BK	Black
BR/W	Brown/White

PARTS NAMES			
MC	Main Coil	NFB	No Fuse Braker
FC	Field Coil	PL	Pilot Lamp
SC	Sub Coil	AC OUT	AC Receptacle
DC	DC Coil	SW	Stop Switch
B	Brush	CB	DC Circuit Breaker
D	Diode Stack Assy (Rectifier)	T	DC Terminal
AVR	Automatic Voltage Regulator	EC	Exciting Coil
V	Voltmeter	SG	System Ground Terminal
Co	Coupler	EG	Equipment Ground Terminal

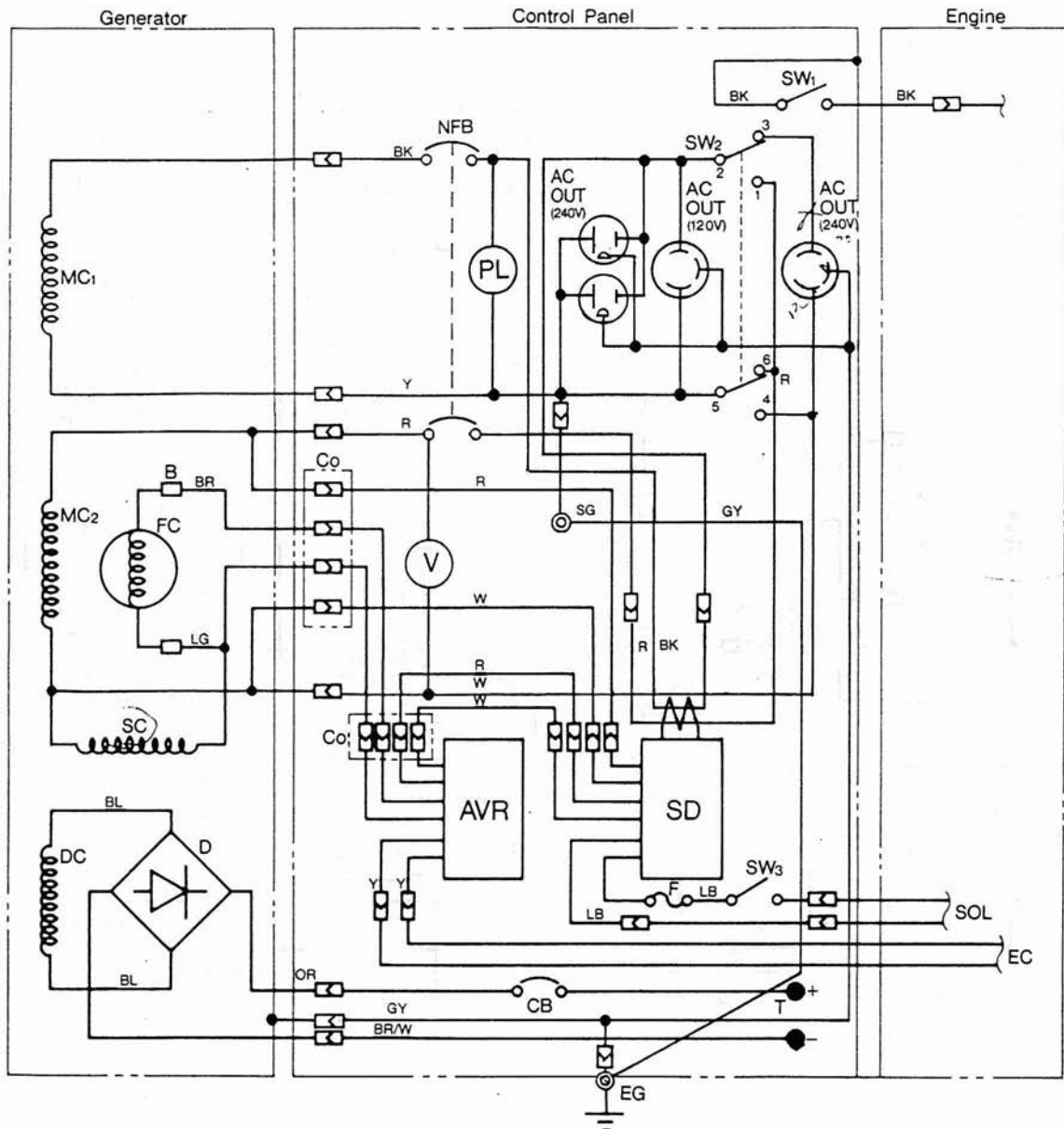
## Models 3000R 4000R 5000R



WIRE COLOR LEGEND	
Y	Yellow
W	White
R	Red
OR	Orange
GY	Gray
LG	Light Green
BR	Brown
BL	Blue
BK	Black
BR/W	Brown/White

PARTS NAMES			
MC <sub>1,2</sub>	Main Coil 1,2	NFB	No Fuse Braker
FC	Field Coil	PL	Pilot Lamp
SC	Sub Coil	AC OUT	AC Receptacle
DC	DC Coil	SW <sub>1</sub>	Stop Switch
B	Brush	SW <sub>2</sub>	Full Power Switch
D	Diode Stack Assy (Rectifier)	CB	DC Circuit Breaker
AVR	Automatic Voltage Regulator	T	DC Terminal
V	Voltmeter	EC	Exciting Coil
Co	Coupler	SG	System Ground Terminal
		EG	Equipment Ground Terminal

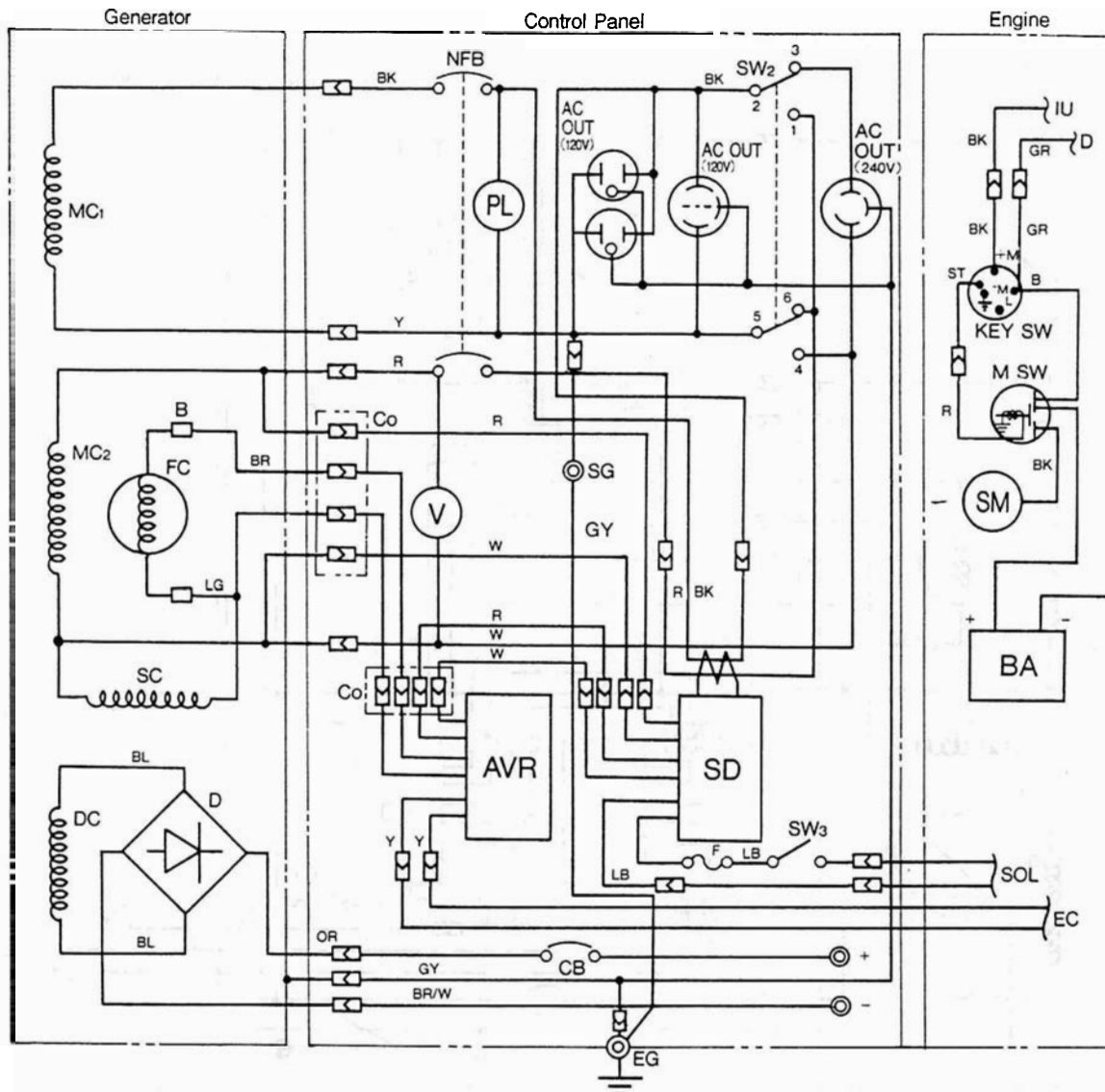
## Models 3000RE 4000RE 5000RE



WIRE COLOR LEGEND	
Y	Yellow
W	White
R	Red
OR	Orange
GY	Gray
LG	Light Green
BR	Brown
BL	Blue
BK	Black
LB	Light Blue
BR/W	Brown/White

PARTS NAMES			
MC 1,2	Main Coil 1,2	AC OUT	AC Receptacle
FC	Field Coil	SW <sub>1</sub>	Stop Switch
SC	Sub Coil	SW <sub>2</sub>	Full Power Switch
DC	DC Coil	SW <sub>3</sub>	Idle Control Switch (Economizer®)
B	Brush	CB	DC Circuit Breaker
D	Diode Stack Assy (Rectifier)	T	DC Terminal
AVR	Automatic Voltage Regulator	SD	Idle Control Unit (Economizer® Unit)
V	Voltmeter	F	Fuse
Co	Coupler	SOL	Solenoid
NFB	No Fuse Braker	EC	Exciting Coil
PL	Pilot Lamp	SG	System Ground Terminal
		EG	Equipment Ground Terminal

## Models 4000RE/E 5000RE/E



WIRE COLOR LEGEND	
Y	Yellow
W	White
R	Red
OR	Orange
GY	Gray
LG	Light Green
BR	Brown
BL	Blue
BK	Black
LB	Light Blue
BR/W	Brown/White
GR	Green

PARTS NAMES			
MC <sub>1,2</sub>	Main Coil 1,2	SW <sub>3</sub>	Idle Control Switch (Economizer®)
FC	Field Coil	CB	DC Circuit Breaker
SC	Sub Coil	T	DC Terminal
DC	DC Coil	SD	Idle Control Unit (Economizer® Unit)
B	Brush	F	Fuse
D	Diode Stack Assy (Rectifier)	IU	Ignition Unit
AVR	Automatic Voltage Regulator	KEY SW	Key Switch
V	Voltmeter	M SW	Magnet Switch
Co	Coupler	SM	Starting Motor
NFB	No Fuse Braker	BA	Battery
PL	Pilot Lamp	SOL	Solenoid
AC OUT	AC Receptacle	EC	Exciting Coil
SW <sub>2</sub>	Full Power Switch	SG	System Ground Terminal
		EG	Equipment Ground Terminal



## XI. SPECIFICATION

Model	1000R
<b>Engine</b>	
Type	Robin EY15D
Rated output	2.7/3.600 ps/r.p.m.
Displacement	8.73 IN <sup>3</sup> (143 cc)
Fuel	Gasoline, regular or unleaded
Fuel tank capacity	0.9 Gallon
Engine oil	SAE #20-30 (In cold weather 10W-30)
Engine oil capacity	1 1/4 Pint
Starting system	Recoil
<b>Generator</b>	
Rated output	1,000 W
Maximum output	1,200 W
Rated frequency	60 Hz
Rated voltage	120 V
Rated current	8.3 A
Phase	Single (Neutral grounded)
Rated usage	Continuous
Power factor	1.0
Excitation	Self excitation
Dielectric voltage	AC 1,500 V/min
Voltage regulating system	Automatic Voltage Regulator
Voltage regulation	5 %
Output terminal	Receptacle (NEMA STD)
Circuit protection	Breaker
DC output	DC 12V 8.3A for charging battery
<b>Dimensions</b>	
Length	19
Width	11 3/8
Height	16
Dry weight	61 lb

## SPECIFICATION

Model	2000R
<b>Engine</b>	
Type	Robin EY20D
Rated output	3.5/3,600 ps/r.p.m.
Displacement	11.2 IN <sup>3</sup> (183 cc)
Fuel	Gasoline, regular or unleaded
Fuel tank capacity	2.6 Gallon (Tank attached on frame)
Engine oil	SAE #20-30 (In cold weather 10W-30)
Engine oil capacity	1 1/4 Pint.
Starting system	Recoil
Special equipment	Oil level sensor
<b>Generator</b>	
Rated output	1,900W
Maximum output	2,100W
Rated frequency	60Hz
Rated voltage	120V
Rated current	15.8A
Phase	Single (Neutral grounded)
Rated usage	Continuous
Power factor	1.0
Excitation	Self excitation
Dielectric voltage	AC 1,500V/min.
Voltage regulating system	Automatic Voltage Regulator
Voltage regulation	3%
Output terminal	Receptacle(NEMA STD)
Circuit protection	Breaker
DC output	DC 12V 8.3A for charging battery
<b>Dimensions</b>	
Length	21
Width	14 7/8
Height	19
Dry weight	91 lb

## SPECIFICATION

Model	4000R, 4000RE, 4000RE/E
<b>Engine</b>	
Type	Robin EY35D
Rated output	7.0/3,600 ps/r.p.m.
Displacement	20.4 IN <sup>3</sup> (334 cc)
Fuel	Gasoline, regular or unleaded
Fuel tank capacity	4.0 Gallon
Engine oil	SAE #20-30 (in cold weather 10W-30)
Engine oil capacity	2 1/2 Pint
Starting system	Recoil, Electric with 4000RE/E
Special equipment	Oil level sensor
<b>Generator</b>	
Rated output	3,800w
Maximum output	4,100W
Rated frequency	60Hz
Rated voltage	120V/240V
Rated current	31.7A/15.8A
Phase	Single, with full power switch (Neutral grounded)
Rated usage	Continuous
Power factor	1.0
Excitation	Self excitation
Dielectric voltage	AC 1,500V/min.
Voltage regulating system	Automatic Voltage Regulator
Voltage regulation	3% (10% when F.P.S. in 120/240V position)
Output terminal	Receptacle (NEMA STD)
Circuit protection	Breaker
DC output	DC 12V 8.3A for charging battery
<b>Dimensions</b>	
Length	27
Width	18 3/8
Height	23 5/8
Dry weight	164 lb (4000 RE/E: 171 lb)

## SPECIFICATION

Model	3000R 3000RE
<b>Engine</b>	
Type	Robin EY25-2D
Rated output	5.0/3,600 ps/r.p.m.
Displacement	15.4 IN <sup>3</sup> (252 cc)
Fuel	Gasoline, regular or unleaded
Fuel tank capacity	4.0 Gallon
Engine oil	SAE #20-30 (In cold weather 10W-30)
Engine oil capacity	1 3/4 Pint
Starting system	Recoil
Special equipment	Oil level sensor
<b>Generator</b>	
Rated output	2,700W
Maximum output	2,900W
Rated frequency	60Hz
Rated voltage	120V/240V
Rated current	22.5A/11.3A
Phase	Single, with full power switch (Neutral grounded)
Rated usage	Continuous
Power factor	1.0
Excitation	Self excitation
Dielectric voltage	AC 1500V/min.
Voltage regulating system	Automatic Voltage Regulator
Voltage regulation	3% (10% when F.P.S in 120/240V position)
Output terminal	Receptacle (NEMA STD)
Circuit protection	Breaker
DC output	DC 12V 8.3A for charging battery
<b>Dimensions</b>	
Length	23 5/8
Width	17 7/8
Height	20 3/16
Dry weight	122 lb

## SPECIFICATION

Model	5000R, 5000RE, 5000RE/E
<b>Engine</b>	
Type	Robin EY40D
Rated output	8.0/3,600 ps/r.p.m.
Displacement	23.7 IN <sup>3</sup> (388 cc)
Fuel	Gasoline, regular or unleaded
Fuel tank capacity	4.0 Gallon
Engine oil	SAE #20-30 (in cold weather 10W-30)
Engine oil capacity	2 1/2 Pint
Starting system	Recoil, Electric with 5000 RE/E
Special equipment	Oil level sensor
<b>Generator</b>	
Rated output	4,700W
Maximum output	5,100W
Rated frequency	60Hz
Rated voltage	120V/240V
Rated current	39.2A/19.6A
Phase	Single, with full power switch (Neutral grounded)
Rated usage	Continuous
Power factor	1.0
Excitation	Self excitation
Dielectric voltage	AC 1,500V/min.
Voltage regulating system	Automatic Voltage Regulator
Voltage regulation	3% (10% when F.P.S in 120/240V position)
Output terminal	Receptacle (NEMA STD)
Circuit protection	Breaker
DC output	DC 12V 8.3A for charging battery
<b>Dimensions</b>	
Length	27
Width	18 3/8
Height	23 5/8
Dry weight	173 lb (5000RE/E: 180 lb)