

HONDA

GENERATOR

**E4500
ES4500
ET4500**

OWNER'S MANUAL

This manual covers operation and maintenance of the E4500, ES4500 and ET4500 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. 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.

Photos herein are mainly of model ES4500.

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.

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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.*

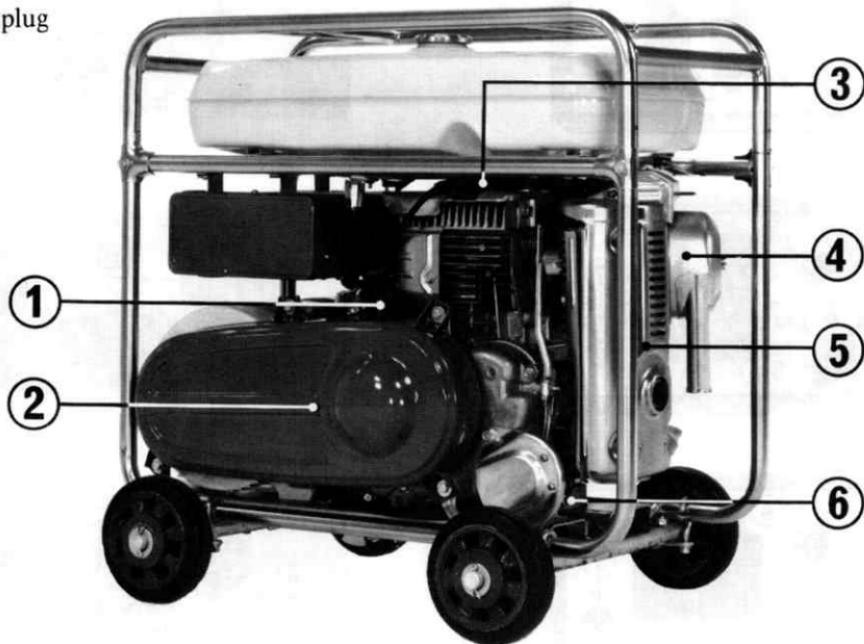


COMPONENT IDENTIFICATION

- (1) Fuel filler cap
- (2) Fuel valve
- (3) Choke rod
- (4) Carburetor
- (5) Throttle knob
- (6) Manual starter
- (7) Oil filler cap
- (8) Control box
- (9) Engine switch
- (10) Generator
- (11) Wheels
(Optional)
- (12) Wheel lock

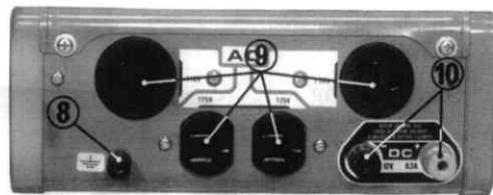
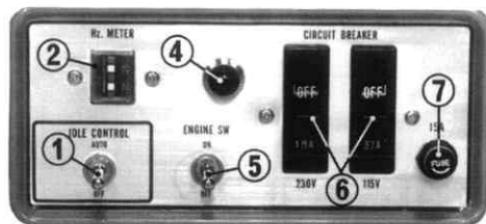


- (1) Electric starter (ES4500, ET4500)
- (2) Belt cover
- (3) Spark plug cap
- (4) Air cleaner
- (5) Muffler
- (6) Oil drain plug

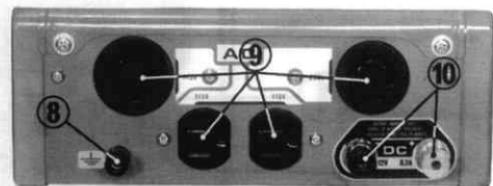
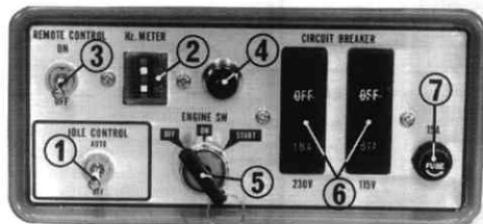


CONTROL BOX

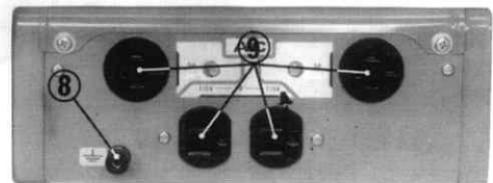
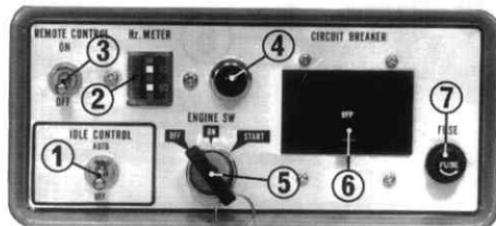
E4500



ES4500



ET4500



1. **IDLE CONTROL SWITCH.** When the AUTO is used, engine speed is automatically reduced to an idle when an electrical appliance is turned off or disconnected.

When the appliance is turned on or reconnected, the engine resumes the rated speed. At OFF, the idle control system does not operate.

<NOTE>

- AUTO is recommended to minimize fuel consumption.
- The idle control system will not work when the electrical load is less than 1 amp.
- The system is not effective for use with appliance that require only momentary power. To avoid extended warm-up periods, keep the switch OFF until the engine reaches operating temperature.

2. **FREQUENCY METER.** Indicates generator frequency by oscillation.

3. **REMOTE CONTROL SWITCH.** Use the switch only if the unit has been equipped with the optional Remote Control Kit. (See p. 15)

4. **PILOT LAMP.** Lights when the engine is running.

5. **ENGINE SWITCH (IGNITION KEY).** Turn the key to START to activate the self-starting motor (ES500, ET4500). Turn the key to ON when the engine is running. Turn the key to OFF to stop the engine.

6. **CIRCUIT BREAKERS.** Switch ON for AC power. A breaker will automatically switch OFF if the generator is overloaded.

7. **FUSE HOLDER.** Houses a 15A fuse for the DC circuit (E4500, ES4500) or 4A fuse for the single phase AC circuit (ET4500).

8. **GROUND TERMINAL.**

9. **AC RECEPTACLES.** The generator is equipped with outlets for both 115V and 230V applications.

10. **DC TERMINALS.** (E4500, ES4500)

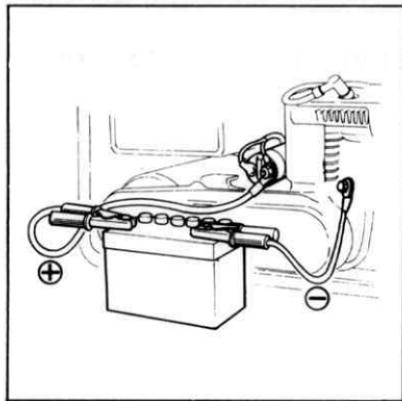
BATTERY CONNECTION (ES4500, ET4500)

Use a battery rated at 12V, 32AH or more.

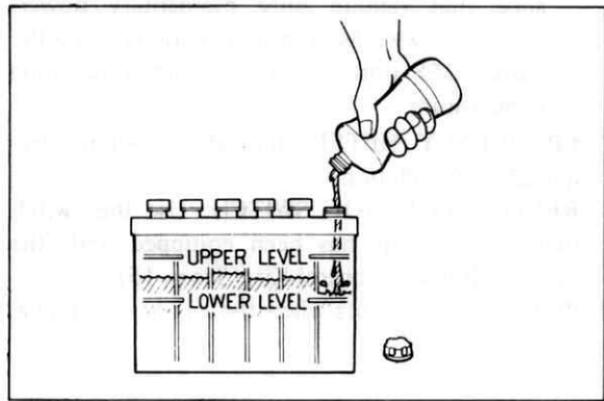
CAUTION

Do not reverse polarity. Serious damage to the generator and/or battery may occur.

1. Using a cable, connect the positive terminal to the right (non-capped) starter motor terminal with an 8mm nut. Connect the negative terminal to the cylinder block with an 8mm bolt.



2. Coat the terminals with grease.
3. Check the electrolyte level to be sure that it is between the marks on the case. If the level is below the lower mark, remove the caps and add distilled water to bring the electrolyte level to the upper mark. The cells should be equally full.



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.*
- * *Keep away from rotating parts while the generator is running.*

CAUTION

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

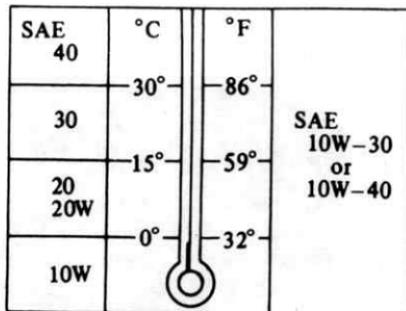
Pre-Operation Check

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. Do not overfill; excess oil will result in power loss and smoking.

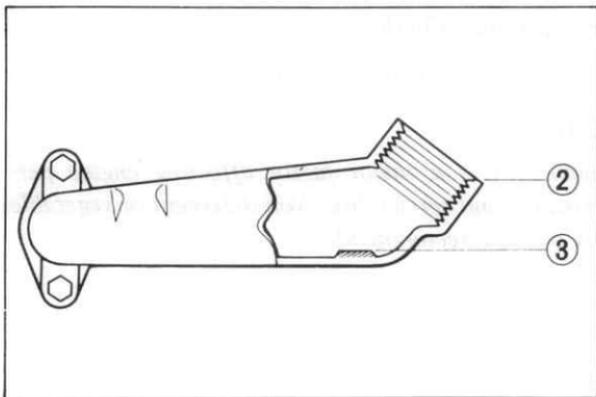
CAUTION

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

(1) Oil filler cap



- (2) Upper limit
(3) 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 open flames or sparks in the area where the generator is refueled or where gasoline is stored.
- * Do not overfill the tank. There should be no fuel in the filler neck. Tighten the filler cap securely after refueling.
- * Be careful not to spill fuel when refueling. Fuel vapor or spilled fuel may ignite. Make sure the area is dry before starting the engine.

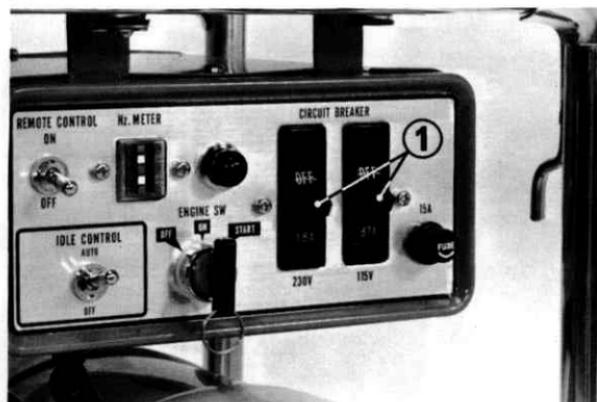
CAUTION

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

If a battery is used –

3. Check that the battery electrolyte level is between the marks on the case. Be sure that the cable connections are secure.
4. Insure that the circuit breakers are OFF, and that there is no load on the DC terminals. The generator may be hard to start if a load is connected.

(1) Circuit breakers



Starting the Engine

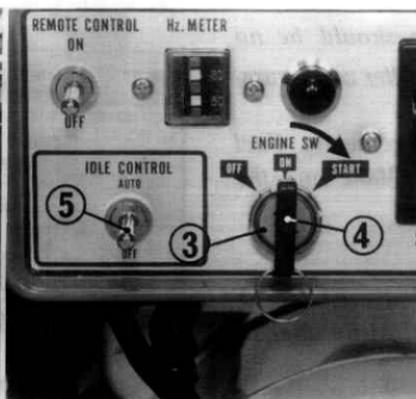
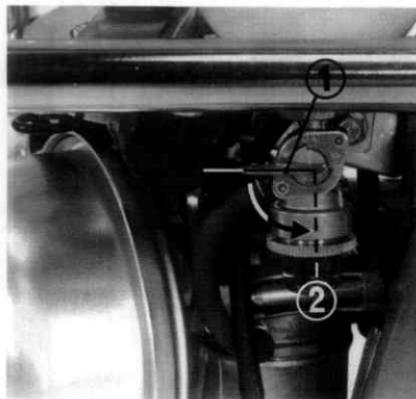
Electric Starter –

1. Make sure the idle control switch is OFF, or warm-up time may be extended.
2. Turn the fuel valve ON.
3. Make sure that the remote control switch is OFF. Otherwise, the engine switch will not work.
4. Insert the ignition key and hold it at START until the engine starts.

- (1) Fuel valve
(2) ON position

- (3) Engine switch
(4) Ignition key

- (5) Idle control switch



NOTE: When the speed of the starter motor drops after a period of time, it is an indication that the battery should be recharged.

5. After the engine starts, let the key return to ON.

NOTE: The generator employs an automatic choke when the starter motor and battery are used.

6. Turn the idle control switch to AUTO after the engine is warm.

Manual Starting –

1. Make sure the idle control switch is OFF, or more time will be required for warm up.
2. Turn the fuel valve ON.
3. Turn the ignition key ON.
4. Close the choke.

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

5. Pull the starter rope lightly until compression is felt, then pull briskly.
6. Open the choke as the engine warms up.
7. If idle control will be used, turn the control switch to AUTO after the engine is warm.

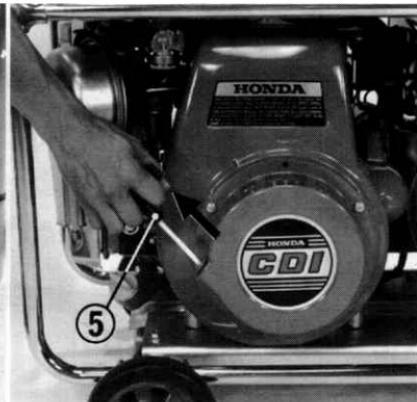
- (1) Fuel valve
(2) ON position



- (3) Choke rod
(4) CLOSE position



- (5) Starter



Stopping the Engine

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

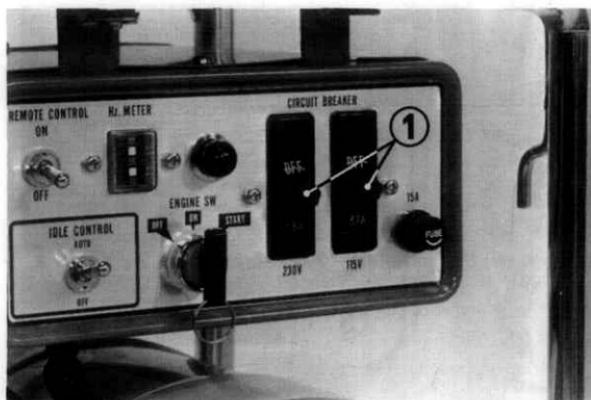
In normal use:

1. Turn the circuit breakers OFF, and disconnect the charging cord.

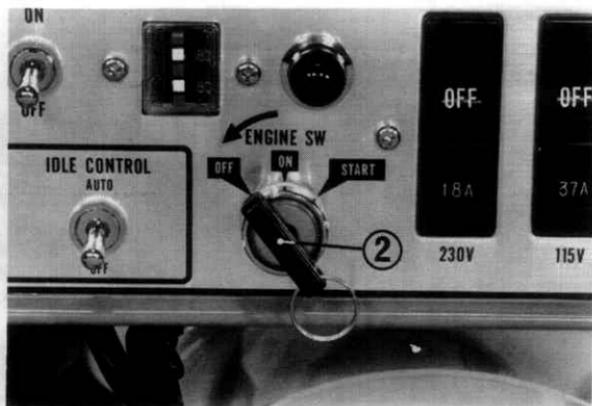
2. Turn the ignition key OFF.
3. Turn the fuel valve OFF.

NOTE: The automatic choke solenoid operates with the engine switch. Always make sure that the switch is off when the engine is not running or the battery will discharge.

(1) Circuit breakers



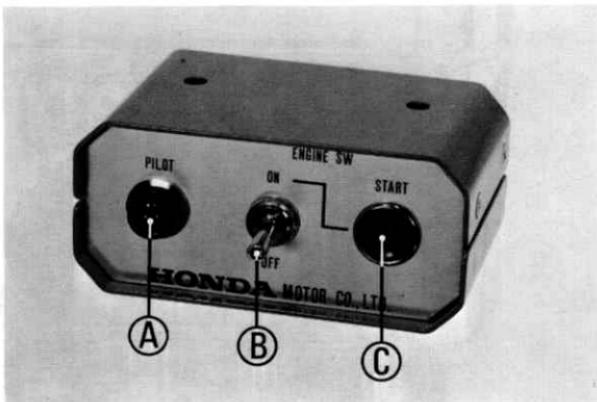
(2) Ignition key



REMOTE CONTROL OPERATION (ES4500, ET4500)

The generator may be adapted for remote control operation by use of an optional kit, available from an authorized Honda dealer. The kit contains a control box with the following components:

- A. PILOT LAMP. Lights when the engine is running.
- B. ENGINE SWITCH. Snaps on or off to start or stop the engine.
- C. STARTER BUTTON. Activates the starter motor when the engine switch is on.



CAUTION

While the remote control unit switch is ON, do not attempt to operate the engine switch at the generator. To operate by remote control, first snap on the remote control switch at the generator and turn the main engine switch OFF. Next, turn the remote control unit switch ON and press the starter button. Since the control box is not equipped with a frequency meter, adjust frequency at the unit before using the kit.

(1) Remote control switch



GENERATOR USE

AC Applications

The generator is equipped with three receptacles for 115V, 31.3A (two 115V, 4.3A on ET4500) power and one receptacles for 230V, 15.7A (two 230V, 9.0A on ET4500). The maximum power available at the receptacles is 4.5 KVA (4,500 watts).

CAUTION

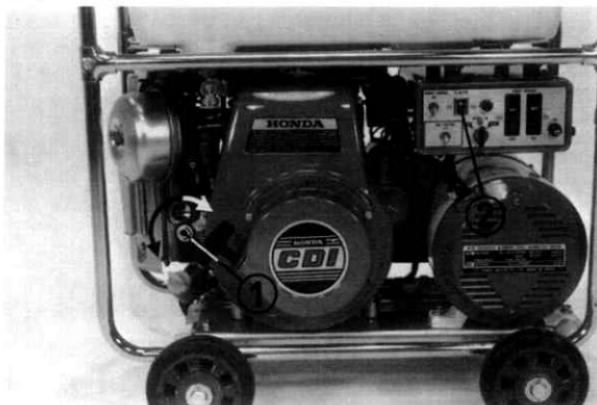
- * *Limit operation requiring maximum power to 30 minutes. For continuous operation, do not exceed the rated power limit of 3.6 KVA (3,600 watts). In either case, the total wattage of all appliances connected must be considered.*
- * *Do not exceed the current limit specified for any one receptacle.*
- * *Do not connect the generator to a household circuit. This could cause an overload and seriously damage the generator.*

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 with the idle control switch OFF. 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 (Automatic 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 Applications (E4500, ES4500)

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

Periodic maintenance and adjustment of the generator are essential if high level performance is to be maintained.

The required service intervals and the kinds of maintenance to be performed are described on p. 19.

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.

Maintenance Schedule

REGULAR SERVICE PERIOD Perform at every indicated month or operating hour intervals, which- ever 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.
Items						
Engine oil	Inspection	○				
	Change		○		○	
Air cleaner element	Inspection	○				
	Cleaning			○ (1)		
Spark plug maintenance					○	
Fuel filter cleaning					○	
Belt adjustment					○	
Spark arrester cleaning					○	
Valve clearance adjustment						○ (2)
Combustion chamber and valve cleaning						○ (2)
Fuel line check (Replace, if necessary)						○

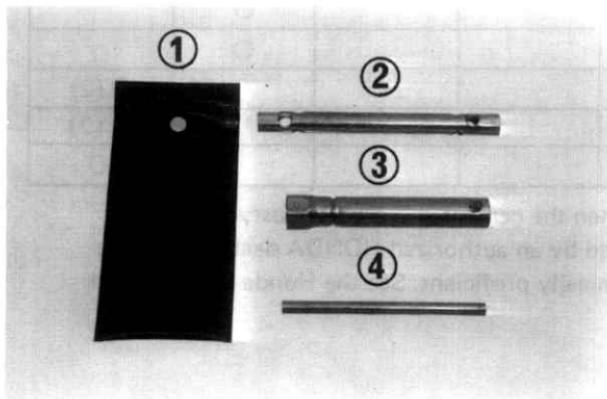
NOTES: (1) Service the air cleaner more frequently when the generator is used in dusty areas.

(2) This service procedure should be performed 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) Box wrench 12x10 mm
- (3) Plug wrench
- (4) Plug wrench handle

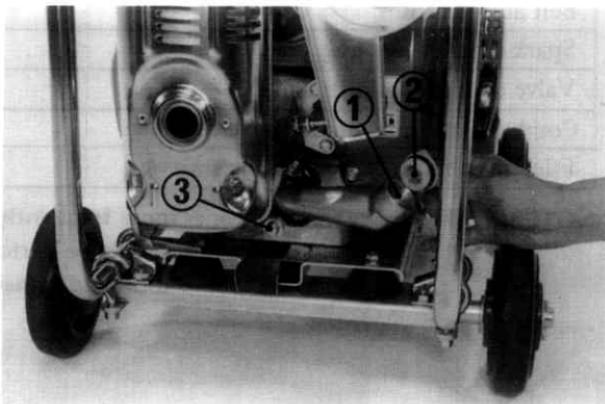


Changing Oil

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

A dirty air cleaner will prevent air flow to the carburetor. To prevent carburetor malfunction, service the air cleaner regularly.

1. Remove the wing nut to remove the air cleaner 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.

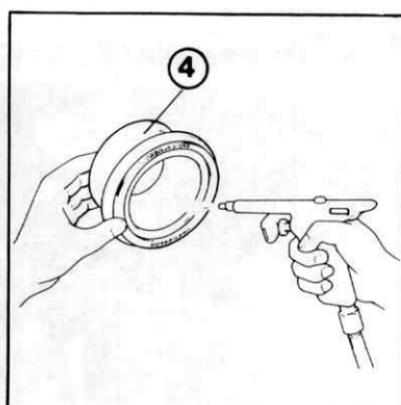
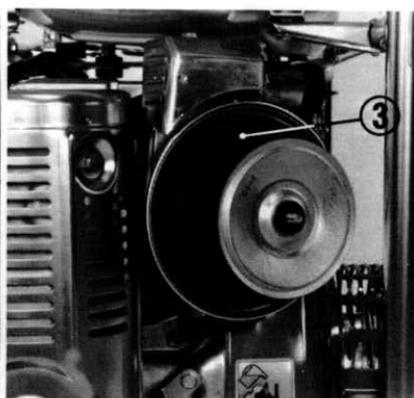
3. Remove dust from paper element by applying compressed air or tapping the case lightly. If the paper element is excessively dirty, replace or wash it in liquid detergent and water and flush until water is clear. Dry it thoroughly by applying compressed air before installing.

(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.

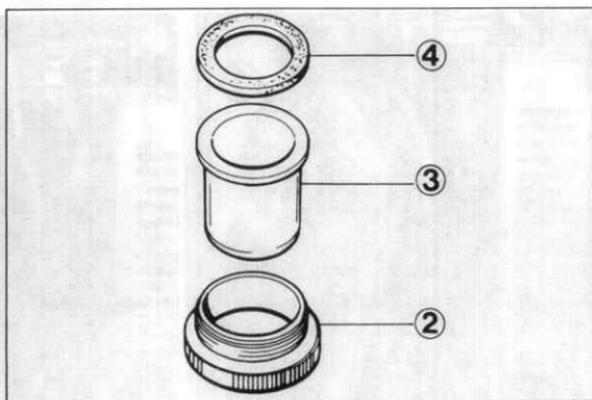
- (1) Fuel valve
(2) Ring nut



WARNING

After installing the filter cup, be sure to tighten the ring nut securely. Check for fuel leaks and make sure the area is dry before starting the engine.

- (3) Filter cup
(4) Gasket



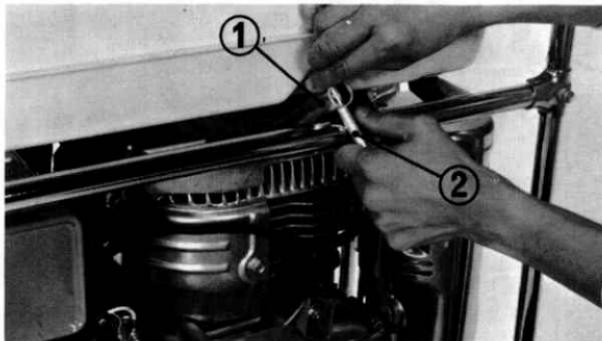
Spark Plug Service

Recommended spark plug: BPR4HS-10 (NGK) W14FPR-UL10 (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. Check the plug gap with a wire-type feeler gauge. The gap should be 0.9 – 1.0 mm (0.035 – 0.039 in). Correct as necessary by bending the side electrode.

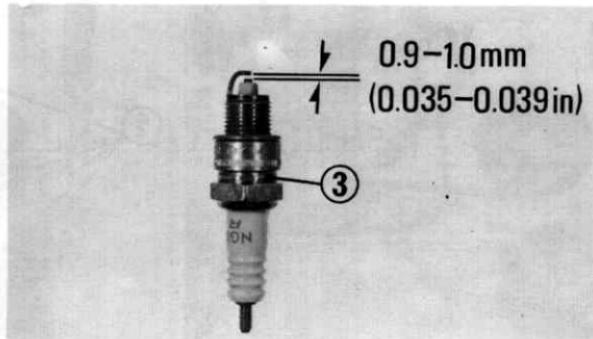
- (1) Spark plug wrench
- (2) Plug wrench handle



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

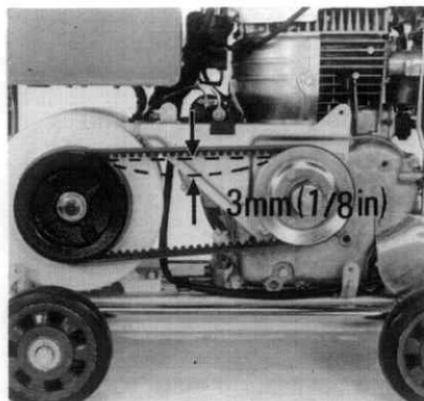
A loose or slipping belt will cause a drop in output power.

1. Remove the belt cover and check tension by pushing the middle of the belt. There should be approximately 3mm (1/8") of slack.
2. To adjust tension, loosen the generator mounting bolts.

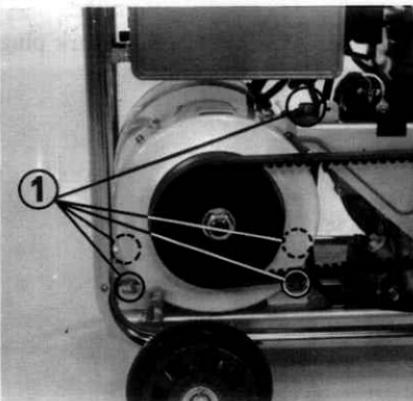
CAUTION

An overtightened drive belt will cause rapid bearing wear.

3. Retighten the lock nut and mounting bolts securely.

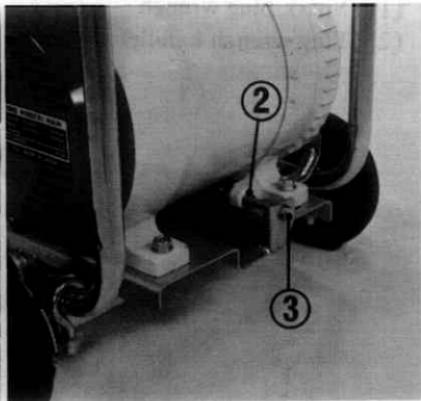


(1) Generator mounting bolts



(2) Lock nut

(3) Adjusting bolt



SPARK ARRESTER MAINTENANCE

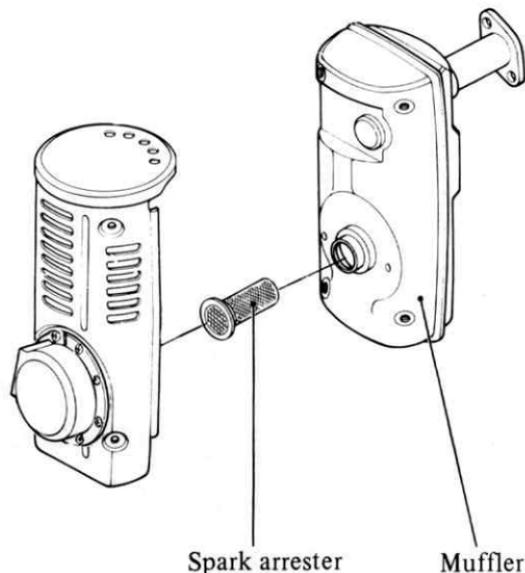
WARNING

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 bolts securely.
TORQUE: 80–120 kg-cm (5.8–8.7 ft-lb)



TRANSPORTING/STORAGE

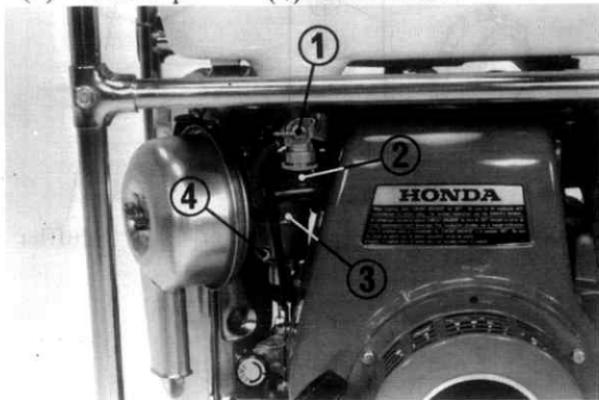
WARNING

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.
 - A. Turn the fuel valve OFF and disconnect the fuel line at the carburetor.

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



- 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.

- (5) Marks



TROUBLESHOOTING

Difficult Starting

- 1) Remove any appliances that may be connected to the generator.
- 2) Be sure the idle control switch is OFF.
- 3) Check the fuel level.
- 4) Check the battery connections, electrolyte level and condition.
- 5) Check the choke position (if starting manually).

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

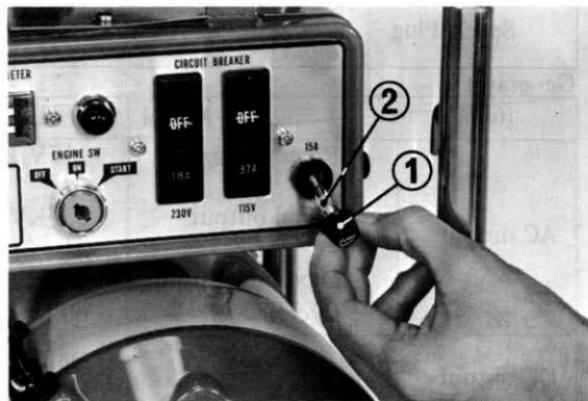
Before replacing a blown fuse, determine the cause and correct the problem.
Remove the old fuse by turning the holder counter-clockwise.

Specified fuse:

E4500, ES4500 : 15A

ET4500 : 4.5A

- (1) Fuse holder
- (2) Fuse



SPECIFICATIONS

Dimensions

Length x Width x Height	715 x 504 x 693 mm (28.2 x 19.8 x 27.3 in)
Dry weight	E4500: 98 kg (216 lbs), ES4500 & ET4500: 103 kg (227 lbs)

Engine

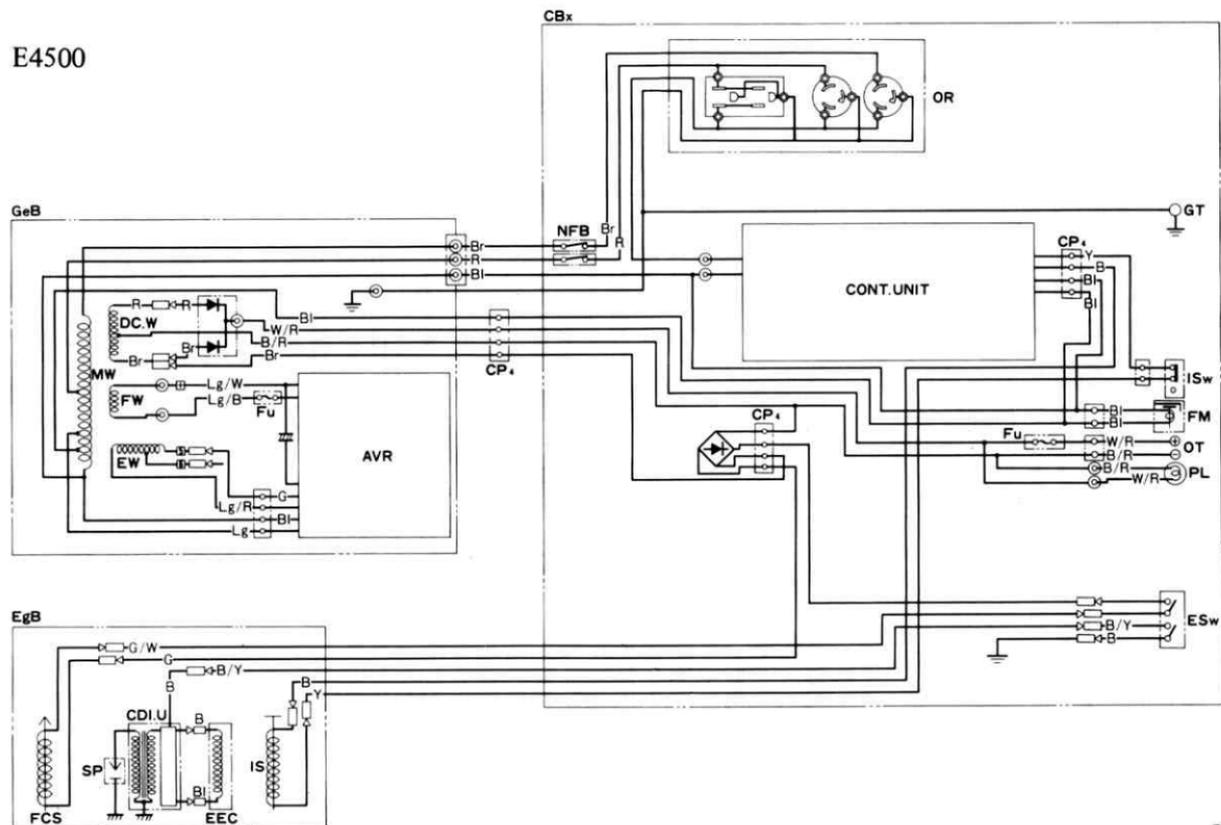
Model	Honda G400 K1 (With electric starter on ES4500 and ET4500)
Engine Type	4-Stroke, side valve, 1 cylinder
Displacement [Bore x Stroke]	406 cm ³ (24.7 cu in) [86 x 70 mm (3.4 x 2.8 in)]
Compression Ratio	6.5 : 1
Cooling	Forced air
Ignition	C.D.I.
Oil Capacity	1.2ℓ (2.54 US pt)
Fuel Tank Capacity	17.5ℓ (4.6 US gal)
Spark Plug	BPR4HS-10 (NGK), W14FPR-UL10 (ND)

Generator

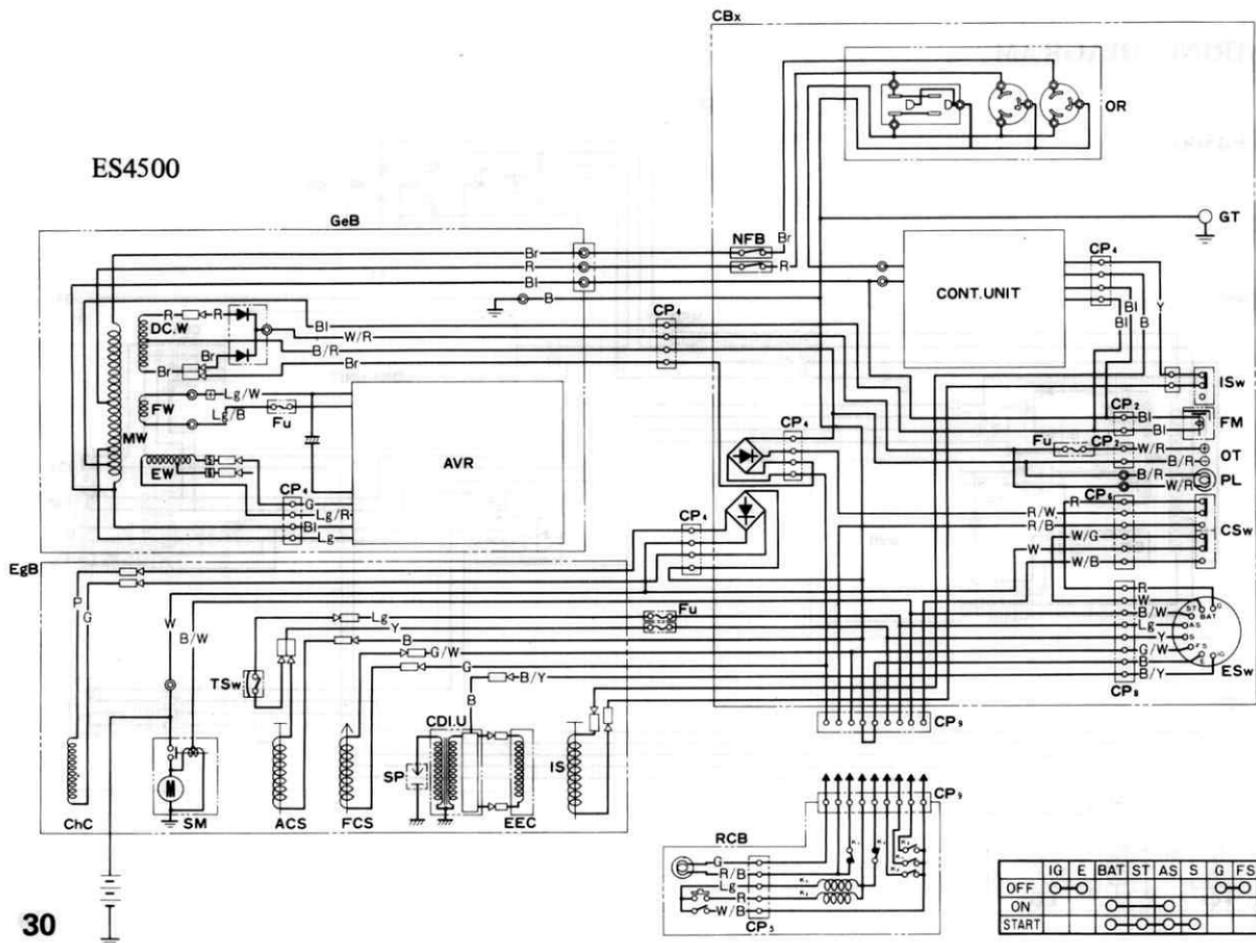
Item		Model	E4500, ES4500	ET4500
AC output	Rated voltage		115V/230V	115V/Three-phase 230V
	Rated output		3.6 KVA (3,600 watts), 31.3A/15.7A	3.6 KVA (3,600 watts), 4.3A/9.0A
	Maximum output		4.5 KVA (4,500 watts)	←
	Cycles		60 Hz	←
DC output			Only for charging 12V automotive batteries. Maximum charging output = 8.3A.	—————

WIRING DIAGRAM

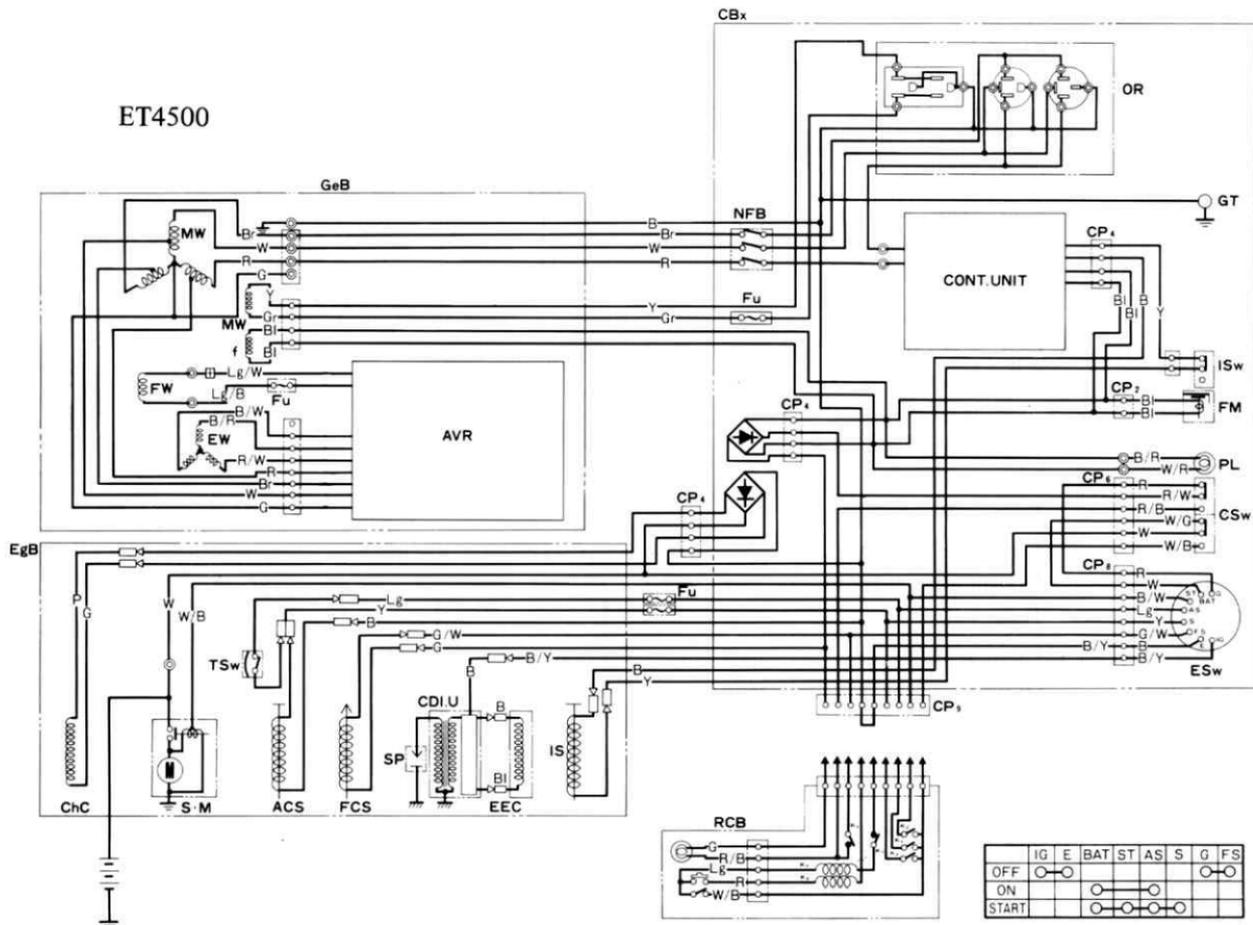
E4500



ES4500



ET4500



	IG	E	BAT	ST	AS	S	G	FS
OFF	<input type="radio"/>							
ON	<input type="radio"/>							
START	<input type="radio"/>							

	Part Name
ACS	Automatic Choke Solenoid
AVR	Automatic Voltage Regulator
CBx	Control Box
CDI.U	C.D.I. Unit
ChC	Charging Coil
CONT. UNIT	Idle Control Unit
CP~	~P Connector
CSw	Remote Control Switch
DCW	DC Winding
EEC	Exciter Coil
EgB	Engine Block
ESw	Engine Switch
EW	Exciter Winding
FCS	Fuel Cut Solenoid
FM	Frequency Meter
Fu	Fuse
FW	Field Winding
GeB	Generator Block
GT	Ground Terminal
IS	Idle Solenoid
ISw	Idle Control Switch
MW	Main Winding
NFB	Circuit Breaker
OR	Output Receptacle

	Part Name
OT	Output Terminal
PL	Pilot Lamp
RCB	Remote Control Box
SM	Starting Motor
SP	Spark Plug
TSw	Thermostat Switch
⊕	+ 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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