

HONDA

EM650

OWNER'S MANUAL



31ZA8700
00X31-ZA8-7000

Ⓜ Ⓜ 40008505
PRINTED IN JAPAN

© HONDA MOTOR CO., LTD. 1985

Thank you for purchasing a Honda generator.

This manual covers operation and maintenance of the EM650 generator. 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 if it is resold.

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.

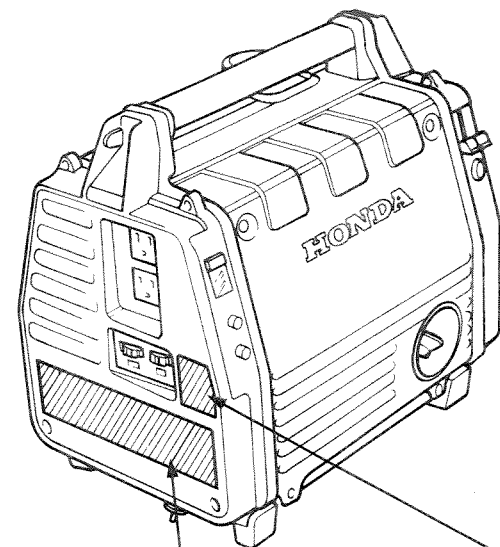
If a problem should arise, or if you have any questions about the generator, consult an authorized Honda dealer.

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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DC
12V 8.3A

- BATTERY CHARGING ONLY.
- CHARGE DE BATTERIE SEULEMENT.
- ACUMULACION DE BATERIA SOLAMENTE.

| | | | | | |
|---|----------------------------------|--|-----------|---|---|
| HONDA EM650 | | HONDA MOTOR CO., LTD. | | MADE IN JAPAN ^(A) | |
| AC | VOLTAGE 120V 60Hz RATED 550VA | MAX. 650VA | DC | VOLTAGE 12V CURRENT 8.3A | FUEL : GASOLINE (PETROL) CONBUSTIBLE : GASOLINA CARBURANT : ESSENCE |
| WARNING | | ATTENTION | | ATENCION | |
| <p>DO NOT USE INDOORS. EXHAUST GAS CONTAINS POISONOUS CARBON MONOXIDE.</p> <p>CAUTION</p> <p>DO NOT CONNECT THE GENERATOR TO HOUSE WIRING. THIS CAN DAMAGE THE GENERATOR OR ELECTRICAL APPLIANCES.</p> | | <p>NE PAS UTILISER DANS UN ENDROIT FERME A CAUSE DU RISQUE D'EMPOISONNEMENT DU GAZ.</p> <p>POUR L'EXPLICATION DETAILLEE, VOIR LE MANUEL D'UTILISATEUR.</p> | | <p>NO LO USE EN LUGARES CERRADOS, COMO EL MONOXIDO DE CARBONO ES VENENOSO.</p> <p>CONSULTE EL MANUAL PARA EL DUENO PARA LOS DETALLES SOBRE EL MANEJO.</p> | |
| <ul style="list-style-type: none"> ● WHEN USING DC OUTPUT, AC LOAD MUST NOT EXCEED 300VA AT 60Hz. ● A L'EMPLOI D'UN COURANT CONTINU DE SORTIE, LA CONSOMMATION EN COURANT ALTERNATIF NE PEUT PAS DEPASSER 300VA A UNE FREQUENCE DE 60Hz. ● CUANDO SE UTILICE SALIDA DE CC, EL CONSUMO DE CA NO DEBERA SER SUPERIOR A 300VA CON 60Hz. | | | | | |

WARNING

To ensure safe operation—

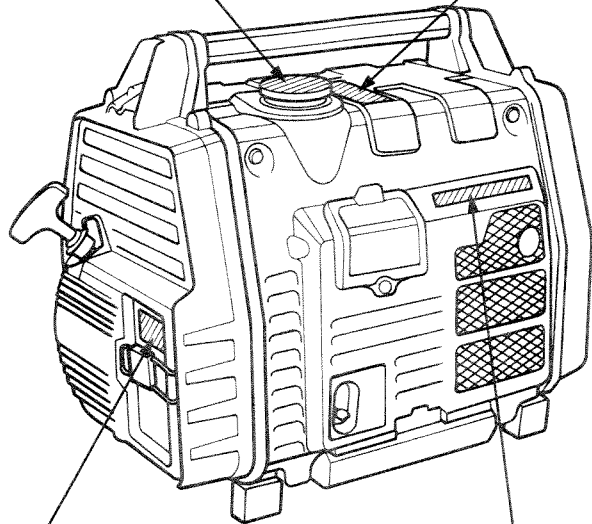
- Place the generator at least 1 m (3 ft) away from buildings or other equipment when operating the generator.
- Operate the generator on a level surface.
If the generator is tilted, fuel spillage may result.
- Exhaust gas contains poisonous carbon monoxide.
Never run the generator in an enclosed area.
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 call a doctor if your eyes were exposed.
- Batteries generate hydrogen gas which can be highly explosive. do not smoke or allow flames or sparks near a battery, especially while charging

■ STOP THE ENGINE BEFORE REFUELING. CHECK FOR SPILLED FUEL OR FUEL LEAKS.
■ CONTRÔLER QU'IL N'Y A NI FUITE NI ESSENCE RÉPANDUE SUR L'APPAREIL. AVANT DE REFAIRE LE PLEIN : ARRÊTER LE MOTEUR.
■ INSPECCIONAR PARA COMBUSTIBLE DERRAMADO O ESCAPE. ANTES ECHAR COMBUSTIBLE : PARAR MOTOR ANTES DE ECHAR COMBUSTIBLE AL DEPOSITO.

■ DO NOT FILL THE FUEL TANK BEYOND THE UPPER LIMIT LINE.
■ NE PAS FAIRE LE PLEIN AU DESSUS DU REPÈRE DE NIVEAU MAXIMUM.
■ NO ECHAR COMBUSTIBLE MAS DE LINEA DE NIVEL.



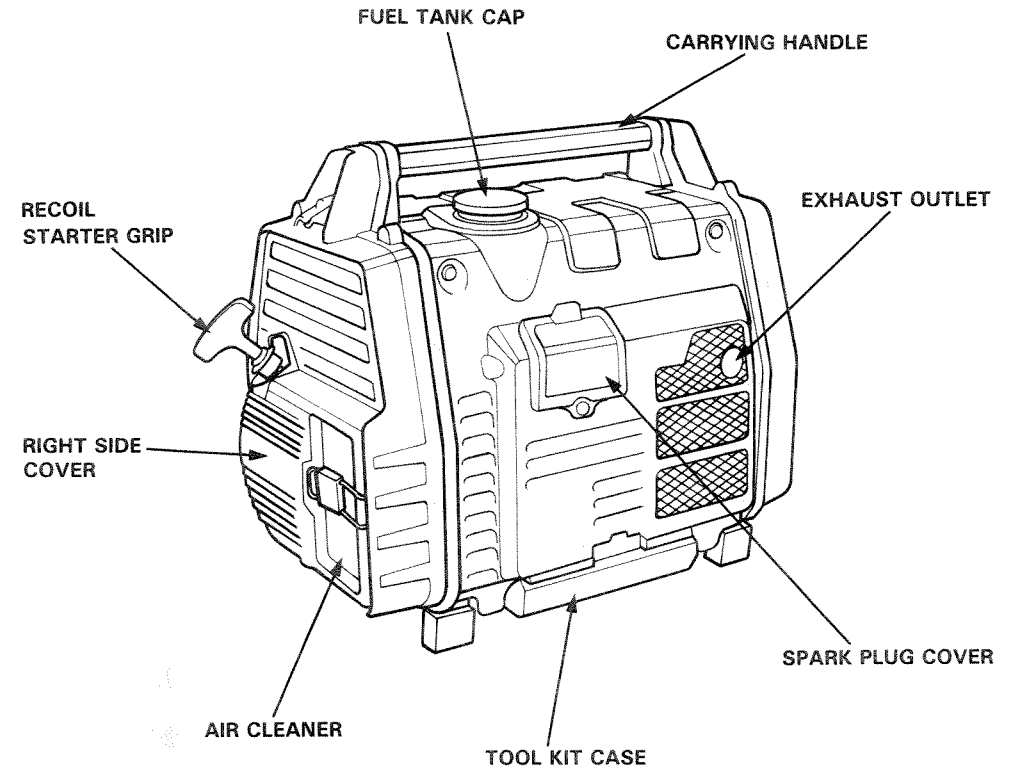
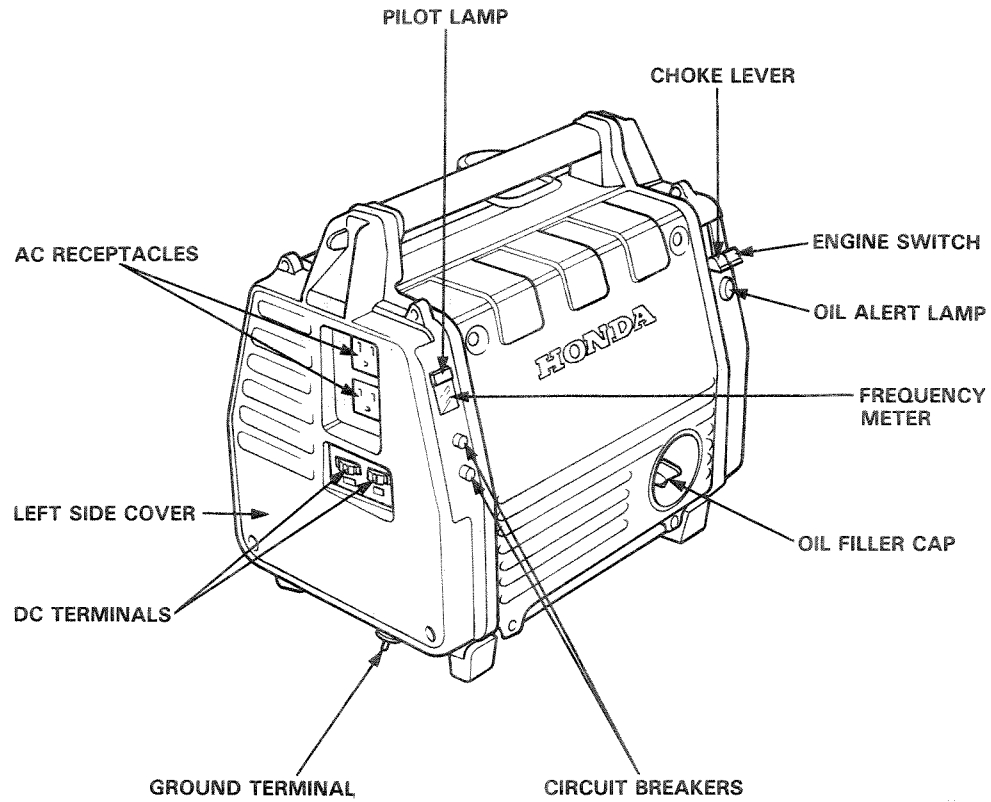
AIR CLEANER MAINTENANCE

■ CLEAN ELEMENT EVERY 50 HOURS (EVERY 10 HOURS UNDER DUSTY CONDITIONS). WASH IN HIGH FLASH-POINT SOLVENT, SQUEEZE DRY, THEN DIP IN CLEAN ENGINE OIL AND SQUEEZE OUT EXCESS OIL.

**HOT · EXHAUST
ECHAPPEMENT · CHAUD**



3. COMPONENT IDENTIFICATION



4. PRE-OPERATION CHECK

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

1. Check the engine oil level.

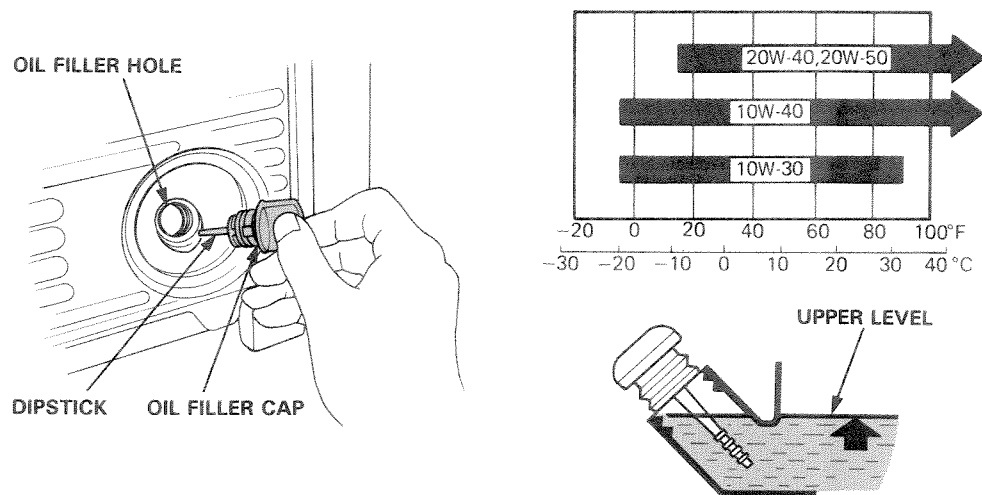
CAUTION: Engine oil is a major factor affecting engine performance and service life. Non-detergent or vegetable oils are not recommended.

Use Honda 4-stroke oil, or an equivalent high detergent, premium quality motor oil certified to meet or exceed U.S. automobile manufacturer's 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 top of the oil filler neck.

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



1. Check the fuel level.

Use automotive gasoline with a pump octane number ($\frac{R + M}{2}$) of 86 or higher, or a research octane number of 91 or higher may be used (unleaded is preferred to minimize combustion chamber deposits).

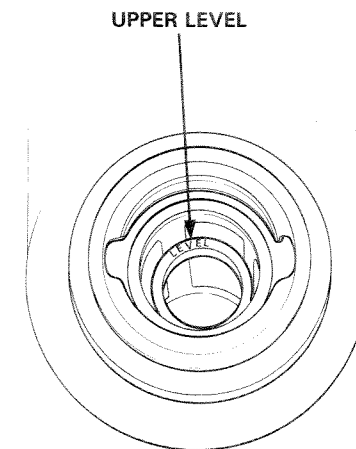
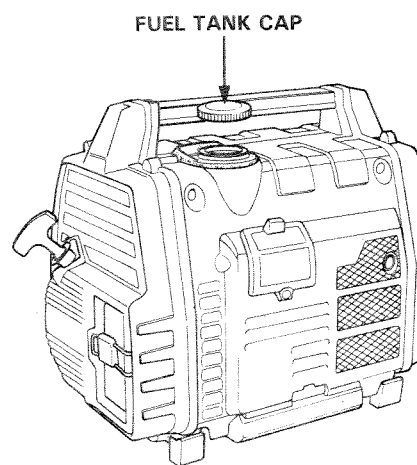
Never use an oil/gasoline mixture or dirty gasoline. Avoid getting dirt, dust or water in the fuel tank.

After refueling, be sure to tighten the fuel tank cap firmly.

Fuel tank capacity: 2.8ℓ (0.74 US gal)

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 filler 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.



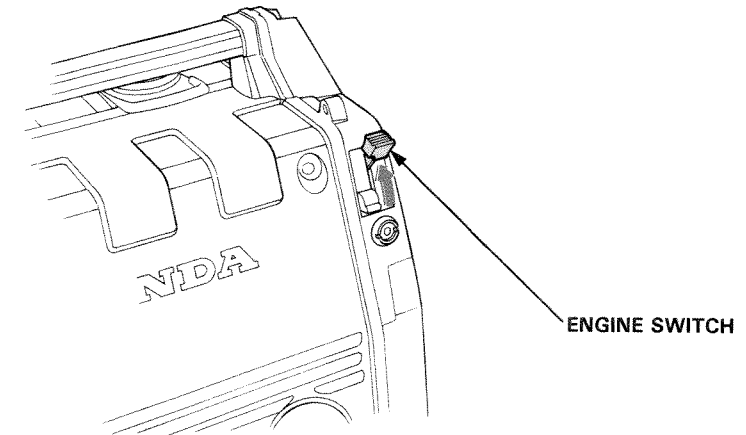
GASOLINES CONTAINING ALCOHOL

If you decide to use a gasoline containing alcohol ("gasohol"), be sure its octane rating is at least as high as that recommended on the preceding page. There are two types of "gasohol": that containing ethanol, and that containing methanol. Do not use gasohol that contains more than 10% ethanol. Do not use gasoline containing methanol (methyl or wood alcohol) that does not also contain cosolvents and corrosion inhibitors for methanol. Never use gasoline containing more than 5% methanol, even if it has cosolvents and corrosion inhibitors.

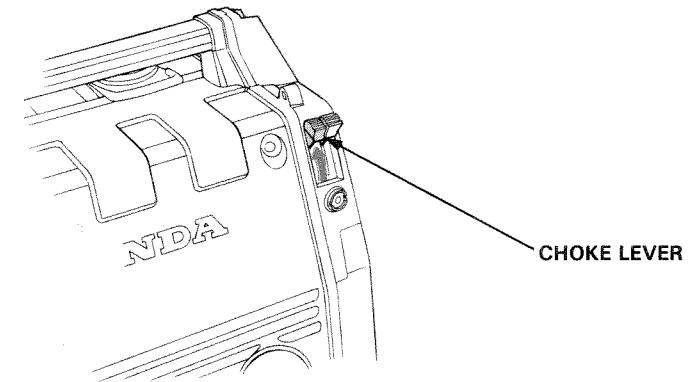
NOTE:

- Fuel system damage or engine performance problems resulting from the use of such fuels are not covered under Power Equipment Warranties. Honda cannot endorse the use of fuels containing methanol since evidence of their suitability is as yet incomplete.
- Before purchasing fuel from an unfamiliar station, try to confirm whether the fuel contains alcohol, and to what percentage. If you notice any undesirable operating symptoms after using a gasoline that contains alcohol; or one that you think contains alcohol, switch to a gasoline that you know does not contain alcohol.

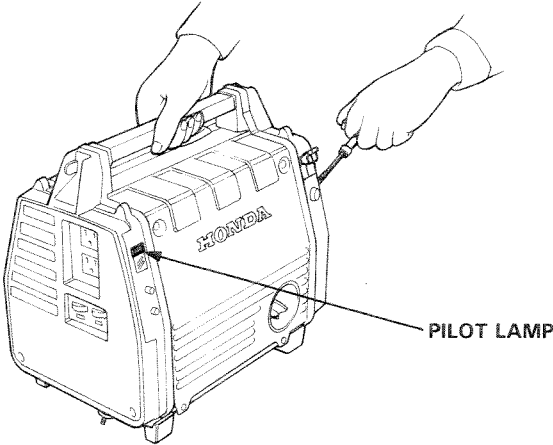
1. Disconnect any load from the AC receptacles or DC terminals.
2. Move the engine switch to "ON".



3. Move the choke lever to CLOSE.



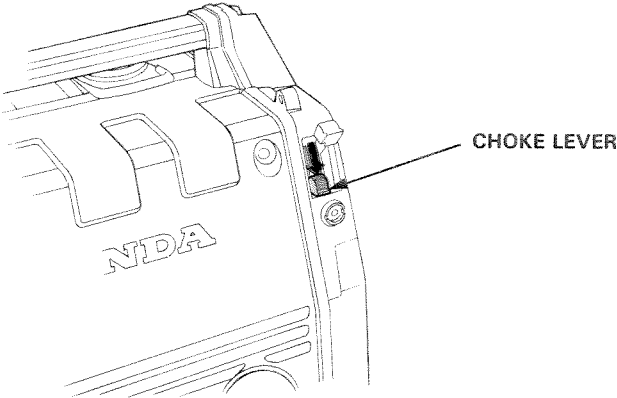
4. Pull the starter rope lightly until resistance is felt, then pull briskly.



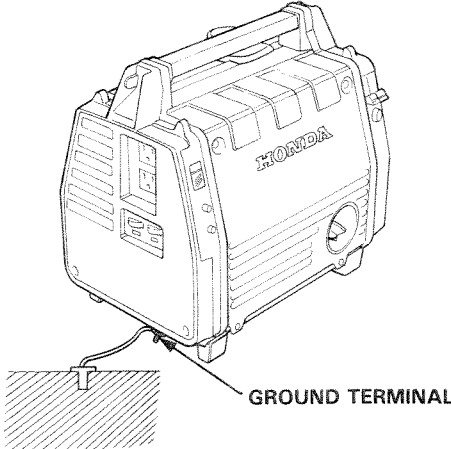
CAUTION: Do not allow the starter grip to snap back against the generator. Return it gently to prevent damage to the housing.

NOTE: Make sure the pilot lamp comes on. If not, the filament may be burnt out.

5. Move the choke lever to OPEN as the engine warms up.



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



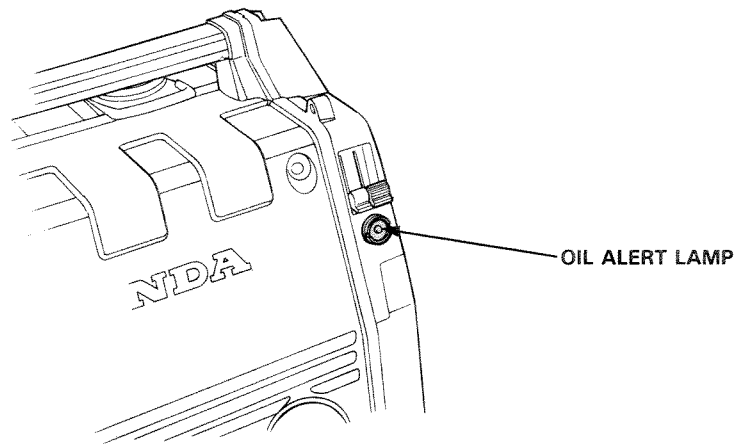
- CAUTION:**
- Limit operation requiring maximum power 650 VA to 30 minutes. For continuous operation, do not exceed the rated power of 550 VA.
 - Most appliance motors require more than their rated wattage for startup.
 - Do not exceed the current limit specified for any output.
 - Do not connect the generator to a household circuit. This could cause damage to the generator or to electrical appliances in the house.
 - When using AC and DC output simultaneously, do not exceed 300 VA in the load connected to the AC receptacle. An AC load exceeding 300 VA may not trip the circuit protector but when added to the DC load, it may shorten the service life of the generator.

NOTE: You can determine an appliance's VA (volt amp) rating by multiplying its required voltage by the amount of current (amps) it draws.

Oil Alert System

The Oil Alert system is designed to prevent engine damage caused by an insufficient amount of oil in the crankcase. Before the oil level in the crankcase can fall below a safe limit, the Oil Alert system will automatically shut down the engine (the engine switch will remain in the ON position).

If the Oil Alert system shuts down the engine, the Oil Alert lamp will flash when you operate the starter, and the engine will not run. If this occurs, add engine oil (p.8).



AC operation

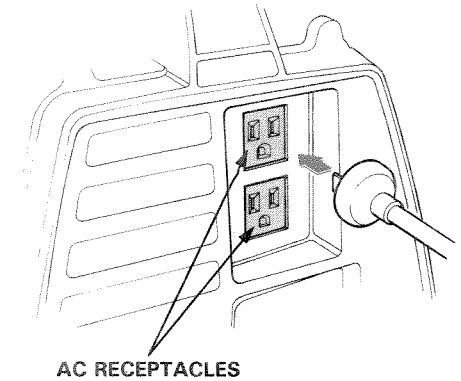
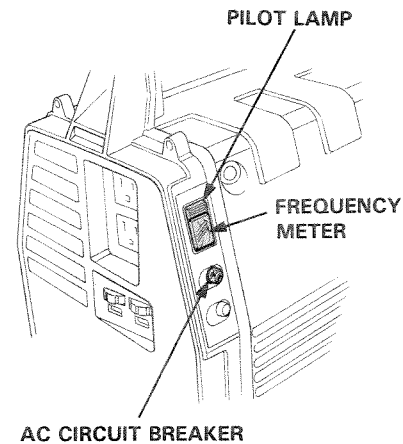
1. Start the engine and make sure the pilot lamp comes on. If not, the filament may be burnt out.
2. Plug in the appliance.

CAUTION: Never exceed the maximum load. Substantial overloading will switch off the circuit breaker. Lesser overloading will not switch off the circuit breaker and 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 generator engine switch immediately.

Then disconnect the appliance and examine it for signs of malfunction.

NOTE: An overloaded AC circuit will trip the AC circuit breaker. If this occurs, reduce the load on the circuit, and wait a few minutes before pushing the circuit breaker to resume operation.



DC operation

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

1. Connect the charging cables to the battery terminals and then to the DC terminals of the generator.

WARNING

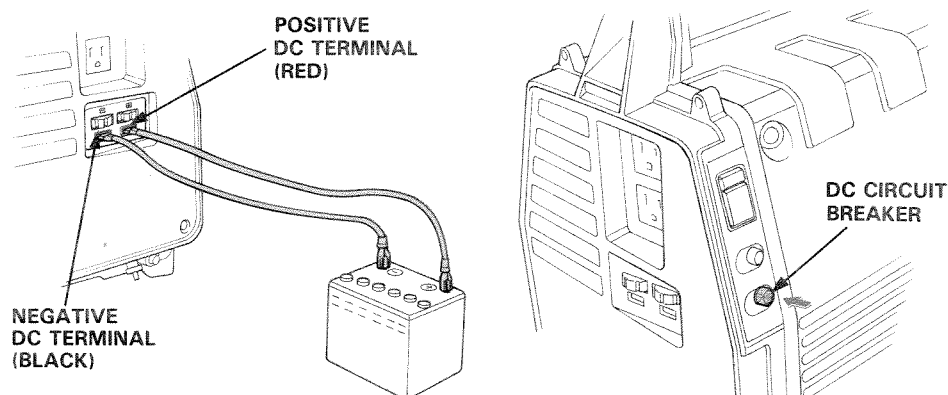
- Batteries produce explosive gases. Keep sparks, flames, and cigarettes away. To prevent the possibility of creating a spark near the battery, connect the charging cord first to the battery, then to the generator, and disconnect the cord first at the generator.
- Disconnect the vehicle's grounded battery cable first, and after charging, reconnect the grounded cable last. This procedure will prevent the possibility of a short circuit and sparks if your tools accidentally make contact between a battery terminal and the vehicle's frame or body.

CAUTION:

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

2. Start the engine.

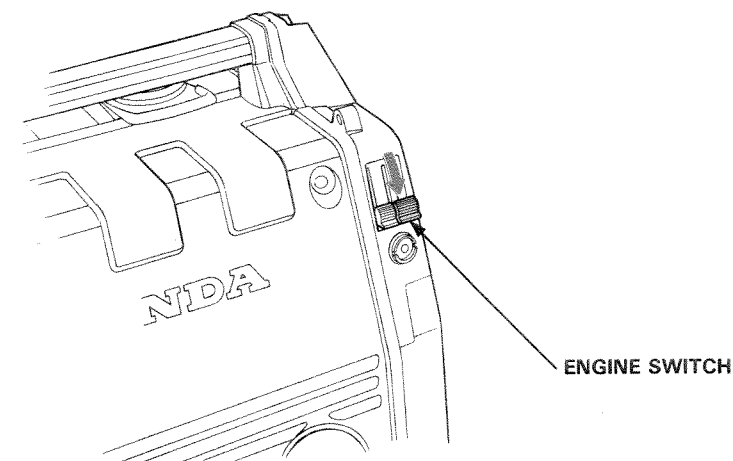
NOTE: An overloaded DC circuit will trip the DC circuit breaker (push button comes out). If this happens, wait a few minutes before pushing the circuit breaker to resume operation.



To stop the engine in an emergency, move the engine switch to OFF.

In normal use

1. Turn off the electrical appliance and/or disconnect the DC charging cables from the generator.
2. Move the engine switch to OFF.



8. MAINTENANCE

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

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

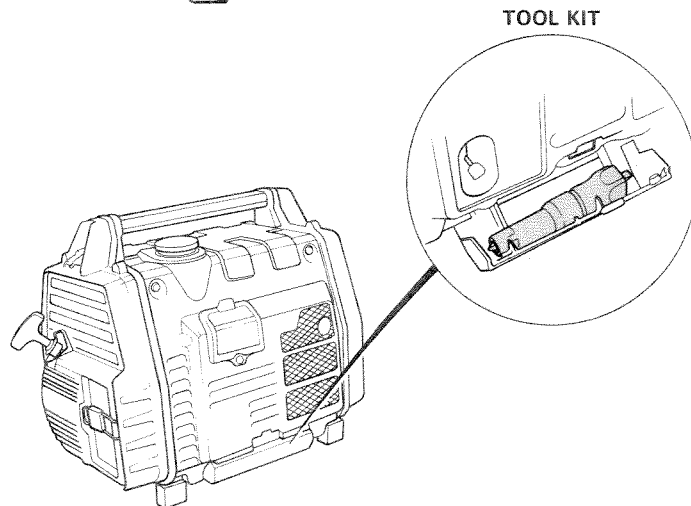
WARNING Shut off the engine before performing any maintenance. If the engine must be run, make sure the area is well ventilated. The exhaust contains poisonous carbon monoxide gas.

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

Tool kit

The screwdriver and spark plug wrench stored under the top cover will enable you to perform the owner-maintenance procedures listed on page 19.

Always keep the tool kit with the generator.



Maintenance Schedule

| REGULAR SERVICE PERIOD Performed at every indicated month or operating hour interval, whichever comes first. | | EACH USE | 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 | Check level | ○ | | | | |
| | Change | | ○ | | ○ | |
| Air cleaner | Check | ○ | | | | |
| | Clean | | | ○ (1) | | |
| Spark plug | Clean-Readjust | | | | ○ | |
| Spark arrester | Clean | | | | ○ | |
| Valve clearance | Check-Readjust | | | | | ○ (2) |
| Combustion chamber and Valves | Clean-Relap | | | | | ○ (2) |
| Fuel tank and strainer | Clean | | | | | ○ (2) |
| Fuel line | Check (Replace if necessary) | | Every 3 years | | | |

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.

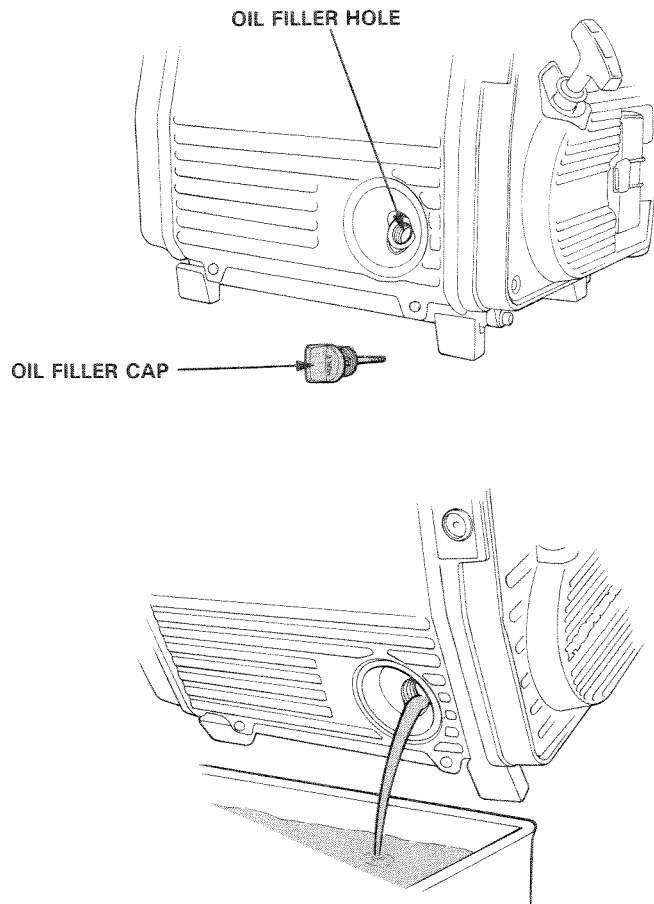
Changing oil

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

1. Remove the oil filler cap, and drain the oil.
2. Refill with the recommended oil (see page 8) and check the level.

OIL CAPACITY: 0.35l (0.37 US qt)

• 946 l 1qt.



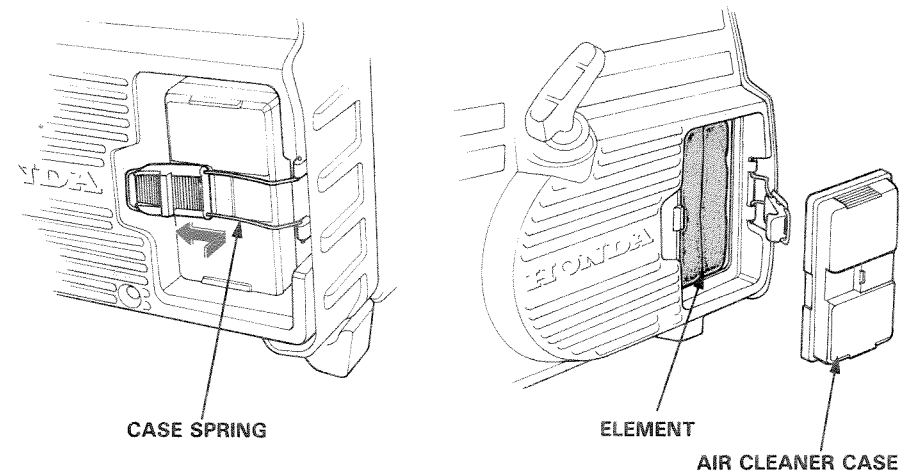
Air cleaner service

A dirty air cleaner will restrict air flow to the carburetor. To prevent carburetor malfunction, service the air cleaner regularly (page 19). 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 generator without the air cleaner. Rapid engine wear will result.

1. Unsnap the air cleaner case spring, remove the air cleaner case 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 case.

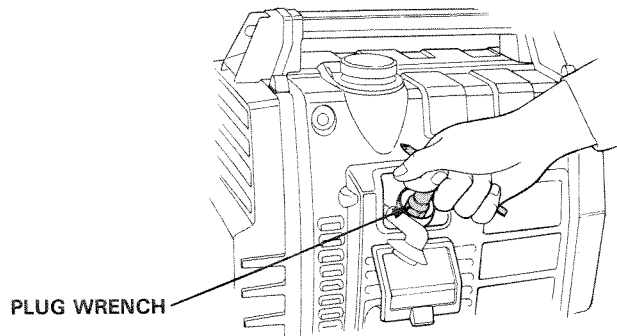


Spark plug service

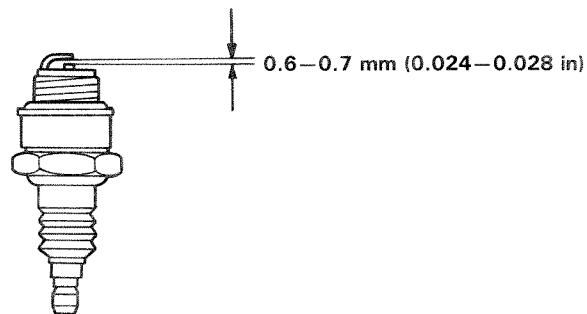
**Recommended spark plug: BMR-4A (NGK)
or W14MR-U (ND)**

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

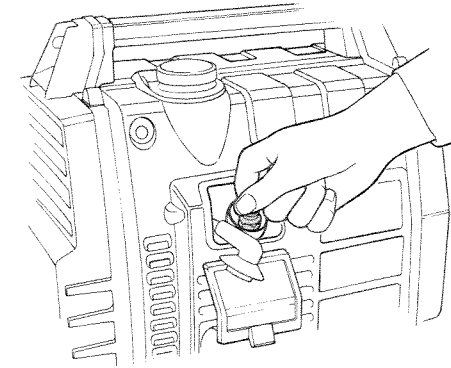
1. Remove the spark plug cap.
2. Use the wrench supplied in the tool kit to remove the spark plug.



3. 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.
4. Measure the plug gap with a feeler gauge. The gap should be 0.6–0.7 mm (0.024–0.028 in). Correct as necessary by bending the side electrode.



5. Inspect the plug washer. Thread the plug in by hand to prevent cross-threading.



6. Tighten a new spark plug 1/2 turn with the wrench to compress the washer. If you are reusing a plug, it should only take 1/8–1/4 turn after the plug seats.

CAUTION:

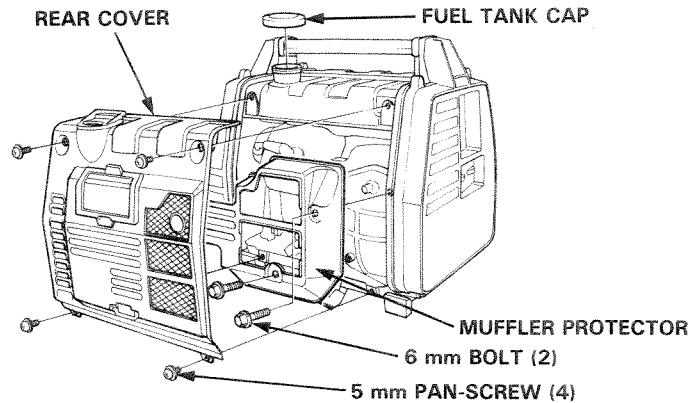
- The spark plug must be securely tightened. An improperly tightened plug can become very hot and possibly damage the generator.
- Never use a spark plug with an improper heat range.

spark arrester maintenance

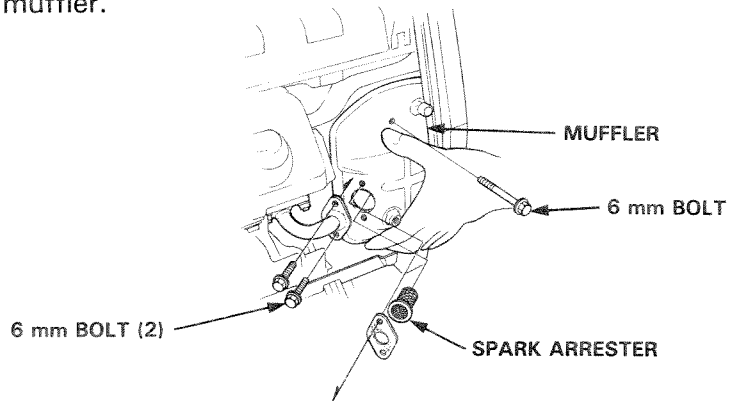
WARNING If the generator has been running, the muffler will be very hot. Allow it to cool before proceeding.

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

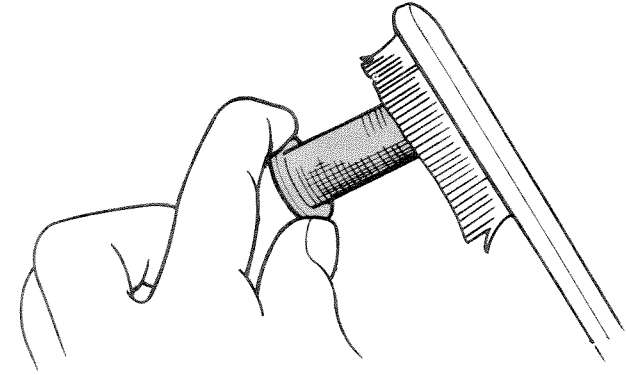
1. Remove the fuel tank cap.
2. Remove the four 5 mm pan-screws, and then remove the rear cover. Retighten the fuel tank cap.
3. Remove the two 6 mm bolts, and then remove the muffler protector.



4. Remove the three 6 mm bolts that hold the muffler. Move the muffler to the right and up as far as possible. Carefully remove the spark arrester from the muffler.



5. Use a brush to remove carbon deposits from the spark arrester screen. Inspect the screen for breaks or tears, and replace it if necessary.



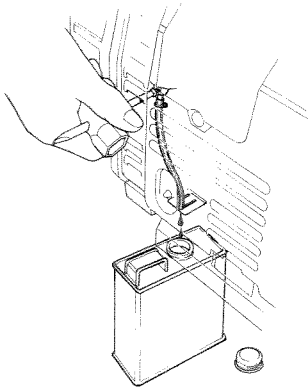
6. Check the exhaust pipe gaskets; replace if damaged. Reinstall the muffler, muffler protector and rear cover in the reverse order of disassembly.

9. TRANSPORTING/STORAGE

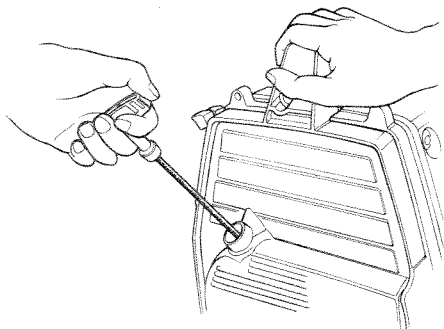
WARNING When transporting the generator, turn the engine switch OFF and keep the generator level to prevent fuel spillage. Fuel vapor or spilled fuel may ignite.

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—
 - Move the engine switch to ON.
 - Loosen the drain screw and drain the fuel into a suitable container. Retighten the screw.
 - Move the engine switch to OFF.



3. Pull the starter grip until resistance is felt; the piston is coming up on its compression stroke. At this position, the exhaust and intake valves are closed, and this will help protect the engine from internal corrosion.



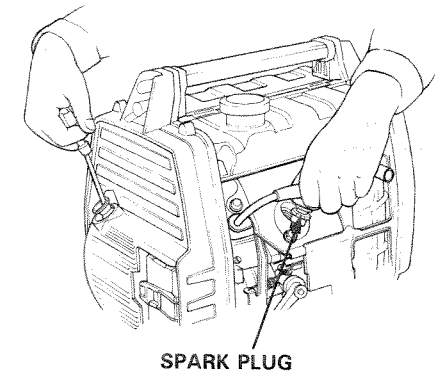
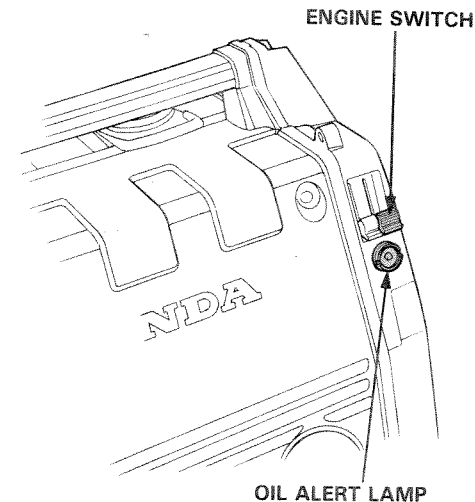
10. TROUBLESHOOTING

A. When the engine will not start:

1. Is the engine switch on?
2. Does the Oil Alert lamp flash when the starter is pulled?
3. Is there enough fuel?
4. Are all loads disconnected from the AC receptacles and DC terminals?
5. Is there a spark at the spark plug?
 - a. Remove the spark plug cap. Clean any dust from around the spark plug base, and then remove the spark plug.
 - b. Install the spark plug in the plug cap.
 - c. Turn the engine switch on.
 - d. Grounding the side electrode to any engine ground, pull the recoil starter to see if sparks hump across the gap.

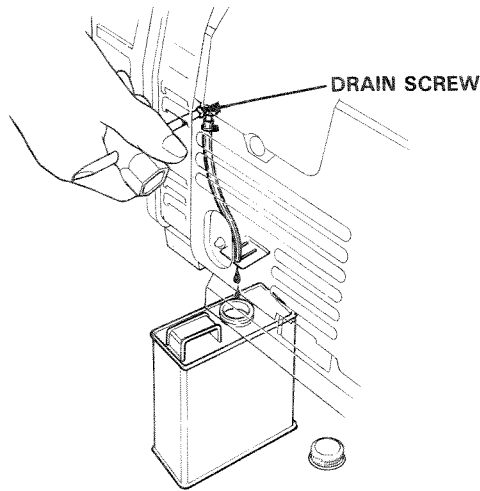
WARNING Be sure there is no spilled fuel near the spark plug. Spilled fuel may ignite. Perform this test in a well ventilated area.

- e. If there are no sparks, replace the plug.
- f. If the new spark plug does not spark, take the generator to an authorized Honda dealer.



6. Is gasoline reaching the carburetor?

To check, place a suitable container under the drain tube, turn the engine switch ON and loosen the drain screw. Fuel should flow out freely. If OK, try to start the engine according to the instructions.



7. If the engine still does not start, take the generator to an authorized Honda dealer.

WARNING If any fuel is spilled, make sure the area around the spark plug and the generator is dry before starting the engine. Fuel vapor or spilled fuel may ignite.

B. When the engine starts but stops immediately:

1. Check the Oil Alert lamp.
If the Oil Alert lamp flashes when the starter is pulled, check the engine oil level and fill with the recommended oil.
2. Re-start the engine.

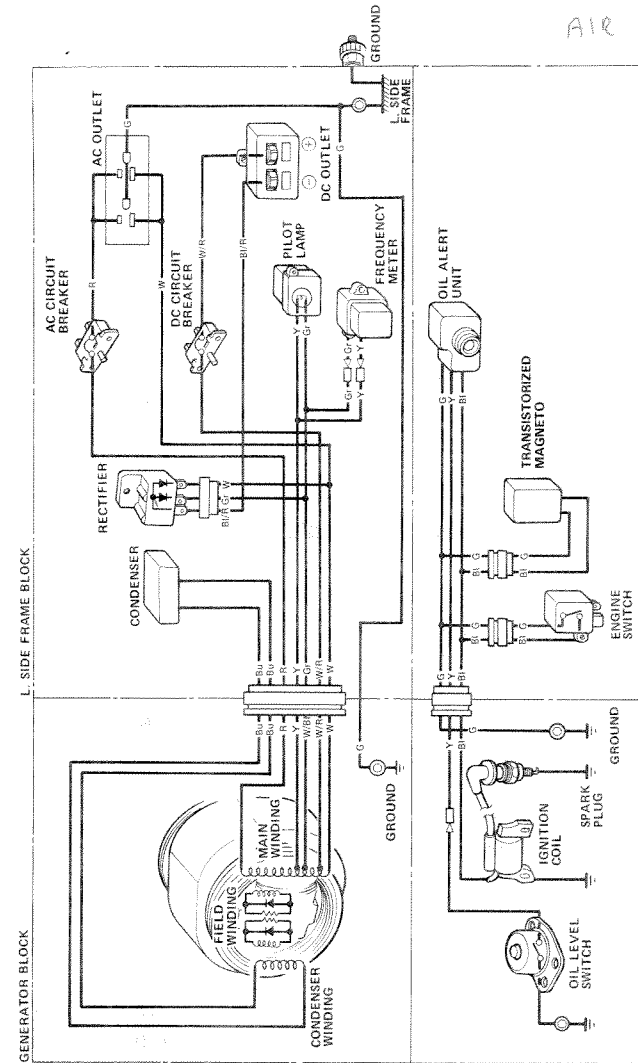
C. No electricity at the AC receptacles:

1. Is the AC circuit breaker on?
2. Check the electrical appliance or equipment for any defects.

D. No electricity at the DC terminals:

1. Is the DC circuit breaker on?

Rectifier: 33 51
 Condenser: 60 50
 Air Clean - 6 99



| | |
|----|-------------|
| B | BLACK |
| Br | BROWN |
| G | GREEN |
| Gr | GRAY |
| Bu | BLUE |
| Lb | LIGHT BLUE |
| Lg | LIGHT GREEN |
| O | ORANGE |
| P | PINK |
| R | RED |
| W | WHITE |
| Y | YELLOW |

12. SPECIFICATIONS

Dimension

| | |
|--------------------------------|---|
| Power product description code | EA3 |
| Length x Width x Height | 410 x 270 x 375 mm (16.1 x 10.6 x 14.8 in) |
| Dry Weight | 22 kg (48.5 lb) |

Engine

| | |
|---------------------------------|---|
| Engine Type | 4-stroke, side valve, 1 cylinder |
| Displacement [Bore x Stroke] | 76 cc (4.65 cu in) [46 x 46 mm (1.81 x 1.81 in)] |
| Compression Ratio | 6 : 1 |
| Engine Speed | 3.600 r.p.m. |
| Cooling System | Forced air cooling |
| Ignition System | Transistorized magneto |
| Oil Capacity | 0.35 ^l (0.37 US qt) <i>11.807</i> |
| Fuel Tank Capacity | 2.8 ^l (0.74 US gal) |
| Spark Plug | BMR-4A (NGK), W14MR-U (ND) |

Generator

| | | |
|-----------|---|-------|
| AC output | Rated Voltage | 120V |
| | Rated Frequency | 60Hz |
| | Rated Amperage | 4.6A |
| | Rated Output | 550VA |
| | Maximum Output | 650VA |
| DC output | Only for charging 12 V automotive batteries. Maximum charging output = 8.3 A | |

liter = 0.378 gal

13. 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 at the regional office of American Honda Motor Co., Inc. in your area. Regional office locations are shown on the following page. We will need the following information in order to assist you:

- Your name, address, and telephone number
- Engine 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.

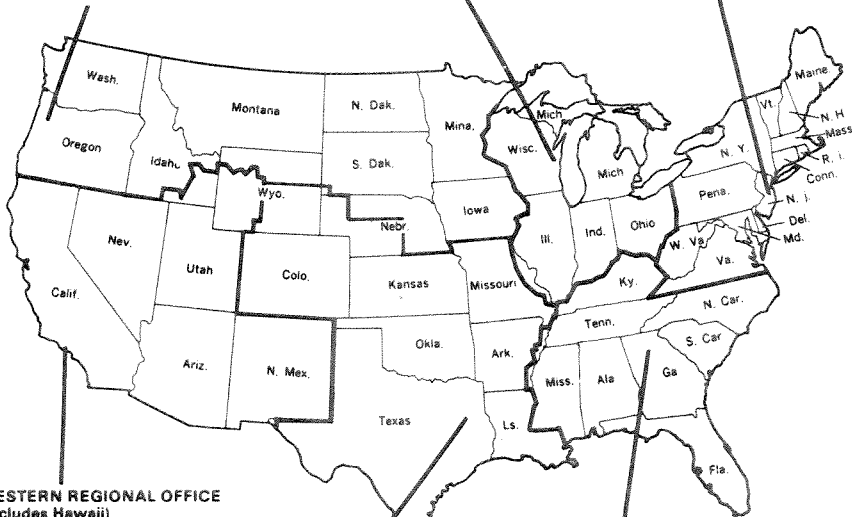
Your purchase of a Honda generator is greatly appreciated by both the dealer and American Honda Motor Co., Inc. We want to assist you in every way possible to assure your complete satisfaction with your purchase.

Regional Office Locations

NORTHWEST REGIONAL OFFICE
 (includes Alaska)
 American Honda Motor Co., Inc.
 Customer Relations Department
 P.O. Box 30285
 Portland, Oregon 97220
 Telephone: (503) 255-1186

MIDWEST REGIONAL OFFICE
 American Honda Motor Co., Inc.
 Customer Relations Department
 P.O. Box 22
 Greendale, Wisconsin 53129
 Telephone: (414) 421-9300

NORTHEAST REGIONAL OFFICE
 American Honda Motor Co., Inc.
 Customer Relations Department
 P.O. Box 749
 Moorestown, New Jersey 08057
 Telephone: (609) 778-1100



WESTERN REGIONAL OFFICE
 (includes Hawaii)
 American Honda Motor Co., Inc.
 Customer Relations Department
 P.O. Box 420
 Gardena, California 90247
 Telephone: (213) 604-2524

SOUTHWEST REGIONAL OFFICE
 American Honda Motor Co., Inc.
 Customer Relations Department
 P.O. Box 5406
 Irving, Texas 75062
 Telephone: (214) 258-6883

SOUTHEAST REGIONAL OFFICE
 (includes Puerto Rico)
 American Honda Motor Co., Inc.
 Customer Relations Department
 1500 Morrison Parkway
 Alpharetta, Georgia 30201
 Telephone: (404) 442-2000