# HONDA

## GENERATOR

# E3500

# OWNER'S MANUAL

This manual covers operation and maintenance of the E3500 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. The manual should be considered a permanent part of the generator and remain with the generator when sold.

Read the manual carefully. Pay special attention to statements preceded by the following words:

***WARNING***

***Indicates a possibility of personal injury or loss of life if instructions are not followed.***

*CAUTION*

*Indicates a possibility of equipment damage if instructions are not followed.*

Thank you for purchasing a Honda Generator.

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

**WARNING**

***The Honda generator is 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.***

CONTENTS

## GENERATOR SAFETY

*WARNING*

*To ensure safe operation –*

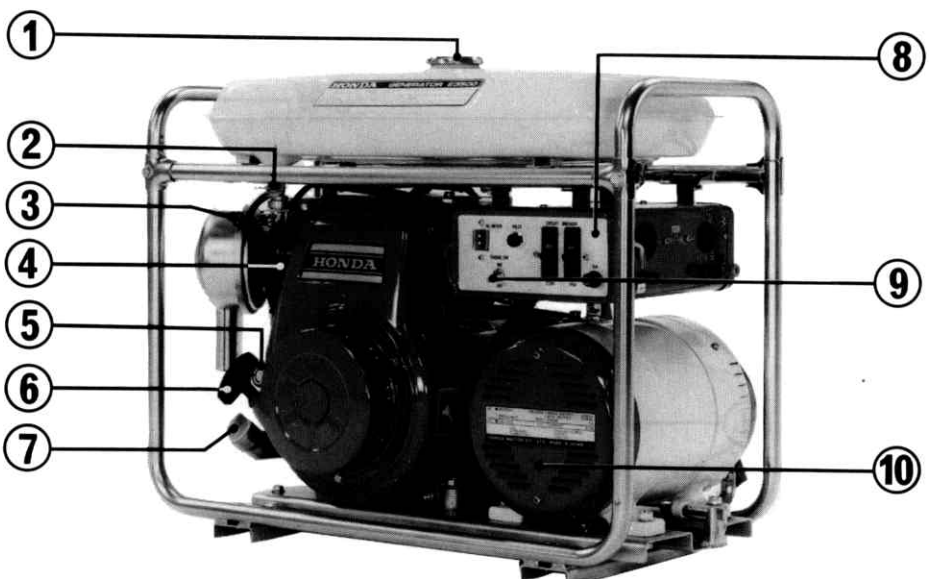
* *Know how to stop the generator quickly and understand operation of all the controls. Never permit anyone to operate the generator without proper instruction.*
* *Keep children and pets away from the generator when in operation.*
* *The generator is a potential source of electrical shock when misused: Do not operate with wet hands. Do not operate in rain or snow.*

*When charging a battery –*

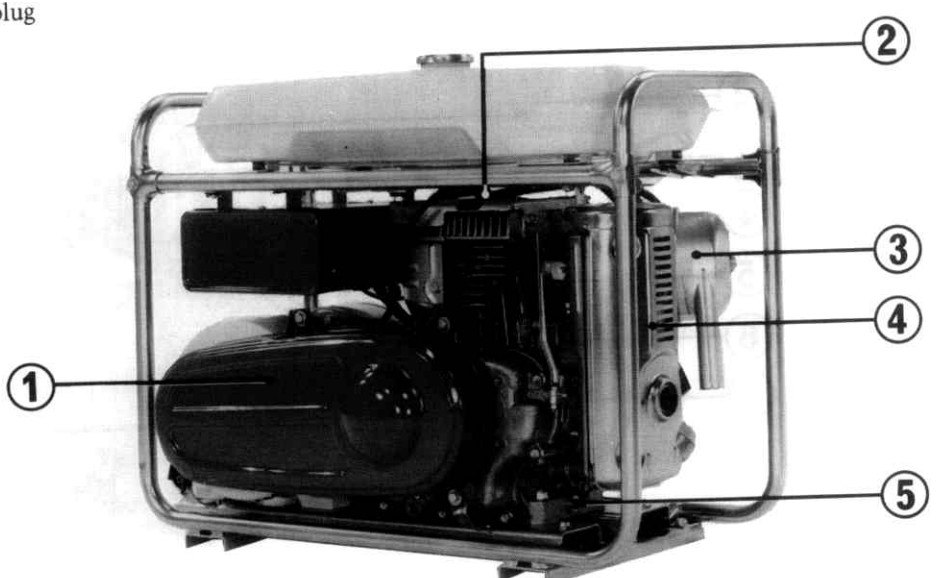
* *Battery electrolyte contains sulphuric acid. Protect your eyes, skin and clothing. In case of contact, flush thoroughly with water and call a doctor if your eyes were exposed.*
* *Batteries generate hydrogen gas which can be highly explosive. Do not smoke or allow flames or sparks near a battery, especially while charging it.*

## COMPONENT IDENTIFICATION

(1) Fuel filler cap
(2) Fuel valve
(3) Choke rod
(4) Carburetor
(5) Throttle knob
(6) Recoil starter
(7) Oil filler cap
(8) Control box
(9) Engine switch
(10) Generator

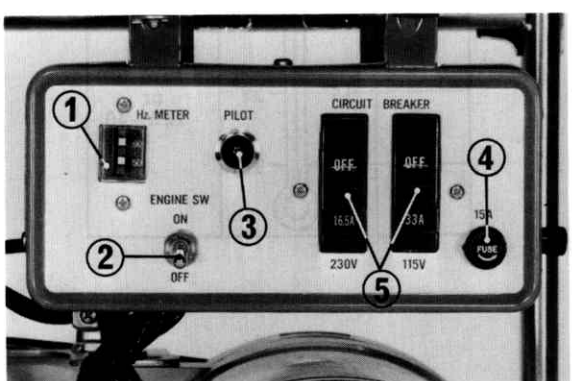


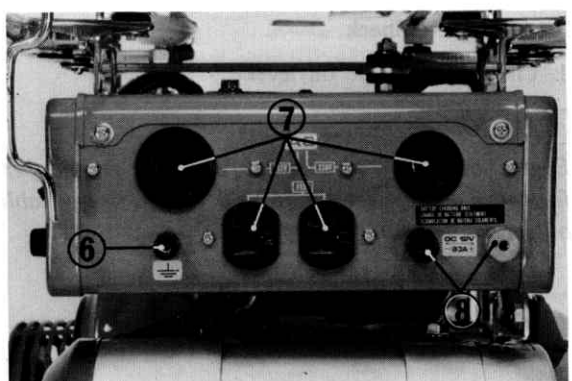
(1) Belt cover
(2) Spark plug cap
(3) Air cleaner
(4) Muffler
(5) Oil drain plug



## CONTROL BOX

1. FREQUENCY METER. Indicates generator frequency by oscillation.
2. ENGINE SWITCH. When starting the engine, turn the engine switch ON. Turn OFF to stop the engine operation.
3. PILOT LAMP. Lights when the engine is running.
4. FUSE HOLDER. Houses a 15A fuse for the DC circuit.
5. CIRCUIT BREAKERS. Switch ON for AC power. A breaker will automatically switch OFF if the generator is overloaded.
6. GROUND TERMINAL.
7. AC RECEPTACLES. The generator is equipped with outlets for both 115V and 230V applications.
8. DC TERMINALS.



## OPERATION

**WARNING**

* ***Exhaust gas contains poisonous carbon monoxide. Never run the generator in an enclosed area. Be sure to provide adequate ventilation.***
* ***Operate the generator on a level surface. If the generator is tilted, fuel spillage may result.***

**CAUTION**

*The generator is air-cooled and may be damaged if ventilation is inadequate.*

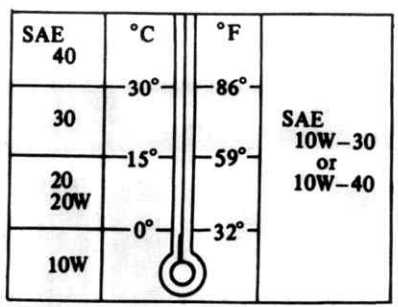
**Pre-Operation Check**

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, or an equivalent high detergent, premium quality motor oil certified to meet or exceed U.S. automobile manufacturer's requirements for Service Classification SE. (Motor oils classified SE will show this designation on the container.) SAE 10W-40 is recommended for general, all-temperature use. If single viscosity oil is used, select the appropriate viscosity for the average temperature in your area.

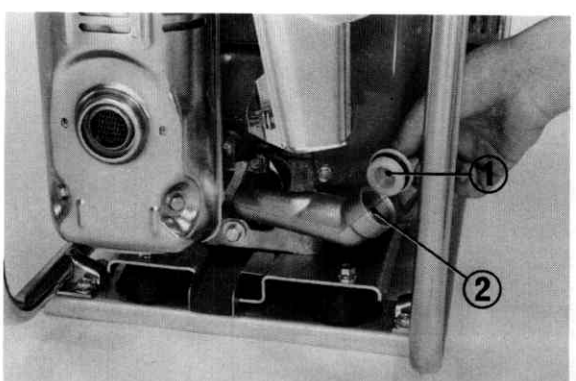


A. With the generator on a level surface, remove the oil filler cap and check the oil level.
B. If the level is low, fill to the upper limit with the recommended oil. Do not overfill; excess oil will result in power loss and smoking.

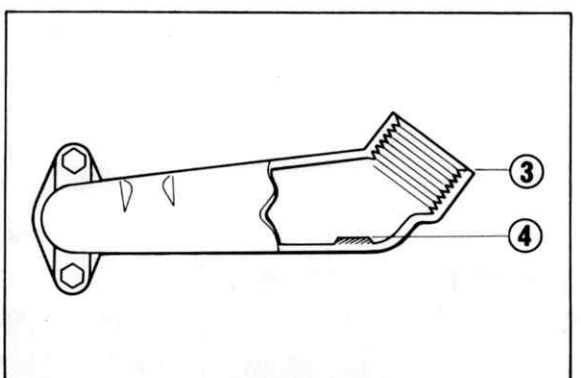
*CAUTION*

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

(1) Oil filler cap
(2) Oil filler hole




(3) Upper limit
(4) Lower limit



2. Check the fuel level.
   Use automotive gasoline with a research octane of 91 or higher or a pump octane ( $\frac{R+M}{2}$ ) of 86 or higher. Fill to half-way up the filler screen. Never use an oil/gasoline mixture or dirty gasoline. Avoid getting dirt, dust or water in the fuel tank.

**WARNING**

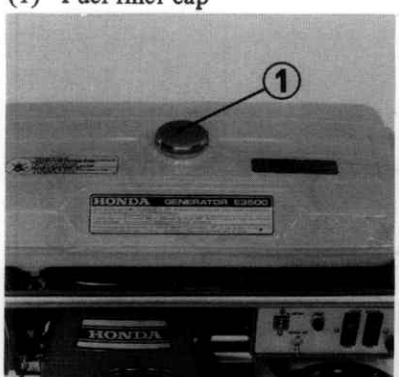
* ***Gasoline is extremely flammable and explosive under certain conditions. Refuel in a well ventilated area with the engine stopped.***
* *Do not smoke or allow flames or sparks in the area where the generator is refueled or where gasoline is stored.*
* *Do not overfill the tank and make sure the filler 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.*

CAUTION

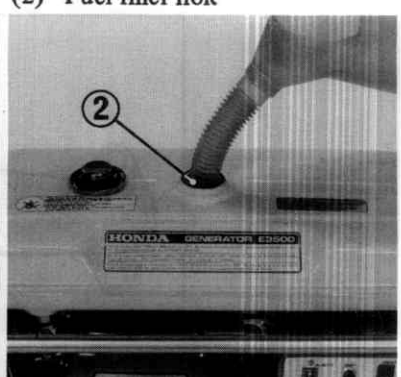
*Gasoline substitutes, such as gasohol etc., are not recommended, they may be harmful to the fuel system components.*

3. Be sure that the A.C. switch is OFF.

(1) Fuel filler cap




(2) Fuel filler hole

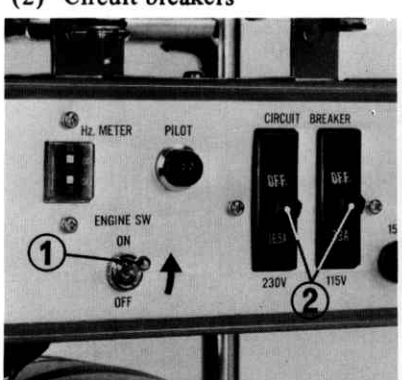


**Starting the Engine**

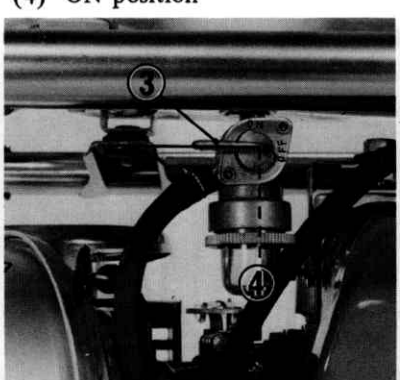
1. Turn the engine switch ON and turn off the circuit breakers, or disconnect the charging cord from the DC terminals.
2. Turn the fuel valve ON. Close the choke fully.

NOTE: Do not use the choke when the engine is warm or air temperature is high.

(1) Engine switch
(2) Circuit breakers



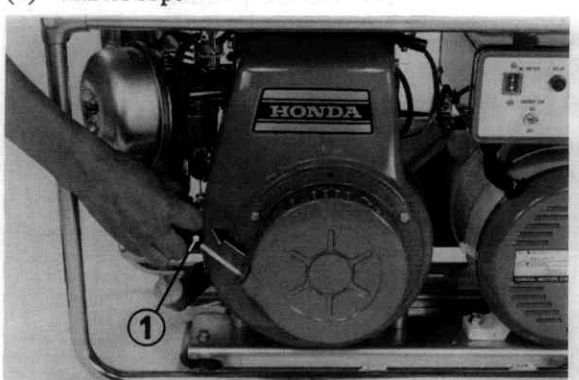

(3) Fuel valve
(4) ON position



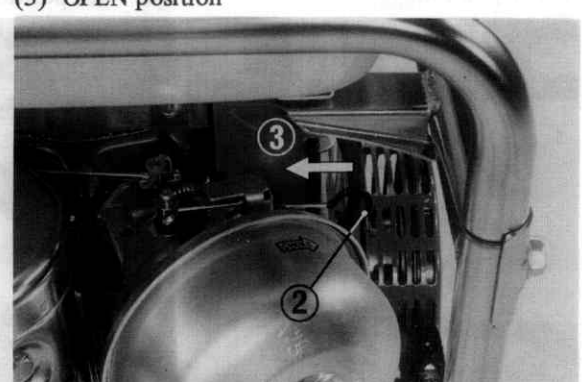

(5) Choke rod
(6) CLOSE position

3. Pull the recoil starter rope lightly until resistance is felt, then pull swiftly.
4. Open the choke as the engine warms up.

(1) Starter rope




(2) Choke rod
(3) OPEN position



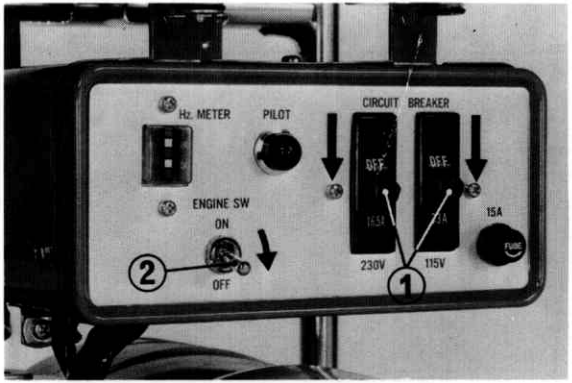
**Stopping the Engine**

To stop the engine in an **emergency**, turn the engine switch OFF.

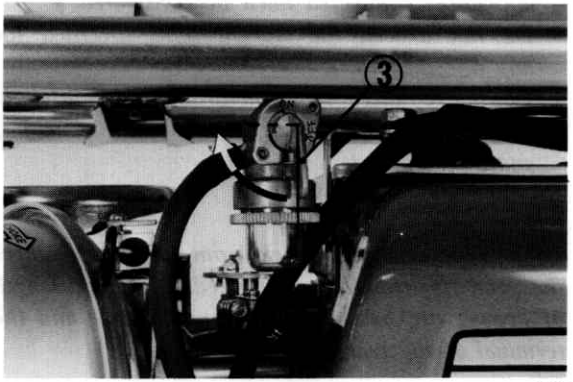
In normal use:

1. Turn the circuit breakers OFF and disconnect the charging cord (if used).
2. Turn the engine switch OFF.
3. Turn the fuel valve OFF.

(1) Circuit breakers (2) Engine switch




(3) Fuel valve



## GENERATOR USE

### AC Applications

The generator is equipped with two receptacles for 115V, 15A power, one receptacle for 115V, 30A, and one receptacle for 230V, 15.2A. The maximum power available at the receptacles is 3.5 kVA (3,500 watts).

*CAUTION*

* *Limit operation requiring maximum power to 30 minutes. For continuous operation, do not exceed the rated power limit of 2.8 KVA (2,800 watts). In either case, the total wattage of all appliances connected must be considered.*
* *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 and/or the circuit.*

***WARNING***

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

1. Start the engine and verify that the generator is operating at 60 Hz. If it is not, turn the throttle knob in the appropriate direction until the correct frequency is obtained.

(1) Throttle knob
(2) **Frequency meter**

2. Plug in the appliance.

NOTE: Watch the frequency meter carefully when connecting a tape recorder or a radio. If the frequency drops, readjust the throttle as required.

The generator is equipped with an AVR (Auto Voltage Regulator). Voltage need not be adjusted if the frequency is adjusted properly. If the generator does not produce the specified voltage at the proper frequency, consult an authorized HONDA dealer.

**DC Application**

*CAUTION*

*Use the DC terminals for charging 12 volt automotive type batteries only. Check the positive (+) and negative (–) sides and make a proper connection. Do not reverse the polarity of the terminals when charging a battery. Serious damage to the generator and/or battery may occur.*

NOTE: The DC terminals may be used while the AC outlet is in use.

## MAINTENANCE

The purpose of periodic maintenance and adjustment is to keep the generator in the best operating condition. Perform service as scheduled in the table on page 17.

**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 new genuine HONDA parts or their equivalent. The use of replacement parts which are not of equivalent quality may damage the generator.*

**Maintenance Schedule**

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

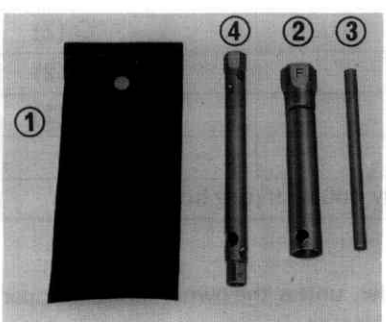
NOTE (1): Service more frequently when used in dusty areas.

(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.

## Tool Kit

The tools supplied are necessary for performing some periodic maintenance, simple adjustments and repairs. Always keep the kit with the generator.

(1) Tool bag
(2) Spark plug wrench
(3) Plug wrench handle
(4) 10 x 12 mm wrench

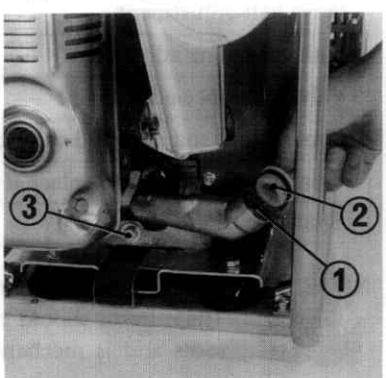



## Changing Oil

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 p. 9) and check the level.

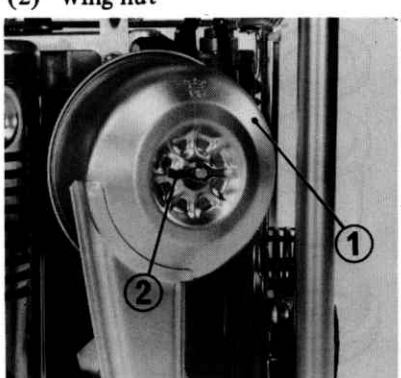
(1) Oil filler hole
(2) Oil filler cap
(3) **Drain plug**



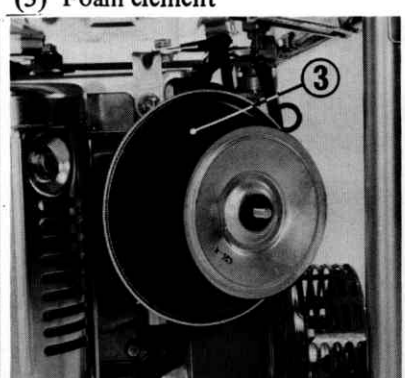
**Air Cleaner Service**

1. Loosen the wing nut to remove the cover. Remove and separate the cleaner elements.
2. Wash the foam element in liquid detergent and water and flush until water is clear. Dry it thoroughly by applying compressed air. After drying, soak in oil and squeeze out the excess.
3. Remove dust from paper element by applying compressed air or tapping the case lightly. If the paper element is excessively dirty, replace or wash it in liquid detergent and water and flush until water is clear. Dry it thoroughly by applying compressed air before installing.

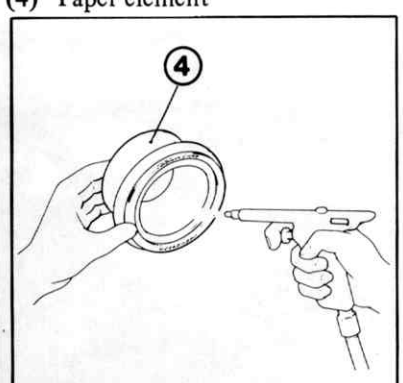
(1) Air cleaner cover
(2) Wing nut




(3) Foam element




(4) Paper element



**Fuel Filter Service**

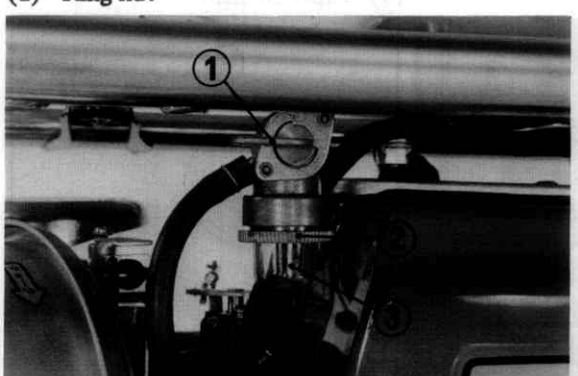
The filter prevents dirt or water which may be in the fuel tank from entering the carburetor. If the engine has not been run for a long time, the filter should be cleaned.

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

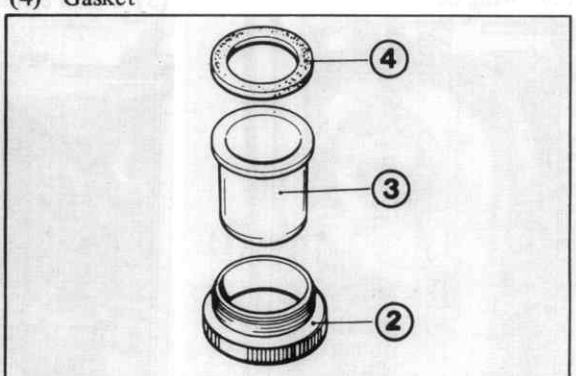
***WARNING***

***After installing the filter cup, be sure to tighten the ring nut securely. Check for fuel leaks and remove any spilled fuel prior to starting.***

(1) Fuel valve
(2) Ring nut




(3) Filter cup
(4) Gasket



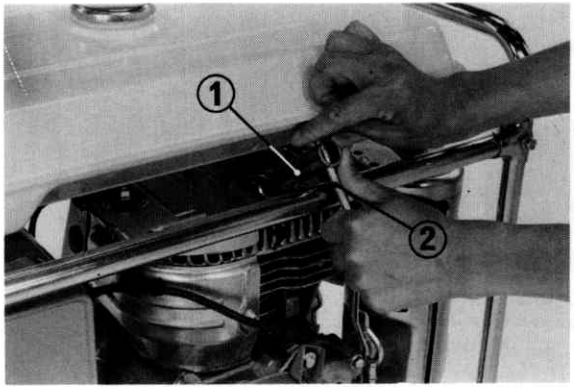
**Spark Plug Service**

Recommended spark plug: BR-4HS (NGK)
W14FR-U (ND)

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

1. Clean any dirt from around the spark plug base.
2. Remove the plug cap and use the wrench to remove the spark plug.
3. Visually inspect the spark plug. Discard it if the insulator is cracked or chipped.
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.

(1) Spark plug wrench (2) Plug wrench handle

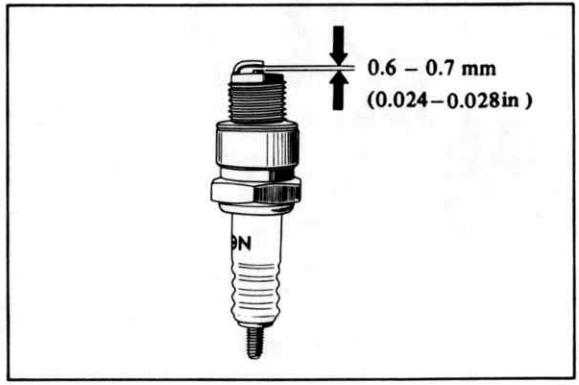



5. Attach the plug washer. Thread the plug in by hand to prevent cross-threading.
6. Tighten a new spark plug 1/2 turn with the wrench to compress the washer. If you are reusing a plug it should only take 1/8–1/4 turn after the plug seats.

*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.*

(3) Spark plug



**Drive Belt Adjustment**

A loose or slipping belt will cause a drop in output power.

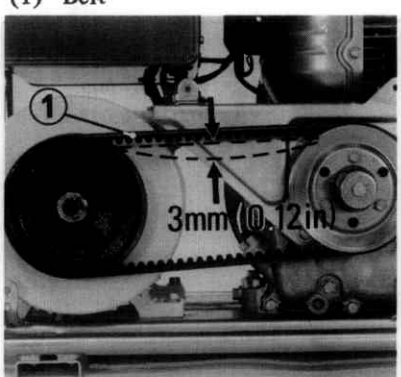
1. Remove the belt cover and check tension by pushing the middle of the belt. There should be approximately 3mm (0.12 in) of slack.
2. To adjust tension, loosen the generator mounting bolts. Loosen the lock nut on the adjusting bolt, and turn the bolt.

*CAUTION*

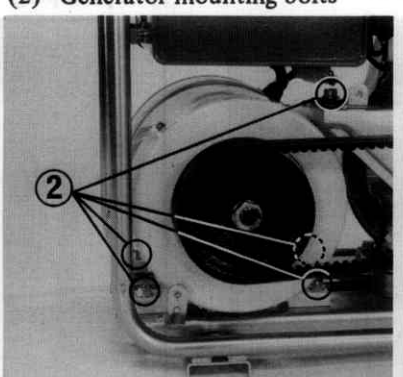
*An overtightened drive belt will cause rapid bearing wear.*

3. Retighten the lock nut and mounting bolts securely.

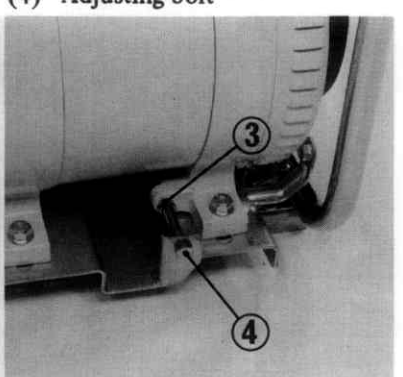
(1) Belt




(2) Generator mounting bolts




(3) Lock nut
(4) Adjusting bolt

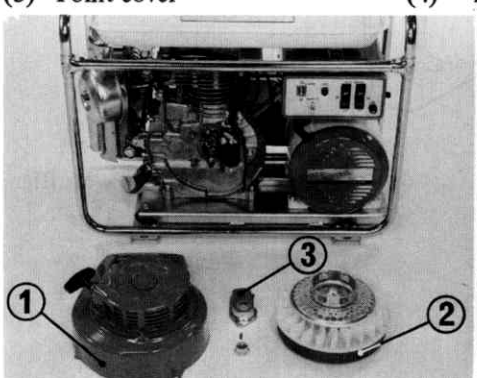


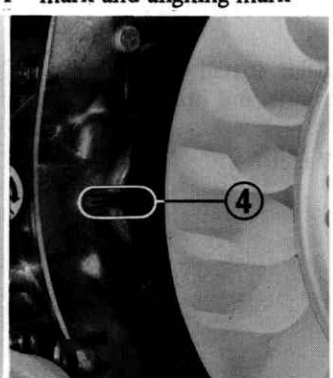
**Ignition Timing Adjustment**

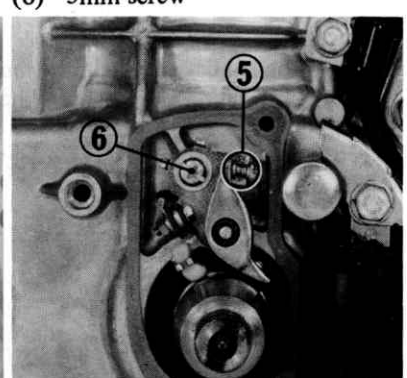
Check the timing when specified by the periodic maintenance chart. Incorrect ignition timing will cause starting difficulty and loss of power.

1. Remove the fan cover.
2. Proper timing is determined by correct point opening: Using a commercially available timing tester, rotate the flywheel clockwise and check that the points start to open when the flywheel "F" mark passes the mark on the crankcase.
3. If timing is not correct, remove the starter pulley, fan, flywheel, and point cover.
4. Loosen the 5 mm screw and move the breaker plate to the right or left as required. Retighten the screw and recheck timing.

(1) Fan shroud
(2) Flywheel
(3) Point cover
(4) "F" mark and aligning mark
(5) Contact breaker points
(6) 5mm screw



## SPARK ARRESTER MAINTENANCE

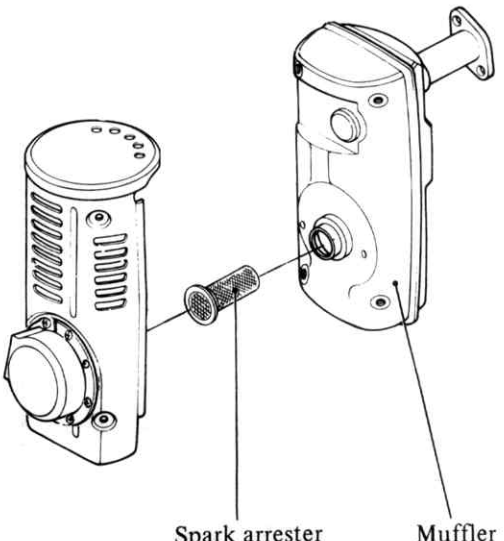
*WARNING*

***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 four bolts and remove the muffler protector.
2. Remove the spark arrester from the muffler. Clean the screen and inspect it for damage. Replace if necessary.
3. Install the spark arrester in the muffler. Install the muffler protector and tighten the nuts and bolts securely.
4. TORQUE: 80–120 kg·cm (5.8–8.7 ft·lb)



## TRANSPORTING/STORAGE

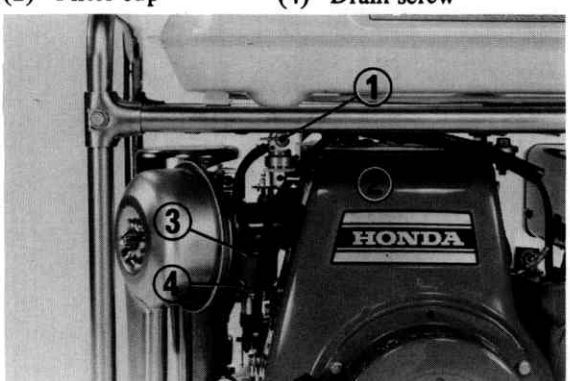
***WARNING***

***When transporting the generator, shut off the fuel valve and keep the generator level to prevent fuel spillage. Fuel vapor or spilled fuel may ignite.***

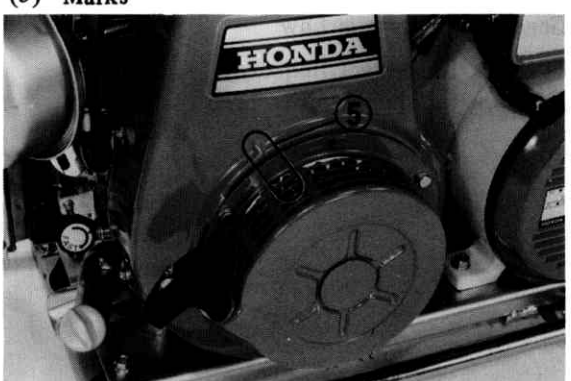
Before storing the unit for an extended period:

1. Assure that the storage area is free of excessive humidity and dust.
2. Drain the fuel tank –
   A. Turn the fuel valve OFF and disconnect the fuel line at the carburetor.
   B. Turn the valve ON and drain the gasoline into a suitable container.
   C. Remove and empty the filter cup.
3. Drain the carburetor into a suitable container by loosening the drain screw.
4. Pull the starter rope so that the mark on the pulley is aligned with the index mark on the fan shroud on the compression stroke. This helps protect the engine from corrosion.

(1) Fuel valve
(2) Filter cup
(3) Carburetor
(4) Drain screw




(5) Marks



# TROUBLESHOOTING

### Difficult Starting

1) Remove any appliances that may be connected to the generator.
2) Check the fuel level.
3) Check the choke position.

### No Electricity at the Outlet Receptacles

1) Be sure the circuit breaker is ON.
2) Check for a blown fuse.
3) Check the electrical appliance or equipment for any defects.

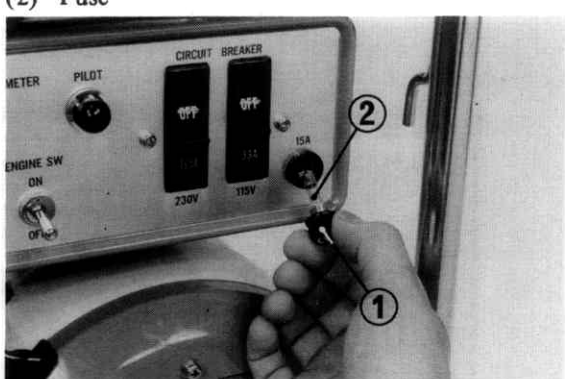
### Generator Voltage is Low

1) Check for correct frequency.
2) Check for slipping drive belt.

### Fuse Replacement

Before replacing a blown fuse, determine the cause and correct the problem.
Remove the old fuse by turning the holder counter-clockwise. Replace with a 15A fuse.

(1) Fuse holder
(2) Fuse



## SPECIFICATIONS

Dimensions

| | |
|---|---|
| Length x Width x Height | 715 x 415 x 595 mm (28.2 x 16.3 x 23.4 in) |
| Dry weight | 84.0 kg (185 lbs) |

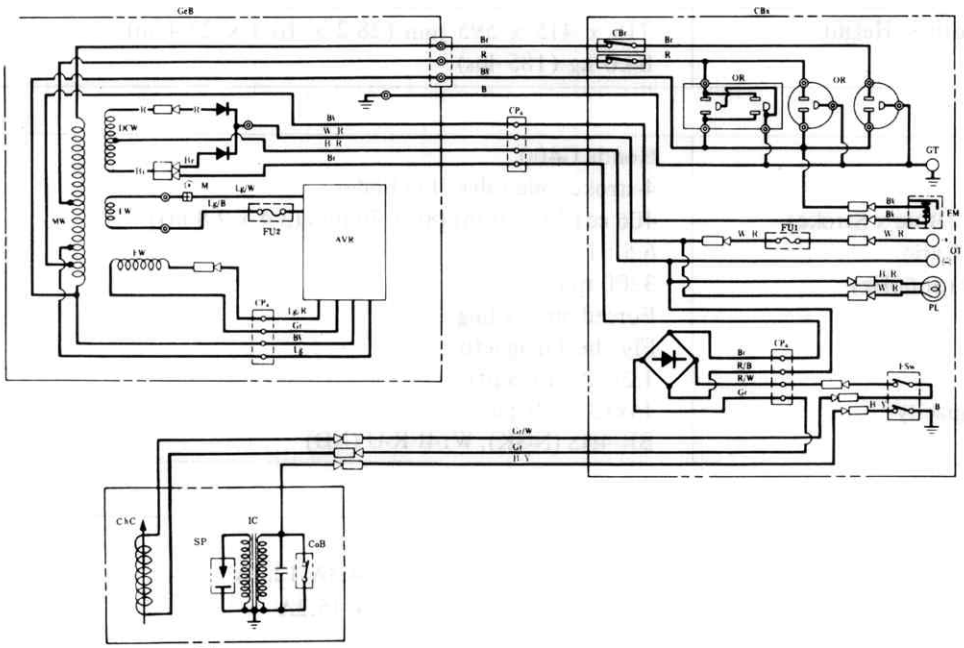
Engine

| | |
|---|---|
| Model | Honda G400 |
| Engine Type | 4-stroke, side valve, 1 cylinder |
| Displacement [Bore x Stroke] | 406 cc (24.7 cu in) [86 x 70 mm (3.4 x 2.8 in)] |
| Compression Ratio | 6.5 : 1 |
| Engine Speed (at 60Hz) | 3200 rpm |
| Cooling | Forced air cooling |
| Ignition | Flywheel magneto |
| Oil Capacity | 1.2ℓ (2.54 US pt) |
| Fuel Tank Capacity | 14ℓ (3.7 US gal) |
| Spark Plug | BR-4HS (NGK), W14FR-U (ND) |

Generator

| | | |
|---|---|---|
| AC output | Rated voltage | 115V/230V |
| | Rated output | 2.8 KVA (2,800 watts), 24.3A/12.2A |
| | Maximum output | 3.5 kVA (3,500 watts), 30A/15.2A |
| | Cycles | 60 Hz |
| DC output | | Only for charging 12V automotive batteries.<br>Maximum charging output ≒ 8.3A. |

# WIRING DIAGRAM



| | Part Name |
|---|---|
| AVR | Automatic Voltage Regulator |
| CBr | Circuit Breaker |
| CBx | Control Box |
| ChC | Charging Coil |
| CoB | Contact Breaker |
| CP~ | ~P Connector |
| DCW | DC Winding |
| EgB | Engine Block |
| ESw | Engine Switch |
| EW | Exciter Winding |
| FM | Frequency Meter |
| Fu 1 | Fuse (15A) |
| Fu 2 | Fuse (3.5A) |
| FW | Field Winding |
| GeB | Generator Block |
| GT | Ground Terminal |
| IC | Ignition Coil |
| MW | Main Winding |
| OR | Output Receptacle |
| OT | Output Terminal |
| PL | Pilot Lamp |
| ⊕M | + Mark |

| | Color |
|---|---|
| B | Black |
| Bl | Blue |
| Br | Brown |
| Gr | Green |
| Lg | Light Green |
| R | Red |
| W | White |
| Y | Yellow |

## Current customer service contact information:

### United States, Puerto Rico, and U.S. Virgin Islands:

Honda Power Equipment dealership personnel are trained professionals. They should be able to answer any question you may have. If you encounter a problem that your dealer does not solve to your satisfaction, please discuss it with the dealership's management. The Service Manager or General Manager can help. Almost all problems are solved in this way.

If you are dissatisfied with the decision made by the dealership's management, contact the Honda Power Equipment Customer Relations Office. You can write:

American Honda Motor Co., Inc.
Power Equipment Division
Customer Relations Office
4900 Marconi Drive
Alpharetta, GA 30005-8847

Or telephone: (770) 497-6400 M-F, 8:30 am - 5:00 pm EST

When you write or call, please provide the following information:

- Model and serial numbers
- Name of the dealer who sold the Honda power equipment to you
- Name and address of the dealer who services your equipment
- Date of purchase
- Your name, address, and telephone number
- A detailed description of the problem

HONDA

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