HONDA E NGINES Owner's Manual GXV610 • GXV620 LPG-Fueled Engine



WARNING:

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The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Keep this owner's manual handy, so you can refer to it at any time. This owner's manual is considered a permanent part of the engine and should remain with the engine if resold.

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INTRODUCTION

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

We want to help you get the best results from your new engine and to operate it safely. This manual contains 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 engine, other property, or the environment.

We suggest you read the warranty policy to fully understand its coverage and your responsibilities of ownership. The warranty policy is a separate document that should have been given to you by your dealer.

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

Best Wishes, Honda Motor Co., Ltd.

INTRODUCTION

A FEW WORDS ABOUT SAFETY

Your safety and the safety of others are very important. And using this engine 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 an engine. You must use your own good judgment.

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

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

These signal words mean:

- **ADANGER** You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.
- A WARNING You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.

ACAUTION You CAN be HURT if you don't follow instructions.

- Safety Headings such as IMPORTANT SAFETY INFORMATION.
- Safety Section such as ENGINE SAFETY.
- Instructions how to use this engine correctly and safely.

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

CONTENTS

ENGINE SAFETY	5
IMPORTANT SAFETY INFORMATION	
CONTROLS & FEATURES	7
COMPONENT & CONTROL LOCATIONS	
CONTROLS	8
Choke Lever	8
Throttle Lever	9
BEFORE OPERATION	
IS YOUR ENGINE READY TO GO?	
Check the General Condition of the Engine	
Check the Engine	11
Check the Equipment Powered by This Engine	11
OPERATION	
SAFE OPERATING PRECAUTIONS	
STARTING THE ENGINE	
STOPPING THE ENGINE	
SETTING ENGINE SPEED	16
SERVICING YOUR HONDA ENGINE	
THE IMPORTANCE OF MAINTENANCE	
MAINTENANCE SAFETY	
MAINTENANCE SCHEDULE	
FUEL RECOMMENDATIONS	
ENGINE OIL LEVEL CHECK	
ENGINE OIL CHANGE	
OIL FILTER CHANGE	
ENGINE OIL RECOMMENDATIONS	
AIR FILTER INSPECTION	
AIR CLEANER SERVICE	
SPARK PLUG SERVICE	29
SPARK ARRESTER MAINTENANCE (optional equipment)	31

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CONTENTS

HELPFUL TIPS & SUGGESTIONS STORING YOUR ENGINE	33
Storage Preparation	
	34
Removal From Storage	• •
	35
	30
TAKING CARE OF UNEXPECTED PROBLEMS	36
ENGINE WILL NOT START	
ENGINE LACKS POWER	
TECHNICAL & CONSUMER INFORMATION	37
TECHNICAL INFORMATION	
Serial Number Location	37
Battery Connections	38
Remote Control Linkage	39
Emission Control System Information	40
Specifications	42
CONSUMER INFORMATION	43
Honda Publications	43
Warranty Service Information	
QUICK REFERENCE INFORMATION Inside back cov	/er

ENGINE SAFETY

IMPORTANT SAFETY INFORMATION

Most accidents with engines can be prevented if you follow all instructions in this manual and on the engine. Some of the most common hazards are discussed below, along with the best way to protect yourself and others.

Owner Responsibilities

- Honda engines are designed to give safe and dependable service if operated according to instructions. Read and understand this owner's manual before operating the engine. Failure to do so could result in personal injury or equipment damage.
- 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 allow children to operate the engine. Keep children and pets away from the area of operation.

Refuel With Care

Dry gas fuel is extremely flammable, and LPG can explode. Refuel outdoors, in a well-ventilated area, with the engine stopped. Never smoke near LPG, and keep other flames and sparks away. If any fuel is spilled, make sure the area is dry before starting the engine.

Hot Exhaust

- 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 it indoors.
- To prevent fire hazards and to provide adequate ventilation for stationary equipment applications, keep the engine at least 3 feet (1 meter) away from building walls and other equipment during operation. Do not place flammable objects close to the engine.

ENGINE SAFETY

Carbon Monoxide Hazards

Exhaust gas contains poisonous carbon monoxide. Avoid inhalation of exhaust gas. Never run the engine in a closed garage or confined area.

Other Equipment

Review the instructions provided with the equipment powered by this engine for any additional safety precautions that should be observed in conjunction with engine startup, shutdown, or operation, or protective apparel that may be needed to operate the equipment.

CONTROLS & FEATURES

COMPONENT & CONTROL LOCATIONS



CONTROLS & FEATURES

CONTROLS

Choke Lever

The choke lever 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.

Some engine applications use a remotely-mounted choke control rather than the engine-mounted choke lever shown here.



Throttle Lever

The throttle lever controls engine speed.

Moving the throttle lever in the directions shown makes the engine run faster or slower.

Some engine applications use a remotely-mounted throttle control rather than the engine-mounted throttle lever shown here.



BEFORE OPERATION

IS YOUR ENGINE 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 engine 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 engine.

🛦 WARNING

Improperly maintaining this engine, 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.

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

Check the General Condition of the Engine

- Look around and underneath the engine for signs of oil or dry gas fuel.
- Remove any excessive dirt or debris, especially around the muffler.
- Look for signs of damage.
- Check that all shields and covers are in place, and all nuts, bolts, and screws are tightened.

Check the Engine

- Check the engine oil level (see page 21). Running the engine with a low oil level can cause engine damage.
- Check the air filter (see page 26). A dirty air filter will restrict air flow to the carburetor, reducing engine performance.
- Check the fuel level. Starting with a full tank will help to eliminate or reduce operating interruptions for refueling.

Check the Equipment Powered by This Engine

Review the instructions provided with the equipment powered by this engine for any precautions and procedures that should be followed before engine startup.

OPERATION

SAFE OPERATING PRECAUTIONS

Before operating the engine for the first time, please review the *IMPORTANT* SAFETY INFORMATION on page 5 and the chapter titled *BEFORE OPERA-TION*.

A WARNING

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

Avoid any areas or actions that expose you to carbon monoxide.

Review the instructions provided with the equipment powered by this engine for any safety precautions that should be observed in conjunction with engine startup, shutdown, or operation.

STARTING THE ENGINE

1. Turn the fuel valve to the OPEN or ON position before attempting to start the engine.

2. To start a cold engine, pull the choke lever to the CLOSED position.

To restart a warm engine, leave the choke lever in the OPEN position.

Some engine applications use a remotely-mounted choke control rather than the engine-mounted choke lever shown here.



3. Move the throttle lever away from the SLOW position, about 1/3 of the way toward the FAST position.

Some engine applications use a remotely-mounted throttle control rather than the engine-mounted throttle lever shown here.



OPERATION

- 4. Turn the engine switch to the ON position.
- 5. Operate the starter.

Turn the key to the START position, and hold it there until the engine starts.

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.

When the engine starts, release the key, allowing it to return to the ON position.

6. If the choke lever has been moved to the CLOSED position to start the engine, gradually move it to the OPEN position as the engine warms up.



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 throttle lever to the SLOW position.

Some engine applications use a remotely-mounted throttle control rather than the engine-mounted throttle lever shown here.



- 2. Turn the engine switch to the OFF position.
- 3. Turn the fuel valve to the CLOSED or OFF position.

OPERATION

SETTING ENGINE SPEED

Position the throttle lever for the desired engine speed.

Some engine applications use a remotely-mounted throttle control rather than the engine-mounted throttle lever shown here.

For engine speed recommendations, refer to the instructions provided with the equipment powered by this engine.



SERVICING YOUR HONDA ENGINE

THE IMPORTANCE OF MAINTENANCE

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

A WARNING

Improperly maintaining this engine, 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.

To help you properly care for your engine, 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 engine under unusual conditions, such as sustained high-load or high-temperature operation, or use in unusually wet or dusty conditions, consult your servicing dealer for recommendations applicable to your individual needs and use.

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.

A 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 propane. Keep cigarettes, sparks, and flames away from all fuelrelated parts.

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

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

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.	Refer to page	
•	Engine oil	Check level	0					21
		Change		0	_	0		22
•	Engine oil filter	Replace					O or 200 Hrs	23
•	Air filter	Check	0					26
		Clean			0 (1)			27
		Replace					0*	21
•	Spark plug	Clean-Readjust				0		29
		Replace					0	23
	Spark arrester (optional part)	Clean				0		31
•	Idle speed	Check-adjust					O (2)	—
•	Valve clearance	Check-Readjust					O (2)	_
	Fuel line	Check	Each use (Replace if necessary) (2)					

- Emission-related items.
- * Replace the paper air filter 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.

SERVICING YOUR HONDA ENGINE

FUEL RECOMMENDATIONS

Use LPG with a propane content of 95% or higher.

This engine is certified to operate on LPG only.

Occasionally you may hear a light "spark knock" or "pinging" (metallic rapping noise) while operating under heavy loads. This is no cause for concern.

If spark knock or pinging occurs at a steady engine speed, under normal load, change brands of LPG. If spark knock or pinging persists, see an authorized Honda servicing dealer.

NOTICE

Running the engine with persistent spark knock or pinging can cause engine damage.

Running the engine with persistent spark knock or pinging is misuse, and the Distributor's Limited Warranty does not cover parts damaged by misuse.

ENGINE OIL LEVEL CHECK

Check the engine oil level with the engine stopped and in a level position.

- 1. Remove the oil filler cap/dipstick and wipe it clean.
- 2. Insert and remove the dipstick without screwing it into the filler neck. Check the oil level shown on the dipstick.
- 3. If the oil level is near or below the lower limit mark on the dipstick, and fill with the recommended oil to the upper limit mark (see page 25).
- 4. Reinstall the oil filler cap.



OIL FILLER CAP/DIPSTICK

NOTICE

Running the engine with a low oil level can cause engine damage.

ENGINE OIL CHANGE

Drain the used oil while the engine is warm. Warm oil drains quickly and completely.

- 1. Place a suitable container below the engine to catch the used oil, then remove the oil filler cap/dipstick and the drain bolt.
- 2. Allow the used oil to drain completely, then reinstall the drain bolt, and tighten it securely.
- 3. Please dispose of used motor oil in a manner that is compatible with the environment. We suggest you take used oil in a sealed container to your local recycling center or service station for reclamation. Do not throw it in the trash, pour it on the ground, or down a drain.
- 4. With the engine in a level position, fill to the upper limit mark on the dipstick with the recommended oil (see page 25).

ENGINE OIL REFILL CAPACITIES:

Without oil filter replacement: 1.9 US qt (1.8 ℓ) With oil filter replacement: 2.2 US qt (2.1 ℓ)

NOTICE

Running the engine with a low oil level can cause engine damage.

5. Reinstall the oil filler cap/dipstick securely.



OIL FILTER CHANGE

- 1. Drain the engine oil, and retighten the drain bolt securely (see page 22).
- 2. Remove the oil filter with a filter wrench, and drain the remaining oil into a suitable container. Discard the used oil filter.



3. Clean the filter mounting base, and coat the seal of the new oil filter with clean engine oil.

NOTICE

Use only a genuine Honda oil filter or a filter of equivalent quality specified for your model. Using the wrong filter, or a non-Honda filter which is not of equivalent quality, may cause engine damage.

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SERVICING YOUR HONDA ENGINE

4. Screw on the new oil filter by hand until the seal contacts the filter mounting base, then use an oil filter wrench to tighten the filter an additional 7/8 turn.

Oil filter tightening torque: 16 ft-lb (22 N·m, 2.2 kg-m).

- 5. Refill the crankcase with the specified amount of the recommended oil (see page 25). Reinstall the oil filler cap/dipstick.
- 6. Start the engine, and check for leaks.
- 7. Stop the engine, and check the oil level as described on page 21. If necessary, add oil to bring the oil level to the upper limit mark on the dipstick.

ENGINE OIL RECOMMENDATIONS

Oil is a major factor affecting performance and service life. Use 4-stroke automotive detergent oil that is designed for engines operating on LPG.

SAE 30 (API service classification SG minimum) is recommended for general use. The following are examples of oils that meet Honda's requirements for LPG-fueled engines:

- Pennzoil HD 30
- Valvoline HPO 30
- Castrol HD 30

For operation in temperatures below $32^{\circ}F(0^{\circ}C)$, 5W-30 synthetic oil may be used for easier starting. Do not use 5W-30 synthetic oil when the air temperature is above $32^{\circ}F(0^{\circ}C)$.

NOTICE

Do not use multigrade mineral-based oils. The use of multigrade mineralbased oils may result in premature engine wear and/or damage.

AIR FILTER INSPECTION

Remove the air cleaner cover and inspect the filter elements. Clean or replace dirty filter elements. Always replace damaged filter elements.

Refer to page 27 for instructions that apply to the air cleaner and filter.



AIR CLEANER SERVICE

A dirty air filter will restrict air flow to the carburetor, reducing engine performance. If you operate the engine in very dusty areas, clean the air filter more often than specified in the MAINTENANCE SCHEDULE (see page 19).

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. This type of damage is not covered by the Distributor's Limited Warranty.

- 1. Remove the wing bolt from the air cleaner cover, and remove the cover.
- 2. Remove the two 5 mm screws from the air cleaner cover and remove the paper filter element from the cover.
- 3. Remove the foam filter element from the air cleaner body.



4. Inspect both air filter elements, and replace them if they are damaged. Always replace the paper filter element at the scheduled interval (see page 19).

SERVICING YOUR HONDA ENGINE

5. Clean the air 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 30 psi (207 kPa, 2.1 kg/cm²)] through the filter element from the air cleaner cover side. Never try to brush off dirt; brushing will force dirt into the fibers. Replace the paper filter element and both gaskets if it is excessively dirty.

Foam filter element: Clean in warm soapy water, rinse, and allow to dry thoroughly. Or clean in nonflammable solvent and allow to dry. Dip the filter element 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.

- 6. Wipe dirt from the inside of the air cleaner body and cover, using a moist rag. Be careful to prevent dirt from entering the clean chamber that leads to the carburetor.
- 7. Place the foam filter element to the air cleaner body. Be sure the gaskets are in place, then reinstall the paper filter element and cover. Tighten the wing bolt securely.

SPARK PLUG SERVICE

Recommended spark plugs: BPR5ES (NGK) W16EPR-U (DENSO)

NOTICE

Incorrect spark plugs can cause engine damage.

- 1. Disconnect the spark plug caps, and remove any dirt from around the spark plug area.
- 2. Remove the spark plugs with a 13/16-inch spark plug wrench.



- 3. Inspect the spark plug. Replace it if the electrodes are worn, or if the insulator is cracked or chipped. Clean the spark plug with a wire brush if you are going to reuse it.
- Measure the spark plug electrode gap with a suitable gauge. The gap should be 0.028—0.031 in (0.70—0.80 mm). Correct the gap, if necessary, by carefully bending the side electrode.
- 5. Install the spark plug carefully, by hand, to avoid cross-threading.



SERVICING YOUR HONDA ENGINE

6. After the spark plug seats, tighten with a 13/16-inch spark plug wrench to compress the washer.

If reinstalling the 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 (optional equipment)

Your engine is not factory-equipped with a spark arrester. In some areas, it is illegal to operate an engine without a spark arrester. Check local laws and regulations. A spark arrester is available from authorized Honda servicing dealers.

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 6 mm screws from the muffler protector, and remove the muffler protector.
- 2. Remove the special screws from the spark arrester, and remove the spark arrester from the muffler.



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 holes. Replace the spark arrester if it is damaged.



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

HELPFUL TIPS & SUGGESTIONS

STORING YOUR ENGINE

Storage Preparation

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

Cleaning

If the engine has been running, allow it to cool for at least half an hour before cleaning. Clean all exterior surfaces, touch up any damaged paint, and coat other areas that may rust with a light film of oil.

NOTICE

- Using a garden hose or pressure washing equipment can force water into the air cleaner or muffler opening. Water in the air cleaner will soak the air filter, and water that passes through the air filter or muffler can enter the cylinder, causing damage.
- Water contacting a hot engine can cause damage. If the engine has been running, allow it to cool for at least half an hour before washing.

HELPFUL TIPS & SUGGESTIONS

Engine Oil

- 1. Change the engine oil (see page 22).
- 2. Remove the spark plugs (see page 29).
- 3. Pour a tablespoon (5—10 cc) of clean engine oil into the cylinders.
- 4. Pull the starter rope several times to distribute the oil in the cylinders.
- 5. Reinstall the spark plugs.

Storage Precautions

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.

Leave the fuel valve lever in the OFF position at the source to reduce the possibility of fuel leakage.
Position the equipment so the engine is level. Tilting can cause oil leakage.

With the engine and exhaust system cool, cover the engine 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 engine, promoting rust and corrosion.

Remove the battery and store it in a cool, dry place. Recharge the battery once a month while the engine is in storage. This will help to extend the service life of the battery.

Removal From Storage

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

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

TRANSPORTING

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

Keep the engine level when transporting to reduce the possibility of fuel leakage. Turn the fuel valve OFF at the source.

TAKING CARE OF UNEXPECTED PROBLEMS

ENGINE WILL NOT START	Possible Cause	Correction	
1. Check battery and	Battery discharged.	Recharge battery.	
fuse.	Fuse burnt out. (if equipped)	Replace fuse.	
2. Check control positions.	Fuel valve OFF. (if equipped)	Move lever to ON.	
	Choke OPEN.	Move lever to CLOSED unless engine is warm.	
	Engine switch OFF. (if equipped)	Turn engine switch to ON.	
3. Check fuel.	Out of fuel.	Refuel.	
 Remove and inspect spark plugs. 	Spark plugs faulty, fouled, or improperly gapped.	Clean, gap, or replace spark plugs (p. 29).	
	Spark plugs wet with fuel (flooded engine).	Dry and reinstall spark plugs. Start engine with throttle lever in FAST position.	
5. Take engine to an authorized Honda servicing dealer, or refer to shop manual.	Carburetor malfunc- tion, ignition malfunc- tion, valves stuck, etc.	Replace or repair faulty components as necessary.	

ENGINE LACKS POWER	Possible Cause	Correction
1. Check air filter.	Filter element(s) clogged.	Clean or replace filter element(s) (p. 27).
2. Take engine to an authorized Honda servicing dealer, or refer to shop manual.	Carburetor malfunc- tion, ignition malfunc- tion, valves stuck, etc.	Replace or repair faulty components as necessary.

TECHNICAL & CONSUMER INFORMATION

TECHNICAL INFORMATION

Serial Number Location



Record the engine serial number in the space below. You will need this serial number when ordering parts, and when making technical or warranty inquiries (see page 44).

Engine serial number:

Battery Connections

Use a 12-volt battery with an ampere-hour rating of at least 35 Ah.

Be careful not to connect the battery in reverse polarity, as this will short circuit the battery charging system. Always connect the positive (+) battery cable to the battery terminal before connecting the negative (-) battery cable, so your tools cannot cause a short circuit if they touch a grounded part while tightening the positive (+) battery cable end.

A WARNING	
A battery can explode if you do not follow the correct procedure, seriously injuring anyone nearby.	
Keep all sparks, open flames, and smoking materials away from the bat-tery.	

- 1. Connect the battery positive (+) cable to the starter solenoid terminal as shown.
- 2. Connect the battery negative (-) cable to an engine mounting bolt, frame bolt, or other good engine ground connection.
- 3. Connect the battery positive (+) cable to the battery positive (+) terminal as shown.
- 4. Connect the battery negative (-) cable to the battery negative (-) terminal as shown.
- 5. Coat the terminals and cable ends with grease.



Remote Control Linkage

The throttle and choke control levers are provided with holes for optional cable attachment.

1. Remove the two 6 mm special bolts from the control cover and remove the control cover.



2. The following illustrations show installation examples for a solid wire cable. Do not use a braided wire cable.

It is necessary to loosen the throttle lever friction nut when operating the throttle with a remote cable.

REMOTE THROTTLE AND REMOTE CHOKE



 Reinstall the control cover. Install the throttle cable or the choke cable to the control base, after guiding the cable through the hole in the control cover.

Emission Control System Information

Source of Emissions

The combustion process produces carbon monoxide, oxides of nitrogen, and hydrocarbons. Control of hydrocarbons and oxides of nitrogen is very important because, under certain conditions, they react to form photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way, but it is toxic.

Honda utilizes systems to reduce the emissions of carbon monoxide, oxides of nitrogen, and hydrocarbons.

The California Clean Air Act

California regulations require all manufacturers to furnish written instructions describing the operation and maintenance of emission control systems.

The following instructions and procedures must be followed in order to keep the emissions from your Honda engine within the emission standards.

Tampering and Altering

Tampering with or altering the emission control system may increase emissions beyond the legal limit. Among those acts that constitute tampering are:

- Removal or alteration of any part of the intake, fuel, or exhaust systems.
- Altering or defeating the governor linkage or speed-adjusting mechanism to cause the engine to operate outside its design parameters.

Problems That May Affect Emissions

If you are aware of any of the following symptoms, have your engine inspected and repaired by your servicing dealer.

- Hard starting or stalling after starting.
- Rough idle.
- Misfiring or backfiring under load.
- Afterburning (backfiring).
- Black exhaust smoke or high fuel consumption.

Replacement Parts

The emission control systems on your Honda engine were designed, built, and certified to conform with California emission regulations. We recommend the use of genuine Honda parts whenever you have maintenance done. These original-design replacement parts are manufactured to the same standards as the original parts, so you can be confident of their performance. The use of replacement parts that are not of the original design and quality may impair the effectiveness of your emission control system.

A manufacturer of an aftermarket part assumes the responsibility that the part will not adversely affect emission performance. The manufacturer or rebuilder of the part must certify that use of the part will not result in a failure of the engine to comply with emission regulations.

Maintenance

Follow the maintenance schedule on page 19. Remember that this schedule is based on the assumption that your machine will be used for its designed purpose. Sustained high-load or high-temperature operation, or use in unusually wet or dusty conditions, will require more frequent service.

TECHNICAL & CONSUMER INFORMATION

Specifications

GXV610-QAFP Type

Length \times Width \times Height	$\begin{array}{c} 18.1 \times 17.9 \times 16.8 \text{ in} \\ (459 \times 455 \times 426 \text{ mm}) \end{array}$	
Dry weight	93 lb (42 kg)	
Engine type	4-stroke, overhead valve, 2 cylinders (90° V-Twin)	
Displacement [Bore × Stroke]	37.5 cu-in (614 cm³) [3.03 × 2.60 in (77 × 66 mm)]	
Max. output	18 bhp (13.4 kW, 18.3 PS) at 3,600 rpm	
Max. torque	31.8 ft-lb (43.05 N•m, 4.39 kg-m) at 2,500 rpm	
Fuel consumption	0.39 lb/hph (238 g/kWh, 175 g/PSh)	
Cooling system	Forced air	
Ignition system	Transistorized magneto	
PTO shaft rotation	Counterclockwise	

GXV620-QAFP Type

Length \times Width \times Height	18.1 × 17.9 × 16.8 in (459 × 455 × 426 mm)	
Dry weight	93 lb (42 kg)	
Engine type	4-stroke, overhead valve, 2 cylinders (90° V-Twin)	
Displacement [Bore × Stroke]	37.5 cu-in (614 cm³) [3.03 × 2.60 in (77 × 66 mm)]	
Max. output	20 bhp (14.9 kW, 20.3 PS) at 3,600 rpm	
Max. torque	32.5 ft-lb (44.13 N•m, 4.50 kg-m) at 2,500 rpm	
Fuel consumption	0.39 lb/hph (238 g/kWh, 175 g/PSh)	
Cooling system	Forced air	
Ignition system	Transistorized magneto	
PTO shaft rotation	Counterclockwise	

GXV610/GXV620 Tuneup

ITEM	ITEM SPECIFICATION	
Spark plug gap	0.028—0.031 in (0.7—0.8 mm)	Refer to page: 29
Valve clearance (cold)	IN: 0.15 ± 0.02 mm See your auth EX: 0.20 ± 0.02 mm Honda dealer	
Other specifications	No other adjustments needed.	

CONSUMER INFORMATION

Honda Publications

These publications will give you additional information for maintaining and repairing your engine. You may order them from your Honda engine dealer.

Shop Manual

This manual covers complete maintenance and overhaul procedures. It is intended to be used by a skilled technician.

Parts Catalog

This manual provides complete, illustrated parts lists.

TECHNICAL & CONSUMER INFORMATION

Warranty Service Information

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

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

> American Honda Motor Co., Inc. Power Equipment Division Customer Relations Office 4475 River Green Parkway Duluth, Georgia 30136-2565

Or telephone: (770) 497-6400

When you write or call, please give us this information:

- Model and serial number (see page 37)
- Name of dealer who sold the engine to you
- Name and address of dealer who services your engine
- Date of purchase
- Your name, address, and telephone number
- A detailed description of the problem

Current customer service contact information:

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

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

If you are dissatisfied with the decision made by the dealership's management, contact the Honda Regional Engine Distributor for your area (<u>www.honda-engines.com/dea.htm</u>).

If you are still dissatisfied after speaking with the Regional Engine Distributor, you may contact the Honda Office as shown.

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

Or telephone: (770) 497-6400 M-F, 8:30 am - 7:00 pm EST

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

- Equipment manufacturer's name and model number that the engine is mounted on
- Engine model, serial number, and type
- Name of the dealer who sold the engine to you
- Name, address, and contact person of the dealer who services your engine
- Date of purchase
- Your name, address, and telephone number
- A detailed description of the problem

QUICK REFERENCE INFORMATION

Fuel	Туре	LPG with a propane content of 95% or higher (page 20)
Engine Oil	Туре	SAE 30, API SG minimum, for general use (page 25)
	Capacity	Without oil filter replacement: 1.9 US qt (1.8 ℓ) With oil filter replacement: 2.2 US qt (2.1 ℓ)
Spark Plug	Туре	NGK: BPR5ES, DENSO: W16EPR-U
	Gap	0.028-0.031 in (0.70-0.80 mm) (page 32)
Carburetor	Idle speed	1,400 ± 150 rpm
Maintenance	Before each use	Check engine oil level. Check air filter.
	First 20 hours	Change engine oil.
	Subsequent	Refer to the maintenance schedule on page 19.

Fuel Regulator Information

This engine is certified to comply with U.S. EPA and California ARB emission regulations using the Impco Beam regulator specified in the installation instructions (see below). Honda used this regulator and other specific parts and adjustments to demonstrate compliance with the emission regulations. Adjustable fuel system parts must have U.S. EPA and California ARB approved tamper resistant features to limit the available adjustment after the fuel system is correctly installed. If an equipment manufacturer did not install your engine in a product you will need the installation instructions for the Honda certified system (see below). If you choose not to use the Honda fuel system you must use a system that has been certified by the fuel system manufacturer to be used on this Honda engine. Or if you use a fuel system that is not already certified you must have certification test data satisfactory to the U.S. EPA or California ARB. The test data must prove that the system will meet the emission standard both when the engine is new and at the end of its emission durability period (hours).

To obtain a copy of the installation instructions for this engine, contact an independent Honda engine distributor, or our Customer Service Department at (770) 497-6400.

