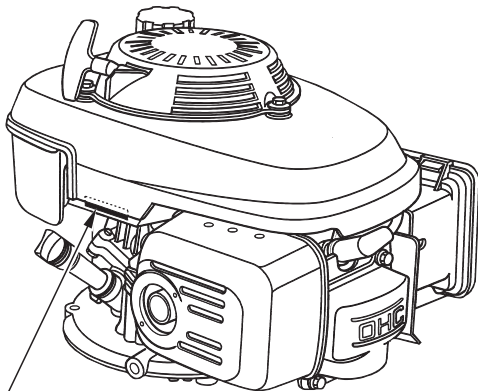


HONDA

POWER PRODUCTS

GCV135E·GCV160E



SERIAL NUMBER AND ENGINE TYPE



OWNER'S MANUAL

32Z0M600
00X32-Z0M-6000

PRINTED IN ITALY

1

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130000.2004.10



Thank you for purchasing a Honda engine.

This manual covers the operation and maintenance of your engine:
GCV135E·GCV160E

All information in this publication is based on the latest product information available at the time of printing.
The illustrations may vary according to the with top cover type.

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This manual should be considered a permanent part of the engine and should remain with it if it is resold.

Pay special attention to statements preceded by the following words:

▲WARNING Indicates a strong possibility of severe personal injury or death if instructions are not followed.

CAUTION: Indicates a possibility of personal injury or equipment damage if instructions are not followed.

NOTICE Indicates that equipment or property damage can result if instructions are not followed.

NOTE: Gives helpful information.

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

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

2

1 SAFETY INSTRUCTIONS

▲WARNING

To ensure safe operation —



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

- Always make a pre-operation inspection (page 7) before you start the engine. You may prevent an accident or equipment damage.
- To prevent fire hazards and to provide adequate ventilation, keep the engine at least 1 meter (3 feet) away from buildings and other equipment during operation. Do not place flammable objects close to the engine.
- Children and pets must be kept away from the area of operation due to a possibility of burns from hot engine components or injury from any equipment the engine may be used to operate.
- Know how to stop the engine quickly, and understand the operation of all controls. Never permit anyone to operate the engine without proper instructions.
- Do not place flammable objects such as gasoline, matches, etc., close to the engine while it is running.
- Refuel in a well-ventilated area with the engine stopped. Gasoline is highly flammable and explosive under certain conditions.
- Do not overfill the fuel tank. There should be no fuel in the filler neck.
Make sure that the filler cap is closed securely.

Safety Instruction

▲WARNING

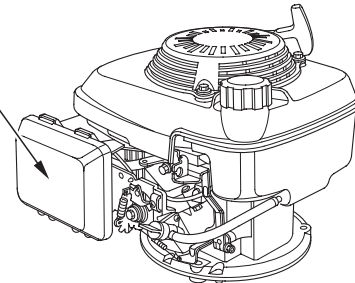
To ensure safe operation —

- If any fuel is spilled, clean it up completely and allow petroleum vapours to dissipate before starting the engine.
- Do not smoke or allow flames or sparks where the engine is refueled or where gasoline is stored.
- Exhaust gas contains poisonous carbon monoxide. Avoid inhalation of exhaust gases. Never run the engine in a closed garage or confined area.
- Place the engine on a stable surface. Do not tilt the engine more than 15° from horizontal. Operating at excessive angles may result in fuel spillage.
- Do not place anything on the engine, as it may create a fire hazard.
- A spark arrester is available as an optional part for this engine. It is illegal in some areas to operate an engine without a spark arrester. Check local laws and regulations before operating.
- 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. To avoid severe burns or fire hazards, let the engine cool before transporting it or storing it indoors.

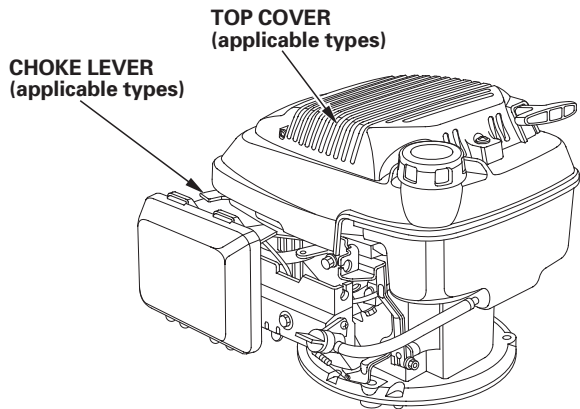
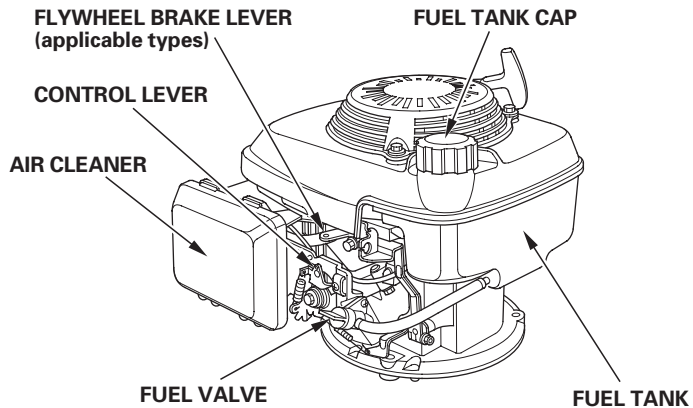
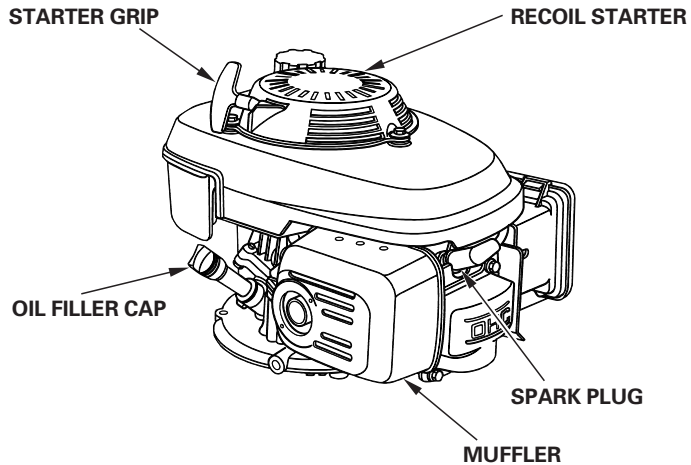
SAFETY INDICATION LOCATION

This indication warns you of potential hazards that can cause serious injury. Read it carefully.

READ OWNER'S MANUAL BEFORE OPERATION.



2 COMPONENT IDENTIFICATION



3 PRE-OPERATION CHECK

1. Engine oil level

CAUTION:

- Running the engine with insufficient oil can cause serious engine damage.
- Be sure to check the engine on a level surface with the engine stopped.

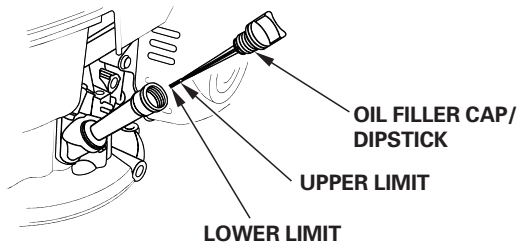
1. Remove the oil filler cap and wipe the dipstick clean.
2. Insert the dipstick into the oil filler neck, but do not screw it in.
3. If the level is low, add the recommended oil to the upper limit on the dipstick.

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 SG, SH. Motor oils classified SG, SH will show this designation on the container.

SAE 10W-30 is recommended for general, all temperature use. If single viscosity oil is used, select the appropriate viscosity for the average temperature in your area.

CAUTION:

Using nondetergent oil or 2-stroke engine oil could shorten the engine's service life.

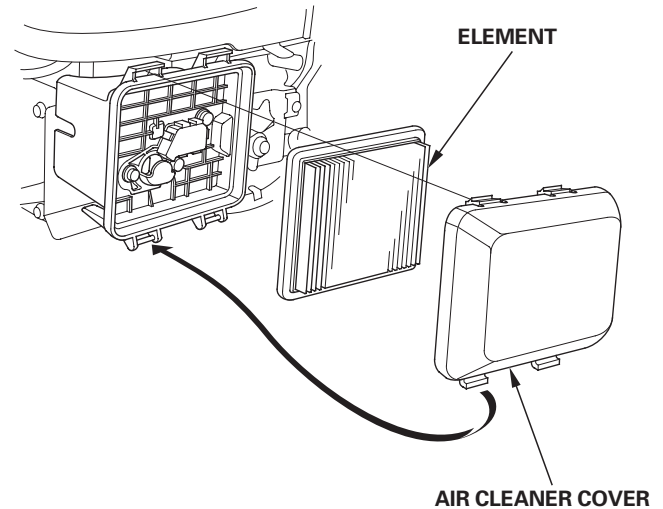


2. Air cleaner

CAUTION:

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

Remove the air cleaner cover and check the cleaner for dirt or obstruction of the element (page 20).



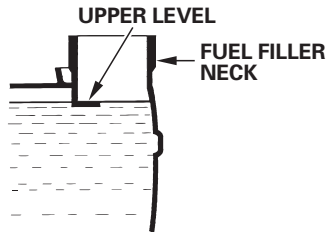
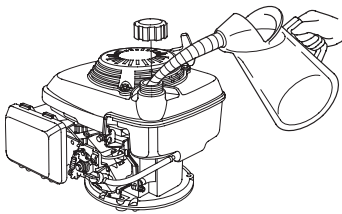
3. Fuel

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.

▲WARNING

- Gasoline is extremely flammable and is explosive under certain conditions.
- Refuel in a well-ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the area where the engine is refueled or where gasoline is stored.
- Do not overfill the fuel tank (there should be no fuel in the filler neck). After refueling, make sure the tank cap is closed properly and securely.
- Be careful not to spill fuel when refueling. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.
- Avoid repeated or prolonged contact with skin or breathing of vapor.

KEEP OUT OF REACH OF CHILDREN.



NOTE:

Gasoline spoils very quickly depending on factors such as light exposure, temperature and time.

In worst cases, gasoline can be contaminated within 1 month. 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 (page 9).
- To slow deterioration, keep gasoline in a certified fuel container.
- If long storage (more than 1 month) is foreseen, drain fuel tank and carburetor (page 29).

GASOLINES CONTAINING ALCOHOL

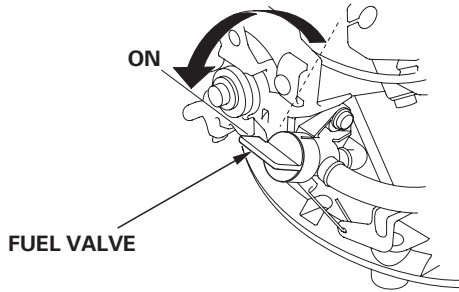
If you decide to use a gasoline containing alcohol (gasohol), be sure it's octane rating is at least as high as that recommended by Honda. There are two types of "gasohol": one containing ethanol, and the other containing methanol. Do not use gasohol that contains more than 10% ethanol. Do not use gasoline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

NOTE:

- Fuel system damage or engine performance problems resulting from the use of fuels that contain alcohol is not covered under the warranty. Honda cannot endorse the use of fuels containing methanol since evidence of their suitability is as yet incomplete.
- Before buying fuel from an unfamiliar station, try to find out if the fuel contains alcohol, if it does, confirm the type and percentage of alcohol used. If you notice any undesirable operating symptoms while using a gasoline that contains alcohol, or one that you think contains alcohol, switch to a gasoline that you know does not contain alcohol.

4 STARTING THE ENGINE

1. Turn the fuel valve to the ON position.

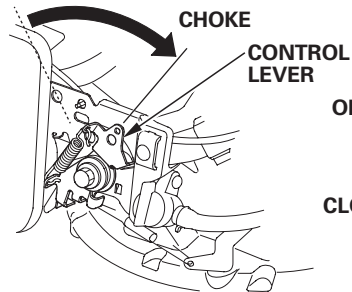


2. • Without CHOKE LEVER type:
Move the control lever to the CLOSE position.
- With CHOKE LEVER type
(AUTOMATIC RETURN CHOKE type):
Move the choke lever to the CLOSE position.

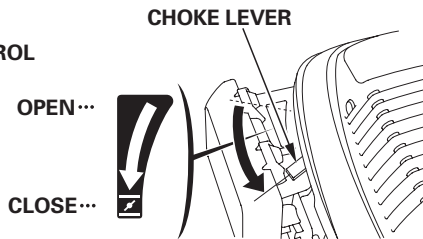
NOTE:

Do not use the choke if the engine is warm or the air temperature is high.

[WITHOUT CHOKE LEVER TYPE]



[WITH CHOKE LEVER TYPE]



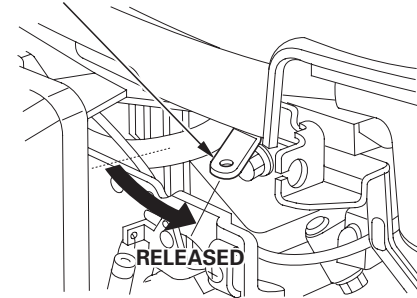
11

3. With FLYWHEEL BRAKE LEVER type only:

Move the flywheel brake lever to the RELEASED position.

The engine switch, which is linked with the flywheel brake lever, is turned on when the flywheel brake lever is moved to the RELEASED position.

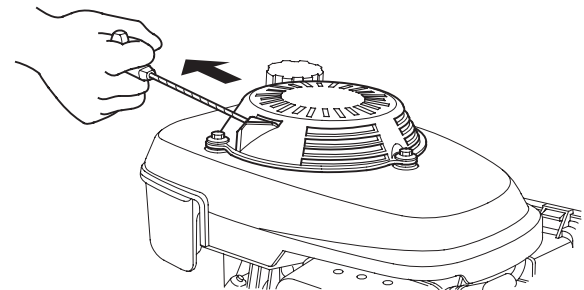
FLYWHEEL BRAKE LEVER



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

CAUTION:

Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the starter.



12

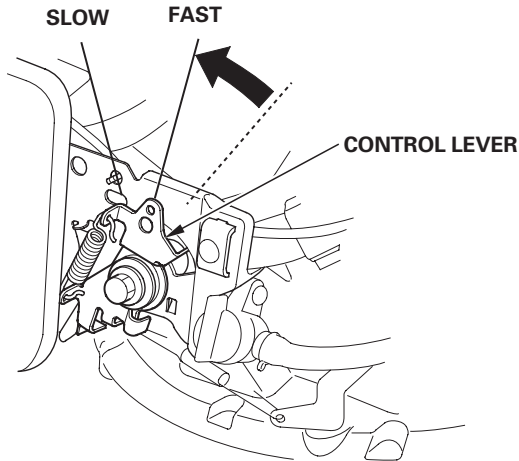
[With CHOKE LEVER type (AUTOMATIC RETURN CHOKE type)]

Operate the recoil starter as soon as you move the flywheel brake lever to the RELEASED position. The choke lever automatically begins moving to the OPEN position when the flywheel brake lever is moved to the RELEASED position.

5. If the engine does not start within several consecutive pulls of the recoil starter, move the flywheel brake lever to the ENGAGED position and move the choke lever to the CLOSE position.
6. Move the flywheel brake lever to the RELEASED position and immediately begin operating the recoil starter.

[Without CHOKE LEVER type]

7. When engine warms up, move the control lever to FAST or SLOW.



● High altitude operation

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

High altitude performance can be improved by specific modifications to the carburetor. If you always operate the engine at altitudes higher than 1,500 m (5,000 feet) above sea level, have your authorized Honda dealer perform these carburetor modifications.

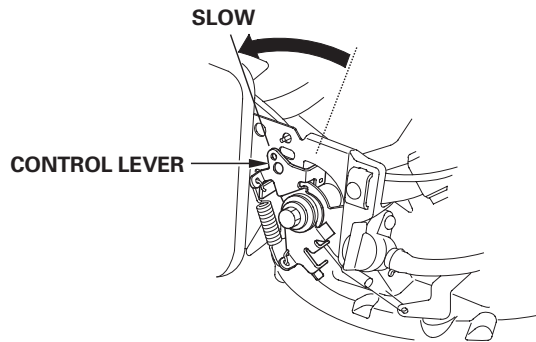
Even with suitable carburetor jetting, engine horsepower will decrease approximately 3.5% for each 300 m (1,000 feet) increase in altitude. The effect of altitude on the horsepower will be greater than this if no carburetor modification is made.

CAUTION:

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

5 STOPPING THE ENGINE

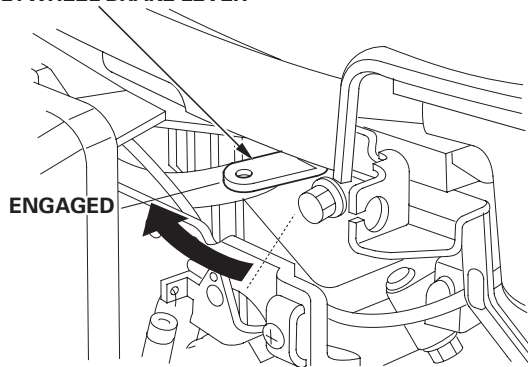
1. Move the control lever to the SLOW position.



2. With FLYWHEEL BRAKE LEVER type:

Return the flywheel brake lever to the ENGAGED position.
The engine switch, which is linked with the flywheel brake lever, is turned off when the flywheel brake lever is moved to the ENGAGED position.

FLYWHEEL BRAKE LEVER

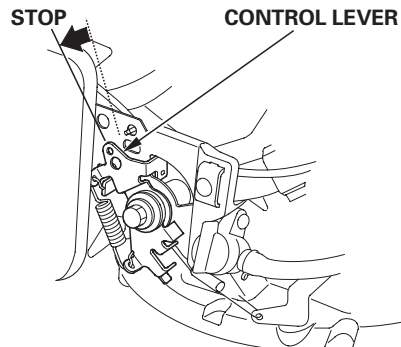


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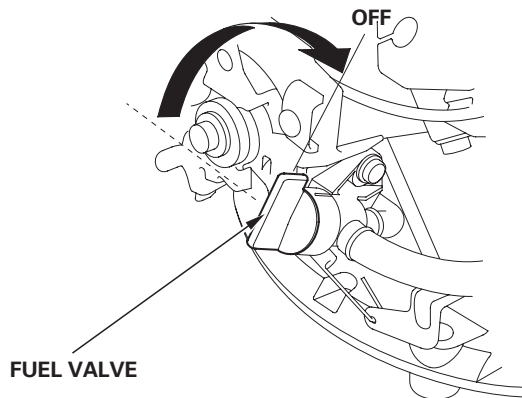
3. Without FLYWHEEL BRAKE LEVER type:

Move the control lever to the STOP position.

The engine switch, which is linked with the control lever, is turned off when the control lever is moved to the STOP position.



4. Turn the fuel valve to the OFF position.



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6 MAINTENANCE

▲WARNING

- Shut off the engine before performing any maintenance.
- To prevent accidental start-up, disconnect the spark plug cap.
- The engine should be serviced by an authorized Honda dealer unless the owner has proper tools and service data and feels he is mechanically qualified.

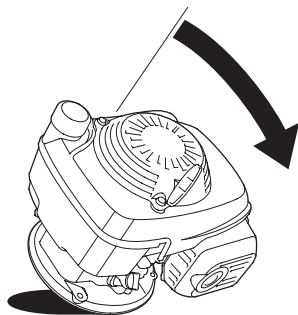
CAUTION:

Use only genuine Honda parts or their equivalent. The use of replacement parts which are not of equivalent quality may damage the engine.

Periodic inspection and adjustment of the Honda engine is essential if high level performance is to be maintained. Regular maintenance will also ensure a long service life. The required service intervals and the kind of maintenance to be performed are described on the following table.

CAUTION:

To perform maintenance on the lower part of the engine (Machine), turn it 90° and lay it down with the carburetor/air cleaner always at the top.



Maintenance Schedule

REGULAR SERVICE PERIOD (4)		Each use	First month or 5 hrs.	Every 3 months or 25 hrs.	Every 6 months or 50 hrs.	Every year or 100 hrs.	Every 2 years or 250 hrs.
ITEM							
	Perform at every indicated month or operating hours interval, whichever comes first.						
Engine oil	Check level	○					
	Change		○		○ (2)		
Air cleaner	Check	○					
	Clean			○ (1)			
	Replace						○
Flywheel brake pad (applicable types)	Check				○		
Spark plug	Check-adjust					○	
	Replace						○
Spark arrester (optional part)	Clean					○	
Idle speed	Check-adjust					○ (3)	
Fuel tank and filter	Clean					○ (3)	
Valve clearance	Check-adjust					○ (3)	
Combustion chamber	Clean	After every 250 hrs. (3)					
Fuel tube	Check	Every 2 years (Replace if necessary) (3)					

NOTE:

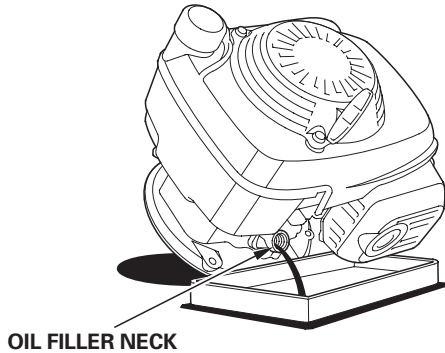
- (1): Service more frequently when used in dusty areas.
- (2): Change engine oil every 25 hours when used under heavy load or in high ambient temperature.
- (3): These items should be serviced by your servicing dealer, unless you have the proper tools and are mechanically proficient. Refer to Honda Shop Manual for service procedures.
- (4): For commercial use, log hours of operation to determine proper maintenance intervals.

1. Oil change

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

1. Turn the fuel valve to the OFF position (see page 16).
2. Remove the oil filler cap and drain the oil into the oil container by inclining the engine toward the oil filler neck.
3. Refill with the recommended oil and check the oil level (see page 7).
4. Install the oil filler cap.

ENGINE OIL CAPACITY: 0.55 ℓ (0.58 US qt , 0.48 Imp qt)



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

NOTE:

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

2. Air cleaner service

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

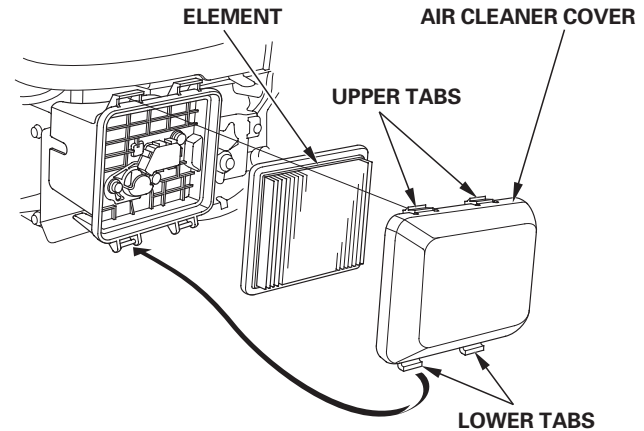
▲ WARNING

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

CAUTION:

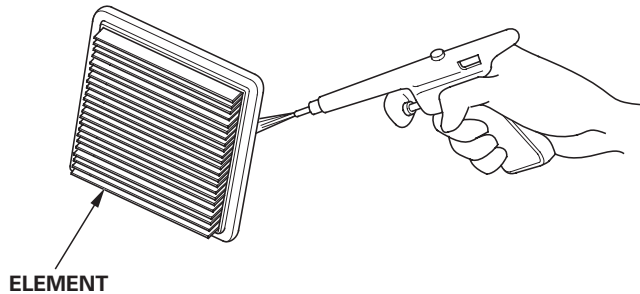
Never run the engine without the air cleaner. Rapid engine wear will result.

1. Remove the air cleaner cover by unhooking the two upper tabs on the top of the air cleaner cover and the two lower tabs.



2. Remove the element. Carefully check the element for holes or tears and replace if damaged.

3. Tap the element lightly several times on a hard surface to remove excess dirt, or blow compressed air through the filter from the inside out. Never try to brush the dirt off; brushing will force dirt into the fibers. Replace the element if it is excessively dirty.
4. Install the element and air cleaner cover.

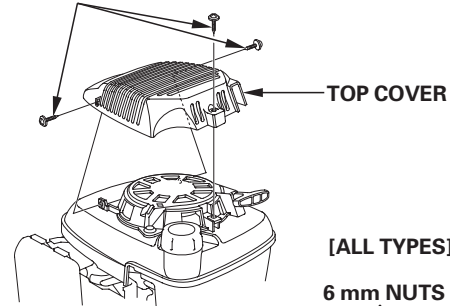


3. Flywheel brake inspection (applicable types)

1. Remove the top cover by removing the three tapping screws (with top cover type only).
2. Remove the recoil starter by removing the three 6 mm nuts.
3. Remove the fuel tank taking care not to disconnect the fuel tube from the fuel tank and fuel valve, and keeping the fuel tank to a level.

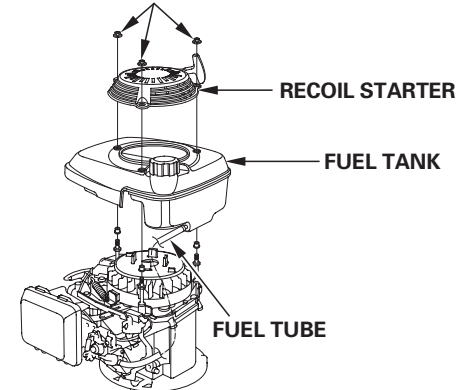
[WITH TOP COVER TYPE]

TAPPING SCREWS

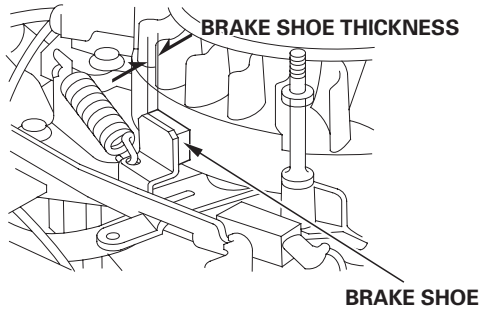


[ALL TYPES]

6 mm NUTS



4. Check the brake shoe thickness. If it is less than 3 mm (0.12 in), replace it with new one.



5. Install the fuel tank and recoil starter, and tighten the three 6 mm nuts securely.
6. Install the top cover, and tighten the three tapping screws securely (with top cover type only).

4. Spark plug service

Recommended spark plug:
BPR6ES (NGK)

CAUTION:

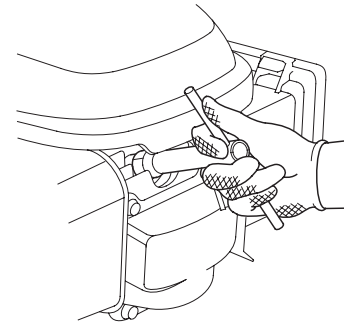
Never use a spark plug of incorrect heat range.

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

1. Remove the spark plug cap and use a spark plug wrench to remove each spark plug.

▲WARNING

If the engine has been running, the muffler will be very hot. Be careful not to touch the muffler.

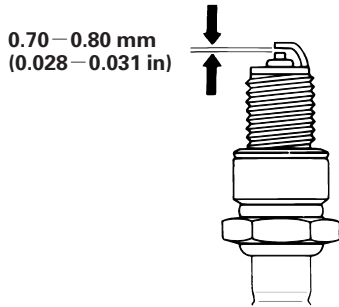


2. Visually inspect the spark plug. Discard the spark plug if there is apparent wear, or if the insulator is cracked or chipped. Clean the spark plug with a wire brush if it is to be reused.

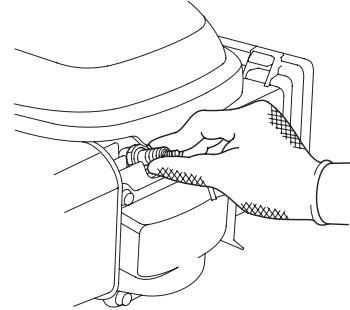
3. Measure the plug gap with a feeler gauge. Correct as necessary by bending the side electrode.

The gap should be:

0.70–0.80 mm (0.028–0.031 in)



4. Check that the spark plug washer is in good condition and thread the spark plug in by hand to prevent cross-threading.



5. After the spark plug is seated, tighten with a spark plug wrench to compress the washer.

NOTE:

When installing a new spark plug, tighten 1/2 turn after the spark plug seats to compress the washer. When reinstalling a used spark plug, tighten 1/8–1/4 turn after the spark plug seats to compress the washer.

CAUTION:

The spark plug must be securely tightened. An improperly tightened spark plug can become very hot and may damage the engine.

5. Spark arrester maintenance (optional part)

▲WARNING

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

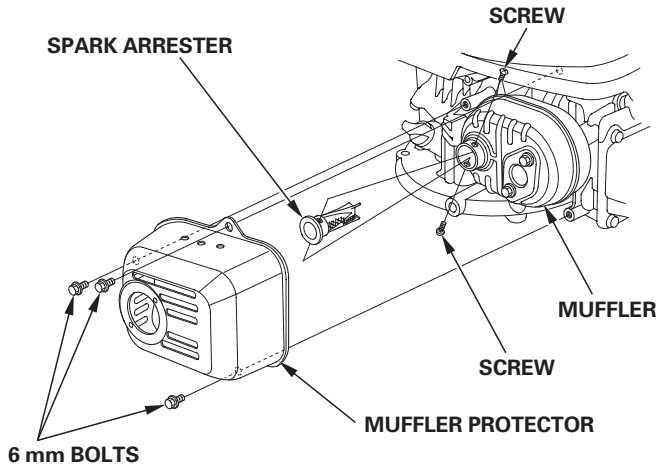
CAUTION:

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

1. Remove the muffler protector by removing the three 6 mm bolts.
2. Remove the spark arrester from the muffler by removing the two screws. (Taking care not to damage the wire mesh.)

NOTE:

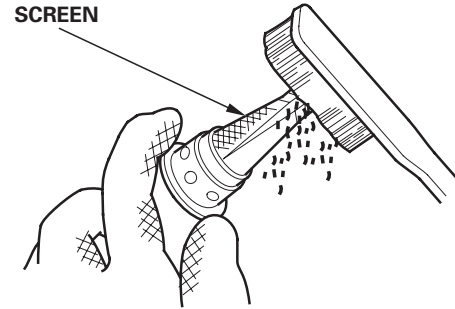
Check for carbon deposits around the exhaust port and the spark arrester, and clean if necessary.



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

CAUTION:

Be careful not to damage the spark arrester screen.



NOTE:

The spark arrester must be free of breaks and holes. Replace, if necessary.

4. Install the spark arrester and the muffler in the reverse order of disassembly.

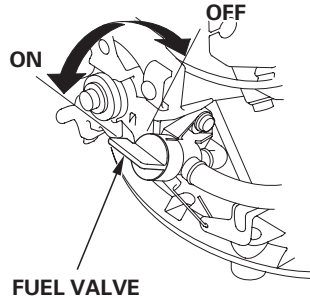
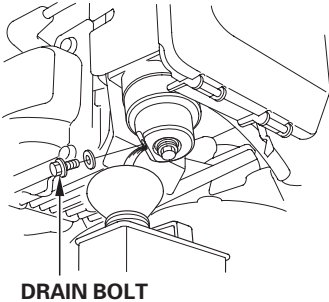
7 TRANSPORTING/STORAGE

⚠WARNING

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

Before storing the unit for an extended period;

1. Be sure the storage area is free of excessive humidity and dust.
2. Drain the fuel tank and carburetor into a suitable gasoline container:
 - A. Turn the fuel valve to the OFF position.
 - B. Remove the carburetor drain bolt and drain the carburetor.
 - C. Turn the fuel valve to the ON position and drain the fuel in the fuel tank into the container.
 - D. Retighten the carburetor drain bolt so that the float chamber and washer cannot be warped, and turn the fuel valve to the OFF position.

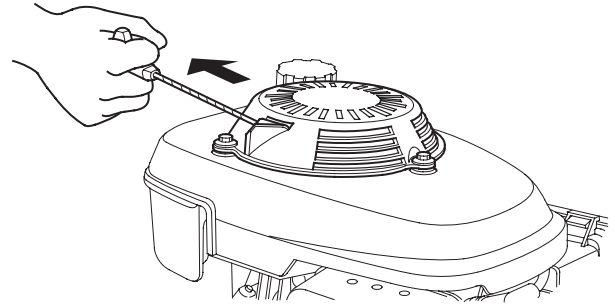


⚠WARNING

Gasoline is extremely flammable and is explosive under certain conditions. Do not smoke or allow flames or sparks in the area.

3. Change the engine oil (page 19).

4. Pull the starter rope slowly until resistance is felt. This closes the valves, and protects them from dust and corrosion.



5. Coat areas that may rust with a light film of oil. Cover the engine and store it on a level surface in a dry, dust free area.

8 TROUBLESHOOTING

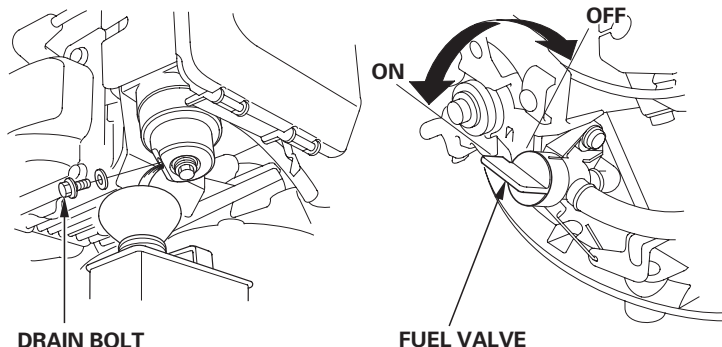
When the engine will not start:

1. Is the fuel valve ON?
2. Is there fuel in the fuel tank?
3. Is gasoline reaching the carburetor?

To check, loosen the drain bolt with the fuel valve ON.

▲WARNING

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



4. Is the control lever positioned properly (page 11)?
5. Is the flywheel brake lever positioned to the RELEASED position (page 12)? (applicable types)
6. Is the spark plug in good condition (page 24)?
7. If the engine still does not start, take the engine to an authorized Honda dealer.

9 SPECIFICATIONS

Dimensions	GCV135E	GCV160E
Power equipment description code	GJAFE	GJAAE
Length	351 mm (13.8 in)	367 mm (14.4 in)
Width	331 mm (13.0 in)	331 mm (13.0 in)
Height	353 mm (13.9 in)	360 mm (14.2 in)
Dry weight	10.4 kg (22.9 lbs)	10.5 kg (23.1 lbs)

Engine

Engine type	4-stroke, overhead cam, 1 cylinder	
Displacement	135 cm ³ (8.2 cu-in)	160 cm ³ (9.8 cu-in)
Bore x Stroke	64 x 42 mm (2.5 x 1.7 in)	64 x 50 mm (2.5 x 2.0 in)
Max. output	3.3 kW (4.5 PS)/ 3,600 rpm	4.1 kW (5.5 PS)/ 3,600 rpm
Max. torque	9.7 N·m (0.99 kgf·m)/ 2,500 rpm	11.4 N·m (1.16 kgf·m)/ 2,500 rpm
Fuel consumption	313 g/kWh (230 g/PSH)	
Cooling system	Forced air	
Ignition system	Transistor magneto	
PTO shaft rotation	Counterclockwise	
Fuel tank capacity	0.9 l (0.24 US gal , 0.20 Imp gal)	1.1 l (0.29 US gal , 0.24 Imp gal)
Engine oil capacity	0.55 l (0.58 US qt , 0.48 Imp qt)	
Engine oil	Service classification SG or SH; SAE 10W-30	
Spark plug	BPR6ES (NGK)	

NOTE:

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