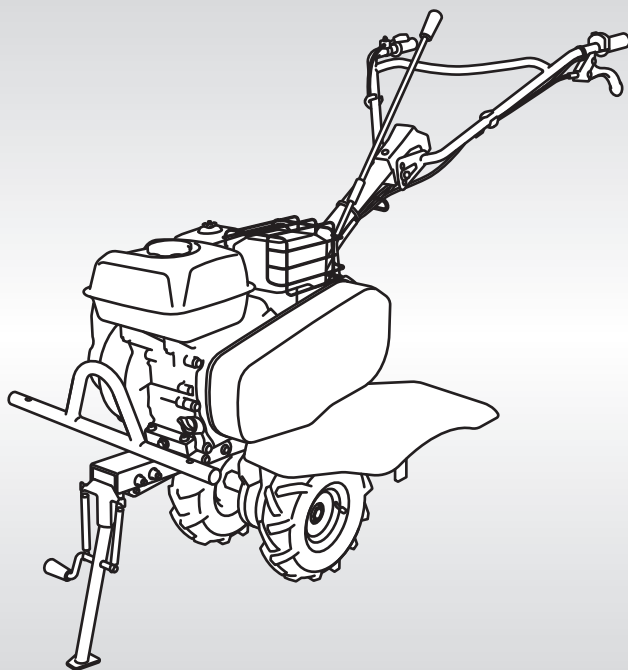


HONDA

**TILLER
FQ650**



OWNER'S MANUAL

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

The information and specifications included in this publication were in effect at the time of approval for printing. Honda Motor Co., Ltd. reserves the right, however, to discontinue or change specifications or design at any time without notice and without incurring any obligation whatsoever.

INTRODUCTION

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

We want to help you get the best results from your new tiller 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 tiller, 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 tiller needs scheduled maintenance, keep in mind that your Honda servicing dealer is specially trained in servicing Honda tillers. Your Honda servicing dealer is dedicated to your satisfaction and will be pleased to answer your questions and concerns.

INTRODUCTION


A FEW WORDS ABOUT SAFETY

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

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

- **Safety Labels** — on the tiller.
- **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 *TILLER SAFETY*.
- **Instructions** — how to use this tiller correctly and safely.

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

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TILLER SAFETY

IMPORTANT SAFETY INFORMATION

Honda tillers are designed to cultivate earth outdoors. Other uses can result in injury to the operator or damage to the tiller and other property.

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

Operator Responsibility

- Know how to stop the tiller quickly in case of emergency.
- Understand the use of all tiller controls.
- Be very cautious when operating the tiller in REVERSE, especially if attachments are being used.
- Keep a firm hold on the handlebars. They may tend to lift during clutch engagement.
- Be sure the drag bar is in place and properly adjusted.
- Be sure that anyone who operates the tiller receives proper instruction. Do not let children operate the tiller. Keep children and pets away from the area of operation.
- Before starting the engine, check that the tiller is not damaged and is in good condition.
- Do not tow a trailer.
- Do not modify the tiller.
- Do not mount the tiller.

TILLER SAFETY

Carbon Monoxide Hazards

Your tiller's exhaust contains poisonous carbon monoxide gas, which you cannot see or smell.

Breathing carbon monoxide can KILL YOU IN MINUTES.

For your safety:

- Do not start or operate the engine in any closed or partially enclosed area, such as a garage.
- Never run the tiller in a closed or even partially closed area where people or pets may be present.
- Never operate the tiller near open doors, windows, or vents.
- Get fresh air and seek medical attention immediately if you suspect you have inhaled carbon monoxide.

Early symptoms of carbon monoxide exposure include headache, fatigue, shortness of breath, nausea, and dizziness. Continued exposure to carbon monoxide can cause loss of muscular coordination, loss of consciousness, and then death.

Fire and Burn Hazards

- The exhaust system gets hot enough to ignite some materials.
 - Keep the tiller at least 1 meter away from buildings and other equipment during operation.
 - Keep flammable materials away from the tiller.
- 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 tiller indoors.

Refuel With Care

Gasoline is extremely flammable, and gasoline vapor can explode.

Never remove the gas cap or add gasoline with the engine running.

Allow the engine to cool if it has been in operation.

Refuel only outdoors in a well-ventilated area and on a level surface.

Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner.

Never smoke near gasoline, and keep other flames and sparks away.

Do not overfill the fuel tank.

Make sure that any spilled fuel has been wiped up and cleaned before starting the engine.

Always store gasoline in an approved container.

Avoid Rotating Tines

Rotating tines can cause serious cuts and even amputate body parts. Keep away from the tine area whenever the engine is running. If you need to work around the tines to clear an object accumulation or for any other reason, always shut off the engine. Disconnect the spark plug cap, and wear heavy gloves when you need to clean the tine area or handle the tines.

Clear Tilling Area

A tine can throw rocks and other objects with enough force to cause serious injury. Before tilling, carefully inspect the area and remove all stones, sticks, bones, nails, pieces of wire, and other foreign objects. If children get close to the operation area, stop the tiller and shut off the engine. Do not operate the tine on gravel, cement, slab or stony mountain.

Keep Shields in Place

- Guards and shields are designed to protect you from being hit by thrown objects and to keep you from touching hot engine parts and moving components. For your safety and the safety of others, keep all shields in place when the engine is running.
- Before operating make sure that the V-belt cover and fender are properly installed. If not, do not drive the tiller.

Wear Protective Clothing

- Wearing protective clothing will reduce your risk of injury. Long pants and eye protection reduce the risk of injuries from thrown objects. Sturdy shoes with aggressive soles provide better traction.
- Wear a helmet and proper clothing that covers your skin and close the cuffs.
- Always wear eye protection and earplugs while operating the tiller.

Turn Engine Off When Not Operating the Tiller

If you need to leave the operating point for any reason, even just to inspect the area ahead, always turn the engine off.

TILLER SAFETY

Slope Operation

- When tilling on slopes, keep the fuel tank less than half full to minimize fuel spillage.
- Till across the slope (at equally spaced intervals) rather than up and down it.
- Be very careful when changing the direction of the tiller on a slope.
- Do not use the tiller on a slope of more than 10°. Before starting the engine, check that the tiller is not damaged and is in good condition.
For your safety and the safety of others, exercise extreme care when using the tiller on a slope.
- Do not fall when driving the tiller on a slope up and down.

Tilling Conditions

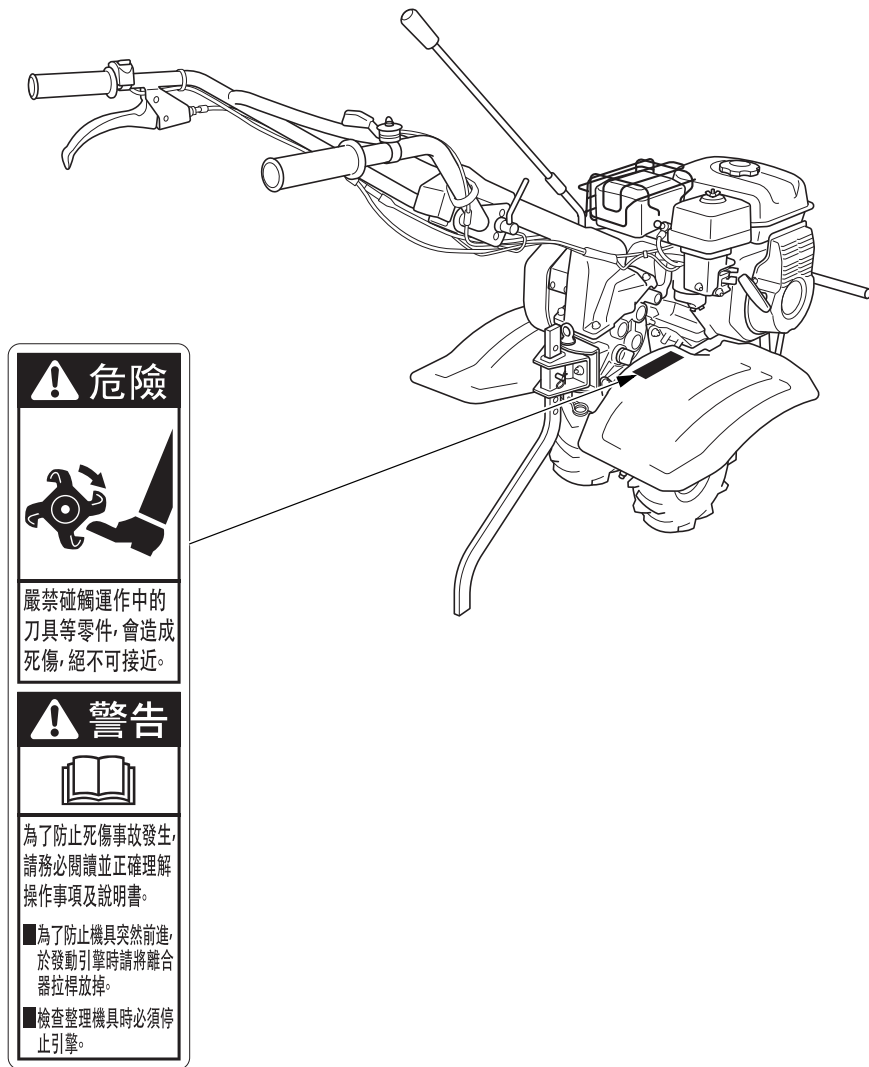
Operate the tiller only in daylight or good artificial light. Do not operate the tiller at night or under poor light conditions.

Tools and Attachments

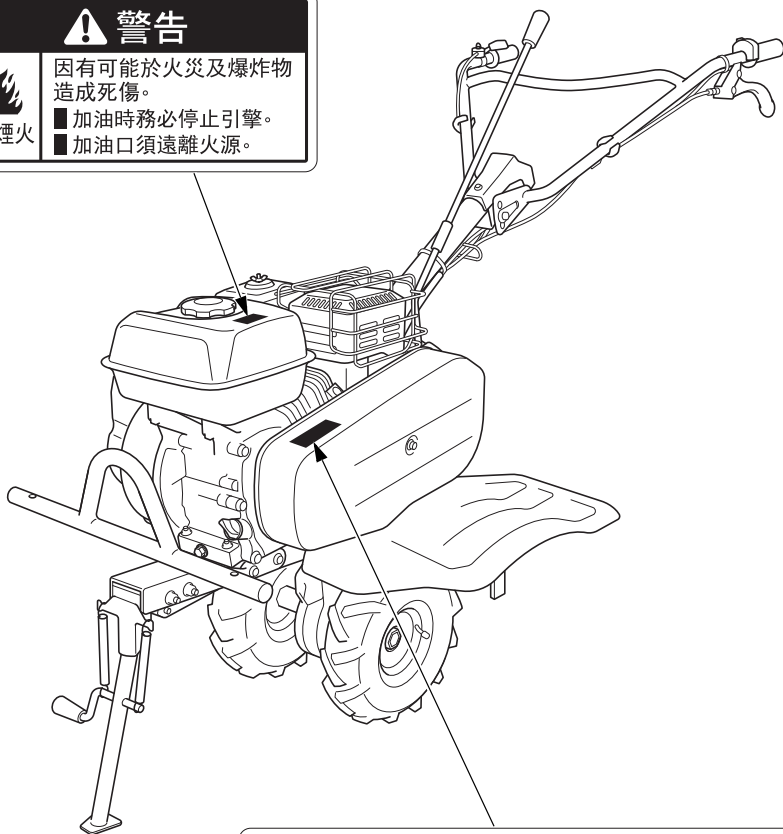
To install a tool or attachment on the tiller, follow the instructions furnished with the tool or attachment. Ask your Honda dealer for advice if you encounter any problem or difficulty in installing a tool or attachment.

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 servicing dealer for a replacement.



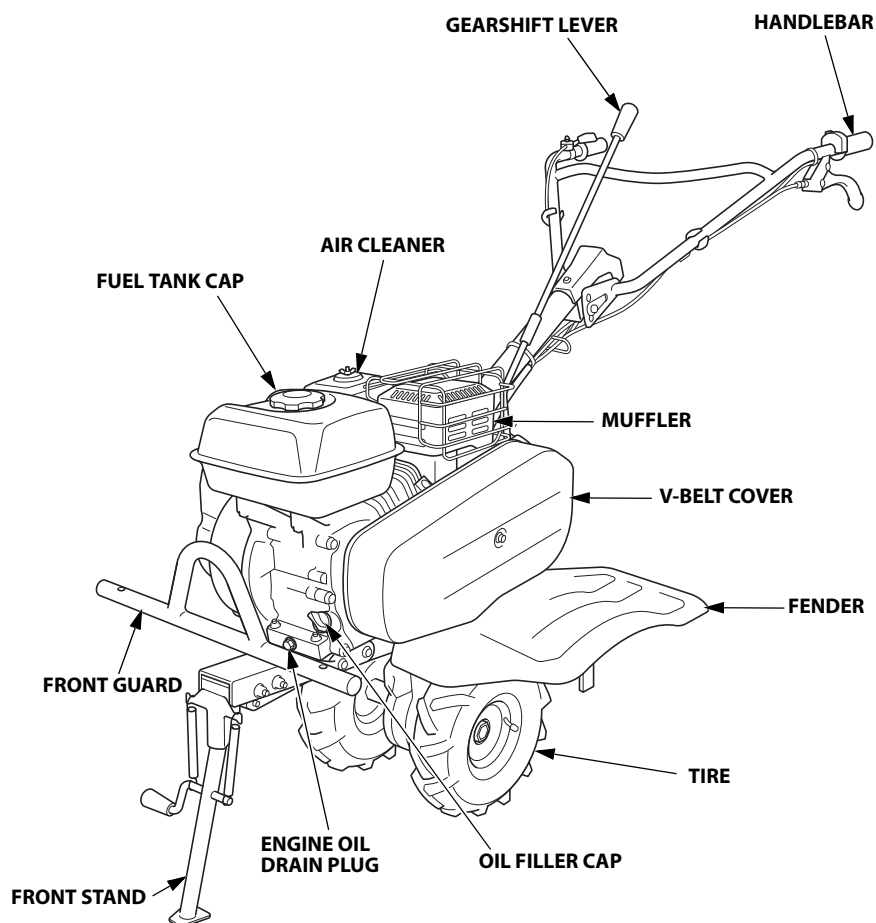
 警告	
 嚴禁煙火	因有可能於火災及爆炸物造成死傷。
	■ 加油時務必停止引擎。
	■ 加油口須遠離火源。



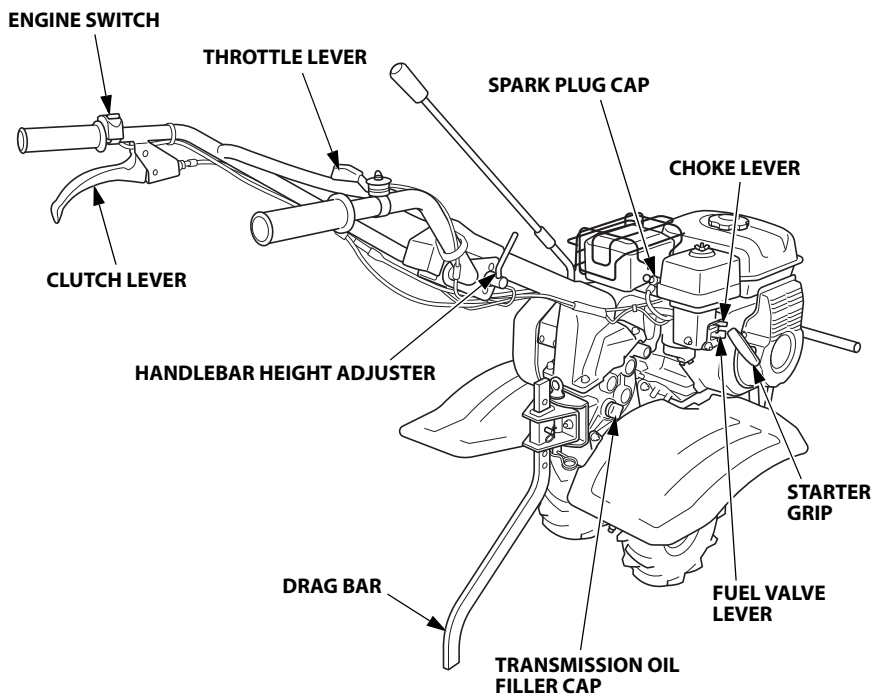
 警告		 注意	
	防止廢氣中毒的可能性， 確保於通風良好的環境中使用。		為了避免燙傷， 請勿觸摸排氣管。

CONTROLS

COMPONENT & CONTROL LOCATIONS



CONTROLS



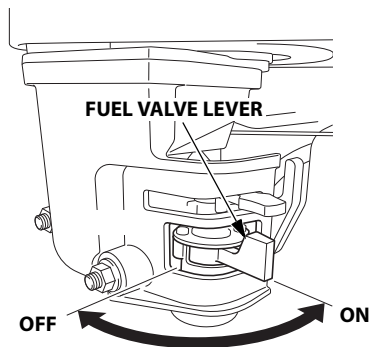
CONTROLS

Fuel Valve

The fuel valve opens and closes the connection between the fuel tank and the carburetor.

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

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

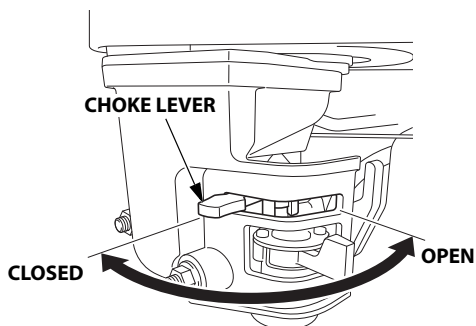


Choke Lever

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.

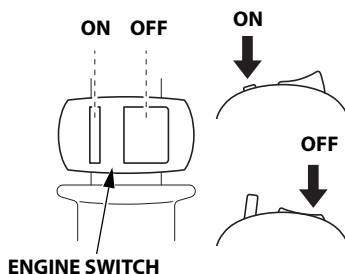


Engine Switch

The engine switch controls the ignition system.

OFF – Stops the engine.

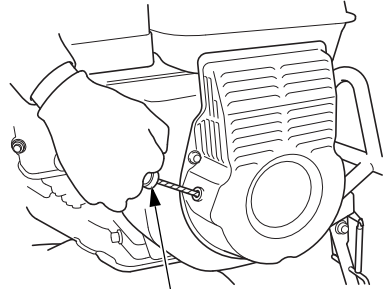
ON – Running position.



CONTROLS

Starter Grip

Pulling the starter grip operates the recoil starter to crank the engine.



STARTER GRIP

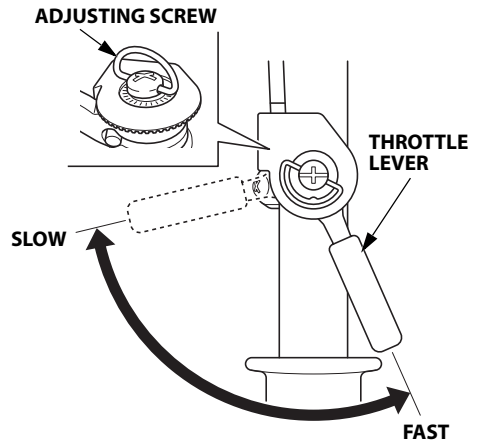
Throttle Lever

The throttle lever controls engine speed.

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

Tine speed is controlled by adjusting the throttle lever. At maximum throttle position, the tines will rotate at the highest speed. Moving the throttle lever toward the idle position will decrease the tine speed.

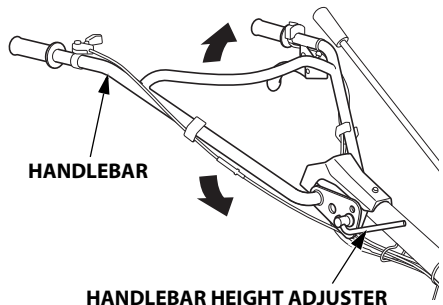
The throttle lever resistance can be adjusted by turning the adjusting screw.



Handlebar Height Adjuster

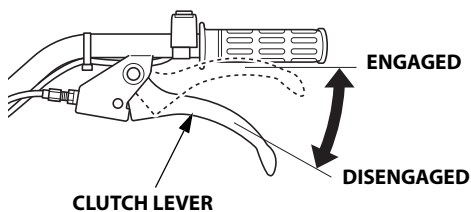
Handlebar height can be adjusted to match operator height.

For normal tilling, the most comfortable operator position is with the handlebars at waist height.



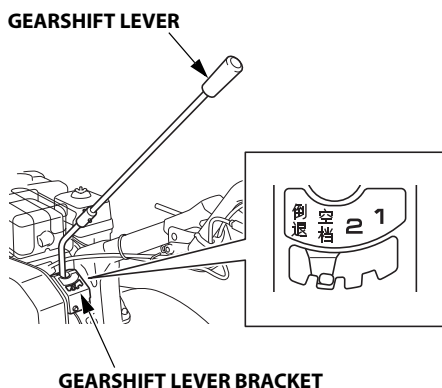
Clutch Lever

The clutch lever engages and disengages the transmission that drives the tines.



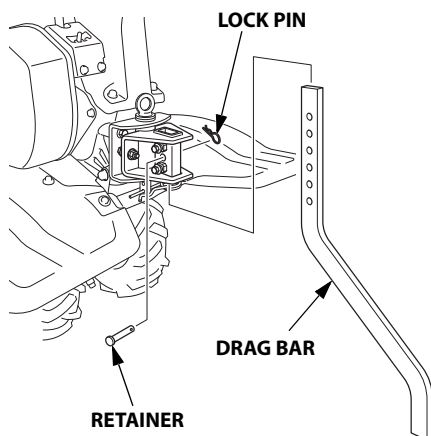
Gearshift Lever

The transmission offers a choice of two forward speeds, neutral, and one reverse speed. Shift lever positions are indicated on the gearshift lever bracket.



Drag Bar

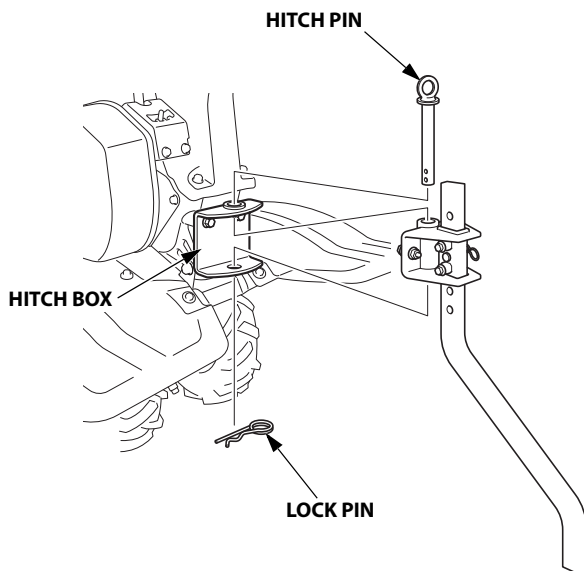
The drag bar controls tilling depth and should always be used when tilling. It enables you to compensate for the hardness of the soil. Ideal drag bar height will depend on the type of soil being tilled and soil conditions at the time of tilling. In general, the drag bar should be adjusted so that the tiller is tilted slightly backward.



CONTROLS

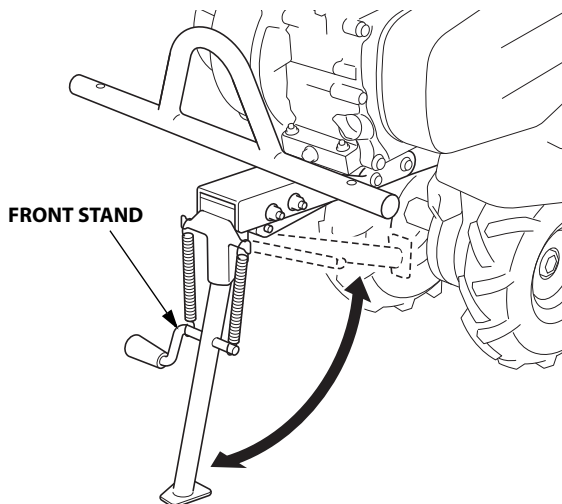
Hitch Box

Use a hitch pin as shown below to attach the drag bar or any other attachments to the hitch box.



Front stand

The front stand is used to park the tiller.
When tilling or moving the tiller, fold the front stand.



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.

Do break-in operation, adjustment and maintenance in accordance with the description in the owner's manual.

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

IS YOUR TILLER READY TO GO?

For your safety, to ensure compliance with environmental regulations, and to maximize the service life of your equipment, it is very important to take a few moments before you operate the tiller 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 tiller.

WARNING

Failure to properly maintain this tiller, or failing to correct a problem before operation, could result in a significant malfunction.

Some malfunctions can cause serious injuries or death.

Always perform a pre-operation inspection before each operation and correct any problems.

BEFORE OPERATION

Do not place flammable objects close to the engine.

Before beginning your pre-operation checks, be sure the tiller is on a level surface and the engine switch is in the OFF position.

Check the Engine

- Before each use, look around and underneath the engine for signs of oil or gasoline leaks.
- Check the oil level (see page 41).
- Check the air filter (see page 45). A dirty air filter will restrict air flow to the carburetor, reducing engine and tiller 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 transmission oil (see page 44).

Check the Tiller

Tiller outside

Make sure that there are no flammable materials (dust, straw, etc.) near the engine.

Clutch lever function

Check that the lever operates smoothly.

Wiring and cables

- Check the insulation of each wire and cable for tears and cuts.
- Check if there is any wire or cable pinched by the neighboring parts.

Bolts and nuts tightens

Check for looseness in fastened parts. Securely tighten all loose parts.

Tines

Check for excessive wear, damage, or looseness.

Engine operation

- Start the engine. Check for abnormal sounds. (See pages 20 through 22 for starting procedure.)
- Check that the engine stops securely by operating the engine switch. (See page 35 for stopping procedure.)
- If you notice any other abnormal symptoms, consult with your authorized Honda dealer promptly.

OPERATION

SAFE OPERATING PRECAUTIONS

Before operating the tiller for the first time, please review both the *TILLER SAFETY* chapter and the chapter titled *BEFORE OPERATION*.

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

WARNING

Exhaust contains poisonous carbon monoxide gas that can build up to dangerous levels in closed areas.

Breathing carbon monoxide can cause unconsciousness or death.

Never run this product's engine in a closed, or even partly closed area.

OPERATION

STARTING THE ENGINE

Refer to *Safe Operating Precautions* on Page 19.

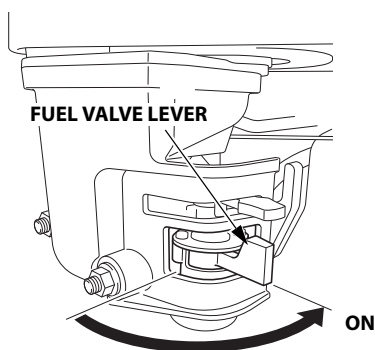
⚠ WARNING

Tines are sharp and spin fast.

Spinning tines can cut you severely and can amputate body parts.

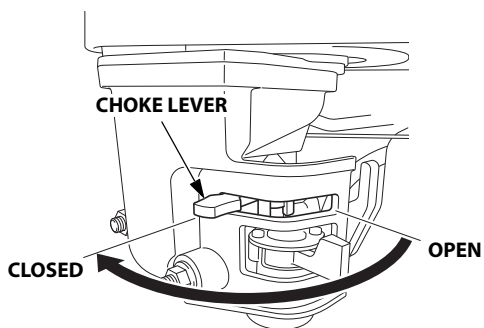
- Wear protective footwear.
- Keep your hands and feet away from the tines while the engine is running.
- Stop the engine before performing any adjustment, inspection, or maintenance.

1. Move the gearshift lever to the neutral position (see page 23).
2. Move the fuel valve lever to the ON position.

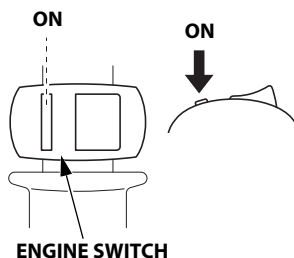


3. Move the choke lever to the CLOSED position to start a cold engine.

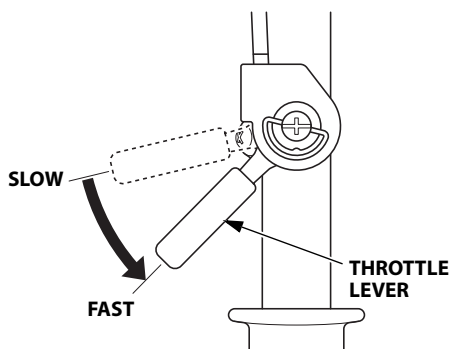
Leave the choke lever in the OPEN position to restart a warm engine.



4. Push the engine switch to the ON.



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

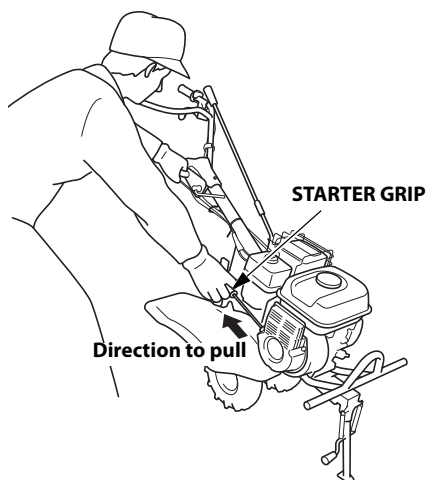


OPERATION

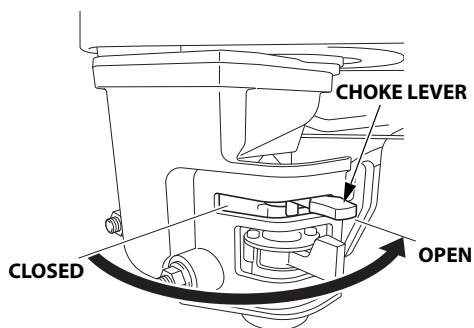
6. Hold the handle with your left hand, pull the starter grip lightly until you feel resistance, then pull briskly in the direction of the arrow as shown.

NOTICE

- Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the starter.
- Be careful not to pull the cables with your left hand.



7. If the choke lever was moved to the CLOSED position to start the engine, gradually move it to the OPEN position as the engine warms up.



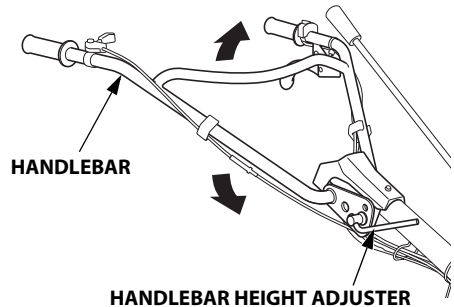
OPERATING THE CONTROLS FOR TILLING

If the tines dig in but the machine will not move forward, move the handlebars from side-to-side.

Handlebar Height Adjustment

Stop the engine before adjusting the handlebar height.

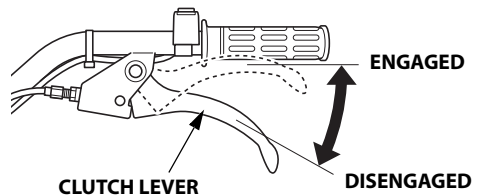
To adjust the handlebar height, loosen the handlebar height adjuster, select the appropriate holes and tighten it.



Clutch

When the clutch lever is squeezed, the clutch is engaged, and power is transmitted to the transmission.

When the lever is released, the clutch is disengaged, and power is not transmitted.

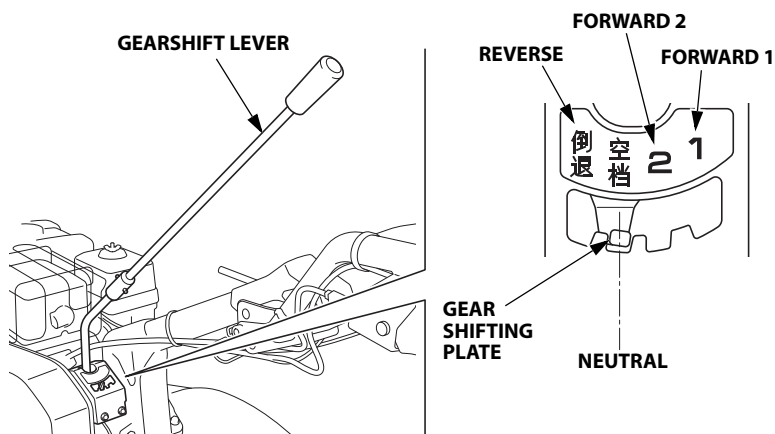


Forward Gear Selection

1. Return the throttle lever to the slowest position.
2. Release the clutch lever to disengage the clutch.
3. Move the gearshift lever to the desired gear position.
The gearshift lever should be operated in accordance with the attached gear shifting plate.

OPERATION

If the gearshift lever will not engage the desired gear, squeeze the clutch lever and move the tiller slightly to reposition the gears.



Reverse Gear Operation

Use the reverse gear only when it is necessary to move the tiller away from an obstacle.

⚠ WARNING

The tiller tines propel the tiller toward the operator when operated in reverse.

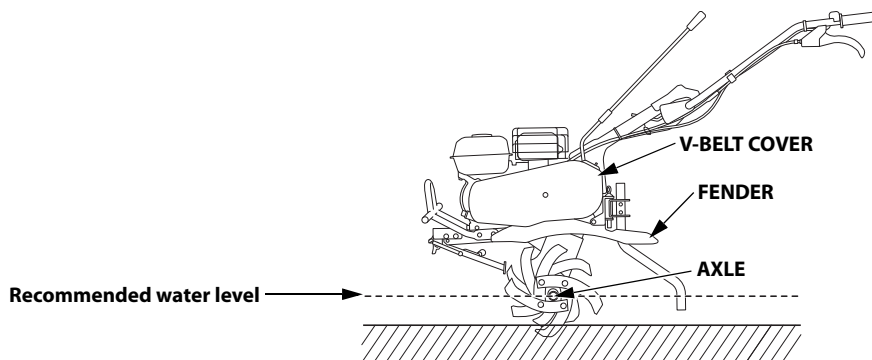
Contact with rotating tines will cause serious injury.

Be prepared to quickly release the clutch lever when operating the tiller in reverse.

1. Check the area behind you and make sure it is clear of any obstacles.
2. Move the throttle to the SLOW position.
3. Make sure the clutch lever is released. Move the gearshift lever to the REVERSE position.
4. Raise the handlebar slightly and engage the clutch lever.
Carefully walk the tiller backwards. Be prepared to release the clutch lever quickly.
5. Release the clutch lever, lower the handlebar, and move the gearshift lever out of the REVERSE position when done.

Use in Vegetable Fields Filled with Water

When filling a vegetable field with water, the water level must be less than the recommended water level (tiller axle height) as shown in the figure below. If the water level exceeds the recommended water level (tiller axle height) during tilling work, never immerse the V-belt cover or the section above the fender in muddy water. Doing so may damage the engine and make it impossible to start.

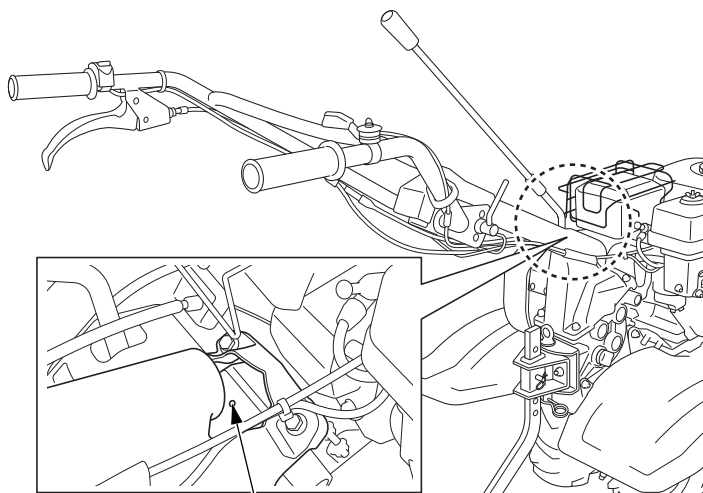


Washing the tiller

When washing the tiller, be careful to keep water away from the area indicated in the figure below.

Do not block the hole shown in the figure below.

Blocking the hole or allowing water to enter the hole may cause a malfunction.



Do not block or allow water into this hole.

OPERATION

Tilling Depth Adjustment

The drag bar is used to control the tilling depth.

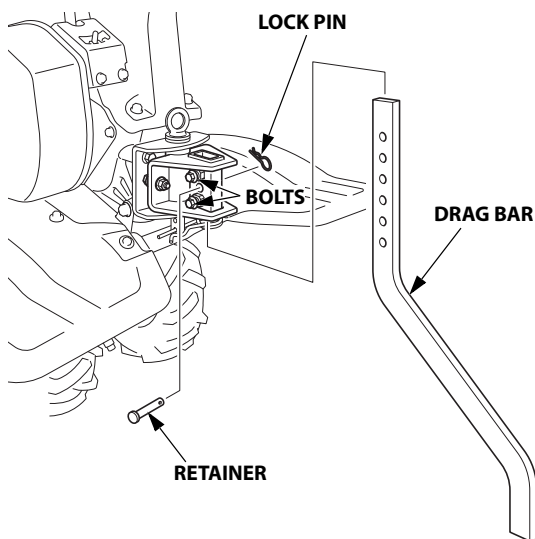
The tilling depth adjustment can be made as follows:

Remove the lock pin and retainer, loosen the bolts securing the drag bar, and sliding the drag bar up or down as necessary.

After adjustment, tighten the bolts securely.

Insert the retainer and set the lock pin.

During operation, if the machine jerks forward while tilling, press down on the handlebars. This will cause the drag bar to dig more deeply into the soil.



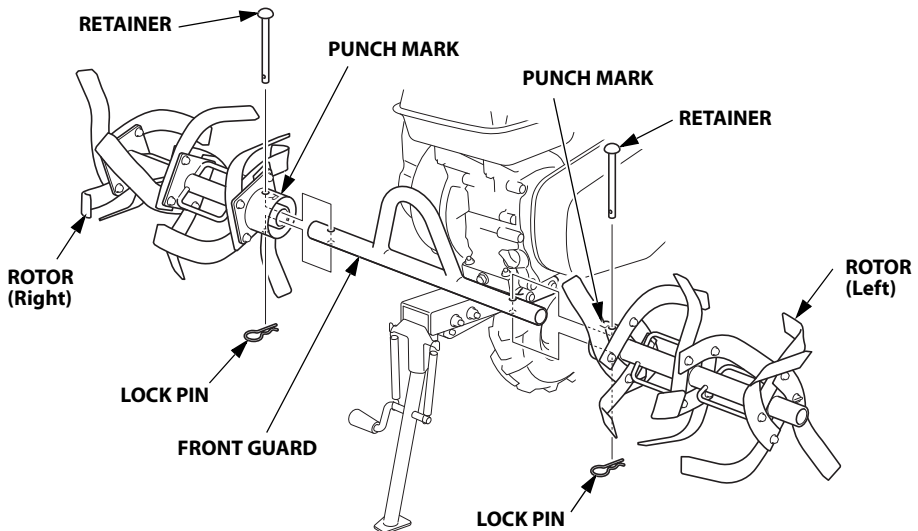
Rotor (Standard equipment for types) Installation on Front Guard

The tiller can be moved with the rotor installed on the front guard.
When installing, make sure that the front stand contacts with the ground.
Wear heavy gloves to protect your hands.
After attaching the rotor, do not put things on it.

Installation

1. Before attaching the rotor, remove an adherent mud from it.
2. Install the rotor with its punch mark (L or R) facing up.
3. Insert the retainer and set the lock pin.

Removal can be done in the reverse order of installation.
When removing the rotor, make sure that the front stand contacts with the ground.



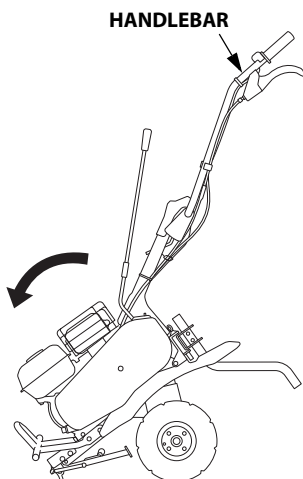
OPERATION

Change from Tire to Rotor (Standard equipment for types)

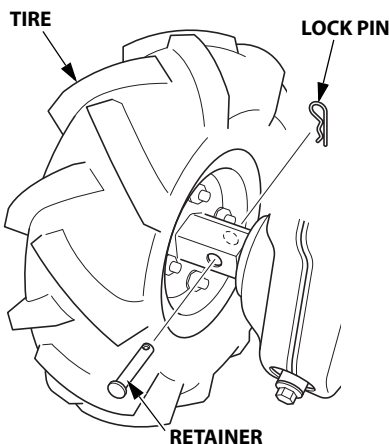
Wear heavy gloves to protect your hands.

When changing the tire to the rotor, park the tiller on level ground, stop the engine and disconnect the spark plug cap from the spark plug. Move the fuel valve lever to the OFF position and fold the front stand.

1. Remove the rotor from the front guard (see page 27).
2. Pull up the handlebar while holding it to contact the front end of the tiller to the ground.



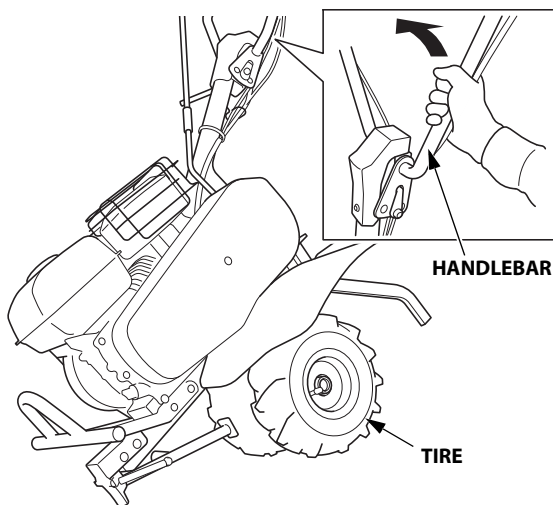
3. Remove the retainer and lock pin.



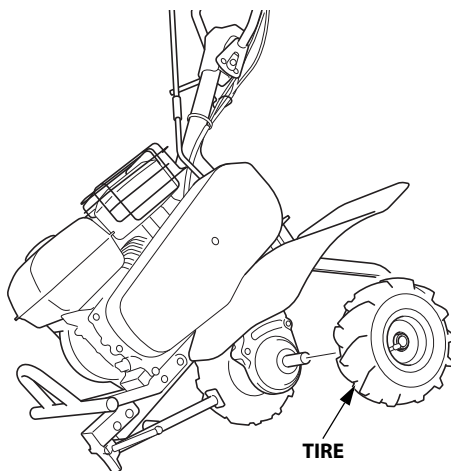
4. Grip the handlebar and push it in the direction of the arrow to lift the nearest tire off the ground. Keep this condition.

Do not pull the cables while gripping the handlebar.

Pay attention, when tilting the tiller. The gasoline may leak if the tilting angle is more than necessary.



5. Remove the tire.

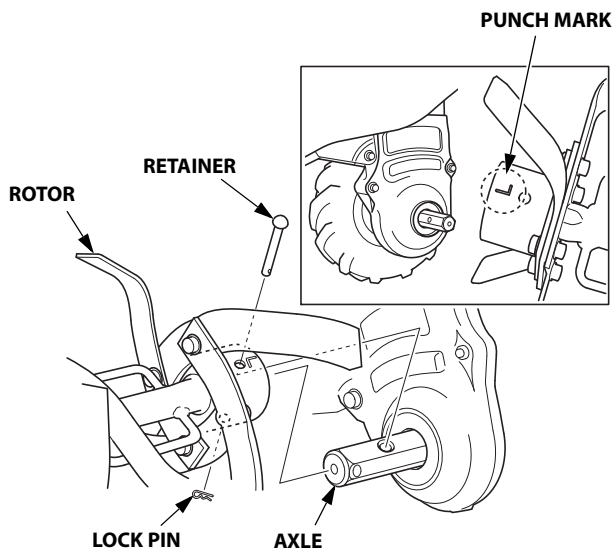


OPERATION

6. Align the punch mark (L or R) on the rotor with the axle side.

Install the rotor to the axle.

Insert the retainer and set the lock pin.



7. The opposite side tire is similar.

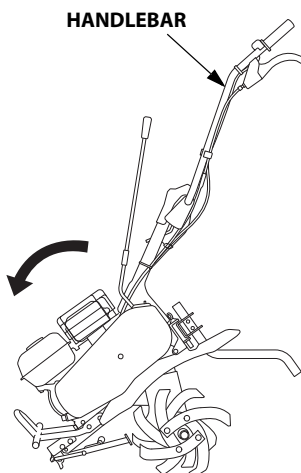
Store the removed tire and retainer and lock pin to prevent losing them.

Change from Rotor (Standard equipment for types) to Tire

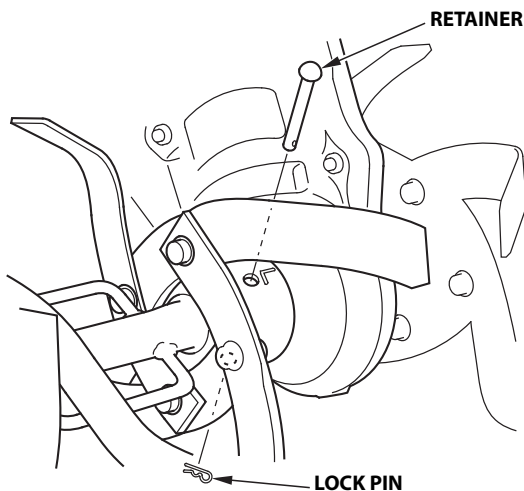
Wear heavy gloves to protect your hands.

When changing the rotor to the tire, park the tiller on level ground, stop the engine and disconnect the spark plug cap from the spark plug. Move the fuel valve lever to the OFF position and fold the front stand.

1. Pull up the handlebar while holding it to contact the front end of the tiller to the ground.



2. Remove the retainer and lock pin.

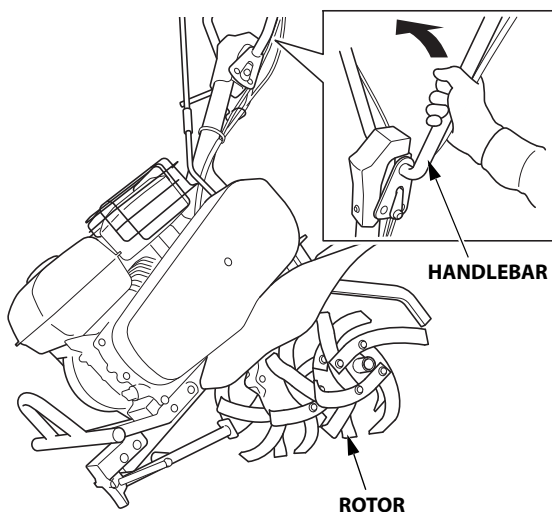


OPERATION

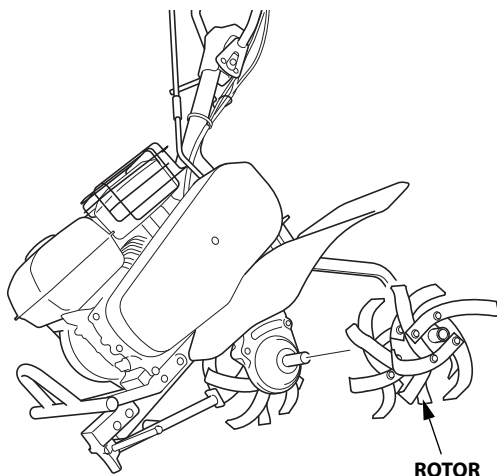
3. Grip the handlebar and push it in the direction of the arrow to lift the nearest rotor off the ground. Keep this condition.

Do not pull the cables while gripping the handlebar.

Pay attention, when tilting the tiller. The gasoline may leak if the tilting angle is more than necessary.

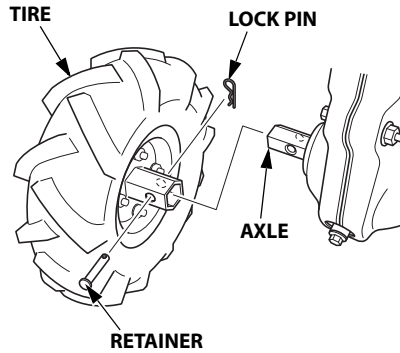


4. Remove the rotor.



5. Install the tire to the axle.

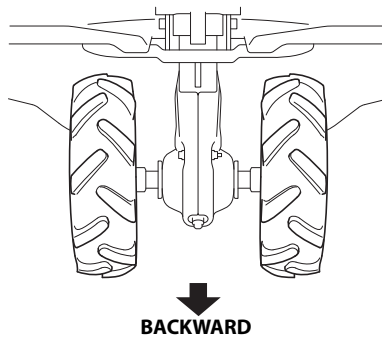
Insert the retainer and set the lock pin.



6. The opposite side rotor is similar.

Store the removed rotor, retainer and lock pin to prevent losing them.

As a result of the correct tire installation, tread pattern is shown.



OPERATION

HANDLING TIPS

- Adjust the handlebar height to a comfortable position (waist height for normal tilling).
- The drag bar should always be used when tilling. It enables you to compensate for the hardness of the soil. The ideal height of the drag bar will depend on the type of soil being tilled and soil conditions at the time of tilling. In general, however, the drag bar should be adjusted so that the tiller is tilted slightly backward.
- If the machine jerks forward while tilling, press down on the handlebars. This will cause the drag bar to dig more deeply into the soil.
- If tines dig in but the machine will not move forward, move the handlebars from side to side.
- Stop the tines before crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic.
- Stop the engine immediately if the tiller vibrates abnormally. Check the tiller for damage or loose parts, and repair or replace them before using the tiller again. Vibration is usually a sign of trouble.
- Raise the tiller immediately if it overturns. Stop the engine, look over carefully; inspect the engine for oil or fluid leaks, check the tightness of nuts and bolts, and operation of control parts such as the handlebar, control levers and wheels. If you decide that the tiller is capable of driving and safety, restart the engine. Consult your dealer, if the engine does not start again.

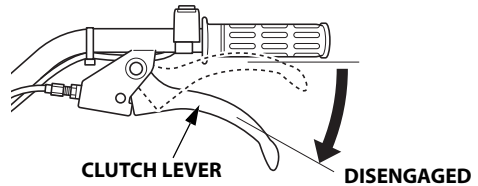
Break-in operation: 20 minutes

1. Before starting the engine, make sure that the gearshift lever is set in neutral position and the clutch lever is released.
2. Move the throttle lever to SLOW position and run the engine for 10 minutes, then move to FAST position and run for 10 minutes more.

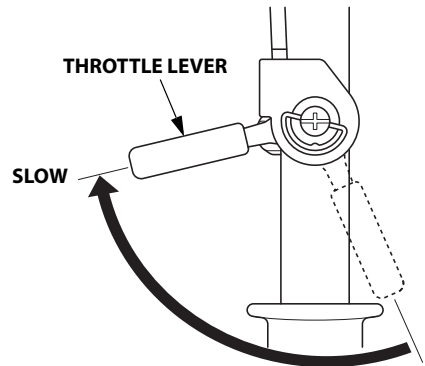
STOPPING THE ENGINE

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

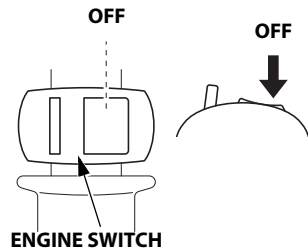
1. Release the clutch lever to the DISENGAGED position, and move the gearshift lever to the neutral position.



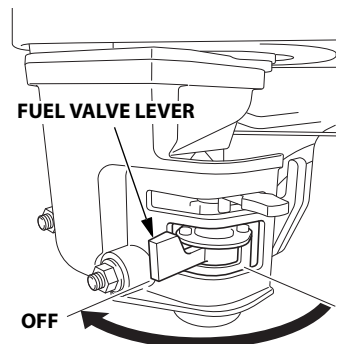
2. Move the throttle lever to the slowest position.



3. Push the engine switch to the OFF.



4. Move the fuel valve lever to the OFF position.



SERVICING YOUR TILLER

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 tiller, 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 tiller under unusual conditions, such as sustained high-load or high-temperature operation or use in dusty conditions consult your servicing dealer for recommendations applicable to your individual needs and use.

WARNING

Failure to properly maintain this tiller, or failing to correct a problem before operation, could result in a significant malfunction.

Some malfunctions can cause serious injuries or death.

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

Remember that your servicing dealer knows your tiller 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

Improper maintenance can cause an unsafe condition.

Failure to properly follow maintenance instructions and precautions can cause serious injuries or death.

Always follow the procedures and precautions in this 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 non-flammable solvent, not gasoline, to clean parts. Keep cigarettes, sparks, and flames away from all fuel-related parts.
- Disconnect the spark plug cap and wear heavy gloves when working near the belts or tine blades.

SERVICING YOUR TILLER

MAINTENANCE SCHEDULE

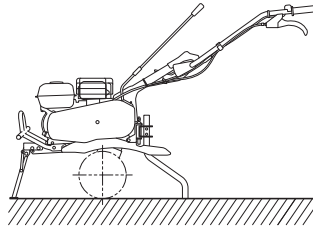
REGULAR SERVICE PERIOD (1) Perform at every indicated month or operating hour interval, whichever comes first.		Before season	Each use	First month or 20 hrs.	Every 3 months or 50 hrs.	Every 6 months or 100 hrs.	Every year or 300 hrs.	Refer to page
ITEM								
Engine oil	Check level		o					41
	Change	o		o		o		42
Air filter	Check		o					45
	Clean				o (2)			45
	Replace						o	45
Tiller outside	Check		o					18
Throttle lever function	Check		o					18
Bolts and nuts tightness	Check		o					18
Wiring and cables	Check		o					18
Engine operation	Check		o					20
Tire pressure	Check		o					52
Tines [excessive wear, damage or looseness]	Check		o					18
Recoil starter cover	Check-clean		o					54
Clutch lever function	Check-clean		o					18
	Grease	o (3) (6)						—
Clutch cable	Check-adjust			o (3)		o (3)		—
Drive belt	Check-adjust			o (3) (5)		o (3) (5)		—
Transmission oil	Check level	o		o			o	44
Grease application	Grease-lubricate	o (3)						—
Spark plug	Check-adjust					o		47
	Replace						o	47
Throttle cable	Check-adjust						o	49
Idle speed	Check-adjust						o (3)	—
Valve clearance	Check-adjust						o (3)	—
Combustion chamber	Clean		After every 500 hrs. (3) (4)					—
Fuel tank and filter	Clean	o (3)				o (3)		—
Fuel tube	Check	Every 2 years (Replace if necessary) (3)						—

- (1) For commercial use, log hours of operation to determine proper maintenance intervals.
- (2) Service every 10 operation hours or every day when used in dusty areas.
- (3) 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.
- (4) Service at the indicated service interval.
- (5) Check that there is no crack and abnormal wear-out in the belt, and replace if it is abnormal.
- (6) Apply grease to the pin part of the clutch lever fulcrum and so on for prevention of rust when you keep it for a long time (more than 30 days).

Failure to follow this maintenance schedule could result in non-warrantable failures.

REFUELING

Park on level ground, stop the engine, to keep the tiller horizontal.



Remove the fuel tank cap and check the fuel level. Refill the tank if the fuel level is low. Do not fill above the fuel level mark.

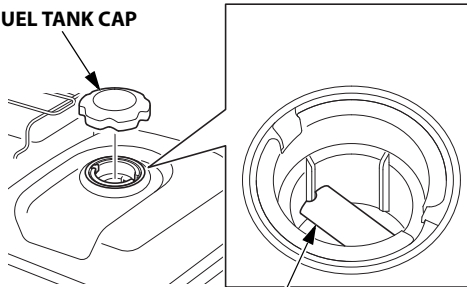
⚠ WARNING

Gasoline is highly flammable and explosive.

You can be burned or seriously injured when handling fuel.

- Stop the engine and let it cool before handling fuel.
- Keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Keep away from your vehicle.
- Wipe up spills immediately.

FUEL TANK CAP



LEVEL MARK

SERVICING YOUR TILLER

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 fuel level mark. After refueling, tighten the fuel tank cap securely.

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 the warranty.

FUEL RECOMMENDATIONS

This engine is certified to operate on unleaded gasoline with a research octane rating of 91 or higher (a pump octane rating of 86 or higher).

You may use regular unleaded gasoline containing no more than 10% ethanol (E10) or 5% methanol by volume. In addition, methanol must contain cosolvents and corrosion inhibitors.

Use of fuels with content of ethanol or methanol greater than shown above may cause starting and/or performance problems. It may also damage metal, rubber, and plastic parts of the fuel system.

Engine damage or performance problems that result from using a fuel with percentages of ethanol or methanol greater than shown above are not covered under warranty.

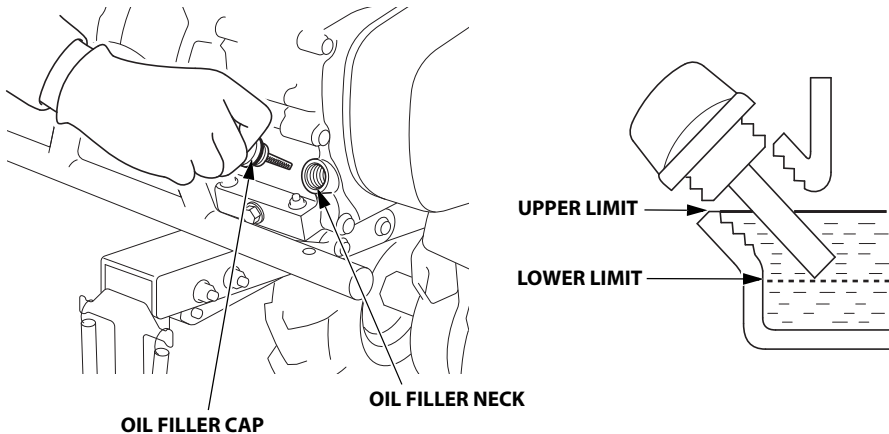
Never use gasoline that is stale, contaminated, or mixed with oil. Avoid getting dirt or water in the fuel tank.

If your equipment will be used on an infrequent or intermittent basis, please refer to the fuel section of the STORAGE chapter (see page 57) for additional information regarding fuel deterioration.

ENGINE OIL LEVEL CHECK

Check the engine oil level with the tiller on a level surface (see page 39) and the engine stopped.

1. Remove the oil filler cap.
2. Check the oil level.
3. If it is below the upper limit, fill with the recommended oil (see page 43) to the upper limit.
4. Reinstall the oil filler cap securely.



SERVICING YOUR TILLER

ENGINE OIL CHANGE

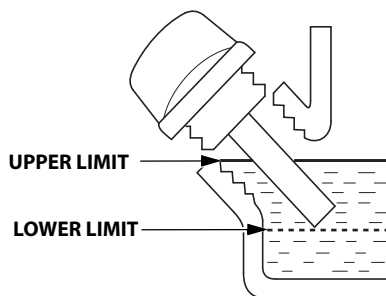
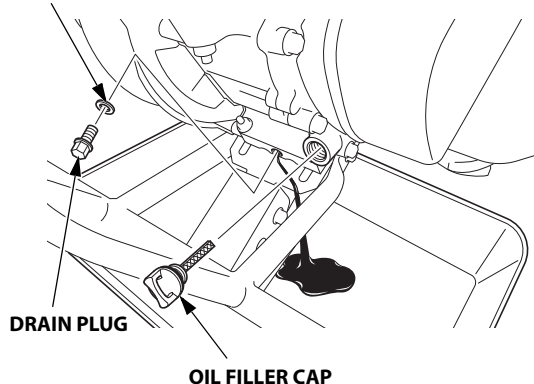
Drain the oil while the engine is warm to assure rapid and complete draining.

1. Place a suitable container below the engine to catch the used oil, and then remove the oil filler cap, drain plug, and sealing washer.
2. Allow the used oil to drain completely, and then reinstall the drain plug with a new sealing washer. Tighten the plug securely.

DRAIN PLUG TIGHTENING TORQUE:

18 N·m (1.8 kgf·m)

SEALING WASHER
(Replace)



NOTICE

Improper disposal of engine oil can be harmful to the environment. If you change your own oil, please dispose of the used oil properly. Put it in a sealed container and take it to a recycling center. Do not throw it in the trash, pour it on the ground, or pour it down a drain.

3. With the tiller in a level position, fill with the recommended oil (see page 43) to the upper limit.

Engine oil capacity: 0.6 L

NOTICE

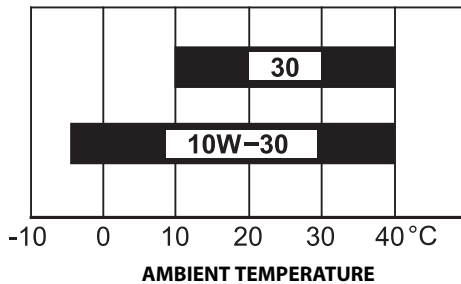
Running the engine with a low oil level is misuse and can cause engine damage. This type of damage is not covered by the warranty.

4. Reinstall the oil filler cap securely.

ENGINE OIL RECOMMENDATIONS

Oil is a major factor affecting performance and service life. Use a 4-stroke automotive detergent oil.

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.



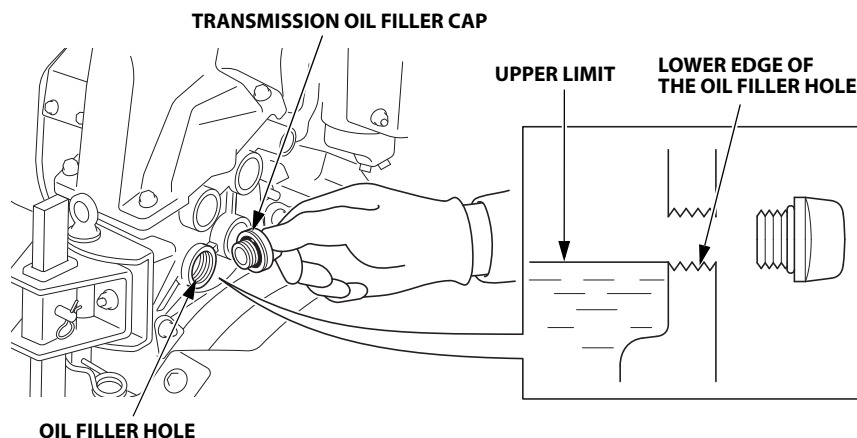
The SAE oil viscosity and service category are in the API label on the oil container. Honda recommends that you use API SERVICE category SE or later (or equivalent) oil.

SERVICING YOUR TILLER

TRANSMISSION OIL LEVEL CHECK

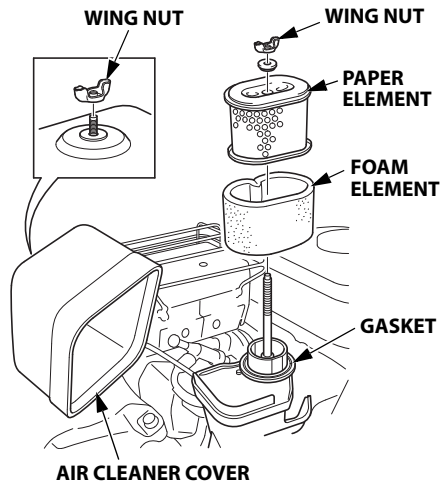
Check the transmission oil level with the tiller on a level surface (see page 39) and the engine stopped.

1. Remove the transmission oil filler cap. The oil should be level with the lower edge of the oil filler hole.
2. If the oil level is low, remove the transmission oil filler cap and add the same type of oil recommended for the engine (see page 43).
3. Reinstall the oil filler cap securely.



AIR FILTER INSPECTION

1. Unscrew the wing nut, and remove the air cleaner cover. Check the air filter elements to be sure they are clean and in good condition.
2. If the air filter elements are dirty, clean them as described on page 46. Replace the air filter elements if they are damaged.
3. Reinstall the air cleaner cover, and tighten the wing nut securely.



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 warranty.

AIR FILTER CLEANING

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

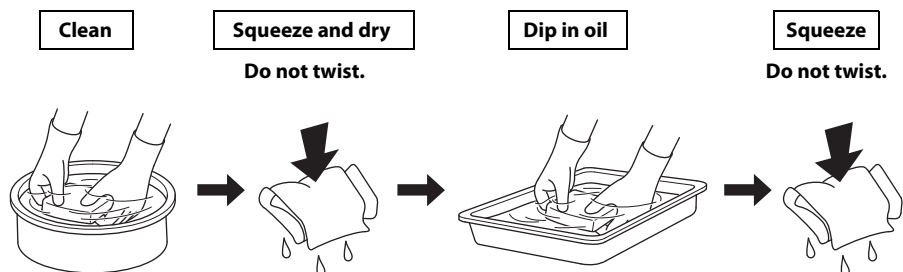
1. Remove the wing nut and air cleaner cover.
2. Remove the wing nut, remove the air filter elements and separate them.
3. Carefully check both filter elements for holes or tears and replace if necessary.

SERVICING YOUR TILLER

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

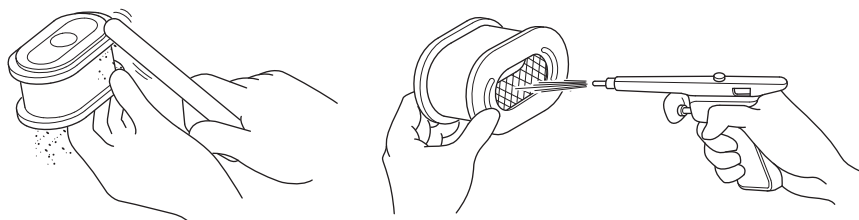
Foam element:

Clean in warm soapy water, rinse and allow to dry thoroughly. Or clean in high flash point solvent and allow to dry. Dip the element in clean engine oil and squeeze out all the excess. The engine will smoke during initial startup if too much oil is left in the foam.



Paper element:

Tap the element lightly several times on a hard surface to remove excess dirt, or blow compressed air [not exceeding 207 kPa (2.1 kgf/cm², 30 psi)] through the filter from the inside out. Never try to brush the dirt off: brushing will force dirt into the fibers.



5. Wipe dirt from the air cleaner base and cover, using a moist rag.
6. Place the foam air filter element over the paper air filter element, and install the assembled air filter. Be sure the gasket is in place beneath the air filter. Tighten the wing nut securely.
7. Reinstall the air cleaner cover, and tighten the wing nut securely.

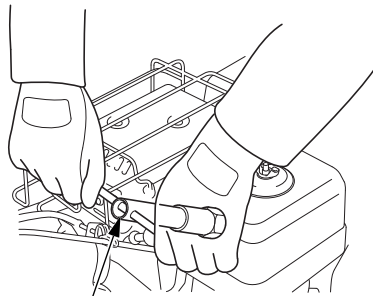
SPARK PLUG SERVICE

Recommended spark plug: BPR6ES (NGK), W20EPR-U (DENSO)

NOTICE

An incorrect spark plug can cause engine damage.

1. Disconnect the spark plug cap, and remove any dirt from around the spark plug area.
2. Remove the spark plug with the spark plug wrench.

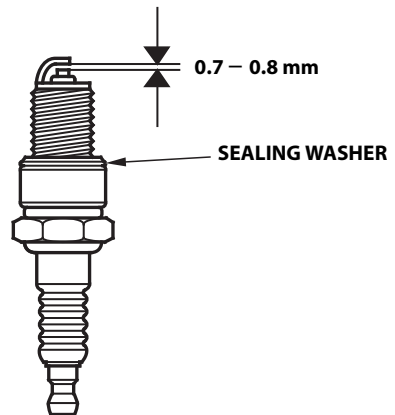


SPARK PLUGWRENCH

3. Inspect the spark plug. Replace it if the electrodes are worn, or if the insulator is cracked or chipped.
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. Install the spark plug carefully, by hand, to avoid cross-threading.
6. After the spark plug seats, tighten with the spark plug wrench to compress the washer.



SERVICING YOUR TILLER

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.

SPARK PLUG TORQUE:

18 N·m (1.8 kgf·m)

NOTICE

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

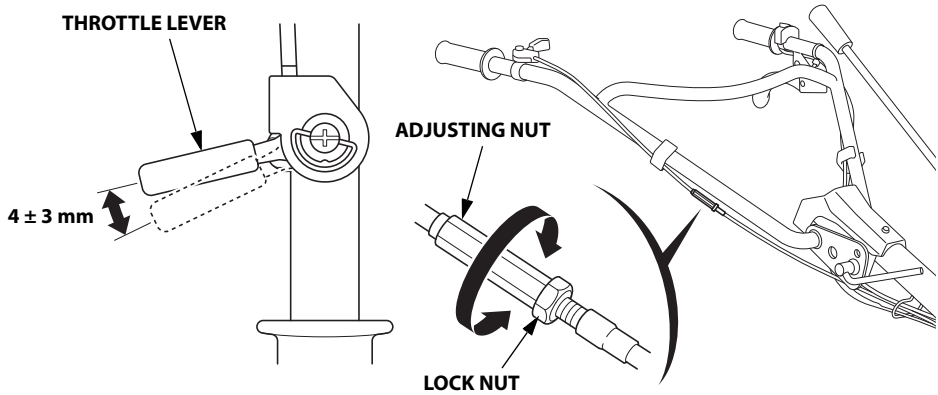
7. Attach the spark plug cap.

THROTTLE CABLE ADJUSTMENT

Measure the free play at the lever tip.

Free play: 4 ± 3 mm

If the free play is incorrect, loosen the lock nut and turn the adjusting nut in or out as required. After adjustment, tighten the lock nut.



SERVICING YOUR TILLER

TINE REPLACEMENT (Rotor: Standard equipment for types)

Remove the rotor from the axle before replacing the tine.

Use Honda Genuine replacement tines or their equivalent.

Wear heavy gloves to protect your hands.

Install the tines properly.

Incorrect arrangement of the tines or installing the tines in the wrong direction will cause vibration and hinder proper tilling.

Two tines (G and H) are provided. Tine G has engraved G mark on its face and tine H has H mark.

Nut and bolt positions

For all rotary tines:

Tighten the bolts from inside out.

Tine positions

<Right side rotor>

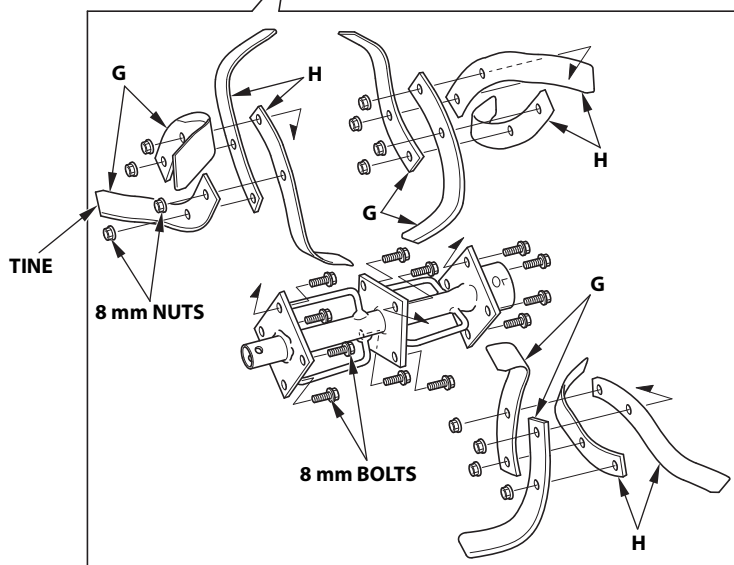
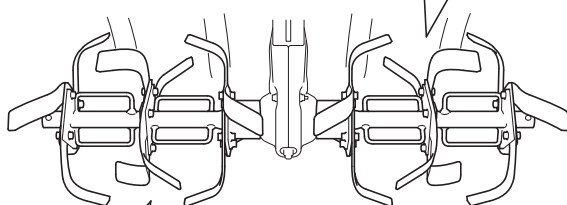
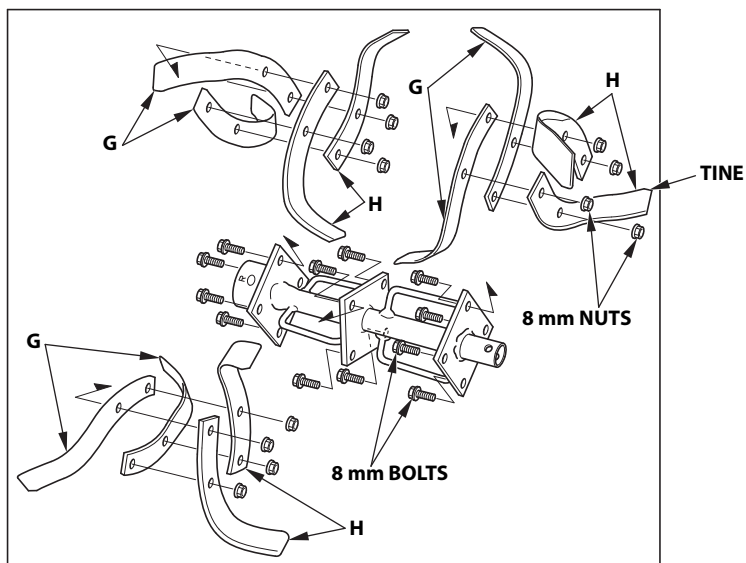
Rotary tines G: Toward inside.

Rotary tines H: Toward outside.

<Left side rotor>

Rotary tines G: Toward outside.

Rotary tines H: Toward inside.



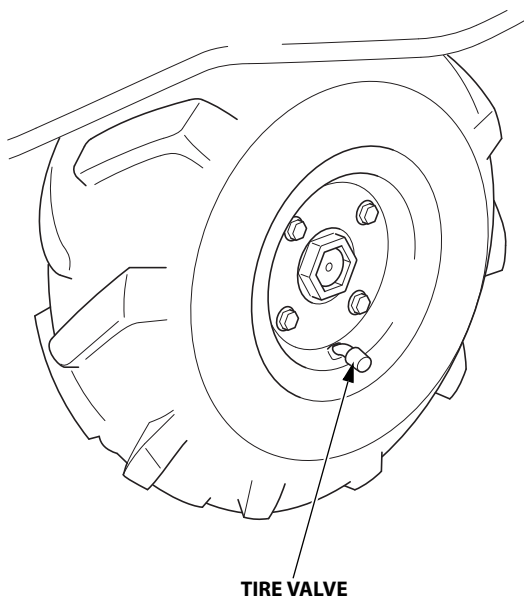
SERVICING YOUR TILLER

TIRE PRESSURE CHECK

Check the tire pressure. Improper inflation can reduce both tire life and load carrying capacity.

Tire size: 3.50-4

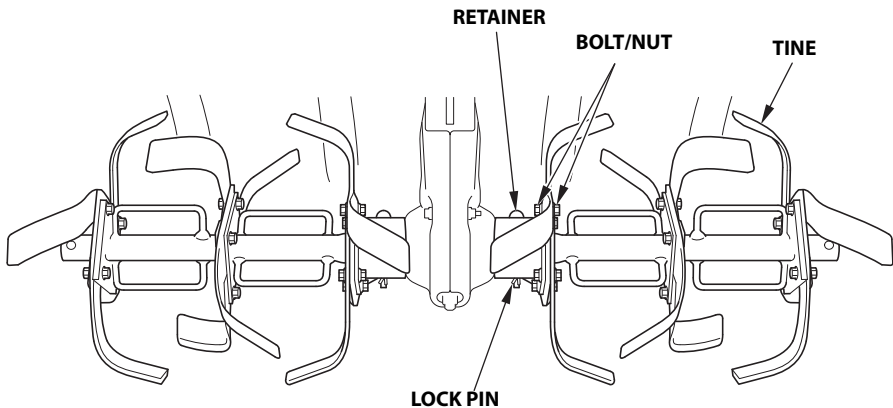
Tire pressure: 137-157 kPa (1.4-1.6 kgf/cm²)



TINES AND FASTENERS CHECK

Use Honda Genuine replacement tines or their equivalent.
Wear heavy gloves to protect your hands.

1. Check for damage, bent, or loose tines. If abnormality is found, tighten or replace the damaged part (see page 50).
2. Check the tine setting bolts and nuts for looseness, tighten if necessary.
3. Check for damaged or missing retainers and lock pins, and replace with new ones if necessary.



SERVICING YOUR TILLER

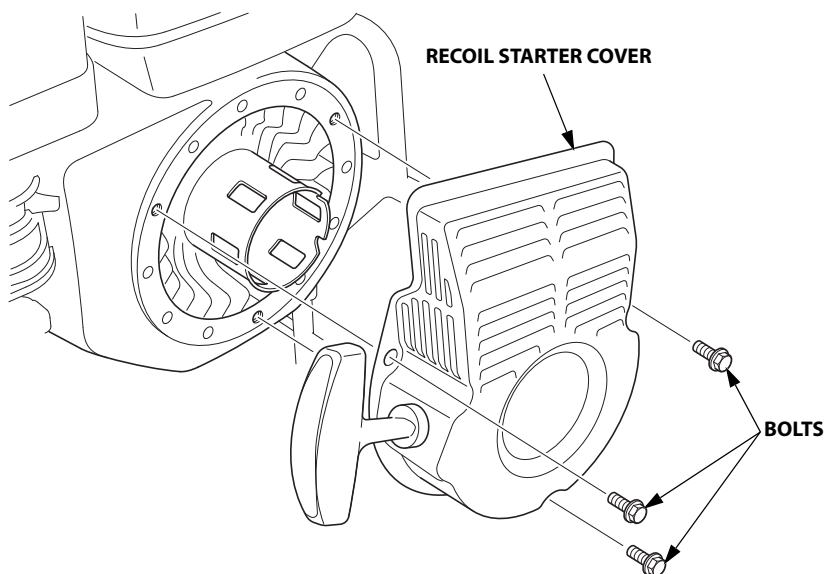
RECOIL STARTER COVER CHECK AND CLEANING

Check

Make sure that grass, clay, mud water or other similar material is not inside the recoil starter cover, through the hole located on the side of the cover. Clean if necessary.

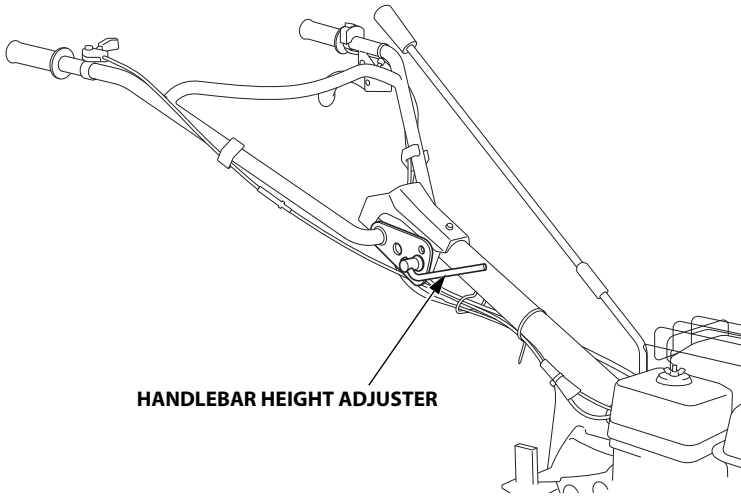
Cleaning

1. Remove the recoil starter cover by removing the bolts.
2. Remove mud, grass tips, dirt and other foreign matter from inside the cover.
3. After cleaning, replace the cover and tighten the bolts securely.



HANDLEBAR HEIGHT ADJUSTER TIGHTNESS CHECK

Check for looseness in fastened parts.
Securely tighten the handlebar height adjuster.



STORAGE

STORAGE PREPARATION

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

When storing the tiller for a long period, please keep the owner's manual in good as an important information.

Cleaning

1. Wash the tiller, including the underside.

Engine

Wash the engine by hand, and be careful to prevent water from entering the air cleaner.

NOTICE

- *Using a garden hose or pressure washing equipment can force water into the air cleaner. Water in the air cleaner will soak the filter element and can enter the carburetor or engine 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.*

Tiller

If using a garden hose or pressure washing equipment to clean the tiller, be careful to avoid getting water on the belts.

NOTICE

Spraying water on hot tine shaft bearings can cause them to be damaged from cooling too quickly.

2. After washing the tiller, wipe dry all accessible surfaces.
3. Start the engine outdoors, and let it run until it reaches normal operating temperature to evaporate any water remaining on the engine.
4. While the engine is running, operate the clutch lever to expel water from the pulleys, belts, and other moving items.
5. Stop the engine and allow it to cool.
6. After the tiller is clean and dry, touch up any damaged paint and coat other areas with a light film oil. Lubricate the throttle cable core with a silicone spray lubricant.

Fuel

NOTICE

Depending on the region where you operate your equipment, fuel formulations may deteriorate and oxidize rapidly. Fuel deterioration and oxidation can occur in as little as 30 days and may cause damage to the carburetor and/or fuel system. Please check with your servicing dealer for local storage recommendations.

STORAGE

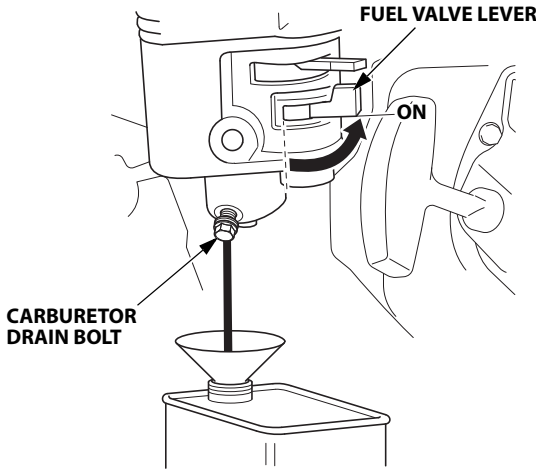
Gasoline will oxidize and deteriorate in storage. Old gasoline will cause hard starting, and it leaves gum deposits that clog the fuel system. If the gasoline in your tiller deteriorates during storage, you may need to have the carburetor and other fuel system components serviced or replaced.

The length of time that gasoline can be left in your fuel tank and carburetor without causing functional problems will vary with such factors as gasoline blend, your storage temperatures, and whether the fuel tank is partially or completely filled. The air in a partially filled fuel tank promotes fuel deterioration. Very warm storage temperatures accelerate fuel deterioration. Fuel deterioration problems may occur within a few months, or even less if the gasoline was not fresh when you filled the fuel tank.

The warranty does not cover fuel system damage or engine performance problems resulting from neglected storage preparation.

Draining the Fuel Tank and Carburetor

1. Place an approved gasoline container below the carburetor, and use a funnel to avoid spilling fuel.
2. Move the fuel valve lever to the ON position and loosen the carburetor drain bolt by turning 1 to 2 turns counter clockwise.



⚠ WARNING

Gasoline is highly flammable and explosive.

You can be burned or seriously injured when handling fuel.

- Stop the engine and let it cool before handling fuel.
- Keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Keep away from your vehicle.
- Wipe up spills immediately.

3. After all fuel has drained, tighten the carburetor drain bolt securely, move the fuel valve to the OFF position.

STORAGE

Engine Oil

1. Change the engine oil (see page 42).
2. Remove the spark plug (see page 47).
3. Pour a tablespoon (5 – 10 cc) of clean engine oil into the cylinder.
4. Gently pull the starter grip several times to distribute the oil in the cylinder.
5. Reinstall the spark plug and spark plug cap.
6. Pull the starter grip (see page 22) slowly until you feel resistance, then return the starter grip gently. This closes the valves so moisture cannot enter.

STORAGE PRECAUTIONS

If your tiller 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 in the OFF position to reduce the possibility of fuel leakage.

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

When the engine and exhaust system is cool, cover the tiller to keep out dust. A hot engine and exhaust system can ignite or melt some materials. Do not use a plastic sheet as a dust cover. A nonporous cover will trap moisture around the tiller, promoting rust and corrosion.

REMOVAL FROM STORAGE

Check your tiller as described in the *BEFORE OPERATION* chapter of this manual (see page 17).

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 start-up. This is normal.

TRANSPORTING

BEFORE LOADING

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

Always push the engine switch to the OFF. Make sure to move the fuel valve OFF.

LOADING AND UNLOADING

If a suitable loading ramp is not available, two people should lift the tiller on and off the transport vehicle while holding the tiller level.

Position the tiller so it sits flat on the bed of the transport vehicle. Tie the tiller down with rope or straps. Keep the tie-down rope or straps away from the controls, adjustment levers, cables, and the carburetor.

TAKING CARE OF UNEXPECTED PROBLEMS

ENGINE

ENGINE WILL NOT START

Possible Cause	Correction
Fuel valve OFF.	Move valve ON.
Choke OPEN.	Move to CLOSED unless engine is warm.
Engine switch OFF.	Push engine switch to ON.
Out of fuel.	Refuel (p. 39).
Bad fuel, tiller stored without treating or draining gasoline, or refueled with bad gasoline.	Drain fuel tank and carburetor (p. 59). Refuel with fresh gasoline (p. 39).
Spark plug faulty, fouled, or improperly gapped.	Clean gap or replace spark plug (p. 47).
Spark plug wet with fuel (flooded engine).	Dry and reinstall spark plug. Start engine with throttle lever in FAST position and the choke open.
Fuel filter clogged, carburetor malfunction, ignition malfunction, valves stuck, etc.	Take the tiller to your servicing dealer, or refer to the shop manual.

TAKING CARE OF UNEXPECTED PROBLEMS

ENGINE LACKS POWER

Possible Cause	Correction
Air filter clogged.	Clean or replace air filter (p. 45).
Bad fuel, tiller stored without treating or draining gasoline, or refueled with bad gasoline.	Drain fuel tank and carburetor (p. 59). Refuel with fresh gasoline (p. 39).
Fuel filter clogged, carburetor malfunction, ignition malfunction, valves stuck, etc.	Take the tiller to your servicing dealer, or refer to the shop manual.

TILLER

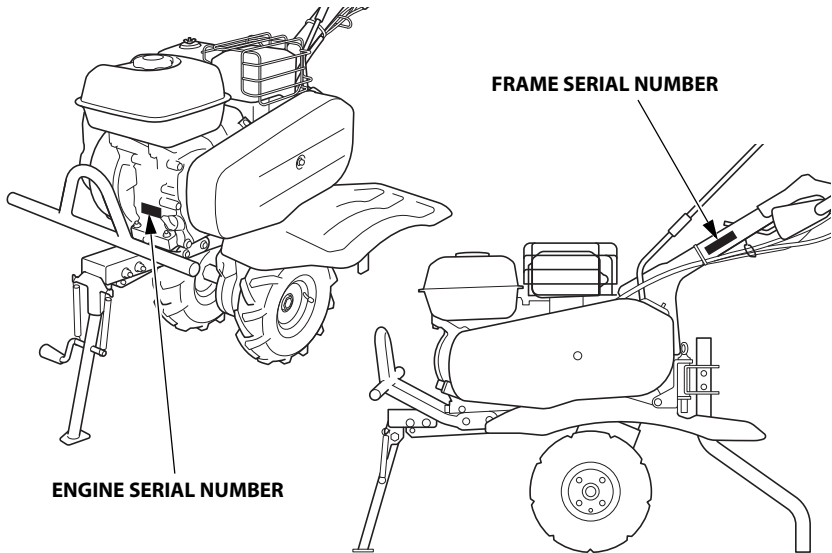
POOR TILLING QUALITY

Possible Cause	Correction
Engine speed is too slow for soil conditions.	Move the throttle to the FAST position (p. 14).
Tiller is moving too fast for soil conditions.	Shift to slower speed (p. 23).
Drag bar adjustment set to high.	Lower drag bar adjustment (p. 26).
Tines dull, worn, or damaged.	Replace tines if necessary (p. 50).
Wrong tines installed.	Install correct tines (p. 50).
Tines installed incorrectly.	Install tines correctly (p. 50).

TECHNICAL & CONSUMER INFORMATION

TECHNICAL INFORMATION

Serial Number Locations



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

Engine serial number: _____

Frame serial number: _____

Date of purchase: _____

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 plug 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 tiller at altitudes above 610 meters, have your servicing dealer perform this carburetor modification. This engine, when operated at high altitude with the carburetor modifications for high altitude use, will meet each emission standard throughout its useful life.

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 610 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 specification.

TECHNICAL & CONSUMER INFORMATION

Specifications

Model	FQ650
Description code	FAFC
Type	WH
Dry mass [weight]	55 kg
Length	1,475 mm
Width	650 mm
Height	1,000 mm
Engine model	GP200H
Engine type	4-stroke, Single cylinder, OHV, forced air cooled
Displacement	196 cm ³
Bore × Stroke	68.0 × 54.0 mm
Ignition system	Transistor magneto
Spark plug	BPR6ES (NGK) W20EPR-U (DENSO)
Oil capacity	0.6 L
Fuel tank capacity	2.4 L
Clutch	Belt tension
Transmission oil capacity	1.2 L

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

Tune-up Specifications

ITEM	SPECIFICATION	MAINTENANCE
Spark plug gap	0.7 – 0.8 mm	Refer to page 47.
Valve clearance	IN:0.15 ± 0.02 mm cold EX:0.20 ± 0.02 mm cold	See your servicing dealer.
Other specifications	No other adjustments needed.	

HONDA

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