Honda EM10000·ET12000

OWNER'S MANUAL

MANUAL DE EXPLICACIONES

OWNER'S MANUAL

INTRODUCTION

Congratulations on your selection of a Honda generator. We are certain you will be pleased with your purchase of one of the finest generators on the market.

We want to help you get the best results from your new generator and to operate it safely. This manual contains all the information on how to do that; please read it carefully.

As you read this manual, you will find information preceded by a NOTICE symbol. That information is intended to help you avoid damage to your generator, other property, or the environment.

We suggest you read the warranty policy to fully understand its coverage and your responsibilities of ownership.

When your generator needs scheduled maintenance, keep in mind that your Honda servicing dealer is specially trained in servicing Honda generators. Your authorized Honda servicing dealer is dedicated to your satisfaction and will be pleased to answer your questions and concerns.

Best Wishes,
Honda Motor Co., Ltd.

A FEW WORDS ABOUT SAFETY

Your safety and the safety of others are very important. And using this generator safely is an important responsibility.

To help you make informed decisions about safety, we have provided operating procedures and other information on labels and in this manual. This information alerts you to potential hazards that could hurt you or others.

Of course, it is not practical or possible to warn you about all the hazards associated with operating or maintaining a generator. You must use your own good judgement.

You will find important safety information in a variety of forms, including:

- **Safety Labels** — on the generator.
- **Safety Messages** — preceded by a safety alert symbol ⚠ and one of three signal words, DANGER, WARNING, or CAUTION.

  These signal words mean:

⚠ DANGER	You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.
⚠ WARNING	You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.
⚠ CAUTION	You CAN be HURT if you don't follow instructions.

- **Safety Headings** — such as *IMPORTANT SAFETY INFORMATION*.
- **Safety Section** — such as *GENERATOR SAFETY*.
- **Instructions** — how to use this generator correctly and safely.

This entire book is filled with important safety information — please read it carefully.

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GENERATOR SAFETY

IMPORTANT SAFETY INFORMATION

Honda generators are designed for use with electrical equipment that has suitable power requirements. Other uses can result in injury to the operator or damage to the generator and other property.
Most injuries or property damage can be prevented if you follow all instructions in this manual and on the generator. The most common hazards are discussed below, along with the best way to protect yourself and others.

Operator Responsibility

- Know how to stop the generator quickly in case of emergency.
- Understand the use of all generator controls, output receptacles, and connections.
- Be sure that anyone who operates the generator receives proper instruction. Do not let children operate the generator without parental supervision.

Carbon Monoxide Hazards

- Exhaust contains poisonous carbon monoxide, a colorless, odorless gas. Breathing carbon monoxide can cause loss of consciousness and may lead to death.
- If you run the generator in an area that is confined, or even partly enclosed area, the air you breathe could contain a dangerous amount of exhaust gas.
- Never run your generator inside a garage, house, or near open windows or doors.

Electric Shock Hazards

- The generator produces enough electric power to cause a serious shock or electrocution if misused.
- Using a generator or electrical appliance in wet conditions, such as rain or snow, or near a pool or sprinkler system, or when your hands are wet, could result in electrocution. Keep the generator dry.
- If the generator is stored outdoors, unprotected from the weather, check all of the electrical components on the control panel before each use. Moisture or ice can cause a malfunction or short circuit in electrical components that could result in electrocution.
- Do not connect to a building's electrical system unless an isolation switch has been installed by a qualified electrician.

Fire and Burn Hazards

- The exhaust system gets hot enough to ignite some materials.
  - —Keep the generator at least 1 meter away from buildings and other equipment during operation.
  - —Do not enclose the generator in any structure.
  - —Keep flammable materials away from the generator.
- The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Be careful not to touch the muffler while it is hot. Let the engine cool before storing the generator indoors.

GENERATOR SAFETY

Refuel With Care

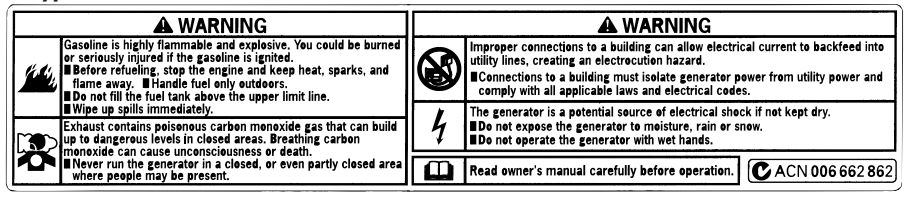
Gasoline is extremely flammable, and gasoline vapor can explode.
Allow the engine to cool if the generator has been in operation.
Refuel only outdoors in a well ventilated area with the engine off.
Do not refuel during operation.
Do not overfill the fuel tank.
Never smoke near gasoline, and keep other flames and sparks away.
Always store gasoline in an approved container.
Make sure that any spilled fuel has been wiped up before starting the engine.

SAFETY LABEL LOCATIONS

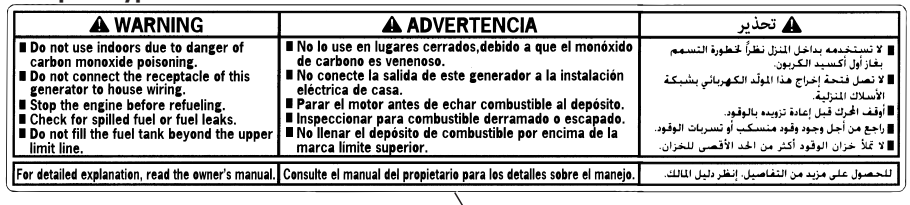
These labels warn you of potential hazards that can cause serious injury. Read them carefully. If a label comes off or becomes hard to read, contact your Honda servicing dealer for a replacement.

EM10000:

U type:



Except U type:



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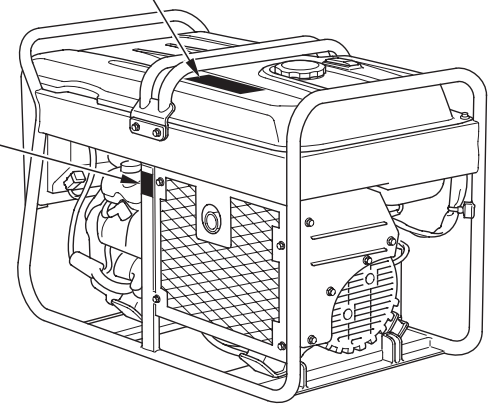
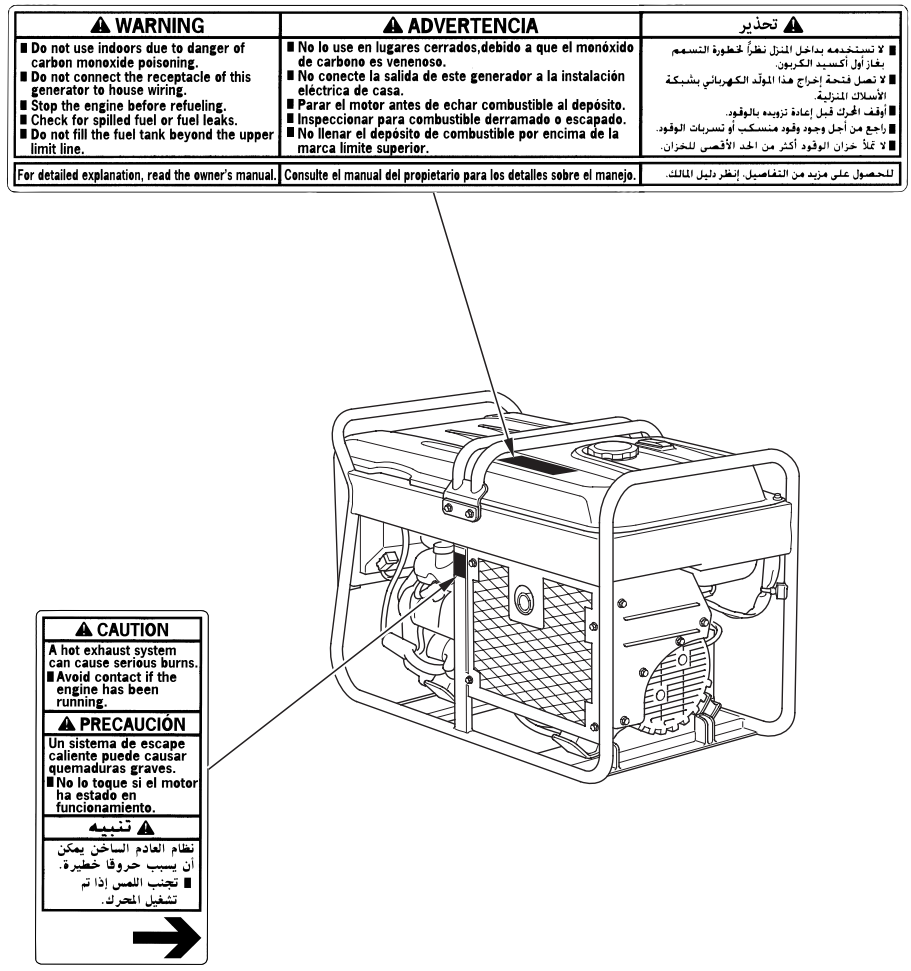


Except U type:

GENERATOR SAFETY

ET12000:

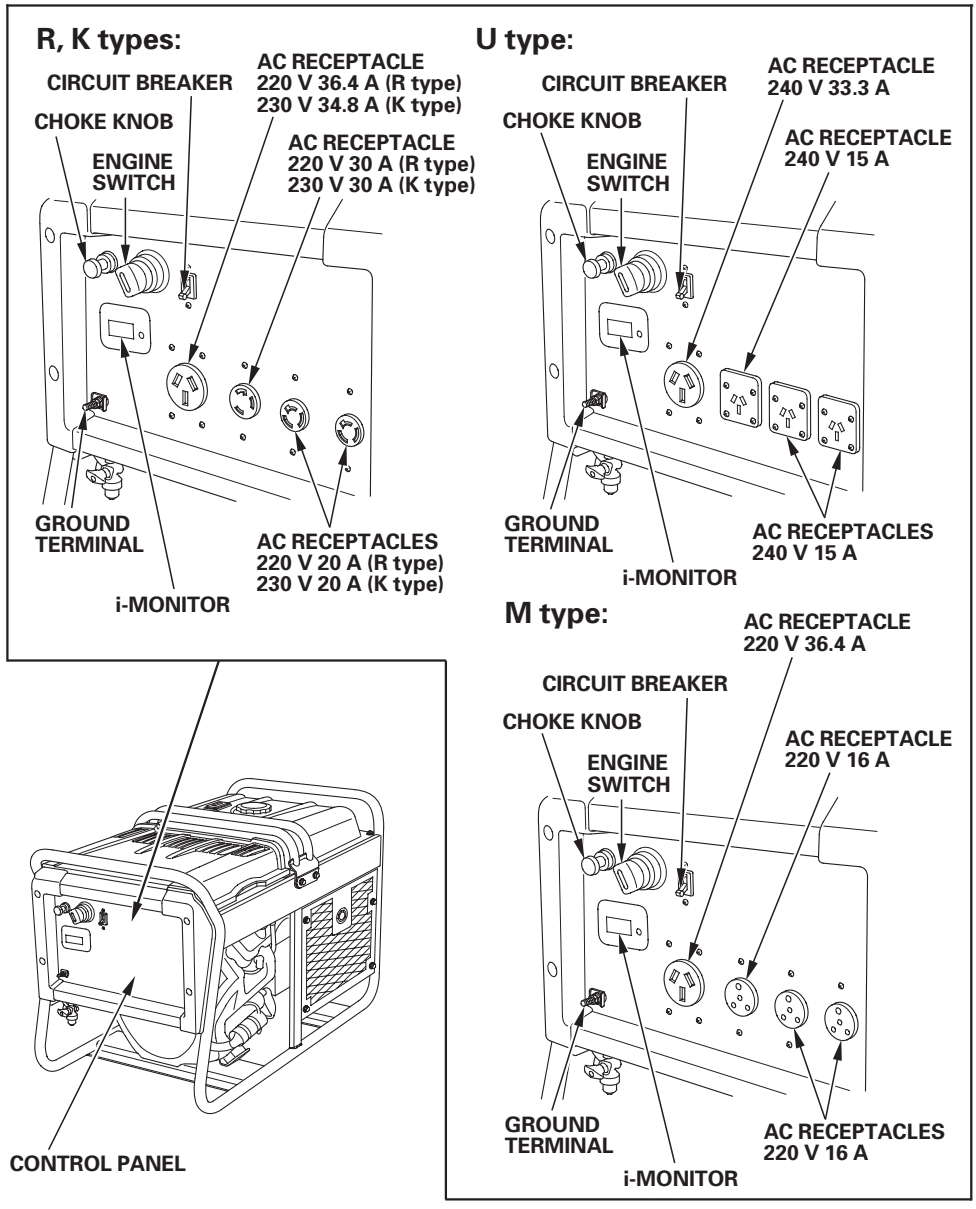


CONTROLS & FEATURES

COMPONENT & CONTROL LOCATIONS

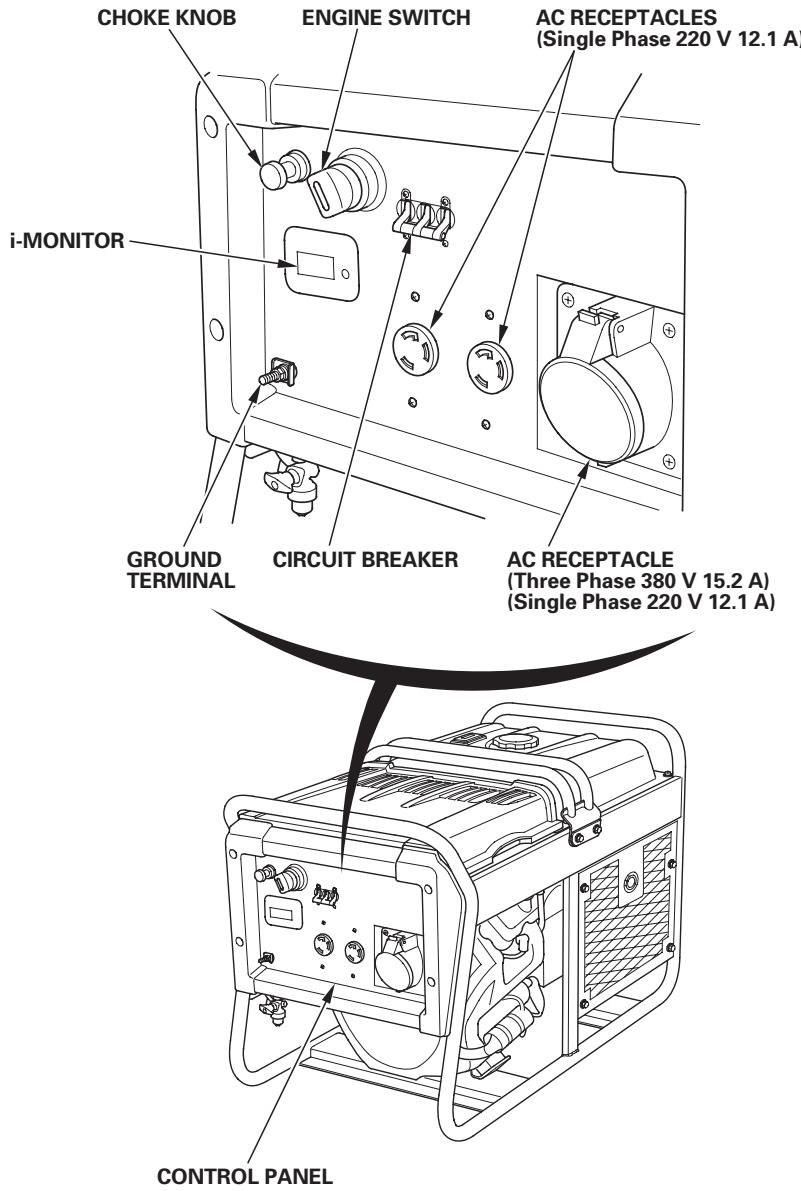
Use the illustrations on these pages to locate and identify the most frequently used controls.

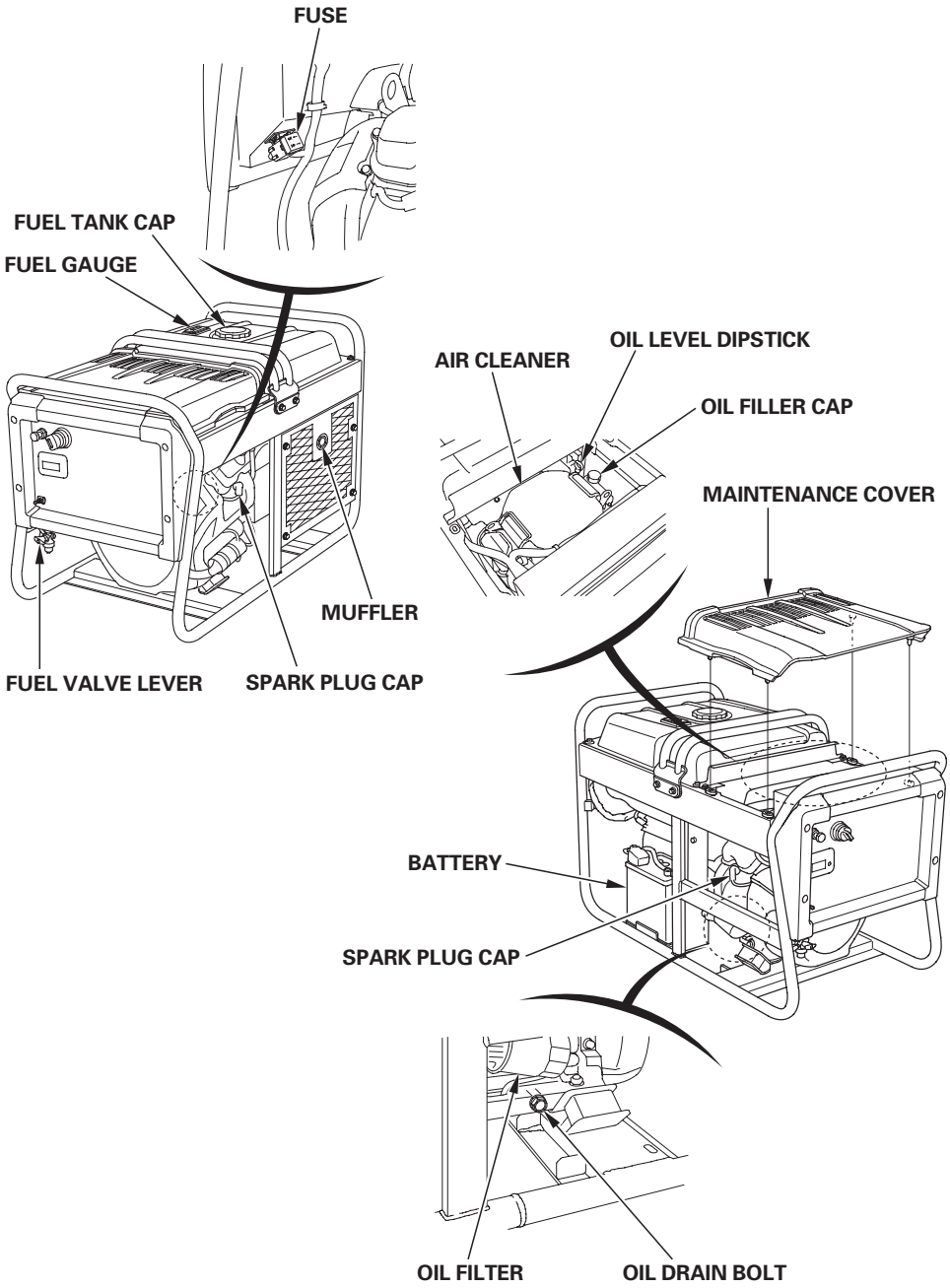
EM10000:



CONTROLS & FEATURES

ET12000:





CONTROLS & FEATURES

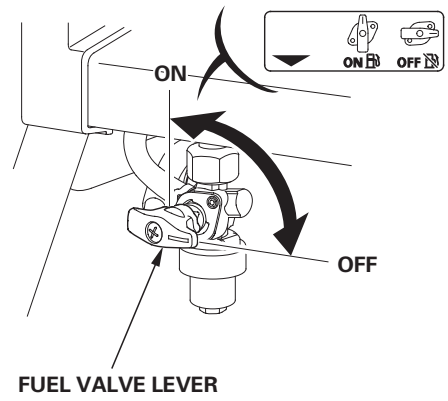
CONTROLS

Fuel Valve Lever

The fuel valve lever is located between the fuel tank and carburetor.

The fuel valve lever must be in the ON position for the engine to run.

After stopping the engine, turn the fuel valve lever to the OFF position.

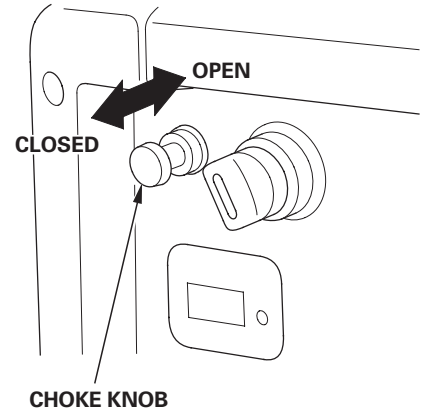


Choke Knob

The choke knob opens and closes the choke valve in the carburetor.

The CLOSED position enriches the fuel mixture for starting a cold engine.

The OPEN position provides the correct fuel mixture for operation after starting, and for restarting a warm engine.



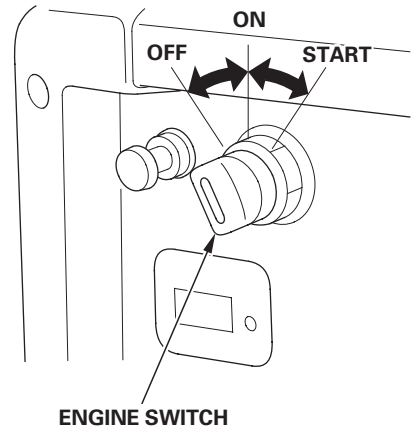
Engine Switch

The engine switch controls the ignition system, and it operates the electric starter.

OFF – Stops the engine. The engine switch key can be removed/inserted.

ON – Running position.

START – Operates the electric starter.

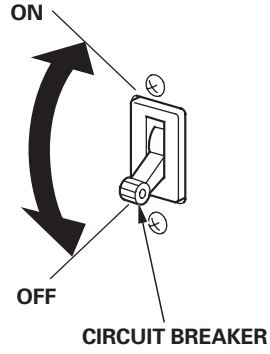


Circuit Breaker

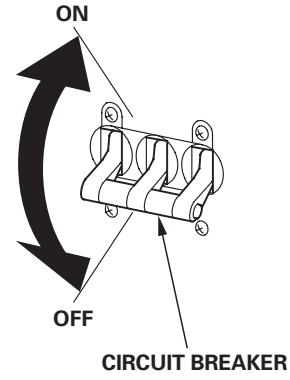
The circuit breaker will automatically switch OFF, if there is a short circuit or a significant overload at the receptacles.

The circuit breaker may be used to switch the generator power ON or OFF.

EM10000:



ET12000:

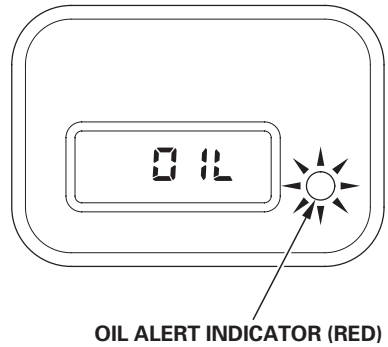


CONTROLS & FEATURES

FEATURES

Oil Alert System

The Oil Alert system is designed to prevent the 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 indicator comes on and the Oil Alert system automatically will stop the engine (the engine switch will remain in the ON position).
The i-Monitor display will show ''OIL'' on the screen and the Oil Alert indicator will illuminate.
If the engine stops or the Oil Alert indicator comes on when you turn the engine switch to the START position or pull the starter grip, check the engine oil level (see page 42) before troubleshooting in other areas.
Even when the oil is added to the engine, the generator will not restart until the Oil Alert indicator is reset. To reset the Oil Alert indicator, turn the engine switch to the OFF position, add the proper amount of oil (see page 43), and then turn the engine switch back to the ON position.

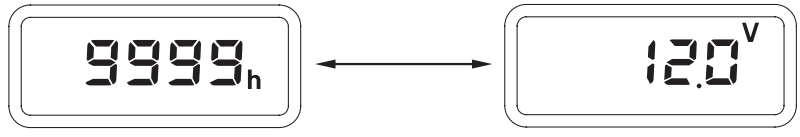


OIL ALERT INDICATOR (RED)

i-Monitor
The i-Monitor is a user interface that allows the operator to view (when the generator is running) total operating time in hours, generator output voltage, battery voltage, and error messages.

i-Monitor at Start Up
When the engine switch is turned to the ON position, all segments of i-Monitor display turn on for a second.

After showing all segments, the i-Monitor shows current accumulated hours and the battery voltage alternately for three seconds.



When the engine is started and the generator works, the i-Monitor shows output voltage.

EM10000:
(Example: K type)

ET12000:

Backlight blinks
When turning the engine switch to the ON position with having not start the engine over 1 minute, display starts to blink.
Please start the engine or turn the engine switch to the OFF position.
The display also blinks when the engine stops due to an error. In such a case, the display starts to blink as soon as the engine stops.

CONTROLS & FEATURES

i-Monitor Display
The four-digit screen displays the three values total operating hours, battery voltage, and power output voltage or any activated error messages.

FOUR-DIGIT SCREEN DISPLAY

Total Operating Hours
This mode displays the total operating hours of the generator. When the generator is running, the total operating time accumulates.
The total operating hours can show from 0 up to 9,999 hours. When reaches 10,000 hours, the display returns to ''0''.
When the total operating hours reach 29,999 hours, the i-monitor will stay showing 9,999 hours.
Base the generator's maintenance schedule on the accumulated time displayed.

Power Output Voltage
EM10000:
This mode displays an approximate single-phase output voltage.
ET12000:
This mode displays an approximate three-phase output voltage when the three phases are used or an approximate single-phase output voltage when the single phase is used.
The output voltage is expressed in V (volts). The output voltage value is not an exact measurement and should be regarded as a reference only.

EM10000:
(Example: K type)

ET12000:

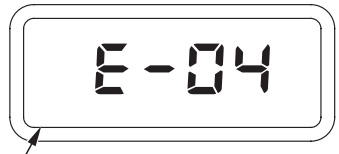
Battery Voltage
This mode displays the battery condition, expressed in Volts DC.
The battery voltage can be displayed from 8 V up to 16 V.
When the battery voltage is less than 8 V, the i-Monitor shows 8 V.
When above 16 V, 16 V is shown.

In this generator, the engine will not start if the battery is removed.
Also, if the battery is disconnected when the generator is operating, the engine will stop.

CONTROLS & FEATURES

i-Monitor System Error Messages
If the generator has a system malfunction, it will show an error message on the i-Monitor display. If an error message displays, contact an authorized Honda generator dealer.
When there are a number of errors, they are indicated alternately for two seconds for each.

Error code	Type of error	Consequence · treatment
E-04	Engine over rev	Engine stops
E-31	High AC voltage	Engine stops
E-32	ROM/RAM failure	Engine stops
E-33	FET overheat	Generator stops
------	Communication error	Contact an authorized Honda generator dealer.
----h	Failed to read out accumulated hours	Contact an authorized Honda generator dealer.

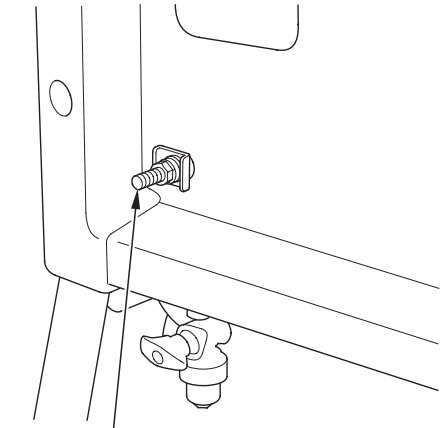


ERROR MESSAGE
(Example: E-04)

Ground Terminal

The ground terminal is connected to the frame of the generator, the metal non current carrying parts of the generator, and the ground terminals of each receptacle.

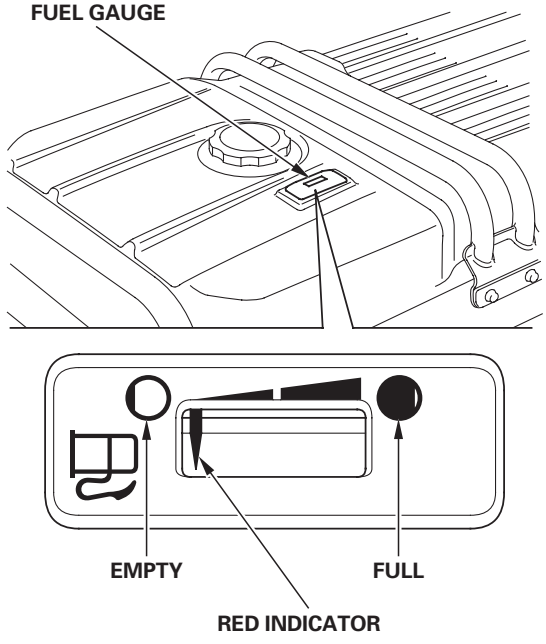
Before using the ground terminal, consult a qualified electrician, electrical inspector, or local agency having jurisdiction for local codes or ordinances that apply to the intended use of the generator.



CONTROL & FEATURES

Fuel Gauge

The fuel gauge is a mechanical device that measures the fuel level in the tank. The red indicator in the window will reference the level in relation to full or empty. To provide increased operating time, start with a full tank before beginning operation. Check the fuel level with the generator on a level surface. Always refuel with the engine OFF and cool.



BEFORE OPERATION

ARE YOU READY TO GET STARTED?

Your safety is your responsibility. A little time spent in preparation will significantly reduce your risk of injury.

Knowledge

Read and understand this manual. Know what the controls do and how to operate them.

Familiarize yourself with the generator and its operation before you begin using it. Know how to quickly shut off the generator in case of an emergency.

If the generator is being used to power appliances, be sure that they do not exceed the generator's load rating (see page 33).

IS YOUR GENERATOR READY TO GO?

For your safety, and to maximize the service life of your equipment, it is very important to take a few moments before you operate the generator to check its condition. Be sure to take care of any problem you find, or have your servicing dealer correct it, before you operate the generator.

⚠ WARNING

Improperly maintaining this generator, or failing to correct a problem before operation, could cause a malfunction in which you could be seriously injured.

Always perform a preoperation inspection before each operation, and correct any problem.

To prevent a possible fire, keep the generator at least 1 meter away from building walls and other equipment during operation. Do not place flammable objects close to the engine.

BEFORE OPERATION

Before beginning your preoperation checks, be sure the generator is on a level surface and the engine switch is in the OFF position.

Check the Engine

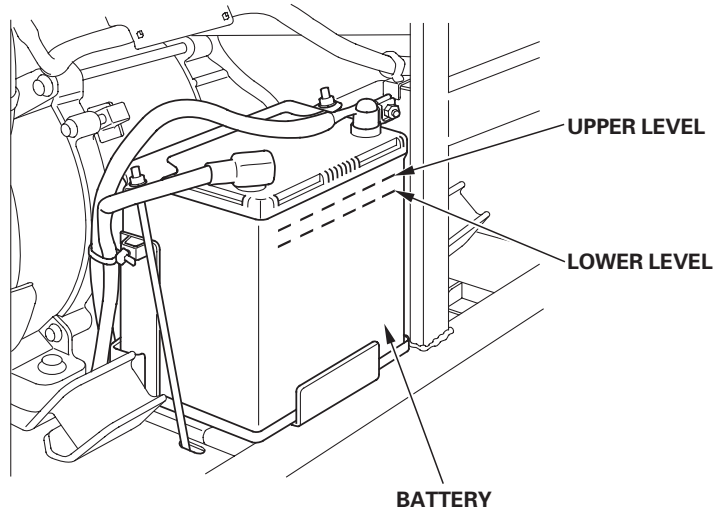
Check the oil level (see page 42). A low oil level will cause the Oil Alert system to shut down the engine.

Check the air cleaner (see page 45). A dirty air cleaner element will restrict air flow to the carburetor, reducing engine and generator performance.

Check the fuel level (see page 39). Starting with a full tank will help to eliminate or reduce operating interruptions for refueling.

Check the Battery

Check the electrolyte level (see page 54). If the electrolyte level is below the LOWER level, sulfation and battery plate damage will occur.



OPERATION

SAFE OPERATING PRECAUTIONS

Before operating the generator for the first time, please review the *GENERATOR SAFETY* (see page 6) section and the chapter titled *BEFORE OPERATION* (see page 23).

For your safety, do not operate the generator in an enclosed area such as a garage. Your generator's exhaust contains poisonous carbon monoxide gas that can collect rapidly in an enclosed area and cause illness or death.

⚠ WARNING

Carbon monoxide gas is toxic. Breathing it can cause unconsciousness and even kill you.

Avoid any enclosed areas or activities that expose you to carbon monoxide.

Before connecting an AC appliance or power cord to the generator:

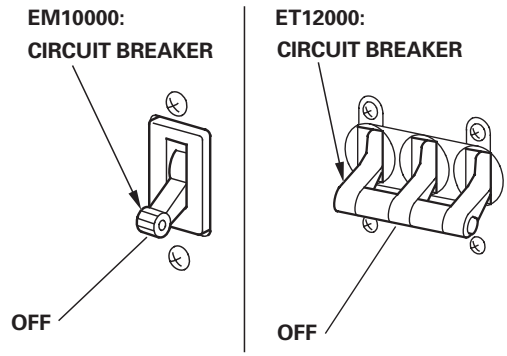
- Use grounded 3 prong extension cords, tools, and appliances, or double insulated tools and appliances.
- Inspect cords and plugs, and replace if damaged.
- Make sure that the appliance is in good working order. Faulty appliances or power cords can create a potential for electric shock.
- Make sure the electrical rating of the tool or appliance does not exceed that of the generator. Never exceed the maximum power rating of the generator. Power levels between rated and maximum may be used for no more than 30 minutes.
- Operate the generator at least 1 meter away from buildings and other equipment.
- Do not operate the generator in an enclosed structure.

OPERATION

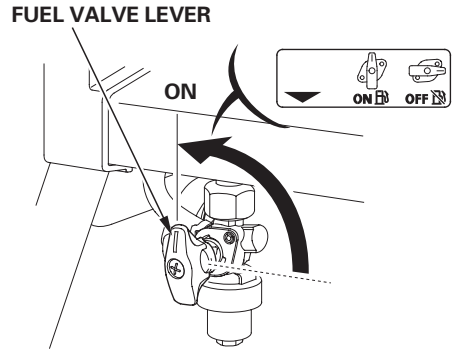
STARTING THE ENGINE

Refer to *SAFE OPERATING PRECAUTIONS* on page 25.

1. Make sure that the circuit breaker is in the OFF position. The generator may be hard to start if a load is connected.

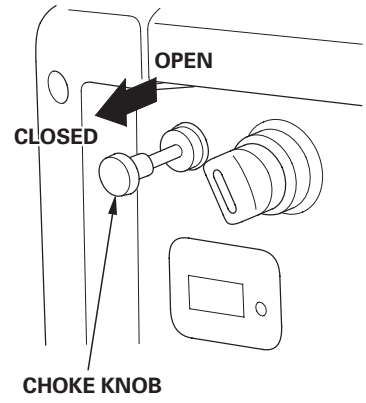


2. Turn the fuel valve lever to the ON position.



3. Pull the choke knob to the CLOSED position to start a cold engine.

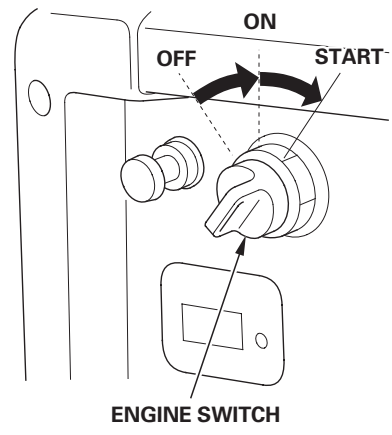
   Leave the choke knob in the OPEN position to restart a warm engine.



4. Start the engine.

   Turn the engine switch to the START position, and hold it there until the engine starts. When the engine starts, release the key, allowing the switch to return to the ON position.

   If the engine fails to start within 5 seconds, release the key, and wait at least 10 seconds before operating the starter again.

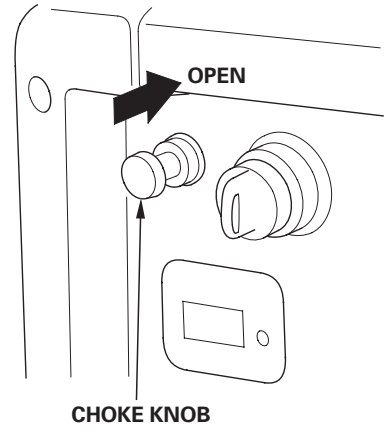


NOTICE

Using the electric starter for more than 5 seconds at a time will overheat the starter motor and can damage it.

Do not leave the engine switch in the ON position when the generator is not operating as the battery will be drained. Turn the engine switch to the OFF position when not in use.

5. If the choke knob was pulled to the CLOSED position to start the engine, gradually move it to the OPEN position as the engine warms up.

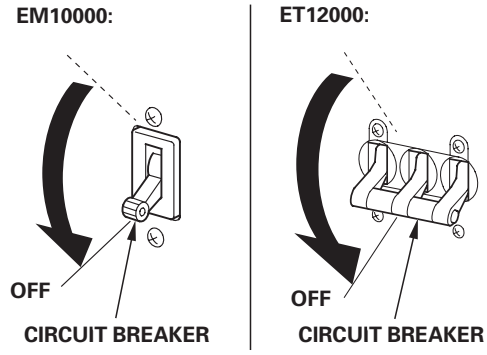


OPERATION

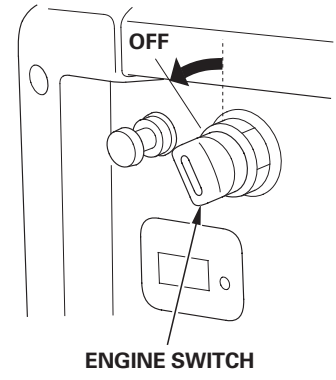
STOPPING THE ENGINE

To stop the engine in an emergency, simply turn the engine switch to the OFF position. Under normal conditions, use the following procedure.

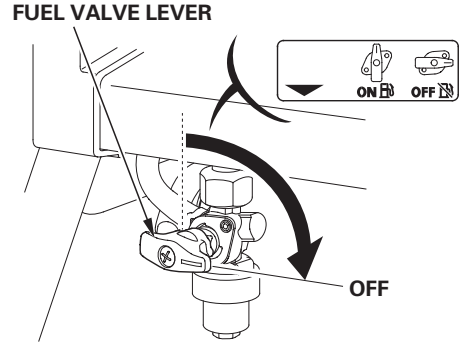
1. Move the circuit breaker to the OFF position.



2. Turn the engine switch to the OFF position.



3. Turn the fuel valve lever to the OFF position.



AC OPERATION

If an appliance begins to operate abnormally, becomes sluggish, or stops suddenly, turn it off immediately. Disconnect the appliance, and determine whether the problem is in the appliance or the rated load capacity of the generator has been exceeded.

NOTICE

Substantial overloading may damage the generator. Marginal overloading may shorten the service life of the generator.

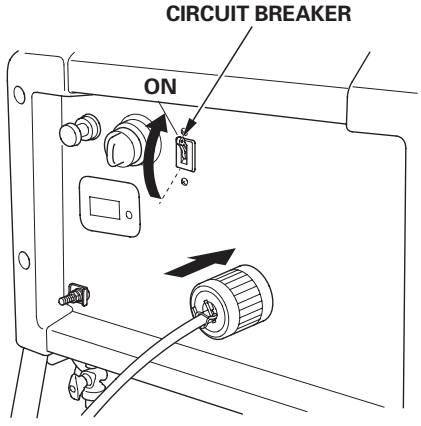
AC Receptacle

1. Start the engine (see page 26).

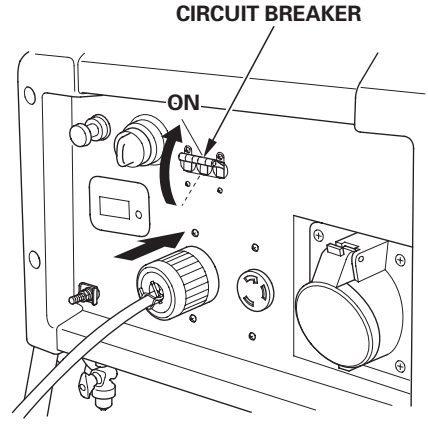
2. Switch ON the circuit breaker.

3. Plug in the appliance.
   Most motorized appliances require more than their rated wattage for startup.

EM10000:



ET12000:



OPERATION

AC Receptacle (three-phase or single-phase) (ET12000 only)

This AC receptacle can be taken out electricity [three-phase output (380 V) and single phase output (220 V)] from the three-phase output coil.

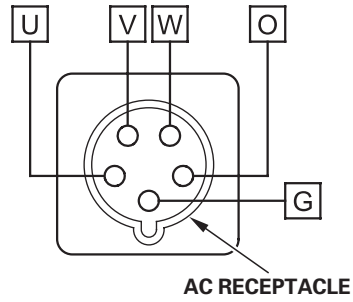
- Work to install or remove the cables in the plug, you need to do a qualified electrician.

⚠WARNING

- Remove the plug from the AC receptacle before install/remove the cables.
- In order not to loosen a terminal during operation, tighten the terminal securely. If the terminal is loose, it will heat, and there is fear of a fire.

Three-phase output (380 V):

Install the cables to each terminals of the plug.



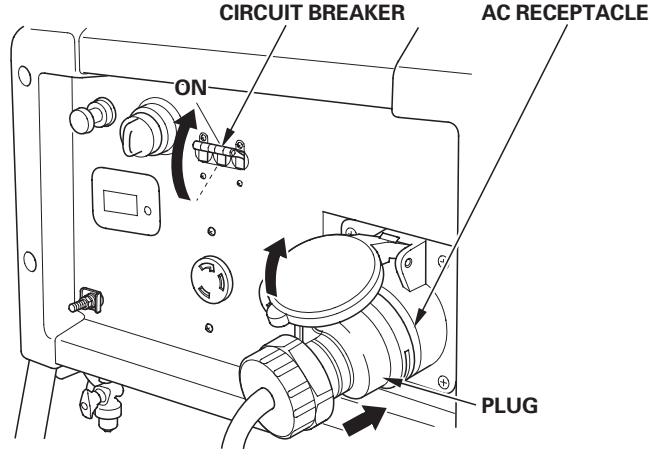
- Recommended cable: cable with the cross section of conductive part of 3.5 mm^2 — 5.5 mm^2

- Make sure the U·V·W terminals are connected properly. (The motor etc. could turn backward if terminals are not connected properly.)

1. Start the engine (see page 26).

2. Switch ON the circuit breaker.

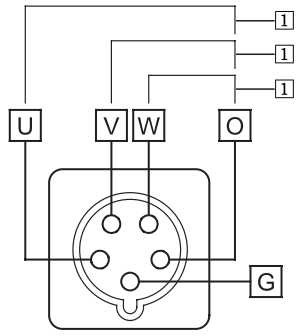
3. Plug in the appliance.
   Most motorized appliances require more than their rated wattage for startup.



OPERATION

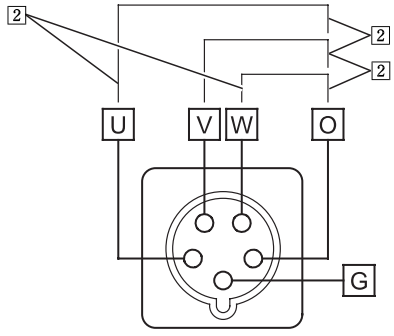
Single phase output (220 V):

- When you use only one circuit, do not exceed 3.0 kVA. (Power factor: 1.0)



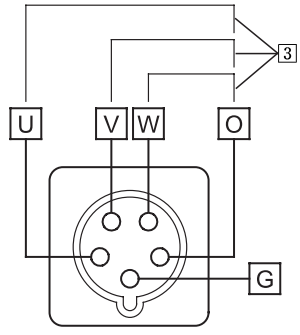
CONTINUITY: **O—W or O—V or O—U**

- When you use two circuits, take out from two circuits equally, and the total should not exceed 6.0 kVA. (Power factor: 1.0)



CONTINUITY: **O—W and O—V or O—W and O—U or O—V and O—U**

- When you use three circuits, take out from three circuits equally, and the total should not exceed 9.0 kVA. (Power factor: 1.0)



CONTINUITY: **O—W and O—V and O—U**

AC Applications

Before connecting an appliance or power cord to the generator:

- Make sure that it is in good working order. Faulty appliances or power cords can create a potential for electrical shock.
- If an appliance begins to operate abnormally, becomes sluggish, or stops suddenly, turn it off immediately. Disconnect the appliance, and determine whether the problem is the appliance or the rated load capacity of the generator has been exceeded.
- Make sure that the electrical rating of the tool or appliance does not exceed that of the generator. Never exceed the maximum power rating of the generator. Power levels between rated and maximum may be used for no more than 30 minutes.

NOTICE

Substantial overloading will open the circuit breaker. Exceeding the time limit for maximum power operation or slightly overloading the generator may not switch the circuit breaker OFF, but will shorten the service life of the generator.

Limit operation requiring maximum power to 30 minutes.
Maximum power is:

EM10000: 9.0 kVA ∗1
ET12000: 11.0 kVA ∗2 (Three-phase), 3.0 kVA ∗1 × 3 (Single-phase)

For continuous operation (longer than 30 minutes), do not exceed the rated power.
Rated power is:

EM10000: 8.0 kVA ∗1
ET12000: 10.0 kVA ∗2 (Three-phase), 2.7 kVA ∗1 × 3 (Single-phase)

∗1: It is when the power factor is 1.0.
∗2: It is when the power factor is 0.8.

The total power requirements (VA) of all appliances connected must be considered. Appliance and power tool manufacturers usually list rating information near the model number or serial number.

OPERATION

STANDBY POWER

Connections to a Building's Electrical System

Your generator can supply power to a building's electrical system. If the generator will be used as an alternative to utility company power, an isolation switch must be installed to disconnect the utility lines from the building when the generator is connected. Installation must be performed by a qualified electrician and must comply with all applicable laws and electrical codes.

⚠ WARNING

Improper connections to a building's electrical system can allow current from the generator to backfeed into the utility lines.

Such backfeed may electrocute utility company workers or others who contact the lines during a power outage, and the generator may explode, burn, or cause fires when utility power is restored.

Consult the utility company or a qualified electrician prior to making any power connections.

In some areas, generators are required by law to be registered with local utility companies. Check local regulations for proper registration and use procedures.

System Ground

Honda generators have a system ground that connects the generator frame components to the ground terminals in the AC output receptacles. The system ground is not connected to the AC neutral wire. If the generator is tested with a receptacle tester, it will not show the same ground circuit condition as for a home receptacle.

Special Requirements

There may be applicable laws, local codes, or ordinances that apply to the intended use of the generator. Please consult a qualified electrician, electrical inspector, or the local agency having jurisdiction.

- In some areas, generators are required to be registered with local utility companies.
- If the generator is used at a construction site, there may be additional regulations that must be observed.

SERVICING YOUR GENERATOR

THE IMPORTANCE OF MAINTENANCE

Good maintenance is essential for safe, economical, and trouble free operation. It will also help reduce air pollution.

To help you properly care for your generator, the following pages include a maintenance schedule, routine inspection procedures, and simple maintenance procedures using basic hand tools. Other service tasks that are more difficult or require special tools are best handled by professionals and are normally performed by a Honda technician or other qualified mechanic.

The maintenance schedule applies to normal operating conditions. If you operate your generator under unusual conditions, such as sustained high load or high temperature operation, or use it in dusty conditions, consult your servicing dealer for recommendations applicable to your individual needs and use.

⚠ WARNING

Improper maintenance, or failure to correct a problem before operation, can cause a malfunction in which you can be seriously hurt or killed.

Always follow the inspection and maintenance recommendations and schedules in this owner's manual.

Remember that your servicing dealer knows your generator best and is fully equipped to maintain and repair it.

To ensure the best quality and reliability, use only new, Honda Genuine parts or their equivalents for repair and replacement.

MAINTENANCE SAFETY

Some of the most important safety precautions follow. However, we cannot warn you of every conceivable hazard that can arise in performing maintenance. Only you can decide whether or not you should perform a given task.

⚠ WARNING

Failure to properly follow maintenance instructions and precautions can cause you to be seriously hurt or killed.

Always follow the procedures and precautions in the owner's manual.

Safety Precautions

Make sure the engine is off before you begin any maintenance or repairs. This will eliminate several potential hazards:

—**Carbon monoxide poisoning from engine exhaust.**
Be sure there is adequate ventilation whenever you operate the engine.

—**Burns from hot parts.**
Let the engine and exhaust system cool before touching.

—**Injury from moving parts.**
Do not run the engine unless instructed to do so.

- Read the instructions before you begin, and make sure you have the tools and skills required.
- To reduce the possibility of fire or explosion, be careful when working around gasoline. Use only a nonflammable solvent, not gasoline, to clean parts. Keep cigarettes, sparks, and flames away from all fuel related parts.

SERVICING YOUR GENERATOR

MAINTENANCE SCHEDULE

REGULAR SERVICE PERIOD (3) / ITEM Perform 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.
Engine oil	Check level	○				
	Change		○		○	
Engine oil filter	Replace	Every 200 Hrs. (2)				
Air cleaner	Check	○				
	Clean			○(1)		
	Replace					○ (＊)
Battery electrolyte	Check level	○				
Spark plug	Check-adjust				○	
	Replace					○
Sediment cup	Clean				○	
Spark arrester (U type only)	Clean				○	
Valve clearance	Check-adjust					○(2)
Combustion chamber	Clean	After every 1,000 Hrs. (2)				
Fuel tank and filter	Clean				○ (2)	
Fuel tube	Check	Every 2 years (Replace if necessary) (2)				

NOTE: (＊)Replace the paper element only.
(1)Service more frequently when used in dusty areas.
(2)These items should be serviced by your servicing dealer, unless you have the proper tools and are mechanically proficient. Refer to the Honda shop manual for service procedures.
(3)For commercial use, log hours of operation to determine proper maintenance intervals.

Failure to follow this maintenance schedule could result in nonwarrantable failures.

REFUELING

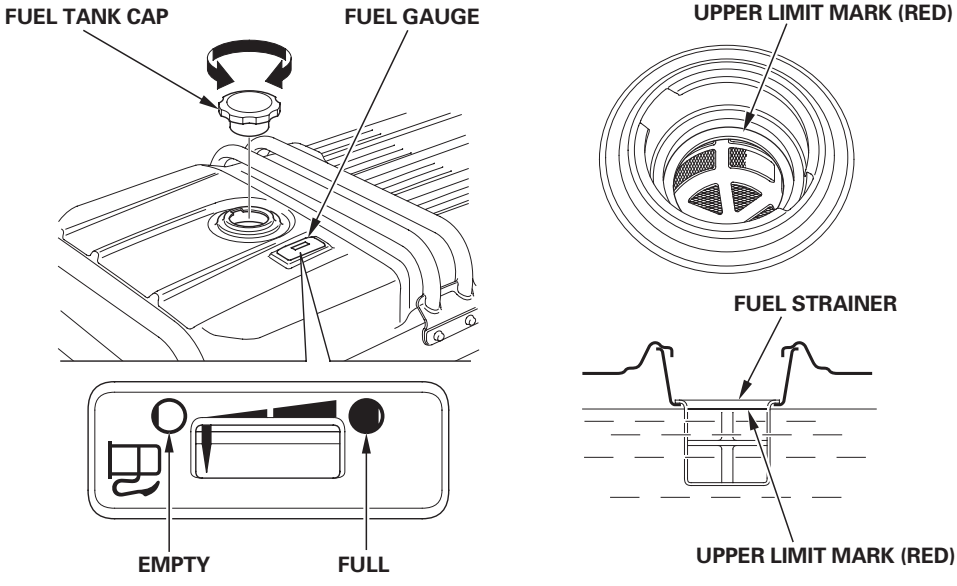
With the engine stopped, check the fuel gauge. Refill the fuel tank if the fuel level is low.

⚠WARNING

Gasoline is highly flammable and explosive.

You can be burned or seriously injured when handling fuel.

- Stop the engine and keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.



Refuel in a well ventilated area before starting the engine. If the engine has been running, allow it to cool. Refuel carefully to avoid spilling fuel. Do not fill the fuel tank above the upper limit mark (red) on the fuel strainer.
After refueling, reinstall the fuel tank cap securely.

SERVICING YOUR GENERATOR

Never refuel the engine inside a building where gasoline fumes may reach flames or sparks. Keep gasoline away from appliance pilot lights, barbecues, electric appliances, power tools, etc.
Spilled fuel is not only a fire hazard, it causes environmental damage. Wipe up spills immediately.

NOTICE

Fuel can damage paint and plastic. Be careful not to spill fuel when filling your fuel tank. Damage caused by spilled fuel is not covered under warranty.

NOTE:
Gasoline spoils very quickly depending on factors such as light exposure, temperature and time.
In worst cases, gasoline can be contaminated within 30 days.
Using contaminated gasoline can seriously damage the engine (carburetor clogged, valve stuck).
Such damage due to spoiled fuel is disallowed from coverage by the warranty.
To avoid this please strictly follow these recommendations:

- Only use specified gasoline (see page 41).
- Use fresh and clean gasoline.
- To slow deterioration, keep gasoline in a certified fuel container.
- If long storage (more than 30 days) is foreseen, drain fuel tank and carburetor (see pages 60 and 61).

FUEL RECOMMENDATIONS

Use automotive unleaded gasoline with a Research Octane Number of 91 or higher (a Pump Octane Number of 86 or higher).
Never use stale or contaminated gasoline or an oil/gasoline mixture.
Avoid getting dirt or water in the fuel tank.

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 by Honda.
There are two types of ''gasohol'': one containing ethanol, and the other containing methanol.
Do not use gasohol that contains more than 10% ethanol.
Do not use gasoline containing more than 5% methanol (methyl or wood alcohol) and that does not also contain co-solvents and corrosion inhibitors for methanol.

NOTE:
- Fuel system damage or engine performance problems resulting from the use of gasoline that contains more alcohol than recommended is not covered under the warranty.
- Before buying gasoline from an unfamiliar station, first determine if the gasoline contains alcohol, if it does, find out the type and percentage of alcohol used.
  If you notice any undesirable operating symptoms while using a particular gasoline. Switch to a gasoline that you know contains less than the recommended amount of alcohol.

SERVICING YOUR GENERATOR

ENGINE OIL LEVEL CHECK

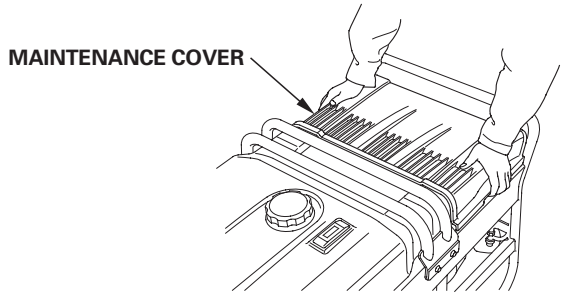
Check the engine oil level with the generator on a level surface and the engine stopped.

1. Open the maintenance cover to access the oil level dipstick.

2. Remove the oil level dipstick and wipe it clean.

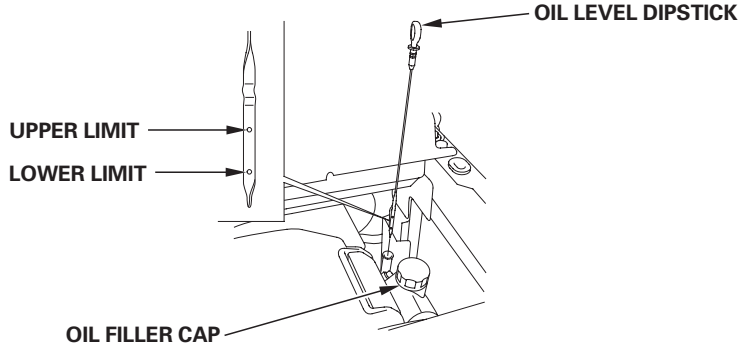
3. Fully insert the dipstick, then remove it to check the oil level.

4. If the level is near or below the lower limit mark on the dipstick, remove the oil filler cap, and fill with the recommended oil to the upper limit mark (see page 43).



5. Reinstall the oil level dipstick and filler cap.

6. Close the maintenance cover.



The Oil Alert system will automatically stop the engine before the oil level falls below safe limits. However, to avoid the inconvenience of an unexpected shutdown, check the oil level regularly.

ENGINE OIL CHANGE

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

1. Place the generator horizontally on wooden blocks to make space for placing a suitable container.

2. Open the maintenance cover to access the oil filler cap.

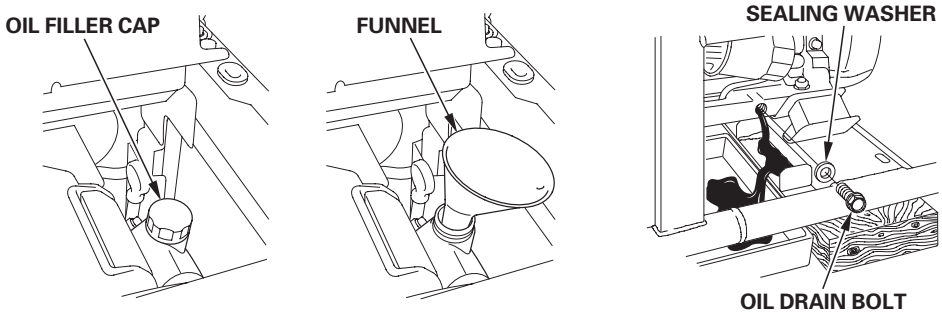
3. Remove the oil filler cap, oil drain bolt and sealing washer, and drain the oil into the container.

4. Install a new sealing washer and the oil drain bolt, and tighten the bolt securely.

5. When it is hard to fill the engine with oil, set the funnel contained in the generator package to the oil filler port, and pour oil. Refill to the upper limit mark on the dipstick with the recommended oil (see page 44). Tighten the oil filler cap securely. Close the maintenance cover.

   Engine oil capacity:

   Without oil filter replacement: approximately 1.5 L
   With oil filter replacement: approximately 1.7 L



Wash your hands with soap and water after handling used oil.

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 or recycling center for reclamation. Do not throw it in the trash, pour it on the ground, or pour it down a drain.

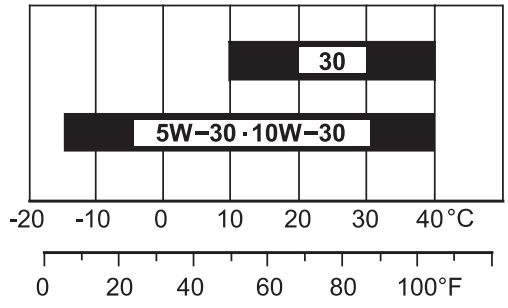
SERVICING YOUR GENERATOR

ENGINE OIL RECOMMENDATIONS

Oil is a major factor affecting engine performance and service life.

Use 4-stroke automotive detergent oil that meets or exceeds the requirements for API service category SE or later (or equivalent).

SAE 10W—30 is recommended for general use. Other viscosities shown in the chart may be used when the average temperature in your area is within the recommended range.

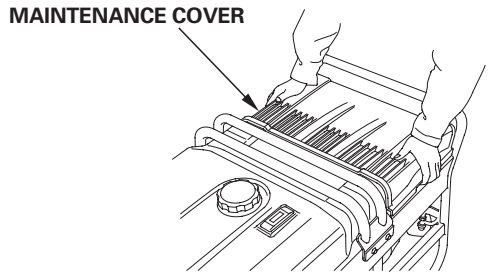


AMBIENT TEMPERATURE

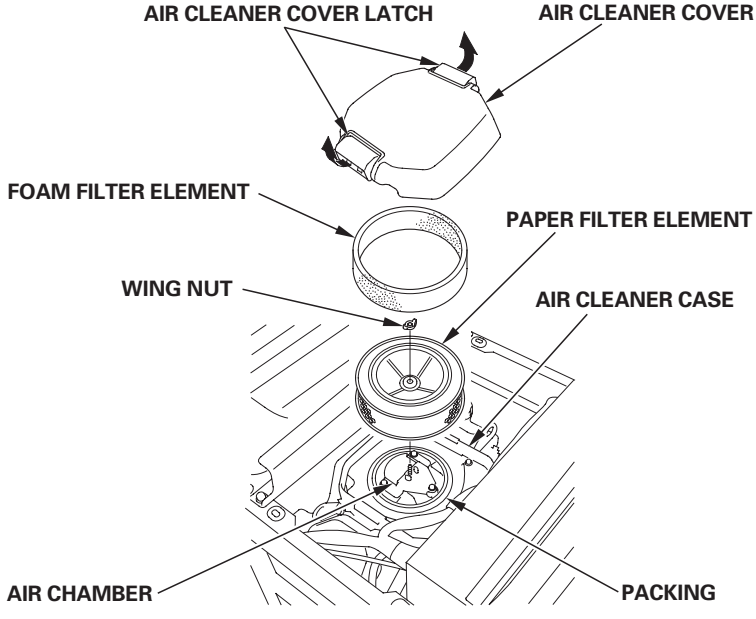
The SAE oil viscosity and service category are on the API label on the oil container.

AIR CLEANER SERVICE

1. Open the maintenance cover to access the air cleaner.



2. Pull the air cleaner cover latch to the unlocked position, and remove the cover.
   Remove the wing nut from the paper filter element.
   Remove the paper filter element and foam filter element from the air cleaner case.
   Remove the foam filter element from the paper filter element.

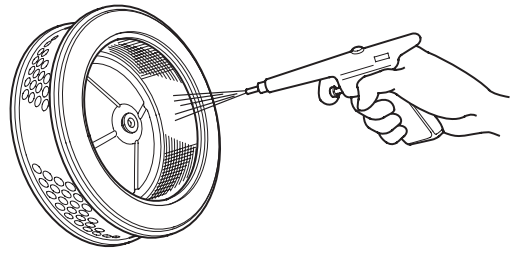


3. Inspect both filter elements, and replace them if they are damaged. Always replace the paper filter element at the scheduled interval (see page 38).

SERVICING YOUR GENERATOR

4. Clean the filter elements if they are to be reused.

   Paper filter element: Tap the filter element several times on a hard surface to remove dirt, or blow compressed air [not exceeding 207 kPa (2.1 kgf/cm², 30 psi)] through the filter element from the air cleaner case side.



   Never try to brush off dirt; brushing will force dirt into the fibers. Replace the paper filter element if it is excessively dirty.

   Foam filter element: If the foam filter is dirty, clean it as described on page 47 . Replace the foam filter if it is damaged.

5. Wipe dirt from the inside of the air cleaner body and cover, using a moist rag. Be careful to prevent dirt from entering the air chamber that leads to the carburetor.

6. Place the foam filter element over the paper filter element, and reinstall the assembled filter element. Be sure the packing is in place beneath the filter element. Tighten the wing nut securely.

7. Lock the air cleaner cover latch securely.

8. Close the maintenance cover.

NOTICE

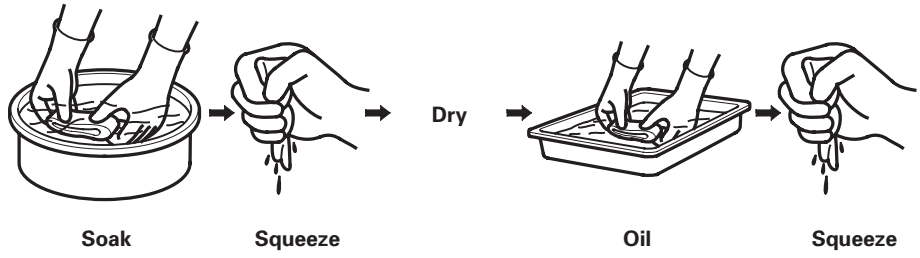
Operating the engine without an air filter, or with a damaged air filter, will allow dirt to enter the engine, causing rapid engine wear.

FOAM AIR FILTER CLEANING

A dirty foam air filter will restrict air flow to the carburetor, reducing engine performance. If you operate the generator in very dusty areas, clean the foam air filter more frequently than specified in the Maintenance Schedule.

1. Clean the foam air filter in warm soapy water, rinse, and allow to dry thoroughly, or clean in non-flammable solvent and allow to dry.

2. Dip the foam air filter in clean engine oil, then squeeze out all excess oil. The engine will smoke when started if too much oil is left in the foam air filter.



3. Wipe dirt from the air cleaner housing and cover using a moist rag. Be careful to prevent dirt from entering the air chamber that leads to the carburetor.

SERVICING YOUR GENERATOR

SEDIMENT CUP CLEANING

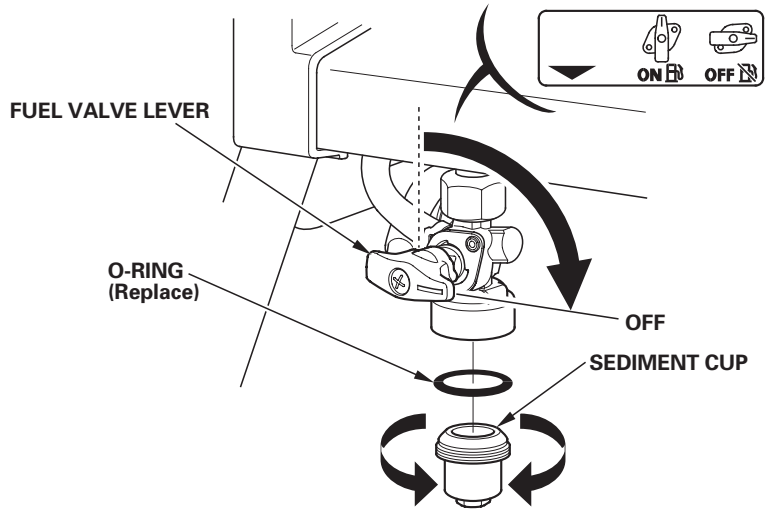
1. Turn the fuel valve lever to the OFF position; then remove the sediment cup and the O-ring. Discard the O-ring.

⚠ WARNING

Gasoline is highly flammable and explosive.

You can be burned or seriously injured when handling fuel.

- Stop the engine and keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.



2. Clean the sediment cup in nonflammable solvent, and dry it thoroughly.

3. Install the new O-ring and sediment cup, and tighten the sediment cup securely.

4. Make sure there is no fuel leakage.

SPARK PLUG SERVICE

Recommended spark plugs: ZFR5F (NGK)
FR2A (NGK)

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

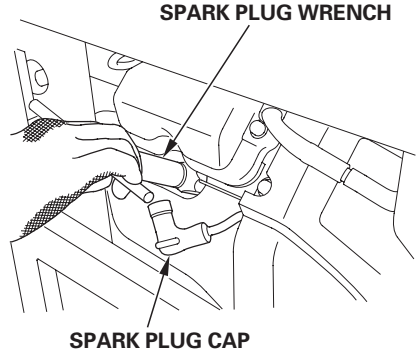
NOTICE

An incorrect spark plug can cause engine damage.

If the engine is hot, allow it to cool before servicing the spark plug.

1. Disconnect the spark plug caps, and remove any dirt from around the spark plug area.

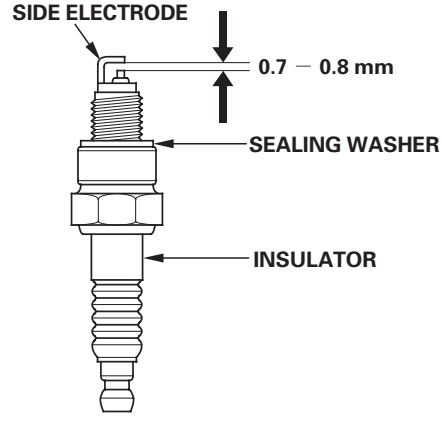
2. Remove the spark plugs with a spark plug wrench.



3. Inspect the spark plugs. Replace them if the electrodes are worn or if the insulator is cracked, chipped, or fouled.

4. Measure the spark plug electrode gap with a wire type feeler gauge. Correct the gap, if necessary, by carefully bending the side electrode.

   The gap should be:
   0.7—0.8 mm



5. Make sure that the spark plug sealing washers are in good condition, and thread the spark plug in by hand to prevent cross threading.

6. After the spark plugs seat, tighten with a spark plug wrench to compress the washer.

   If reinstalling a used spark plug, tighten 1/8 — 1/4 turn after the spark plug seats.
   If installing a new spark plug, tighten 1/2 turn after the spark plug seats.

   NOTICE

   A loose spark plug can overheat and damage the engine. Overtightening the spark plug can damage the threads in the cylinder head.

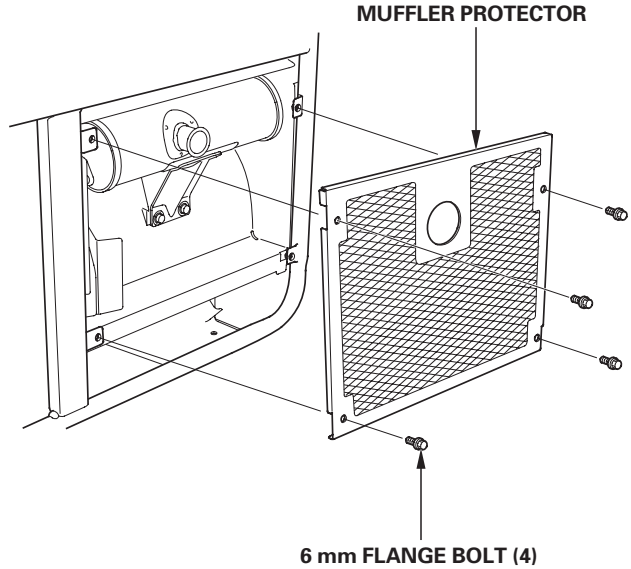
7. Attach the spark plug caps.

SPARK ARRESTER SERVICE (U type)

The spark arrester must be serviced every 100 hours to keep it functioning as designed.

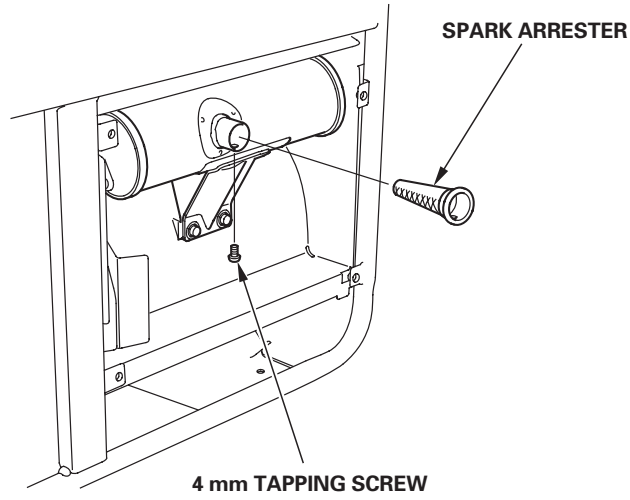
If the engine has been running, the muffler will be very hot. Allow the muffler to cool before servicing the spark arrester.

1. Remove the four 6 mm flange bolts, and remove the muffler protector.

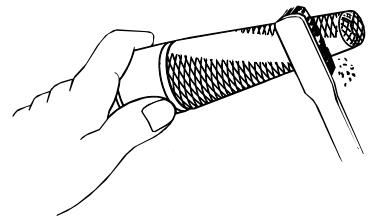


SERVICING YOUR GENERATOR

2. Remove the 4 mm tapping screw, and remove the spark arrester.



3. Use a brush to remove carbon deposits from the spark arrester screen.
   Be careful to avoid damaging the screen.
   The spark arrester must be free of breaks and tears. Replace the spark arrester if it is damaged.



4. Install the spark arrester in the reverse order of removal.
   TORQUE: 2.2 N·m (0.22 kgf·m)

5. Install the muffler protector in the reverse order of removal.

BATTERY SERVICE

Your generator's engine charging system charges the battery while the engine is running. However, if the generator is only used periodically, the battery must be charged monthly to maintain the battery service life.

⚠ WARNING

The battery contains sulfuric acid (electrolyte), which is highly corrosive and poisonous. Getting electrolyte in your eyes or on your skin can cause serious burns.

Wear protective clothing and eye protection when working near the battery.
KEEP CHILDREN AWAY FROM THE BATTERY.

Emergency Procedures

Eyes — Flush with water from a cup or other container for at least fifteen minutes. (Water under pressure can damage the eye.) Call a physician immediately.

Skin — Remove contaminated clothing. Flush the skin with large quantities of water. Call a physician immediately.

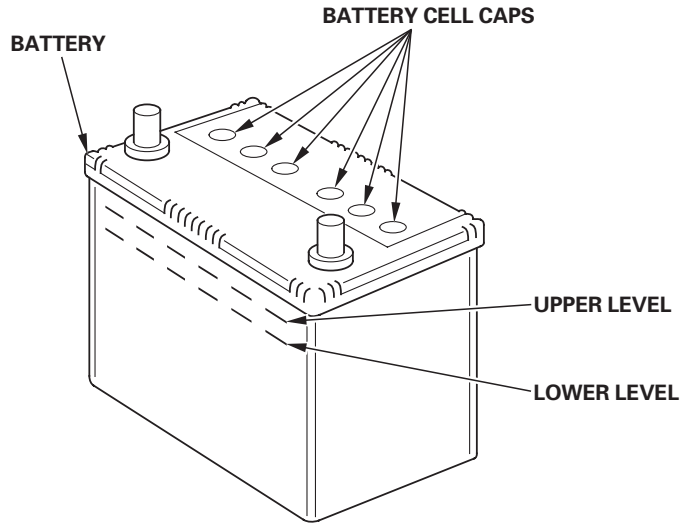
Swallowing — Drink water or milk. Call a physician immediately.

SERVICING YOUR GENERATOR

Battery Inspection

The electrolyte level must be kept between the UPPER and LOWER level marks. If the electrolyte level is below the LOWER level, sulfation and battery plate damage will occur.
If rapid loss of electrolyte is experienced, or if your battery seems to be weak causing slow operation of the starter motor, see your authorized Honda generator dealer.

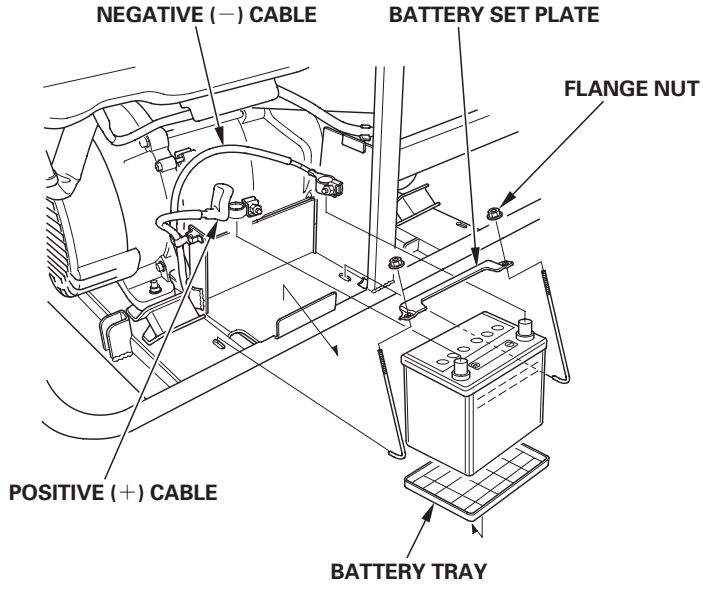
1. Locate the battery. Check the electrolyte level with the generator on a level surface. Remove the battery cell caps.
2. Inspect the electrolyte level of each cell.
   The electrolyte level must be kept between the UPPER and LOWER level marks, and electrolyte liquid should cover all the plates.
3. If any plates are not covered, remove the battery and add distilled water as necessary.



Battery Removal

WARNING: Battery posts, terminals, and related accessories contain lead and lead compounds. **Wash hands after handling.**

1. Remove the negative (−) cable from the battery negative (−) terminal first, and then remove the positive (+) cable from the battery positive (+) terminal.



2. Remove the flange nuts, and remove the battery set plate.

3. Remove the battery from the battery tray.

This symbol on the battery means that this product must not be treated as household waste.

NOTE:
An improperly disposed of battery can be harmful to the environment and human health.
Always confirm local regulations for battery disposal.

SERVICING YOUR GENERATOR

Battery Charging

⚠ WARNING

The battery gives off explosive hydrogen gas during normal operation.

A spark or flame can cause the battery to explode with enough force to kill or seriously hurt you.

Wear protective clothing and a face shield, or have a skilled mechanic perform the battery maintenance.

The battery is rated at 28.0 Ah (ampere hours). Charging current should equal 10% of the battery's ampere hour rating.

1. Connect the battery charger following the manufacturer's instructions.
2. Charge the battery.
3. Clean the outside of the battery and the battery compartment with a solution of baking soda and water.

Battery Installation

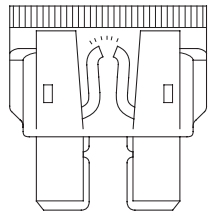
1. Install the battery into the generator.
2. Connect the battery positive (+) cable to the battery positive (+) terminal first, and tighten the bolt securely.
3. Slide the battery boot over the positive (+) cable and terminal.
4. Connect the battery negative (−) cable to the battery negative (−) terminal, and tighten the bolt securely.

FUSE

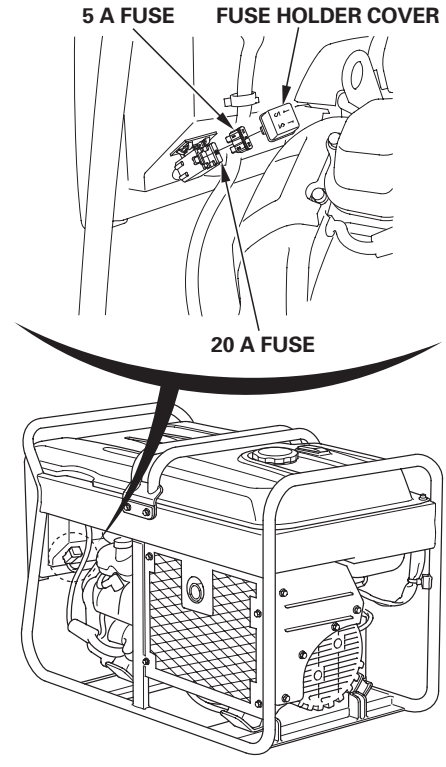
If the fuse is blown, the starter motor won't operate.

In the event of fuse failure, locate the cause of failure and repair it before you continue operation. If the fuse continues to fail, discontinue generator use and consult an authorized Honda generator dealer.

1. Turn the engine switch to the OFF position and remove the key before checking or replacing the fuse.



BLOWN FUSE



2. Remove the fuse holder cover and pull the fuse out.

3. Replace the fuse with a fuse of the same type and rating.
   Specified fuse: 5 A, 20 A

   NOTICE

   Never use a fuse with a different rating from that specified. Serious damage to the electrical system or fire may result.

4. Install the fuse holder cover in the reverse order of removal.

STORAGE

STORAGE PREPARATION

Proper storage preparation is essential for keeping your generator trouble-free and looking good. The following steps will help to keep rust and corrosion from impairing your generator's function and appearance, and will make the engine easier to start when you use the generator again.

Cleaning

Wipe the generator with a moist cloth. After the generator has dried, touch up any damaged paint, and coat other areas that may rust with a light film of oil.

Fuel

Gasoline will oxidize and deteriorate in storage. Old gasoline will cause hard starting, and it leaves gum deposits that clog the fuel system. If the gasoline in your generator deteriorates during storage, you may need to have the carburetor and other fuel system components serviced or replaced.

NOTE:
Gasoline spoils very quickly depending on factors such as light exposure, temperature and time.
In worst cases, gasoline can be contaminated within 30 days.
Using contaminated gasoline can seriously damage the engine (carburetor clogged, valve stuck).
Such damage due to spoiled fuel is disallowed from coverage by the warranty.
To avoid this please strictly follow these recommendations:

- Only use specified gasoline (see page 41).
- Use fresh and clean gasoline.
- To slow deterioration, keep gasoline in a certified fuel container.
- If long storage (more than 30 days) is foreseen, drain fuel tank and carburetor (see pages 60 and 61).

You can extend fuel storage life by adding a gasoline stabilizer that is formulated for that purpose, or you can avoid fuel deterioration problems by draining the fuel tank and carburetor.

Adding a Gasoline Stabilizer to Extend Fuel Storage Life

When adding a gasoline stabilizer, fill the fuel tank with fresh gasoline. If only partially filled, air in the tank will promote fuel deterioration during storage. If you keep a container of gasoline for refueling, be sure that it contains only fresh gasoline.

1. Add gasoline stabilizer following the manufacturer's instructions.

2. After adding a gasoline stabilizer, run the engine outdoors for 10 minutes to be sure that treated gasoline has replaced the untreated gasoline in the carburetor.

3. Stop the engine, and turn the fuel valve lever to the OFF position.

STORAGE

STORAGE PROCEDURE

1. Drain the fuel tank and carburetor.

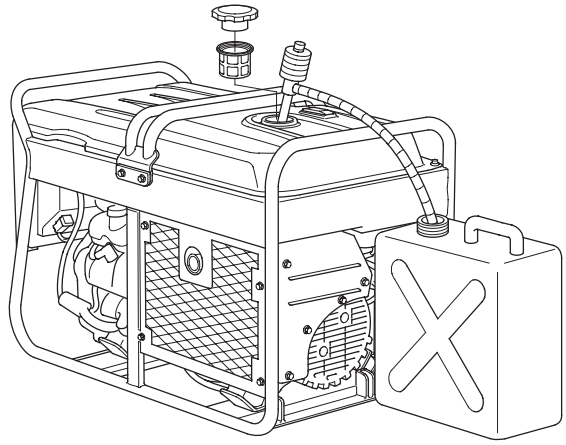
⚠ WARNING

Gasoline is highly flammable and explosive.

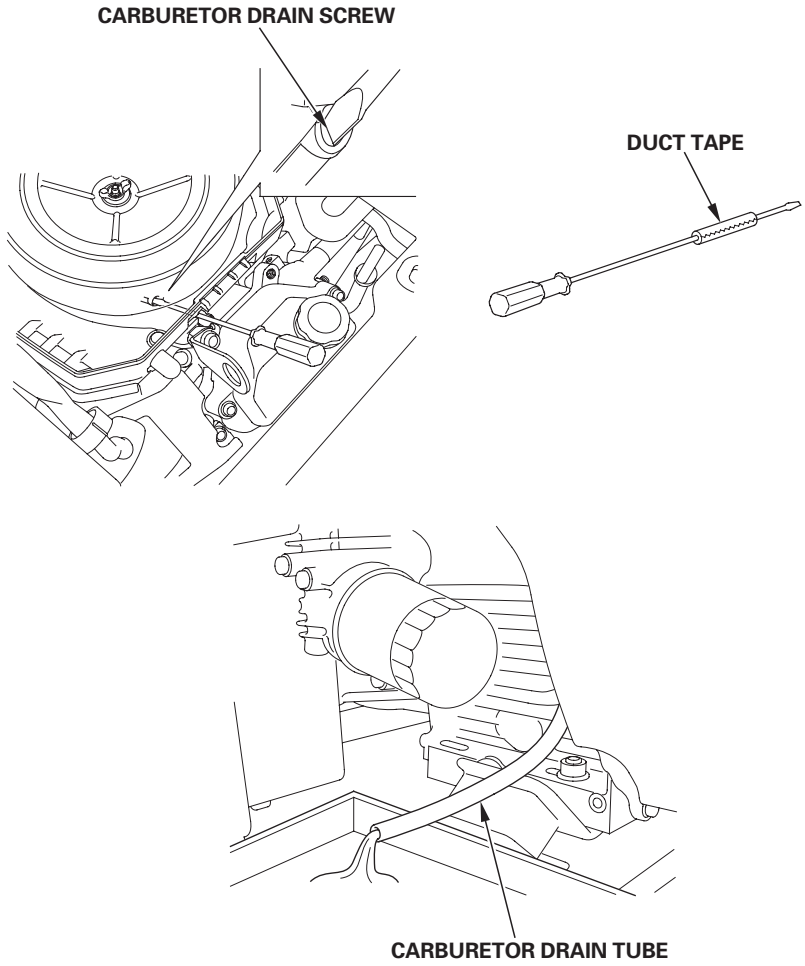
You can be burned or seriously injured when handling fuel.

- Stop the engine and keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

a. Unscrew the fuel tank cap, remove the fuel filter, and empty the fuel tank into an approved gasoline container. We recommend using a commercially available gasoline hand pump to empty the tank. Do not use an electric pump. Reinstall the fuel filter and the fuel tank cap.



b. Pull out the carburetor drain tube end under the fan cover of the engine, and place it in a suitable container.
c. Remove the air cleaner cover (see page 45).
d. Loosen the carburetor drain screw.
When the drain screw is difficult to loosen, wrap duct tape around the screwdriver stem until the diameter becomes 8 mm as illustrated so that you can loosen easily.
e. Drain the gasoline from the carburetor into the container.
f. Tighten the carburetor drain screw securely.
g. Install the air cleaner cover (see page 46).



STORAGE

2. Change the engine oil (refer to page 43).

3. Remove the spark plugs (see page 49).

4. Pour a tablespoon (5 — 10 cm^3) of clean engine oil into each cylinder.

5. Turn the engine for a few seconds by turning the engine switch to the START position to distribute the oil in the cylinders.

6. Reinstall the spark plugs.

7. Remove the battery and store it in a cool, dry place. Recharge it once a month.

8. Cover the generator to keep out dust.

STORAGE PRECAUTIONS

If your generator will be stored with gasoline in the fuel tank and carburetor, it is important to reduce the hazard of gasoline vapor ignition.

Select a well ventilated storage area away from any appliance that operates with a flame, such as a furnace, water heater, or clothes dryer. Also avoid any area with a spark producing electric motor, or where power tools are operated.

If possible, avoid storage areas with high humidity, because that promotes rust and corrosion.

Unless all fuel has been drained from the fuel tank, leave the fuel valve lever in the OFF position to reduce the possibility of leakage.

Place the generator on a level surface. Tilting can cause fuel or oil leakage.

With the engine and exhaust system cool, cover the generator to keep out dust. A hot engine and exhaust system can ignite or melt some materials.

Do not use sheet plastic as a dust cover. A nonporous cover will trap moisture around the generator, promoting rust and corrosion.

REMOVAL FROM STORAGE

Check your generator as described in the *BEFORE OPERATION* chapter of this manual.

If the fuel was drained during storage preparation, fill the tank with fresh gasoline. If you keep a container of gasoline for refueling, be sure that it contains only fresh gasoline. Gasoline oxidizes and deteriorates over time, causing hard starting.

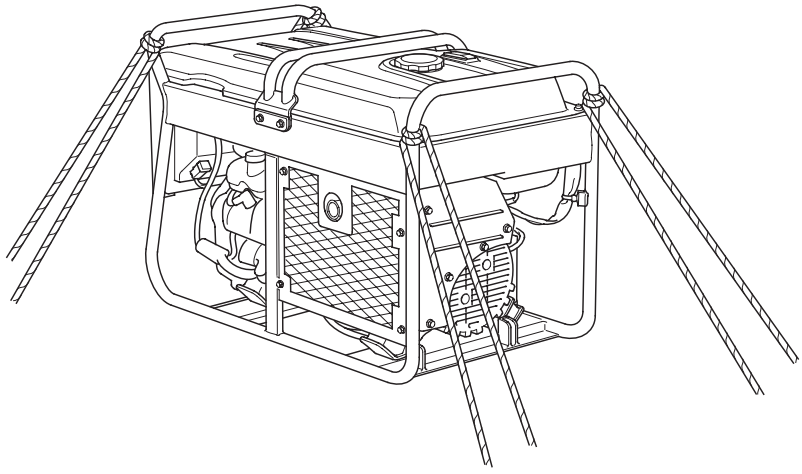
If the cylinder was coated with oil during storage preparation, the engine may smoke briefly at startup. This is normal.

TRANSPORTING

If the generator has been running, allow the engine to cool for at least 15 minutes before loading the generator on the transport vehicle. A hot engine and exhaust system can burn you and can ignite some materials.

Keep the generator level when transporting to reduce the possibility of fuel leakage. Move the fuel valve lever to the OFF position.

When using ropes or tie down straps to secure the generator for transportation, be sure to only use the frame bars as attachment points. Do not fasten ropes or straps to any portions of the generator body.



TAKING CARE OF UNEXPECTED PROBLEMS

ENGINE PROBLEMS

Engine Will Not Start	Possible Cause	Correction
1. Check control positions.	Fuel valve lever OFF.	Turn lever ON.
	Choke OPEN.	Move to CLOSED unless engine is warm.
	Engine switch OFF.	Turn engine switch to ON.
2. Check fuel.	Out of fuel.	Refuel (p. 39).
	Bad fuel; generator stored without treating or draining gasoline, or refueled with bad gasoline.	Drain fuel tank and carburetor (p. 60 and 61). Refuel with fresh gasoline (p. 39).
3. Check engine oil level.	Low oil level caused Oil Alert to stop engine.	Add oil (p. 43). Turn engine switch to OFF and restart the engine.
4. Remove and inspect spark plug.	Spark plug faulty, fouled, or improperly gapped.	Gap, or replace spark plug (p. 49).
	Spark plug wet with fuel (flooded engine).	Dry and reinstall spark plug.
5. Take generator to an authorized Honda servicing dealer, or refer to shop manual.	Fuel filter restricted, carburetor malfunction, ignition malfunction, valves stuck, etc.	Replace or repair faulty components as necessary.

TAKING CARE OF UNEXPECTED PROBLEMS

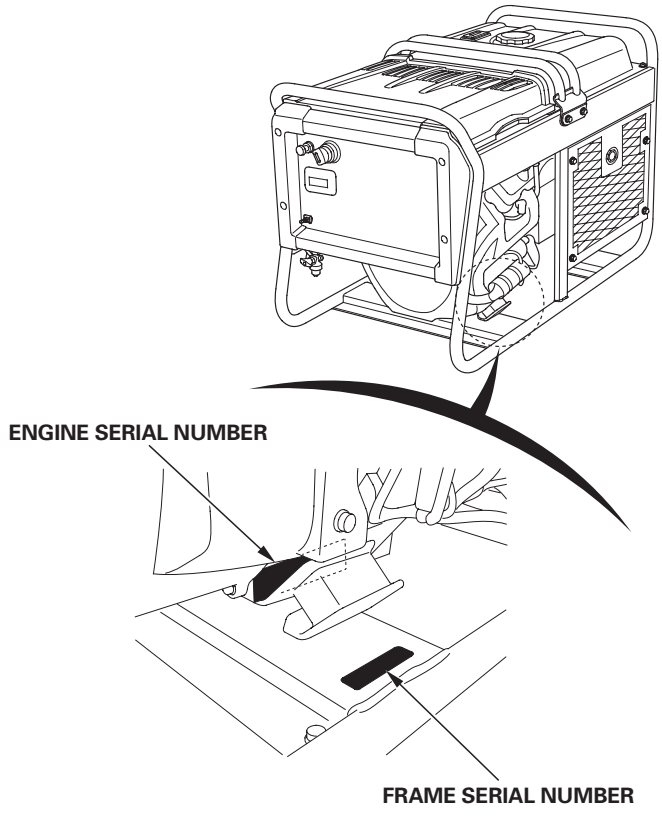
Engine Lacks Power	Possible cause	Correction
1. Check air filter.	Air filter restricted.	Clean or replace air filter (p. 45 thru. 47).
2. Check fuel.	Bad fuel; generator stored without treating or draining gasoline, or refueled with bad gasoline.	Drain fuel tank and carburetor (p. 60 and 61). Refuel with fresh gasoline (p. 39).
3. Take generator to an authorized Honda servicing dealer, or refer to shop manual.	Fuel filter restricted, carburetor malfunction, ignition malfunction, valves stuck, etc.	Replace or repair faulty components as necessary.

GENERATOR PROBLEMS

No Power at the AC Receptacles	Possible Cause	Correction
1. Check circuit breaker.	Circuit breaker left in the OFF position after starting.	Switch circuit breaker ON.
2. Check the power tool or appliance at a known, good AC power source.	Faulty power tool or appliance.	Replace or repair power tool or appliance. Stop and restart the engine.
3. Take generator to an authorized Honda servicing dealer, or refer to shop manual.	Faulty generator.	Replace or repair faulty components as necessary.

TECHNICAL INFORMATION

SERIAL NUMBER LOCATION



Record the engine and frame serial numbers and date purchased in the spaces below. You will need this serial number when ordering parts, and when making technical or warranty inquiries.

Engine serial number: _____

Frame serial number: _____

Date purchased: _____

CARBURETOR MODIFICATION FOR HIGH ALTITUDE OPERATION

At high altitude, the standard carburetor air-fuel mixture will be too rich. Performance will decrease, and fuel consumption will increase. A very rich mixture will also foul the spark plugs and cause hard starting. Operation at an altitude that differs from that at which this engine was certified, for extended periods of time, may increase emissions.

High altitude performance can be improved by specific modifications to the carburetor. If you always operate your generator at altitudes above 1,500 meters, have your authorized Honda servicing dealer perform this carburetor modification.

Even with carburetor modification, engine horsepower will decrease about 3.5% for each 300 meter increase in altitude. The effect of altitude on horsepower will be greater than this if no carburetor modification is made.

NOTICE

When the carburetor has been modified for high altitude operation, the air/fuel mixture will be too lean for low altitude use. Operation at altitudes below 1,500 meters with a modified carburetor may cause the engine to overheat and result in serious engine damage. For use at low altitudes, have your servicing dealer return the carburetor to original factory specifications.

TECHNICAL INFORMATION

SPECIFICATIONS

Dimensions

Model	EM10000
Description code	EBTC
Length	973 mm
Width	552 mm
Height	695 mm
Dry mass (weight)*	162.3 kg

* With battery

Engine

Model	GX630
Engine Type	4-stroke, overhead valve, 2 cylinder
Displacement	688 cm^3
Bore × Stroke	78.0 × 72.0 mm
Cooling System	Forced air
Ignition System	CDI magneto ignition
Oil Capacity	Without oil filter replacement: approximately 1.5 L With oil filter replacement: approximately 1.7 L
Fuel Tank Capacity	31.0 L
Spark Plug	ZFR5F (NGK) , FR2A (NGK)
Battery	12 V 28 Ah/5 HR

Generator

Model		EM10000
AC output	Rated voltage	220 V (R, M types) 230 V (K type) 240 V (U type)
	Rated frequency	50 Hz
	Rated ampere	36.4 A (R, M types) 34.8 A (K type) 33.3 A (U type)
	Rated output	8.0 kVA
	Maximum output	9.0 kVA
	Power factor	1.0

Dimensions

Model	ET12000
Description code	EBUC
Length	973 mm
Width	552 mm
Height	695 mm
Dry mass (weight)*	162.3 kg

* With battery

Engine

Model	GX630
Engine Type	4-stroke, overhead valve, 2 cylinder
Displacement	688 cm^3
Bore × Stroke	78.0 × 72.0 mm
Cooling System	Forced air
Ignition System	CDI magneto ignition
Oil Capacity	Without oil filter replacement: approximately 1.5 L With oil filter replacement: approximately 1.7 L
Fuel Tank Capacity	31.0 L
Spark Plug	ZFR5F (NGK) , FR2A (NGK)
Battery	12 V 28 Ah/5 HR

Generator

Model		ET12000	
		Three-phase	Single-phase
AC output	Rated voltage	380 V	220 V
	Rated frequency	50 Hz	
	Rated ampere	15.2 A	12.1 A × 3
	Rated output	10.0 kVA	2.7 kVA × 3
	Maximum output	11.0 kVA	3.0 kVA × 3
	Power factor	0.8	1.0

TECHNICAL INFORMATION

Tuneup Specifications

ITEM	SPECIFICATION	MAINTENANCE
Spark plug gap	0.7－0.8 mm	Refer to page: 49
Valve clearance (cold)	IN: 0.08 ± 0.02 mm EX: 0.10 ± 0.02 mm	See your authorized Honda dealer
Other specifications	No other adjustments needed.	

Specifications may vary according to the types, and are subject to change without notice.

WIRING DIAGRAM

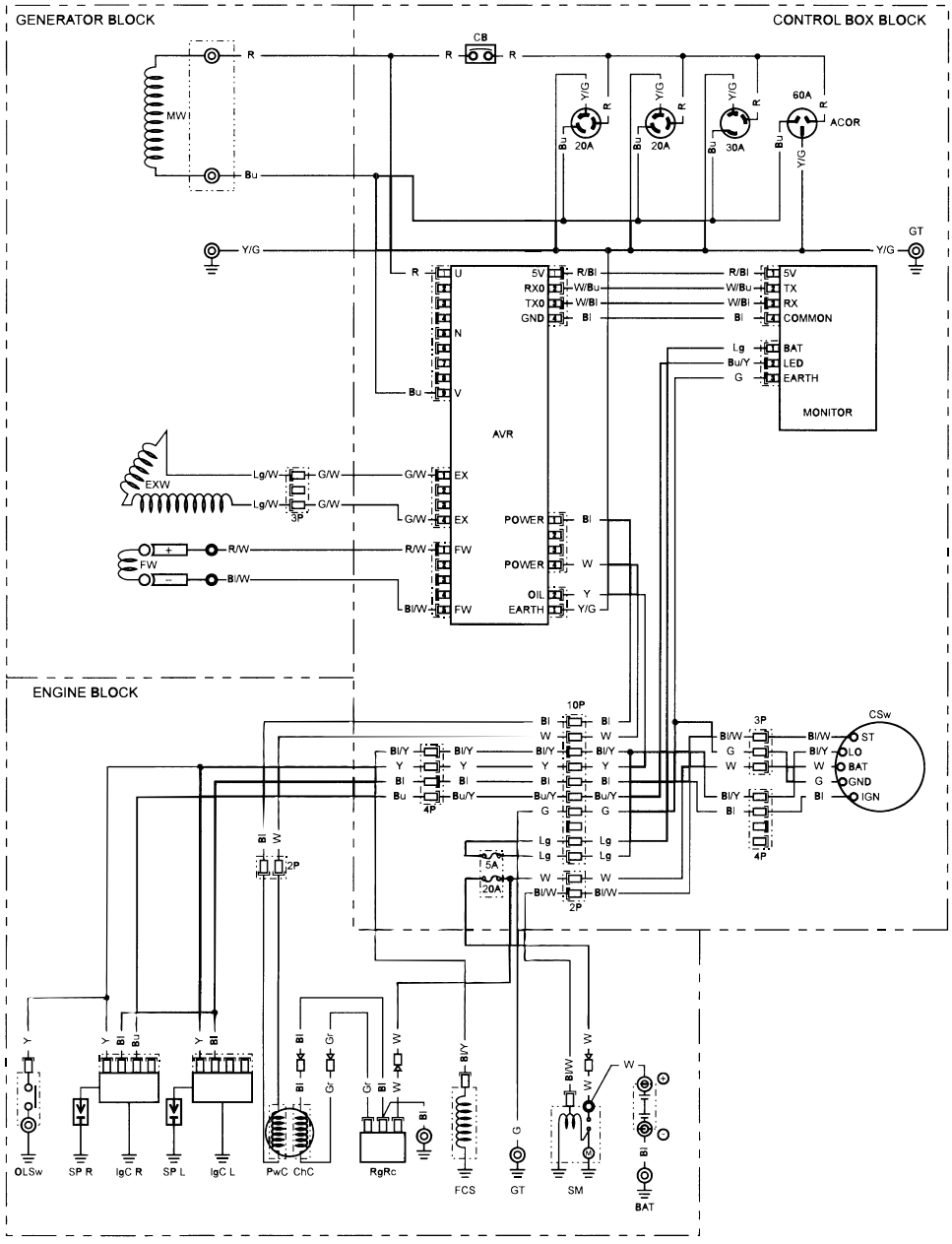
	Part name
ACOR	AC Output Receptacle
AVR	Automatic Voltage Regulator
BAT	Battery
ChC	Charge Coil
CB	Circuit Breaker
CSw	Combination Switch
GT	Ground Terminal
EXW	Exciter Winding
FW	Field Winding
FCS	Fuel Cut Solenoid
IgC	Ignition Coil
MW	Main Winding
OLSw	Oil Level Switch
PwC	Power Coil
RgRc	Regulator Rectifier
SP	Spark Plug
SM	Starter Motor

	Wire Color
Bl	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

COMBINATION SWITCH

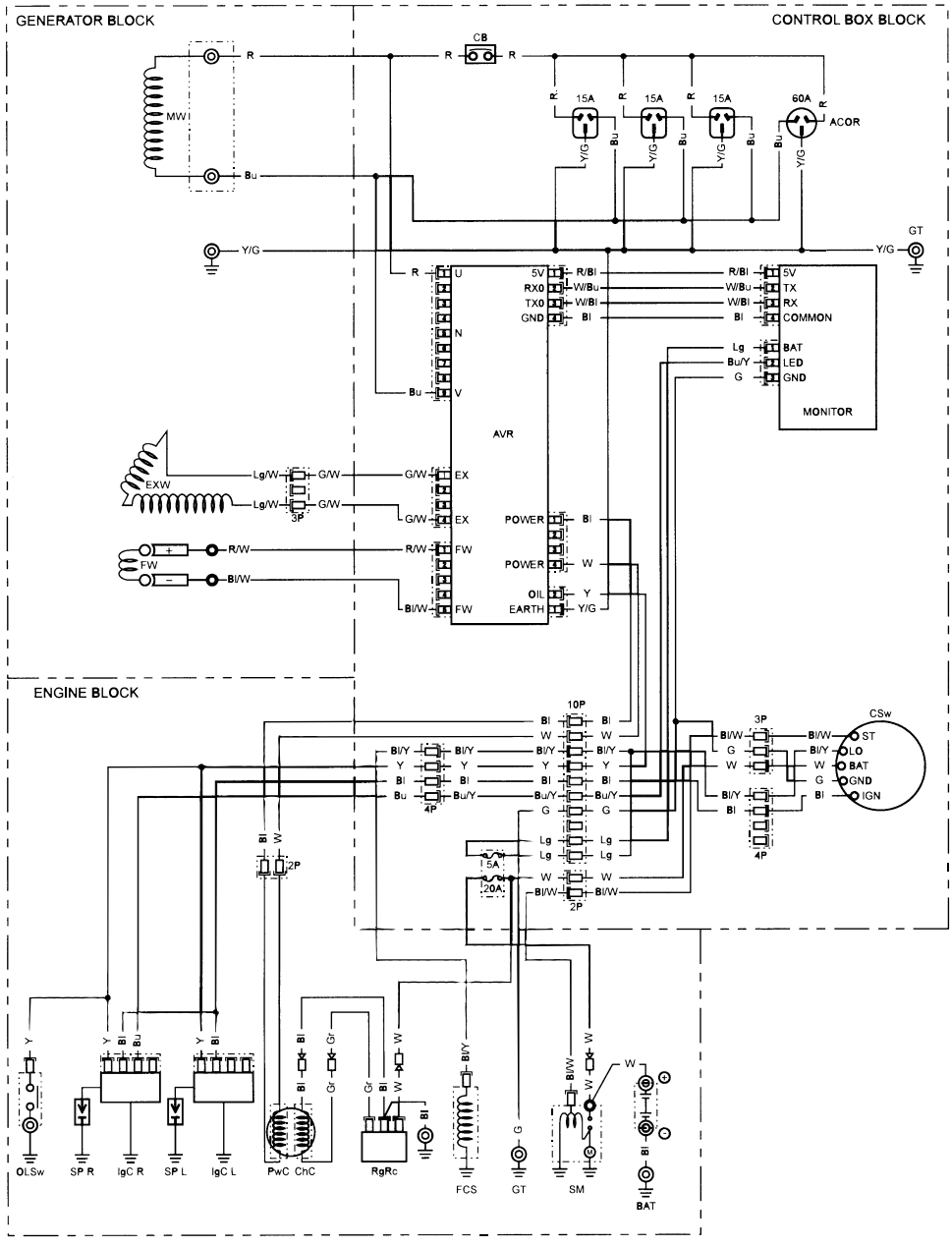
	IGN	GND	BAT	LO	ST
OFF					
ON	○—○		○—○		
START	○—○		○—○	○—○	

WIRING DIAGRAM (EM10000: R, K types)

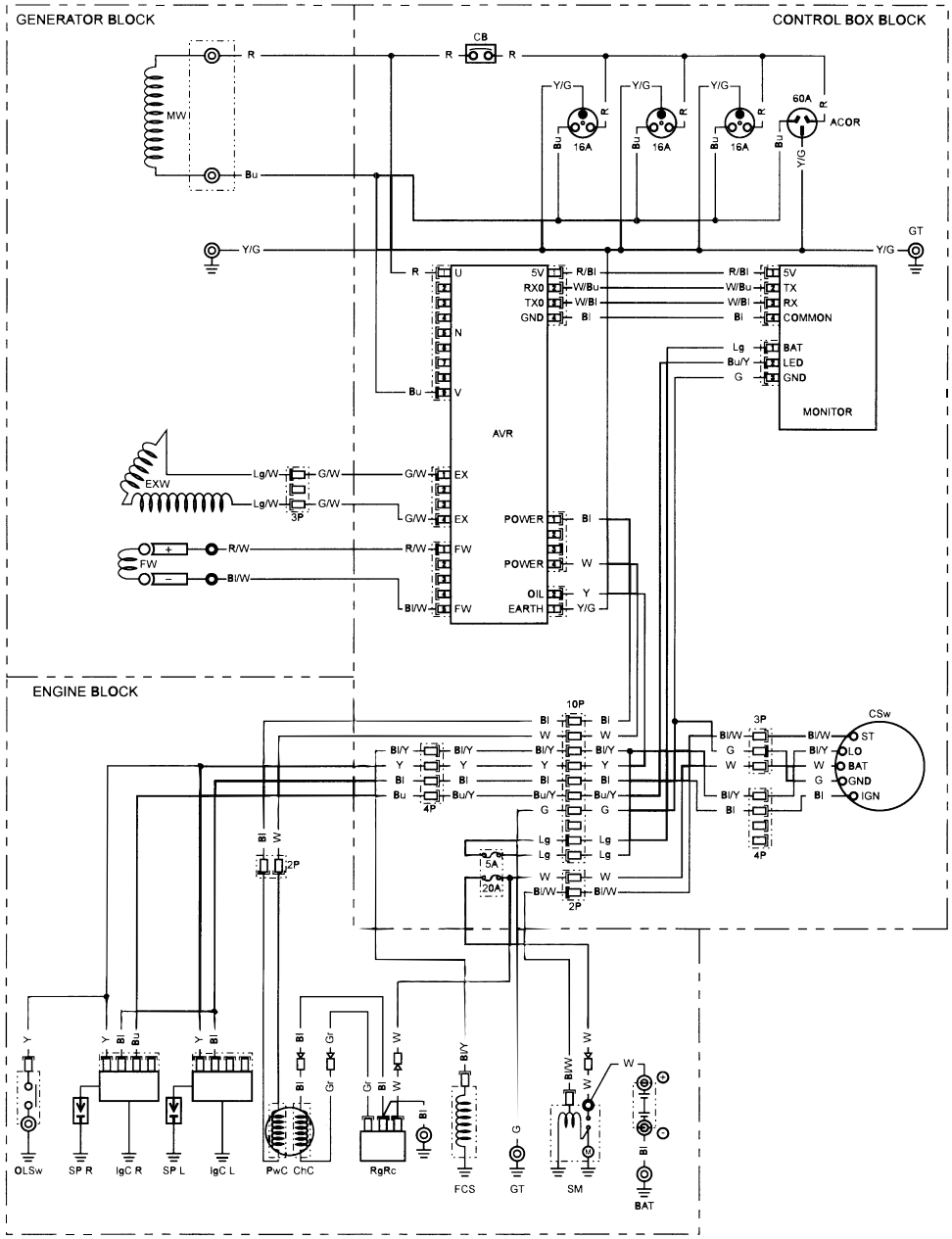


TECHNICAL INFORMATION

WIRING DIAGRAM (EM10000: U type)

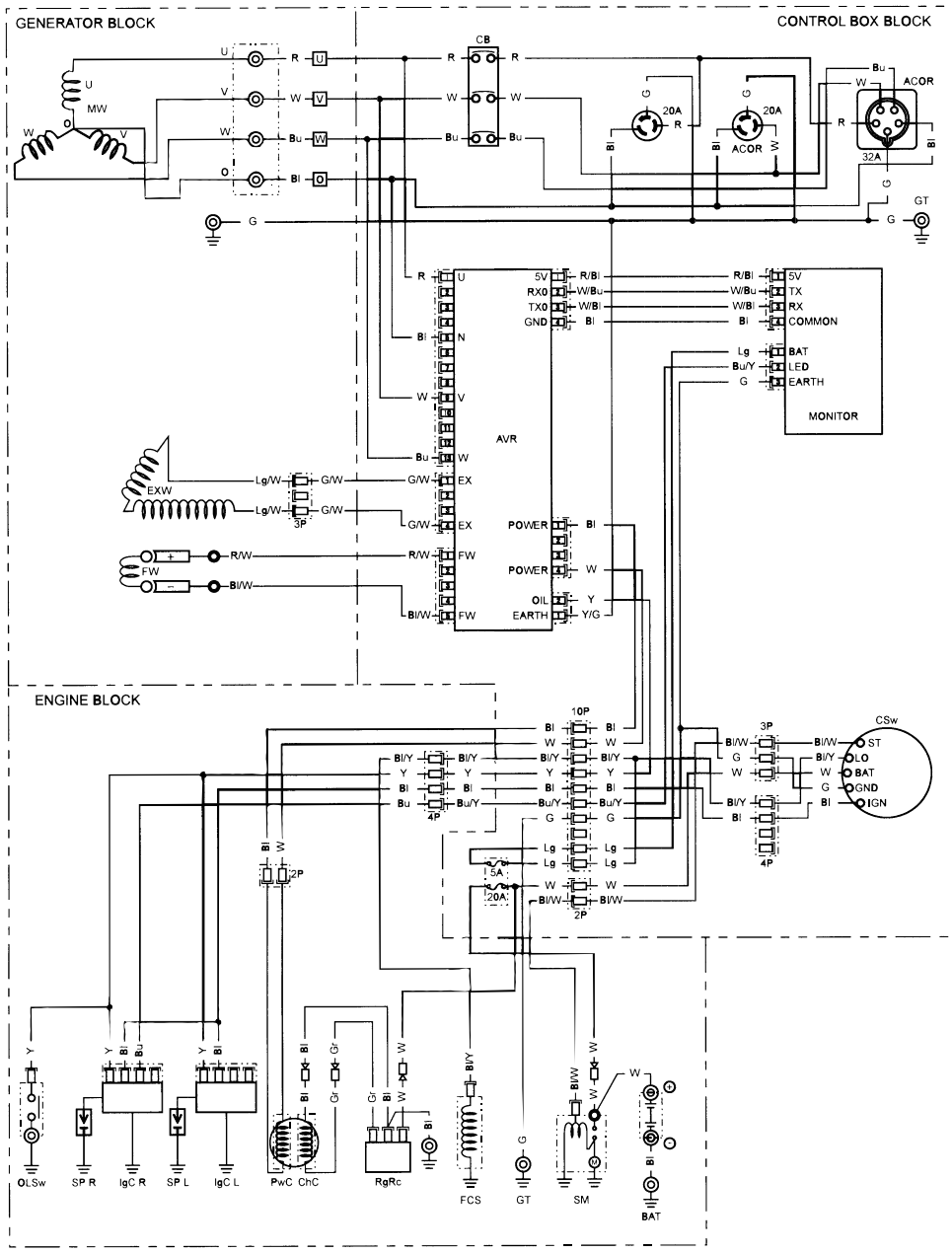


WIRING DIAGRAM (EM10000: M type)



TECHNICAL INFORMATION

WIRING DIAGRAM (ET12000)



OPTIONAL PARTS

Wheel Kit

1. Remove the battery (see page 55).

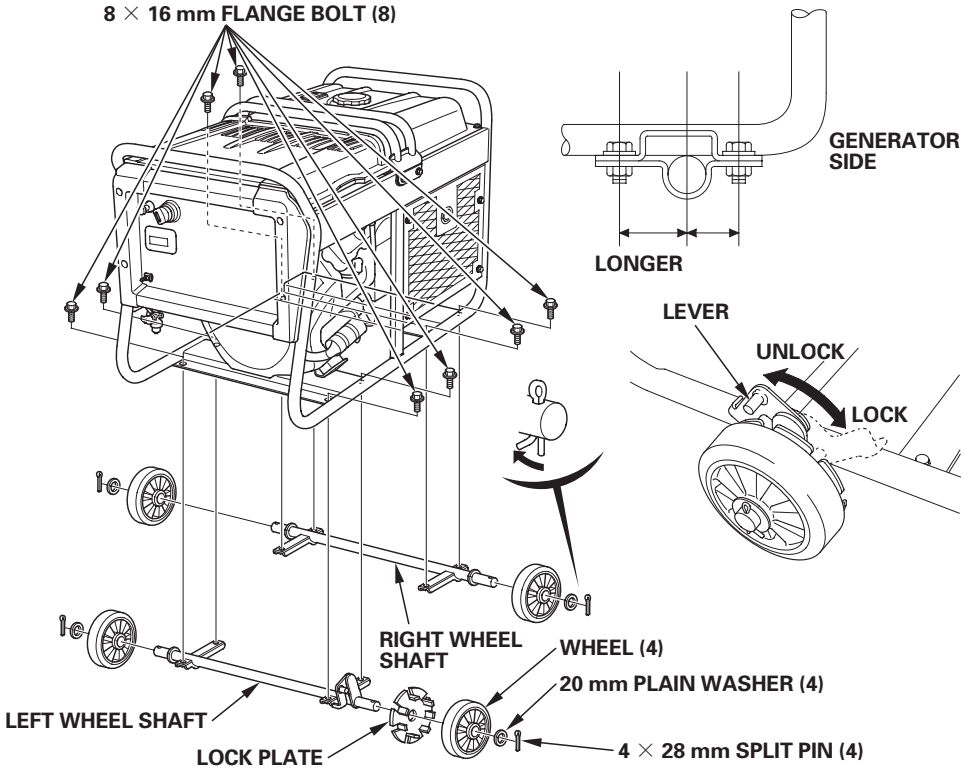
2. Install the lock plate on the left wheel shaft and four wheels on the wheel shafts using the washers and split pins.

3. Install the wheel shaft assemblies on the generator using eight 8 × 16 mm flange bolts.

TORQUE: 20 — 26 N·m (2.0 — 2.6 kgf·m)

NOTE:
Install the left wheel shaft on the left side nearest the engine.

4. Install the battery (see page 56).



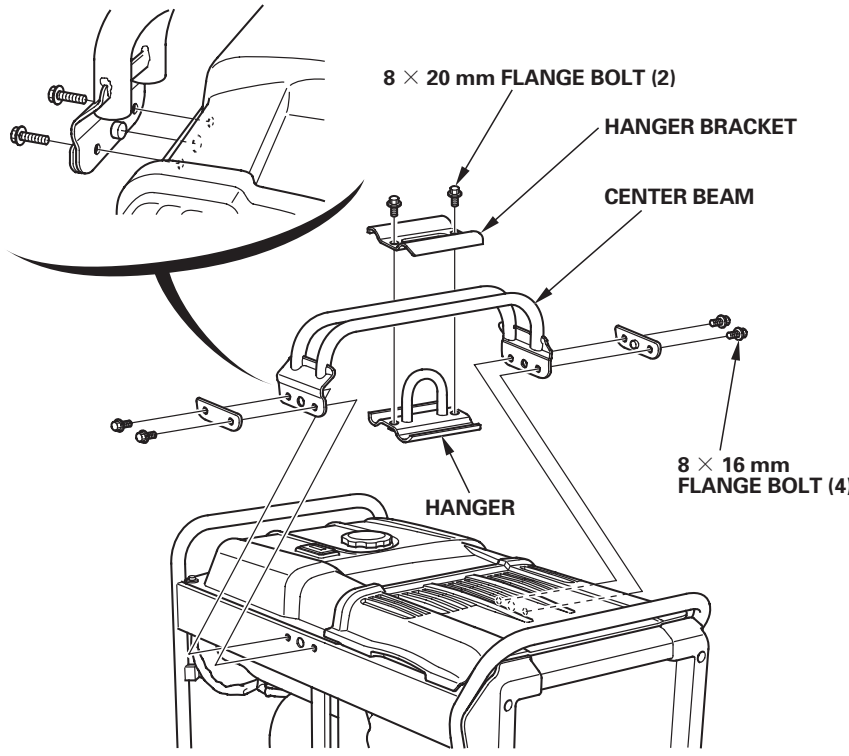
The wheels can be locked by turning the lever. Use the wheel lock when necessary.

OPTIONAL PARTS

Hanger Kit

1. Remove the center beam.
2. Loosely install the hanger to the center beam using the hanger bracket and two 8 × 20 mm flange bolts.
3. Reinstall the center beam. Make sure to tighten the four 8 × 16 mm bolts securely.
4. Position the hanger at the generator's center, and tighten the two 8 × 20 mm bolts securely.

TORQUE: 20 — 26 N·m (2.0 — 2.6 kgf·m)



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MEMO

MEMO