

HONDA

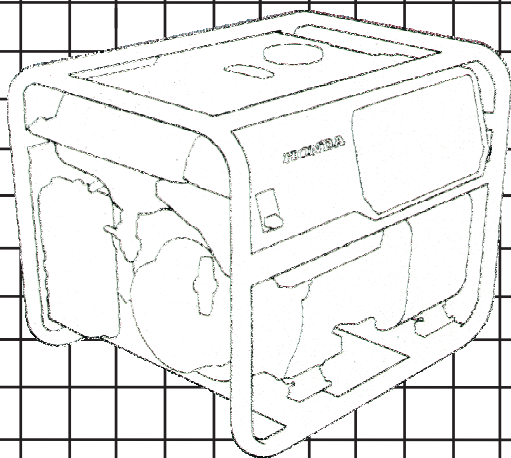
Power

Equipment

Owner's Manual

GENERATOR

EM1600X • EM1800X • EM2200X



Thank you for purchasing a Honda generator.

This manual covers operation and maintenance of the EM1600X, 1800X and 2200X generators. All information in this publication is based on the latest product information available at the time of approval for printing.

Honda Motor Co., Ltd reserves the right to make changes at any time without notice and without incurring any obligation.

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This manual should be considered a permanent part of the generator and should remain with the generator when it is sold.


Pay special attention to statements preceded by the following words:

 **WARNING** Indicates a strong possibility of severe personal injury or loss of life 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 Honda dealer.

 **WARNING** Honda generators are designed to give safe and dependable service if operated according to instructions. Read and understand the Owner's Manual before operating the generator. Failure to do so could result in personal injury or equipment damage.

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1. GENERATOR SAFETY

WARNING

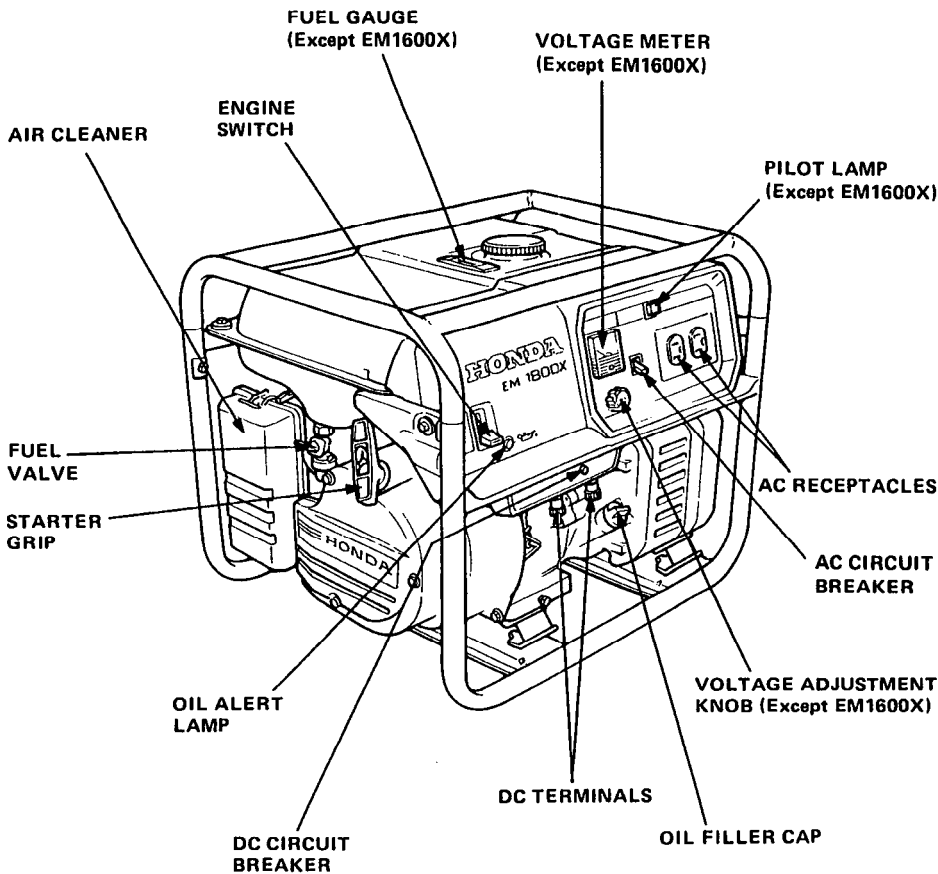
To ensure safe operation —

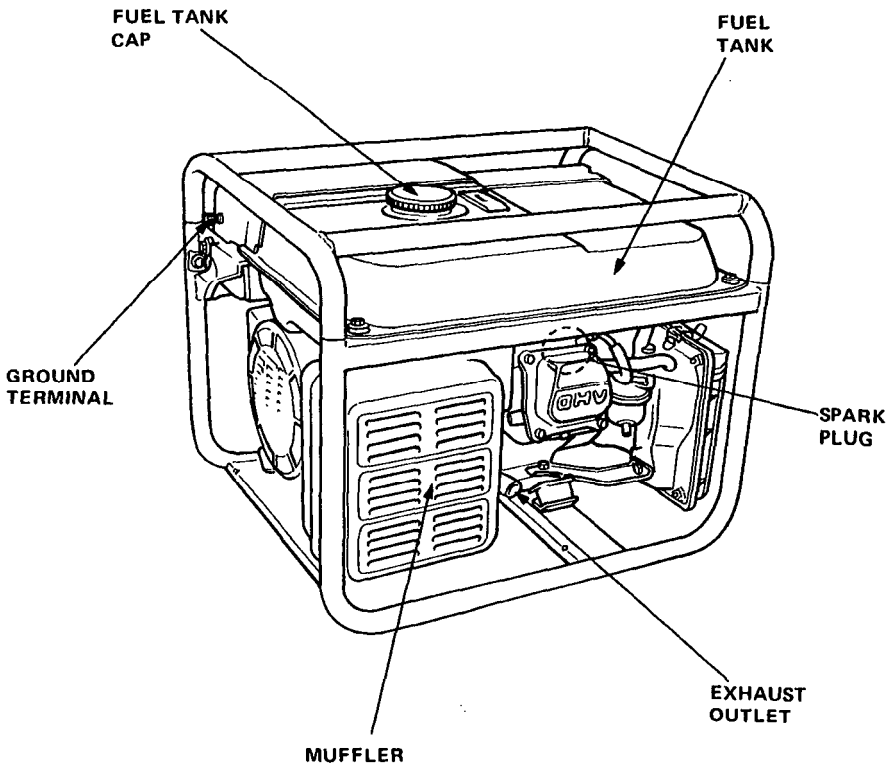
- Place the generator at least 1 m (3 ft) away from buildings or other equipment during operation.
- Operate the generator on a level surface.
If the generator is tilted, fuel spillage may result.
- Exhaust gas contains poisonous carbon monoxide.
Never run the generator in an enclosed area.
Be sure to provide adequate ventilation.
- Know how to stop the generator quickly and understand operation of all the controls. Never permit anyone to operate the generator without proper instructions.
- Keep children and pets away from the generator when it is in operation.
- Keep away from rotating parts while the generator is running.
- The generator is a potential source of electrical shocks when misused; do not operate with wet hands.
- Do not operate the generator in rain or snow and do not let it get wet.

When charging a battery —

- Battery electrolyte contains sulphuric acid. Protect your eyes, skin and clothing. In case of contact, flush thoroughly with water and get prompt medical attention, especially if your eyes are affected.
- Batteries generate hydrogen gas which can be highly explosive. Do not smoke or allow flames or sparks near a battery, especially during charging.

2. COMPONENT IDENTIFICATION





3. PRE-OPERATION CHECK

CAUTION: Be sure to check the generator on a level surface with the engine stopped.

1. Check the engine oil level.

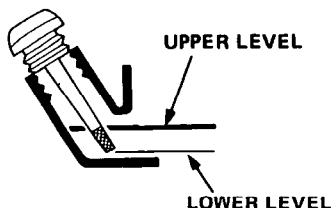
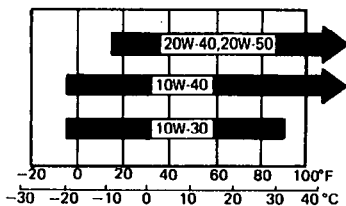
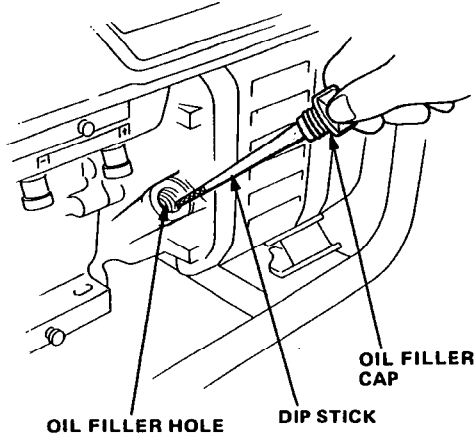
CAUTION: Engine oil is a major factor affecting engine performance and service life. Non-detergent or vegetable oils are not recommended.

Use Honda 4-stroke oil, or an equivalent high detergent, premium quality motor oil certified to meet or exceed U.S. automobile manufacturers' requirements for Service Classification SE or SF. (Motor oils classified SE or SF will show this designation on the container.)

SAE 10W-40 is recommended for general, all-temperature use. Other viscosities shown in the chart may be used when the average temperature in your area is within the indicated range.

Remove the oil filler cap, and wipe the dipstick with a clean rag. Check the oil level by inserting the dipstick in the filler hole without screwing it in. If the oil level is below the end of the dipstick, add oil to the upper level mark on the dipstick.

NOTE: The Oil Alert System will automatically stop the engine before the oil level falls below the safe limit. However, to avoid the inconvenience of an unexpected shutdown, it is still advisable to visually inspect the oil level regularly.



2. Check the fuel level

Check the fuel gauge (EM1800X and EM2200X only), and refill the tank if the fuel level is low.

Use low lead or unleaded automotive gasoline with a pump octane rating of 86 or higher.

Never use an oil/gasoline mixture or dirty gasoline. Avoid getting dirt, dust or water in the fuel tank.

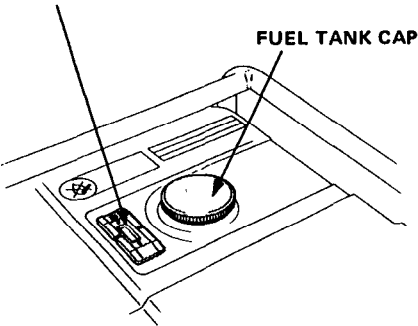
Clean the fuel filler screen regularly.

CAUTION: Gasoline substitutes are not recommended; they may be harmful to fuel system components.

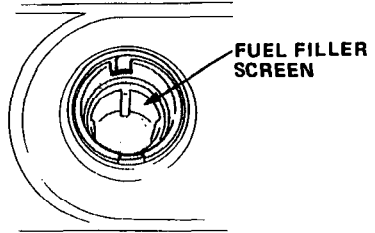
WARNING

- Gasoline is extremely flammable and explosive under certain conditions. Refuel in a well ventilated area with the engine stopped.
- Do not smoke or allow flames or sparks in the area where the generator is refueled or where gasoline is stored.
- Do not overfill the tank and make sure the fuel tank cap is securely closed after refueling.
- Be careful not to spill fuel when refueling. Fuel vapor or spilled fuel may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.

FUEL GAUGE
(EM1800X and EM2200X only)



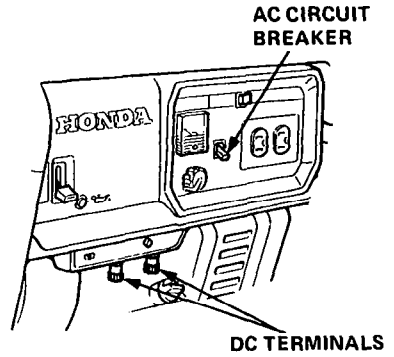
FUEL TANK CAP



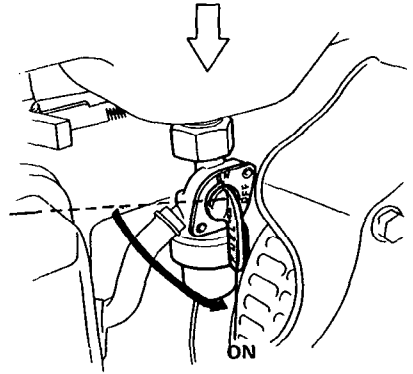
**FUEL FILLER
SCREEN**

4. STARTING THE ENGINE

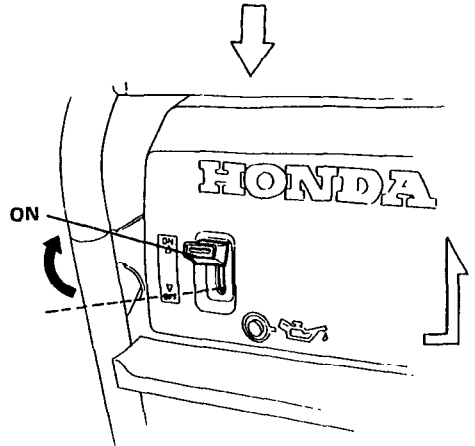
- (1) Disconnect any load from the DC terminals and make sure that the AC circuit breaker is in the OFF position.

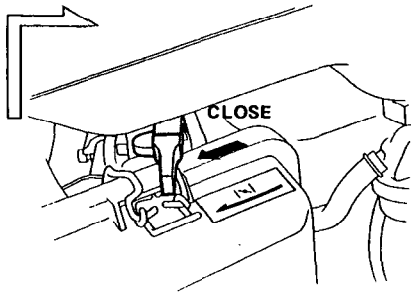


- (2) Turn on the fuel valve.

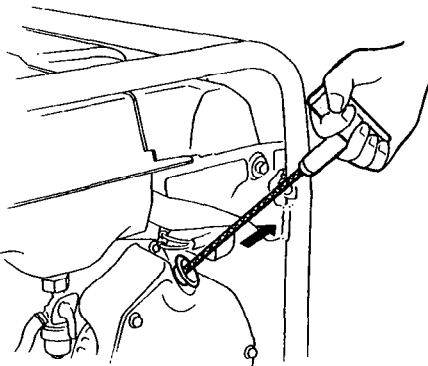


- (3) Turn on the engine switch.





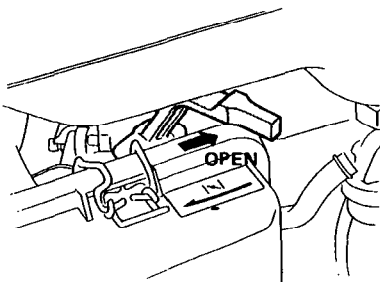
- (4) Move the choke lever to the CLOSED position.



- (5) Pull the starter rope lightly until resistance is felt, then pull briskly.

CAUTION: Do not allow the starter grip to snap back. Return it slowly by hand.

NOTE: Make sure the pilot lamp comes on. If not, check the bulb filament.

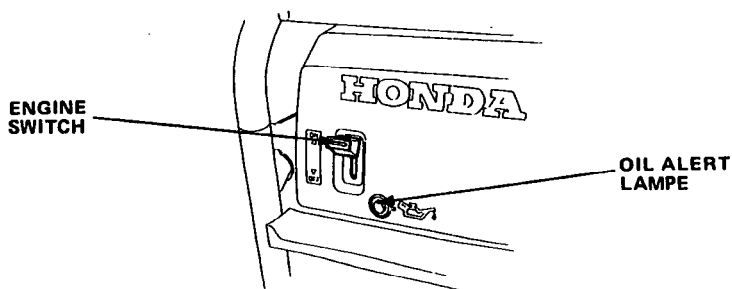


- (6) Move the choke lever to the OPEN position as the engine warms up.

Oil Alert System

Before the oil level in the crankcase can fall below a safe limit, the Oil Alert System will automatically shut off the engine. The Oil Alert Lamp will light when the recoil starter grip is pulled.

To restart, add enough recommended engine oil to bring the oil level to the upper level mark on the dipstick (See page 6), and restart the engine.



NOTE: The engine switch will remain in the ON position if the engine is stopped by the Oil Alert System.

High altitude operation

At high altitude, the standard carburetor air-fuel mixture will be excessively rich. Performance will decrease, and fuel consumption will increase.

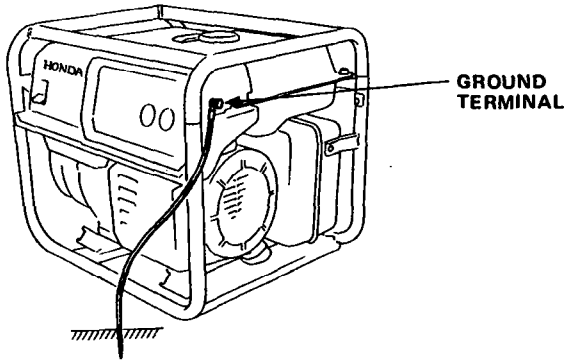
High altitude performance can be improved by installing a smaller diameter main fuel jet in the carburetor and readjusting the pilot screw. If you always operate the generator at altitudes higher than 6,000 feet above sea level, have your authorized Honda Generator dealer perform these carburetor modifications.

Even with suitable carburetor jetting, engine horsepower will decrease approximately 3.5% for each 1,000 foot increase in altitude. The affect of altitude on horsepower will be greater than this if no carburetor modification is made.

CAUTION: Operation of the generator at an altitude lower than the carburetor is jetted for may result in reduced performance, overheating, and serious engine damage caused by an excessively lean air/fuel mixture.

5. GENERATOR USE

WARNING To prevent electrical shock from faulty appliances, the generator should be grounded. Connect a length of heavy wire between the generator's ground terminal and an external ground source.



CAUTION:

- Limit operation requiring maximum power (1.6 KVA for the EM1600X; 1.8 KVA for the EM1800X and 2.2 KVA for the EM2200X) to 30 minutes. For continuous operation, do not exceed the rated power (1.4 KVA for the EM1600X; 1.5 KVA for the EM1800X and 2.0 KVA for EM2200X).
- Do not exceed the current limit specified for any one receptacle.
- Do not connect the generator to a household circuit. This could cause damage to the generator or to electrical appliances in the house.

NOTE: The EM1600X, 1800X and 2200X generate both AC and DC power. If you use both at the same time, be sure not to exceed the total rated power (1.4 KVA for the EM1600X; 1.5 KVA for the EM1800X and 2.0 KVA for the EM2200X) for AC and DC combined.

Most appliance motors require more than their rated wattage for start-up.

AC applications

1. Start the engine and make sure the pilot lamp comes on. If not, check the filament.
2. Switch on the AC Circuit Breaker.

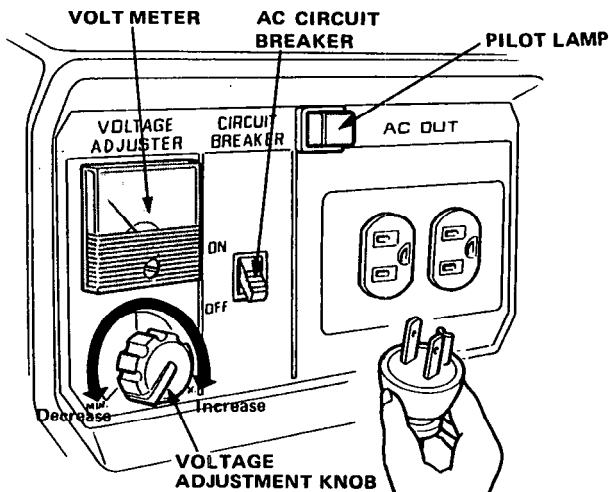
NOTE: Although voltage adjustment is usually not required, fine adjustments may be made by turning the voltage adjustment knob. Use the generator at the specified voltage (120V).

3. Plug in the appliance; always three-pronged plugs.

CAUTION: Be sure that appliances do not exceed the generator's rated load capacity for more than 30 minutes and that they never exceed the maximum load capacity. Substantial overloading will switch off the circuit breaker. Marginal overloading may not switch off the circuit breaker, but it will shorten the service life of the generator.

Be sure that all appliances are in good working order before connecting them to the generator. If an appliance begins to operate abnormally, becomes sluggish, or stops suddenly, turn off the circuit breaker and the generator engine switch immediately. Then disconnect the appliance and examine it for signs of malfunction.

NOTE: If an overloaded circuit causes the AC circuit breaker to switch off, reduce the electrical load on the circuit and wait a few minutes before resetting the circuit breaker.



DC application

The DC terminals may be used for charging 12 volt automotive-type batteries only.

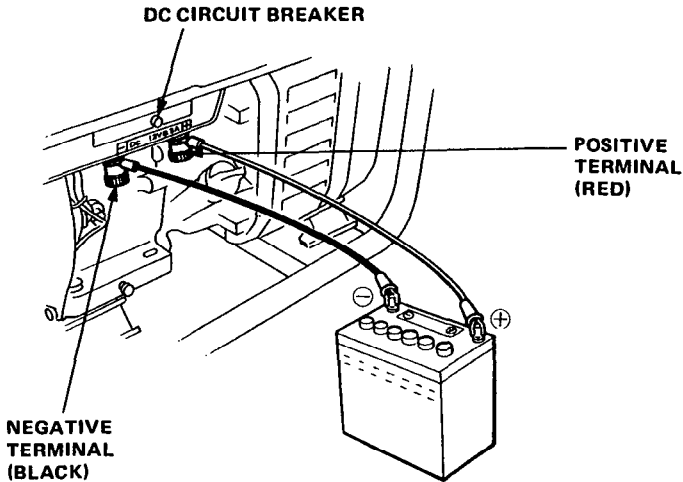
WARNING Batteries produce explosive gases. Keep sparks, flames, and cigarettes away. To prevent the possibility of creating a spark near the battery, connect charging cables first to the battery, then to the generator, and disconnect cables at the generator first.

CAUTION:

- Do not attempt to start an automobile engine while the generator is still connected to the battery. The generator may be damaged.
- Connect the positive battery terminal to the positive generator terminal. Do not reverse the charging cables, or serious damage to the generator and/or battery may occur.

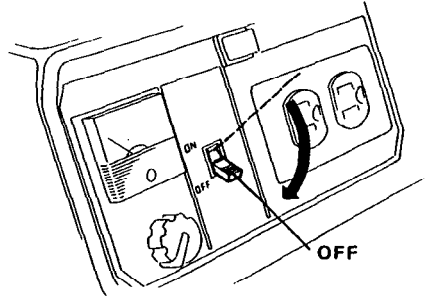
NOTE:

- The DC terminals may be used while the AC power is in use.
- An overloaded DC circuit will trip the DC circuit protector (push button comes out). If this happens, wait a few minutes before pushing in the circuit protector to resume operation.

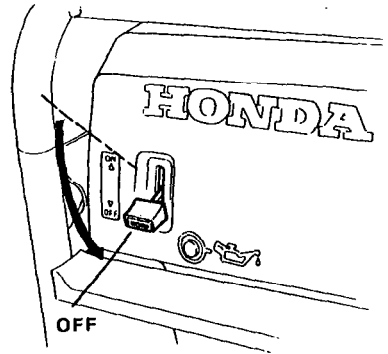


6. STOPPING THE ENGINE

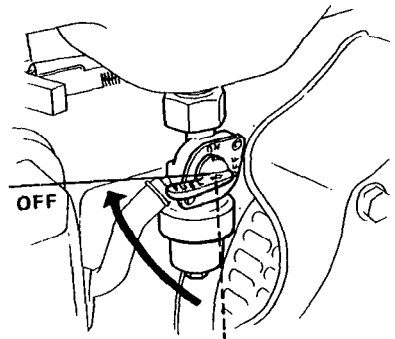
- (1) Turn off the AC circuit breaker and disconnect any charging leads at the DC terminals.



- (2) Turn the engine switch to the OFF position.



- (3) Turn the fuel valve to the OFF position.



7. MAINTENANCE

The purpose of the maintenance and adjustment schedule is to keep the generator in the best operating condition.

Inspect or service as scheduled in the table on the next page.

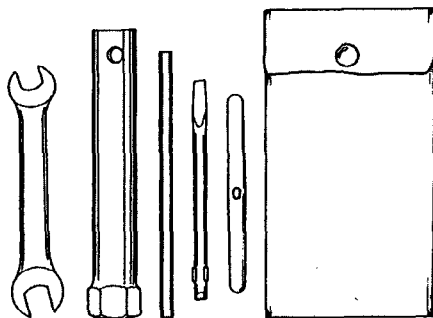
WARNING Shut off the engine before performing any maintenance. If the engine must be run, make sure the area is well ventilated. The exhaust contains poisonous carbon monoxide gas.

CAUTION: Use genuine HONDA parts or their equivalent. The use of replacement parts which are not of equivalent quality may damage the generator.

Tool kit

The tools supplied are necessary for performing some periodic maintenance, simple adjustments and repairs.

Always keep the tool kit with the generator.



Maintenance Schedule

REGULAR SERVICE PERIOD Perform at every indicated month or operating hour interval, whichever occurs first.		Daily	First month or 20 Hrs.	Every 3 months or 50 Hrs.	Every 6 months or 100 Hrs.	Every year or 300 Hrs.
ITEM						
Engine oil	Inspection	●				
	Change		●		●	
Air cleaner element	Inspection	●				
	Cleaning			● (1)		
Fuel filter cleaning					●	
Spark plug maintenance					●	
Valve clearance adjustment						● (2)
Combustion chamber and valve cleaning						● (2)
Fuel line inspection (Replace if necessary)						●
Spark arrester		Clean every 100 operating hours.				

NOTE (1) : Service more frequently when used in dusty areas.

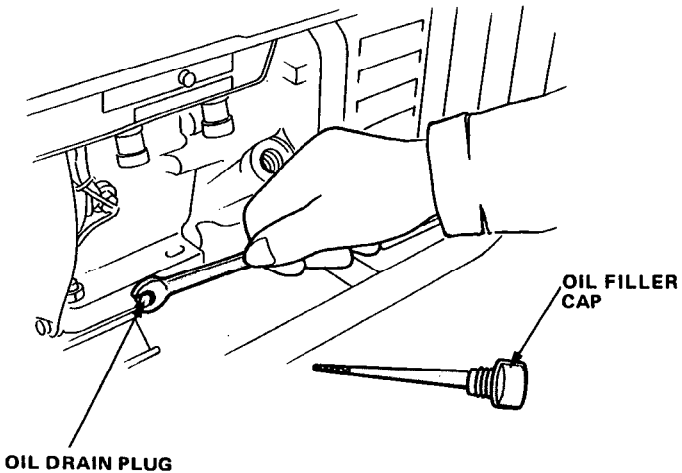
(2) : These items should be serviced by an authorized Honda dealer, unless the owner has the proper tools and is mechanically proficient. See the Honda Shop Manual.

Changing oil

Drain the oil while the engine is still warm to assure rapid and complete draining.

1. Remove the drain plug and filler cap, and drain the oil. Retighten the plug securely.
2. Refill with the recommended oil (see page 6) and check the level.

OIL CAPACITY: 0.6 l (0.63 USqt)



CAUTION: Used motor oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.

NOTE: Please dispose of used motor oil in a manner that is compatible with the environment. We suggest you take it in a sealed container to your local service station for reclamation. Do not throw it in the trash or pour it on the ground.

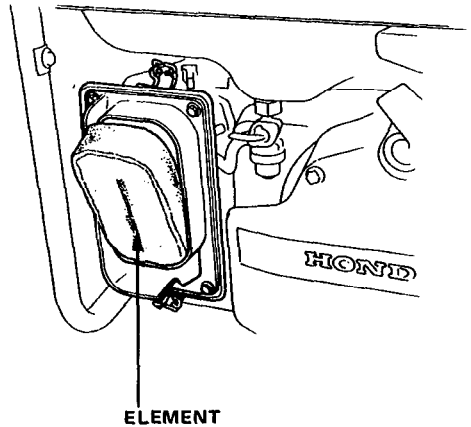
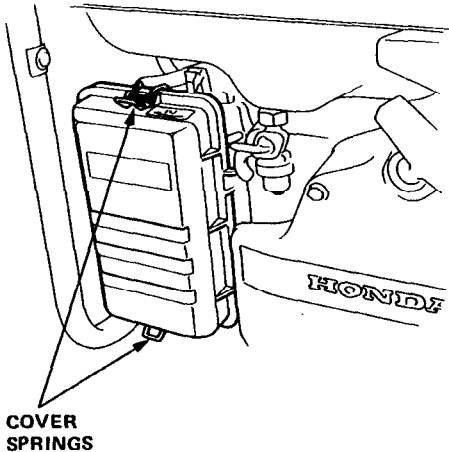
Air cleaner service

A dirty air cleaner will restrict air flow to the carburetor. To prevent carburetor malfunction, service the air cleaner regularly (page 16)). Service more frequently when operating the generator in extremely dusty areas.

WARNING Never use gasoline or low flash point solvents for cleaning the air cleaner element. A fire or explosion could result.

CAUTION: Never run the genetrator without the air cleaner. Rapid engine wear will result.

1. Unsnap the air cleaner cover springs, remove the air cleaner cover and remove the element.
2. Wash the element in a non-flammable or high flash point solvent and dry it thoroughly.
3. Soak the element in clean engine oil and squeeze out the excess oil.
4. Reinstall the air cleaner element and the cover.

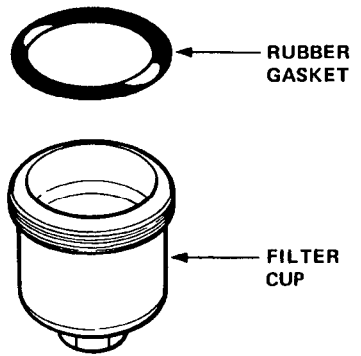
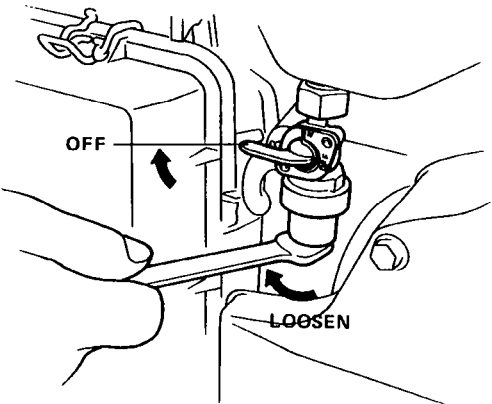


Fuel filter service

The filter prevents dirt or water which may be in the fuel tank from entering the carburetor. If the engine has not been run for a long time, the filter should be cleaned.

1. Turn the fuel valve OFF. Remove the filter cup.
2. Clean the cup thoroughly.
3. Reassemble. Do not damage the rubber gasket.

WARNING After installing the filter cup, check for fuel leaks and make sure the area is dry before starting the engine.

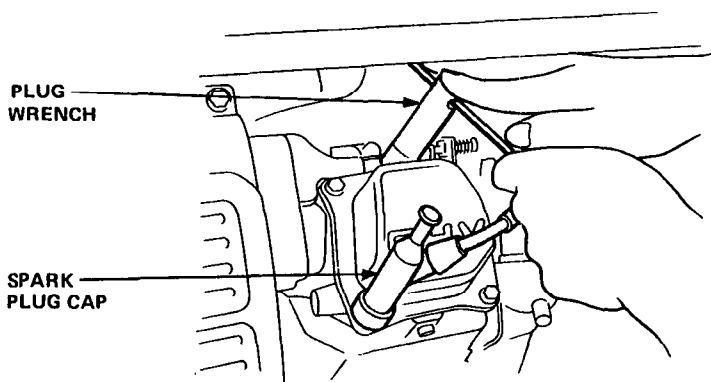


Spark plug service

Recommended spark plug: BP6ES, BPR6ES (NGK)
W20EP-U, W20EPR-U (ND)

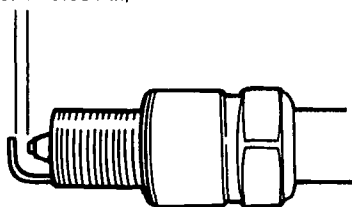
To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.

1. Remove the spark plug cap.
2. Clean any dirt from around the spark plug base.
3. Use the wrench supplied in the tool kit to remove the spark plug.

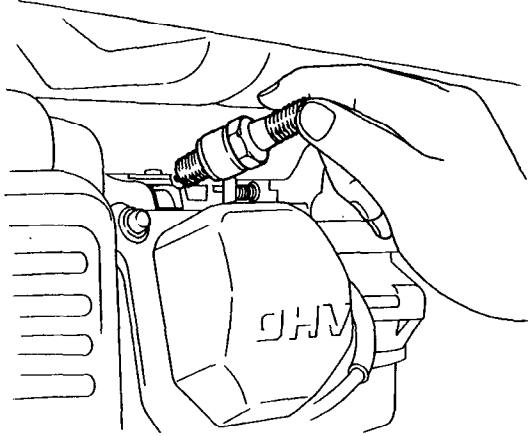


4. Visually inspect the spark plug. Discard it if the insulator is cracked or chipped. Clean the spark plug with a wire brush if it is to be reused.
5. Measure the plug gap with a feeler gauge.
The gap should be 0.7~0.8 mm (0.028~0.031 in). Correct as necessary by carefully bending the side electrode.

0.7~0.8 mm
(0.028~0.031 in)



6. Attach the plug washer and thread the plug in by hand to prevent cross threading.



7. After a new spark plug has been seated by hand, it should be tightened 1/2 turn with a wrench to compress its washer.
If a used plug is being reinstalled, it should only require 1/8 to 1/4 turn after being seated.

CAUTION:

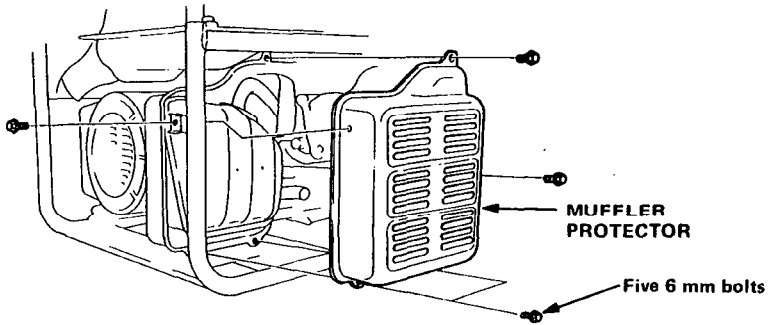
- The spark plug must be securely tightened. An improperly tightened plug can become very hot and possibly damage the generator.
- Never use a spark plug with an improper heat range.

Spark arrester maintenance

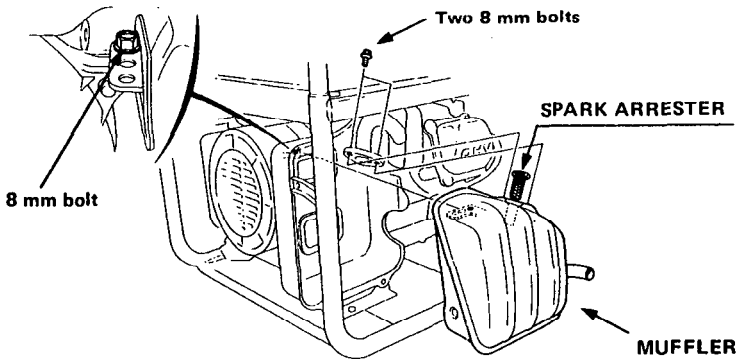
WARNING If the generator has been running, the muffler will be very hot. Allow it to cool before proceeding.

CAUTION: The spark arrester must be serviced every 100 hours to maintain its efficiency.

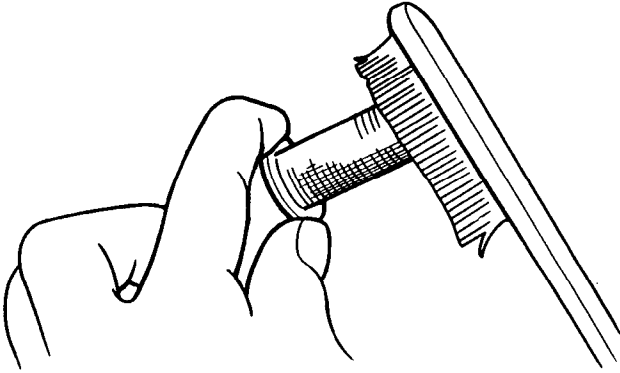
1. Loosen the five 6 mm bolts to remove the muffler protector.



2. Remove the two 8 mm bolts at the exhaust pipe and the 8 mm bolt at the muffler stay.
Remove the muffler and the spark arrester.



3. Use a brush to remove carbon deposits from the spark arrester screen.



NOTE: Inspect the spark arrester screen for holes or tears. Replace if necessary.

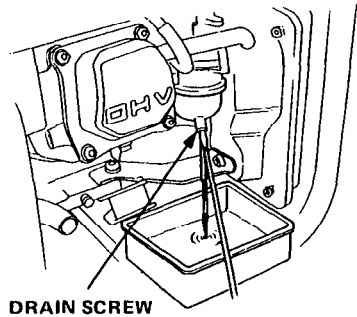
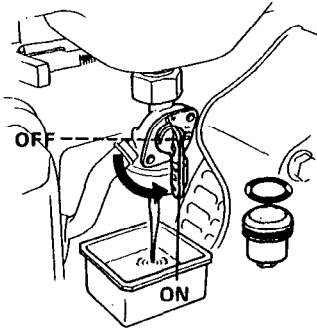
4. Check the exhaust pipe gasket and replace if damaged. Reinstall the muffler and the protector.

8. TRANSPORTING/STORAGE

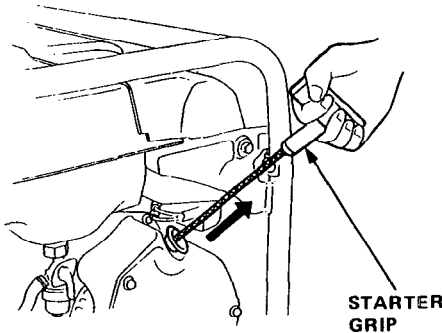
WARNING When transporting the generator, turn the engine switch OFF and keep the generator level to prevent fuel spillage. Fuel vapor or spilled fuel may ignite.

Before storing the unit for an extended period:

1. Be sure the storage area is free of excessive humidity and dust.
2. Drain the fuel –
 - a. With the fuel valve OFF, remove and empty the filter cup.
 - b. Turn the fuel valve ON and drain the gasoline in the fuel tank into a suitable container.
 - c. Replace the filter cup and tighten securely.
 - d. Loosen the carburetor drain screw and drain the gasoline from the carburetor into a suitable container.

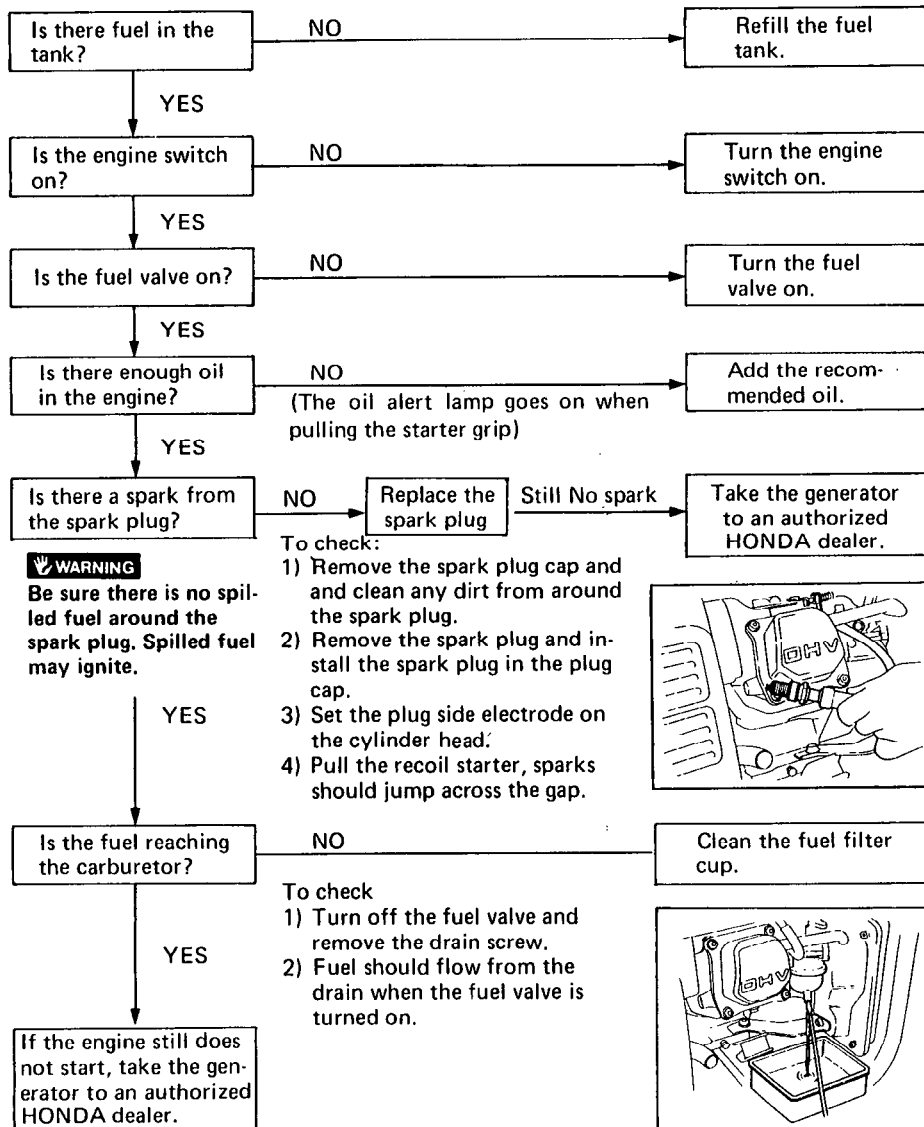


3. Slowly pull the starter grip until resistance is felt. At this point, the piston is coming up on its compression stroke and both the intake and exhaust valves are closed. Storing the engine in this position will help to protect it from internal corrosion.

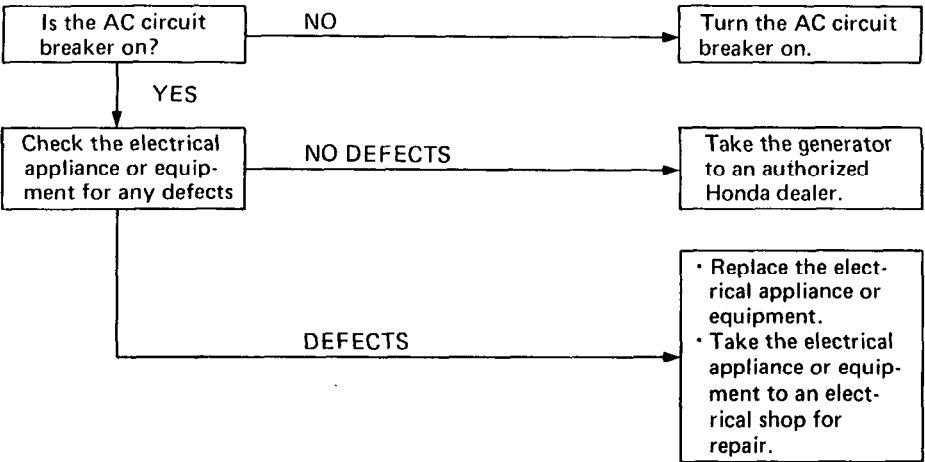


9. TROUBLESHOOTING

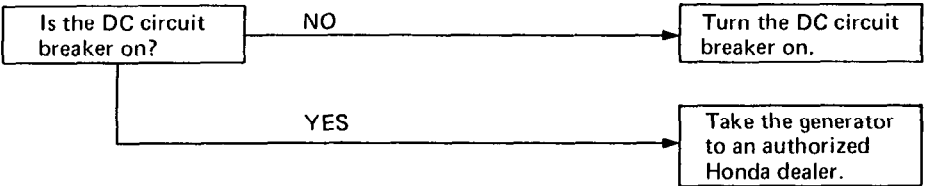
When the engine will not start:



No electricity at the AC receptacles:

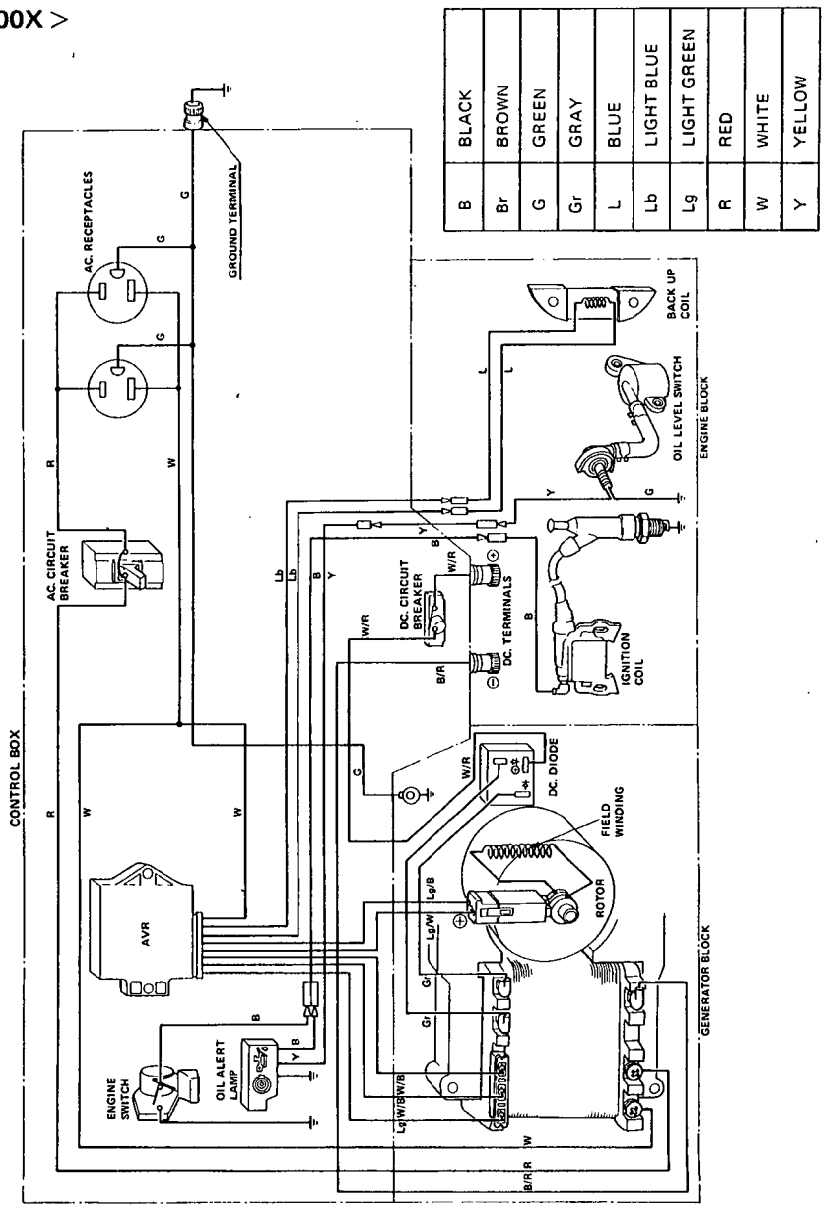


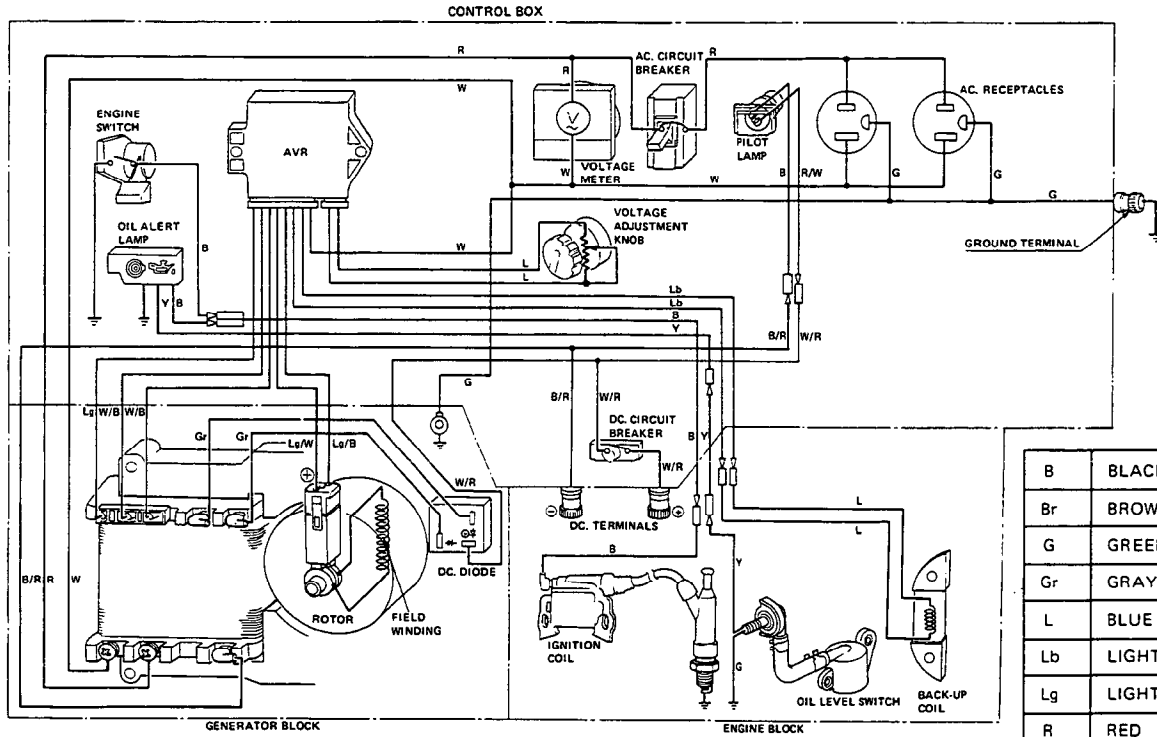
No electricity at the DC terminals:



10. WIRING DIAGRAM

< EM1600X >





B	BLACK
Br	BROWN
G	GREEN
Gr	GRAY
L	BLUE
Lb	LIGHT BLUE
Lg	LIGHT GREEN
R	RED
W	WHITE
Y	YELLOW

11. SPECIFICATIONS

Dimensions

Length x Width x Height	505 x 420 x 420 mm (19.9 x 16.5 x 16.5 in)
Dry Weight	EM 1600X, 1800X: 41.5 kg (91.5 lb) EM2200X : 44.0 kg (97.0 lb)

Engine

Model	HONDA GX140
Engine Type	4-Stroke, O.H.V, 1 cylinder (25° tilted)
Displacement [Bore x Stroke]	144 cm ³ (8.8 cuin) 64 x 45 cm (2.5 x 1.8 in)
Compression Ratio	8.75 : 1
Engine Speed	3600 rpm
Cooling System	Forced air cooled
Ignition System	Transistor Magnet Ignition
Oil Capacity	0.6ℓ (0.63 USqt)
Fuel Tank Capacity	11.0ℓ (2.9 USgal)
Spark Plug	BP6ES, BPR6ES (NGK), W20EP-U, W20EPR-U (ND)

Generator

AC output	Rated voltage Rated frequency	120V 60Hz
	Rated ampere	EM1600X: 11.7 A EM1800X: 12.5 A EM2200X: 16.7 A
	Rated output	EM1600X: 1.4 kVA (1400W) EM1800X: 1.5 kVA (1500W) EM2200X: 2.0 kVA (2000W)
	Maximum output	EM1600X: 1.6 kVA (1600W) EM1800X: 1.8 kVA (1800W) EM2200X: 2.2 kVA (2200W)
DC output		Only for charging 12 V automotive batteries. Maximum charging output = 8.3 A

12. WARRANTY SERVICE

Owner Satisfaction

Your satisfaction and goodwill are important to your dealer and to us. All Honda warranty details are explained in the Distributor's Limited Warranty. Normally, any problems concerning the product will be handled by your dealer's service department. If you have a warranty problem that has not been handled to your satisfaction, we suggest you take the following action:

- Discuss your problem with a member of dealership management. Often complaints can be quickly resolved at that level. If the problem has already been reviewed with the Service Manager, contact the owner of the dealership or the General Manager.
- If your problem still has not been resolved to your satisfaction, contact the Customer Relations Department of American Honda Motor Co., Inc.

American Honda Motor Co., Inc.
Honda Power Equipment Division
Customer Service Office
4900 Marconi Drive
Alpharetta, GA 30005-2600
Telephone: (770) 497-6400

We will need the following information in order to assist you:

- Your name, address, and telephone number
- Product model and serial number
- Date of purchase
- Dealer name and address
- Nature of the problem

After reviewing all the facts involved, you will be advised of what action can be taken. Please bear in mind that your problem will likely be resolved at the dealership, using the dealer's facilities, equipment, and personnel, so it is very important that your initial contact be with the dealer.

Your purchase of a Honda product is greatly appreciated by both your dealer and American Honda Motor Co., Inc. We want to assist you in every way possible to assure your complete satisfaction with your purchase.

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