Honda F220

OWNER'S MANUAL
Original instructions

MANUEL DE L'UTILISATEUR
Notice originale

BEDIENUNGSANLEITUNG
Originalbetriebsanleitung

MANUALE DELL'UTENTE
Traduzione delle istruzioni originali

Thank you for purchasing a Honda tiller.

This manual covers operation and maintenance of the F220 tiller.

All information in this publication is based on the latest product information available at the time of printing.
Honda Motor Co., Ltd. reserves the right to make changes at any time without notice and without incurring any obligation.

This manual is considered a permanent part of the tiller and it must stay with the tiller if resold.

Pay special attention to statements preceded by the following words:

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

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

NOTE: Gives helpful information.

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

⚠WARNING

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

- The illustration may vary according to the type.

Disposal
To protect the environment, do not dispose of this product, battery, engine oil, etc. carelessly by leaving them in the waste. Observe the local laws and regulations or consult your authorized Honda dealer for disposal.

CONTENTS

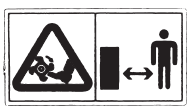
⚠WARNING

To ensure safe operation–

For your safety and the safety of others, pay special attention to these precautions:

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

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



- **The rotating tines are sharp and they turn at high speed. Accidental contact can cause serious injury.**
- **Keep your hands and feet away from the tines while engine is running.**
- **Stop the engine and disengage the tines clutch before inspection or maintenance of tines.**
- **Disconnect the spark plug cap to prevent any possibility of accidental starting. Wear heavy gloves to protect your hands from the tines when cleaning the tines or when inspecting or replacing the tines.**

- **Gasoline is extremely flammable and is explosive under certain conditions.**
- **Do not smoke or allow flames or sparks in the area where the tiller is refueled or where gasoline is stored.**
- **Do not overfill the fuel tank, and make sure the fuel tank cap is closed securely after refueling.**
- **Refuel in a well-ventilated area with the engine stopped.**

Operator responsibility

- Keep the tiller in good operating condition. Operating a tiller in poor or questionable condition could result in serious injury.
- Be sure all safety devices are in working order and warning labels are in place. These items are installed for your safety.
- Be sure the safety covers (tine covers, fan cover and recoil starter cover) are in places.
- Know how to stop the engine and tines quickly in case of emergency. Understand the use of all controls.
- Keep a firm hold on the handlebars. They may tend to lift during clutch engagement.

⚠WARNING

To ensure safe operation–

Operator responsibility

- Read the owner's manual carefully. Be familiar with the controls and their proper use of the tiller.
- Use the tiller for the purpose it is intended that is, cultivating the soil. Any other use could be dangerous or damage the equipment, especially never use it to cultivate soil containing rocks, stones, wires and any other hard materials.
- Never allow children or people unfamiliar with this owner's manual to use the tiller. Local regulations may restrict the age of the operator.
- Before each use, visually inspect the tiller including parts for any wear, damage and looseness. If necessary, replace the damaged parts as an assembly.
- Keep in mind that the owner or user is responsible for accidents or damage, occurring to other people or their property.
  In the event of hire use, be sure that operational explanations are given in the presence of the user.
- Keep your hands and feet away from the tines while the engine is running.
- Allowing anyone to operate this tiller without proper instruction may result in injury.
- Wear sturdy, full-coverage footwear. Operating this tiller barefoot or with open toe shoes or sandals increases your risk of injury.
- Dress sensibly. Loose clothing may get caught in moving parts, increasing your risk of injury.
- Be alert. Operating this tiller when you are tired, ill or under the influence of alcohol or drugs may result in serious injury.
- Keep all persons and pets away from the tilling area.
- Be sure drag bar is in place and properly adjusted.
- Do not change the engine governor settings or overspeed the engine.
- Start the engine carefully according to the instructions in this manual, keeping your feet away from the tines.
- When starting the engine, keep your feet away from the tines.
- Avoid operating the tiller at night or in a bad weather of poor visibility, because there is much possibility of accident.
- Walk, never run during operation.
- When taking backward steps during operation, pay special attention to people and obstacles behind the operator.
- Before transporting or hoisting the tiller, make sure that the engine is stopped.

⚠WARNING

To ensure safe operation–

Operator responsibility

- Stop the engine in the following cases:
  – Whenever you leave the tiller unattended.
  – Before refueling
- When stopping the engine, move the throttle lever to the LOW position, then turn the engine switch OFF. If the fuel valve is equipped on the tiller, be sure to turn the fuel valve OFF.
- Keep all nuts, bolts and screws tight to be sure the tiller is in safe working condition. Regular maintenance is an essential aid to user's safety and retaining a high level of performance.
- Never store the tiller with gasoline in the tank inside a building where fumes may reach an open flame, spark or high temperature source.
- Allow the engine to cool before storing in any enclosure.
- To reduce the fire hazard, keep the tiller especially the engine, muffler, the gasoline storage area as well, free of grass, leaves, or excessive grease.
  Do not leave containers of vegetable matters in or near a building.
- If the fuel tank has to be drained, this should be done outdoors, with a cold engine.
- Replace the worn or damaged parts for safety.

Child safety

- Keep children indoors and supervised at all times when any outdoor power equipment is being used nearby. Young children move quickly and are attracted especially to the tiller and the tilling activity.
- Never assume children will remain where you last saw them. Be alert and turn the tiller off if children enter the area.
- Children should never be allowed to operate the tiller, even under adult supervision.

Thrown object hazard

Objects hit by the rotating tines can be thrown from the tiller with great force, and may cause serious injury.

- Before tilling, clear the tilling area of sticks, large stones, wire, glass, etc. Till only in daylight.
- Always inspect the tiller for damage after striking a foreign object. Repair or replace any damaged parts before continuous use.
- Pieces thrown from worn or damaged tines can cause serious injury. Always inspect the tines before using the tiller.

⚠WARNING

To ensure safe operation–

Fire and burn hazard

Gasoline is extremely flammable, and gasoline vapor can explode. Use extreme care when handling gasoline. Keep gasoline out of reach of children.

- Add fuel before starting the engine. Never remove the cap of the fuel tank or add gasoline while the engine is running or when the engine is hot.
- Refuel in a well-ventilated area with the engine stopped.
- Refuel outdoors only and do not smoke while refueling or handling fuel.
- Allow the engine to cool before refueling. Fuel vapor or spilled fuel may ignite.
- The engine and exhaust system become very hot during operation and remain hot for a while after stopping. Contact with hot engine components can cause burn injuries and can ignite some materials.
- Avoid touching a hot engine or exhaust system.
- Allow the engine to cool before performing maintenance or storing the tiller indoors.
- Tighten all fuel tanks and container caps securely.
- Store fuel in containers specifically designed for this purpose.
- If gasoline is spilled, do not attempt to start the engine but move the tiller away from the area of spillage and avoid creating any source of ignition until gasoline vapors have dissipated.

⚠WARNING

To ensure safe operation–

Carbon monoxide poisoning hazard

Exhaust contains poisonous carbon monoxide, a colorless and odorless gas. Breathing exhaust can cause loss of consciousness and may lead to death.

- If you run the engine in an area that is confined or even partially enclosed, the air you breathe could contain a dangerous amount of exhaust gas. To keep exhaust gas from building up, provide adequate ventilation.
- Replace faulty muffler.
- Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.

Operation on slope

- 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° (17%).

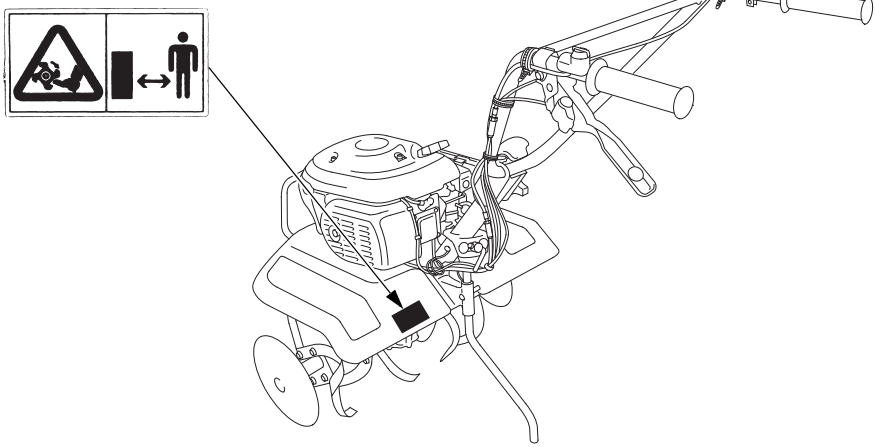
The maximum safe grade angle shown is for reference purpose only and should be determined according to the type of the tool. Before starting the engine, check that the tiller is not damaged and in good condition. For your safety and safety of others, exercise extreme care when using the tiller on up or down hill.

2. SAFETY LABEL LOCATIONS

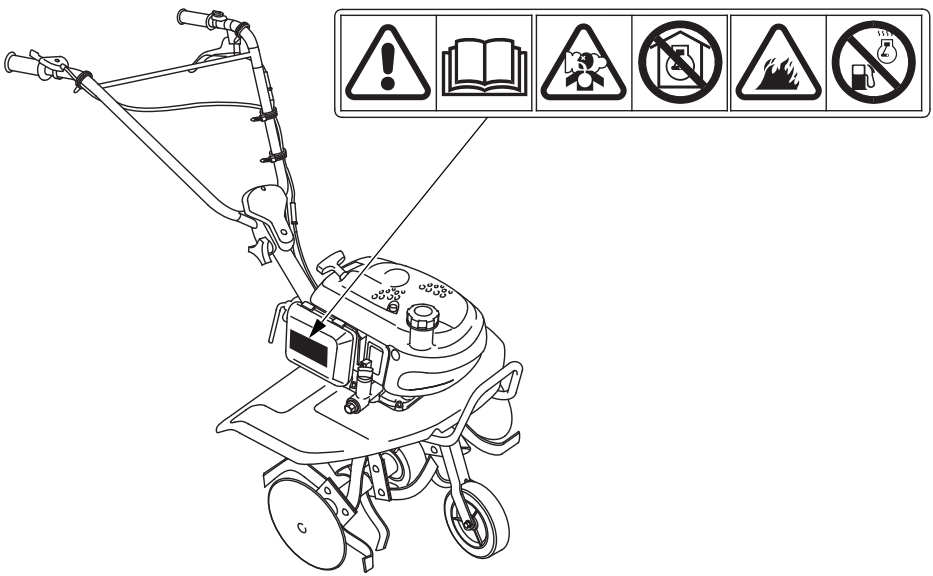
These labels warn you of potential hazards that can cause serious injury. Read the labels and safety notes and precautions described in this manual carefully.

If a label comes off or becomes hard to read, contact your Honda dealer for a replacement.

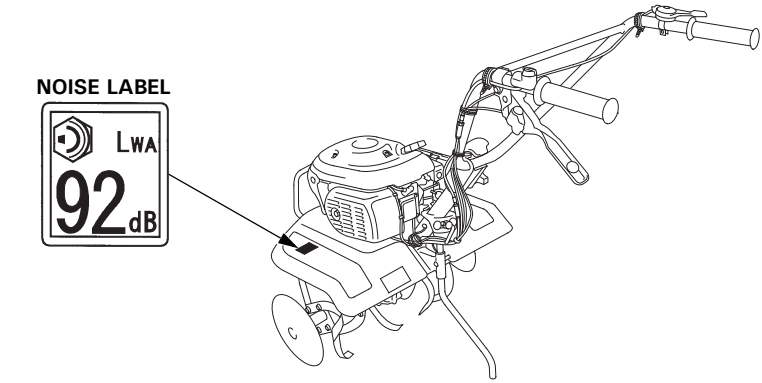
CUTTING DANGER

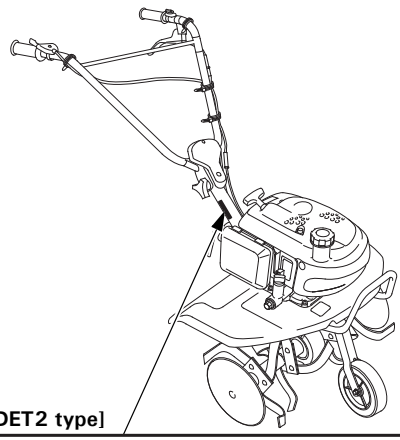


READ OWNER'S MANUAL, EXHAUST CAUTION, FUEL CAUTION

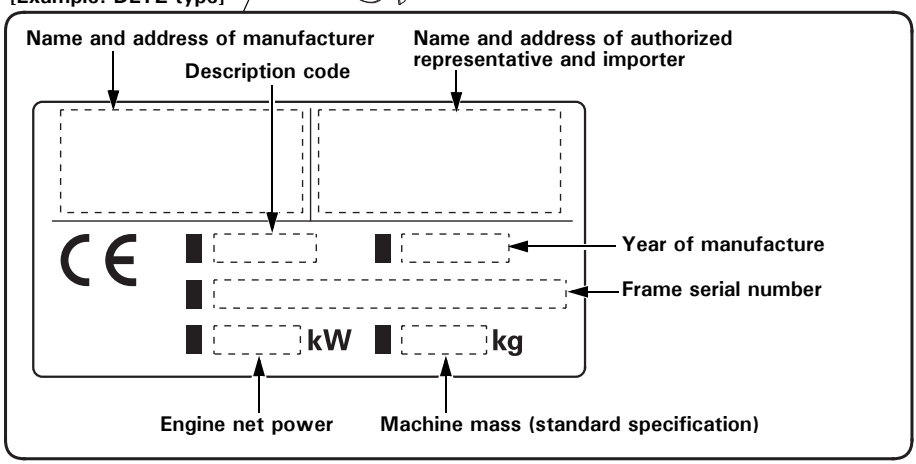


CE mark and noise label locations

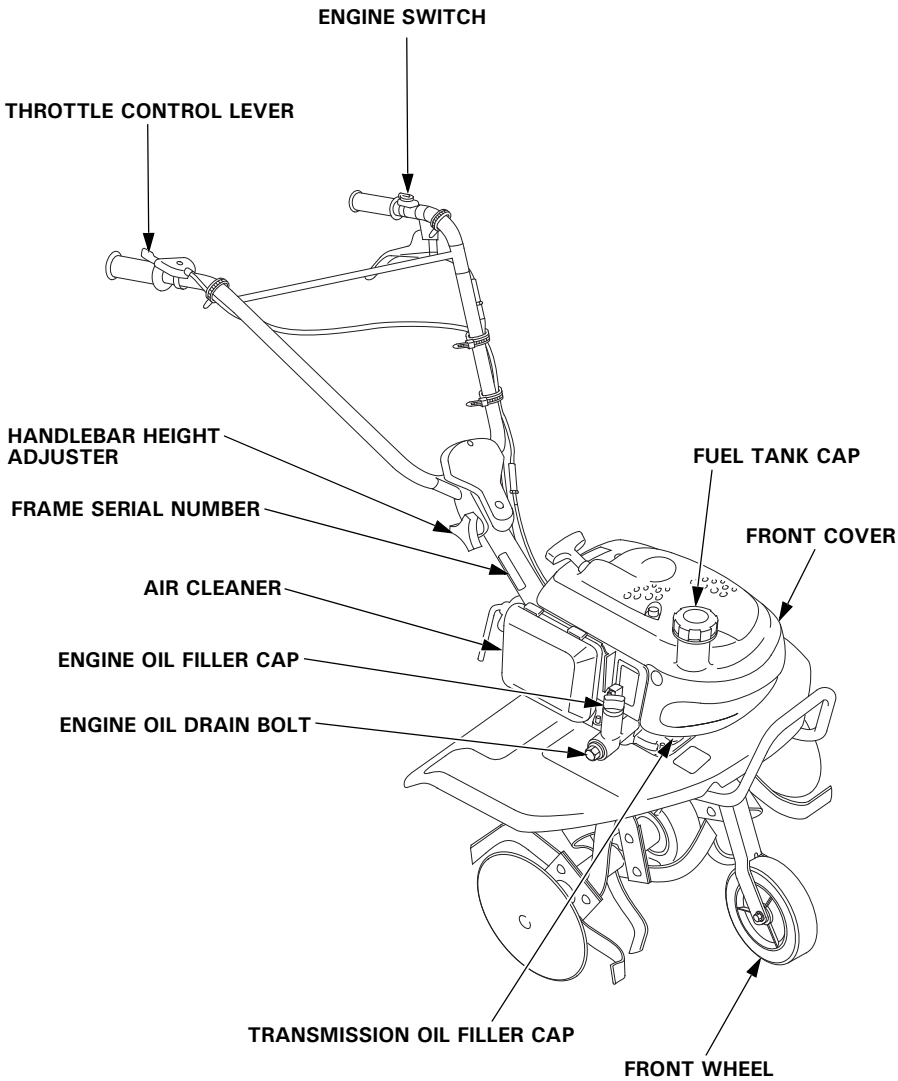




CE MARK
[Example: DET2 type]

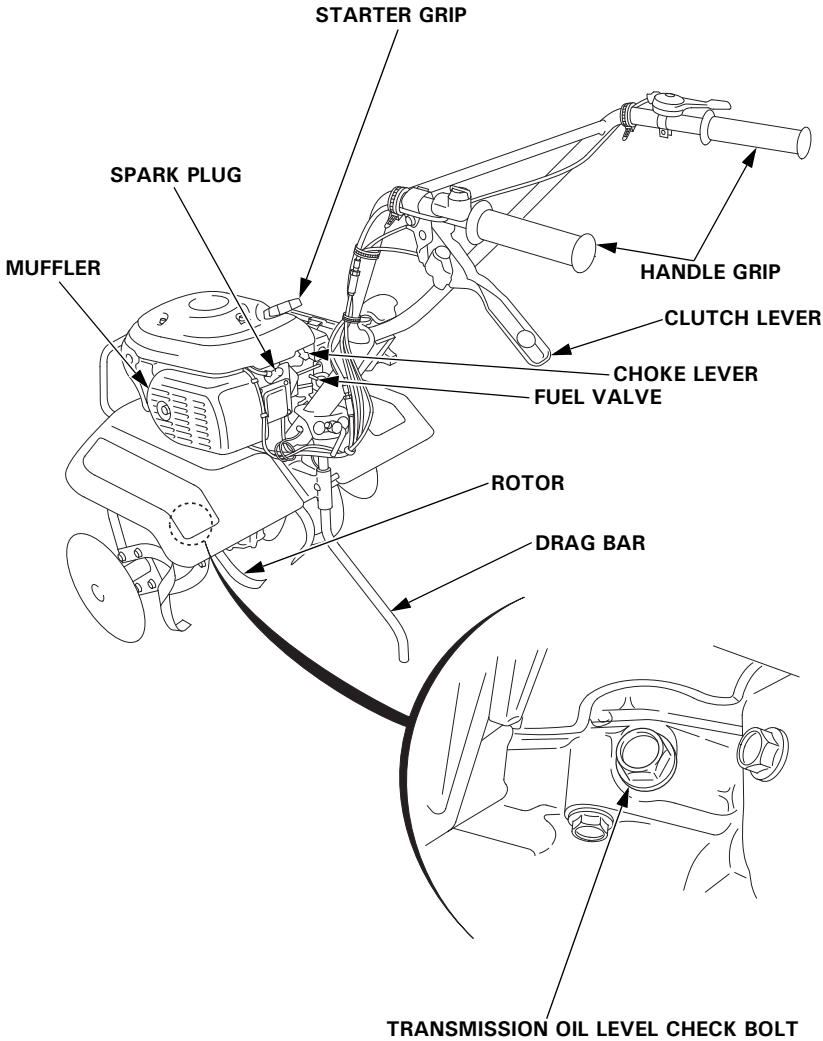


Name and address of manufacturer, authorized representative and importer are written in the "EC Declaration of Conformity" CONTENT OUTLINE in this Owner's Manual.



Record the frame serial number in the space below. You will need this number when ordering parts.

Frame serial number:_____


STARTER GRIP
SPARK PLUG
MUFFLER
HANDLE GRIP
CLUTCH LEVER
CHOKE LEVER
FUEL VALVE
ROTOR
DRAG BAR
TRANSMISSION OIL LEVEL CHECK BOLT

Before each use, look around and underneath the engine for signs of oil or gasoline leaks.

⚠WARNING

Place the tiller on a firm level surface and hold the tiller level (i.e. with the rotary tines, front wheel (if equipped) and drag bar). Stop the engine before starting service of the tiller. Servicing the tiller on an unstable surface of the ground or without stopping the engine can cause injury and/or equipment damage.

Daily inspection and service of tiller is essential for safe and reliable operation. Perform the following check before operation.

1. Tiller outside

Check for fuel and engine oil leaks.
Make sure that there are no flammable materials (dust, straw, etc.) near the engine.

2. Control lever function

Check that the lever operates smoothly.

3. 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.

4. Bolts and nuts tightens

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

5. Tines

Check for excessive wear, damage, or looseness.

6. Engine operation

- Start the engine. Check for abnormal sounds. (See pages 21 through 22 for starting procedure.)
- Check that the engine stops securely by operating the engine switch. (See pages 28 and 30 for stopping procedure.)
- If you notice any other abnormal symptoms, consult with your authorized Honda dealer promptly.

7. Engine oil level

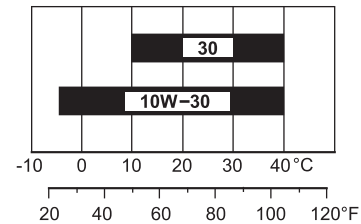
CAUTION:
- **Running the engine with insufficient oil can cause serious engine damage.**
- **Be sure to check the tiller on a level surface with the engine stopped.**

Make sure the area around the oil filler cap is clean.

1. Remove the oil filler cap. Check the oil level with the level gauge looking into the filler neck.
2. If the oil level is low, fill to the upper limit of the level gauge with the recommended oil.
3. Screw in the filler cap securely.

Recommended oil

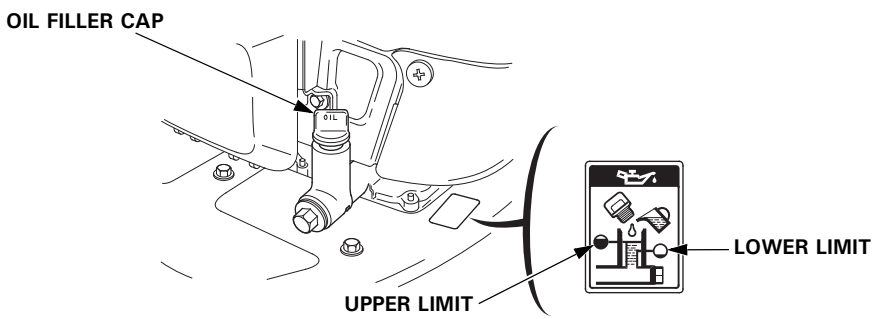
Use 4-stroke motor oil that meets or exceeds the requirements for API service category SE or later (or equivalent). Always check the API service label on the oil container to be sure it includes the letters SE or later (or equivalent).



AMBIENT TEMPERATURE

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 indicated range.

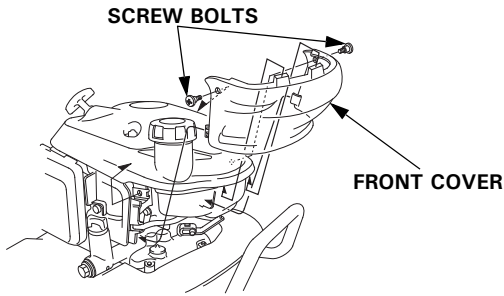
CAUTION:
Using nondetergent oil or 2-stroke engine oil will shorten the engine's service life.



8. Transmission oil

Make sure the area around the oil level check bolt and the oil filler cap are clean.

Place the tiller on a level surface and remove the two screw bolts from front cover, and remove the front cover.



1. Remove the transmission oil level check bolt. The oil should be level with the lower edge of the oil filler hole.

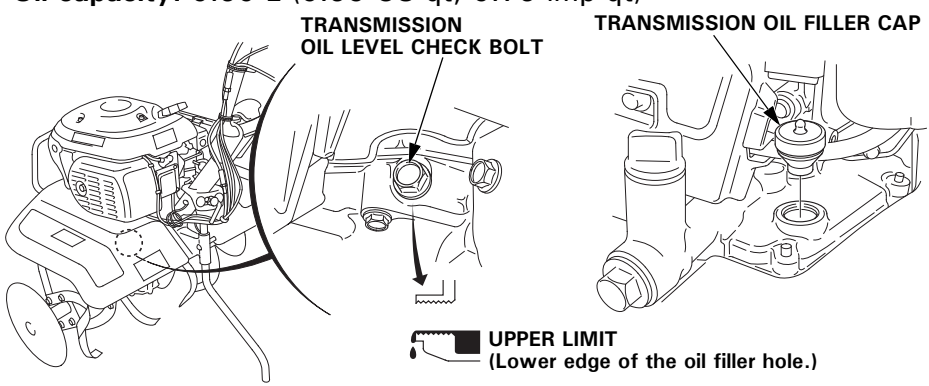
2. Remove the transmission oil filler cap and add the oil as recommended for the engine, if the level is low.

   Recommended oil:
   Use SAE 0W-20 Honda 4-stroke oil or SAE 0W-20 4-stroke motor oil that meets the requirements for API service category SL or equivalent. Always check the API service label on the oil container to be sure it includes the letters SL or equivalent.

3. Reinstall oil filler cap and tighten the oil level check bolt securely.

   • **TORQUE:** 39 N·m (4.0 kgf·m, 29 lbf·ft)

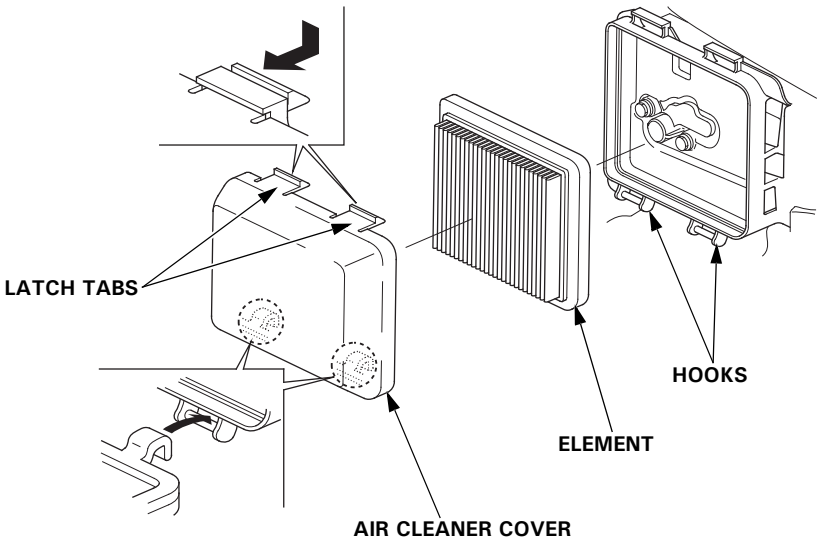
   Oil capacity: 0.90 L (0.95 US qt, 0.79 Imp qt)



9. Air cleaner

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

Remove the air cleaner cover and check cleaner for dirt or obstruction of the element (see page 33).

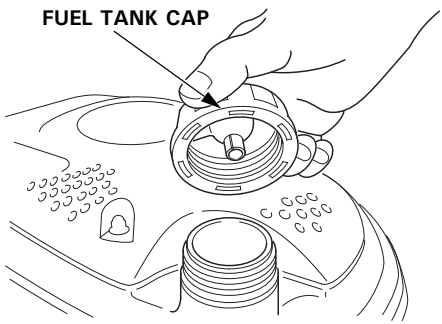


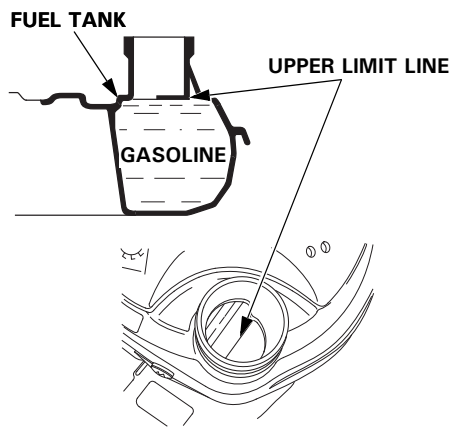
10.Fuel

Check the fuel level, and refill the tank if the fuel level is low.
Use unleaded gasoline with a Research Octane Number of 91 or higher (a Pump Octane Number of 86 or higher).
Never use stale or contaminated gasoline or an oil/gasoline mixture.
Avoid getting dirt or water in the fuel tank.

⚠WARNING

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





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

- Only use specified gasoline (see page 17).
- Use fresh and clean gasoline.
- To slow deterioration, keep gasoline in a certified fuel container.
- If long storage (more than 30 days) is foreseen, drain fuel tank and carburetor (see page 40).

Gasolines containing alcohol

If you decide to use a gasoline containing alcohol (gasohol), be sure its octane rating is at least as high as that recommended by Honda.
There are two types of ''gasohol'': one containing ethanol, and the other containing methanol.
Do not use gasohol that contains more than 10% ethanol.
Do not use gasoline containing more than 5% methanol (methyl or wood alcohol) and that does not also contain co-solvents and corrosion inhibitors for methanol.

NOTE:

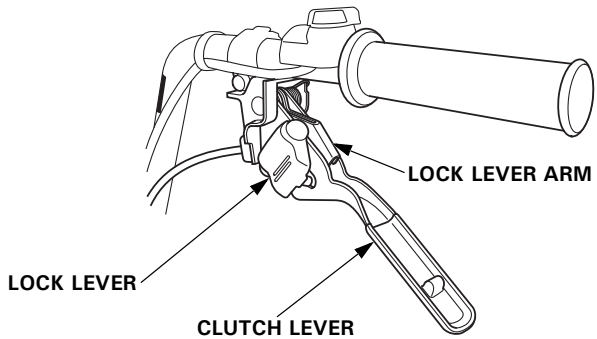
- Fuel system damage or engine performance problems resulting from the use of gasoline that contains more alcohol than recommended is not covered under the warranty.
- Before buying gasoline from an unfamiliar station, first determine if the gasoline contains alcohol, if it does, find out the type and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

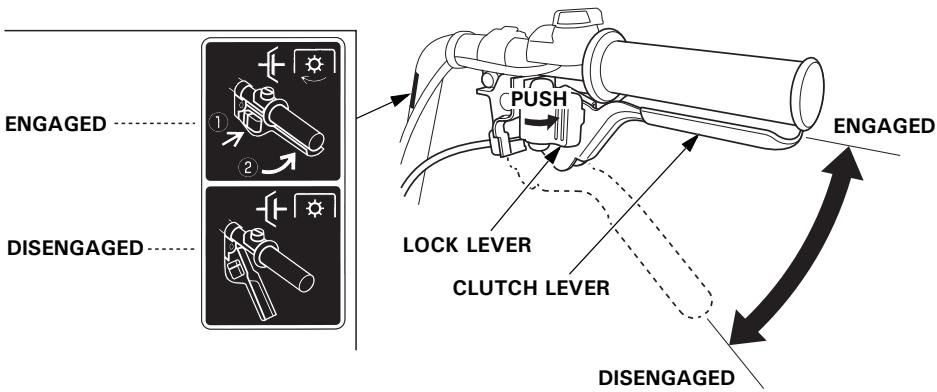
11. Clutch lever operation

Before the operation check, make sure that there are no foreign objects (such as sand, soil, twigs, etc.) caught around the clutch lever, lock lever and/or lock lever arm.

Check that the lock lever and the clutch lever operate smoothly by pushing the lock lever, and squeezing the clutch lever.

If the lock lever and clutch lever do not operate smoothly, or the clutch engages by squeezing the clutch lever without pushing the lock lever, disassemble and clean the clutch lever (see page 35).



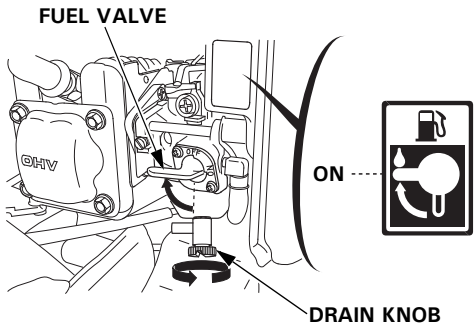


12. Tools and Attachments

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.

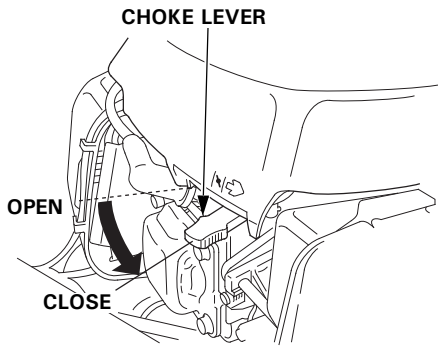
CAUTION:
Be sure the clutch is disengaged to prevent sudden uncontrolled movement when the engine starts.
The clutch is engaged by pulling in the clutch lever and disengaged by releasing the lever.

1. Check that the drain knob is tightened securely.
   Turn the fuel valve to the ON position.

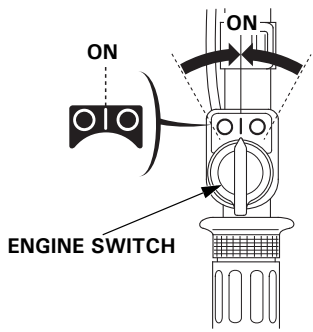


2. In cold weather and when the engine is cold, move the choke lever to the CLOSE position.

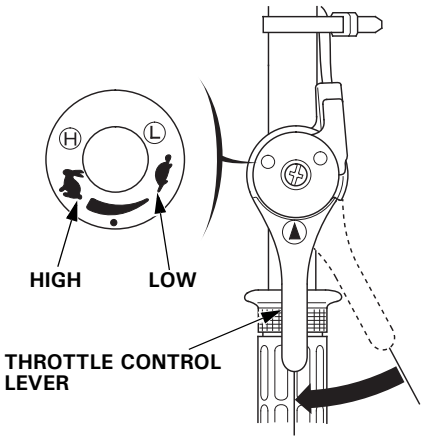
   NOTE:
   Do not use the choke if the engine is warm or the air temperature is high.



3. Set the engine switch to the ''ON'' position.

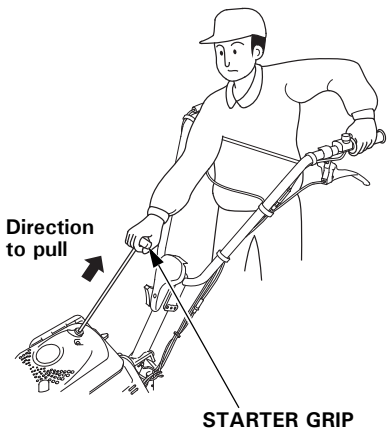


4. Move the throttle control lever slightly to the left.

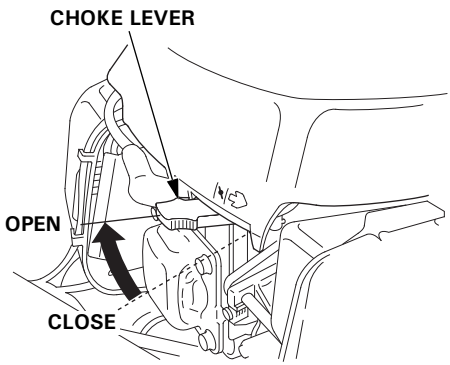


5. Pull the starter grip lightly until resistance is felt, then return the starter grip once.
   Hold the handlebar with your left hand and pull the starter grip briskly in the direction of the arrow as shown.

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



6. Let the engine warm up for several minutes. If the choke has been moved to the CLOSE position, move it gradually to the OPEN position as the engine warms up.



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 1,500 meters (5,000 feet), 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.

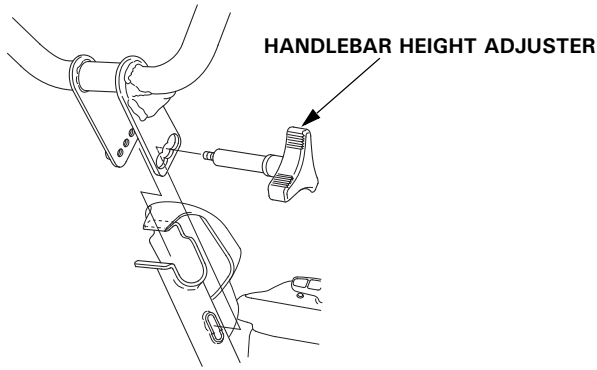
Even with carburetor modification, engine horsepower will decrease about 3.5% for each 300-meter (1,000-foot) increase in altitude. The effect of altitude on horsepower will be greater than this if no carburetor modification is made.

CAUTION:
When the carburetor has been modified for high altitude operation, the air-fuel mixture will be too lean for low altitude use. Operation at altitudes below 1,500 meters (5,000 feet) 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.

6. TILLER OPERATION

Adjusting the handle position

The handle position should be adjusted to suit the stature of the operator and work condition.
To adjust the handlebar height, loosen the handlebar height adjuster, select the appropriate holes and tighten it.

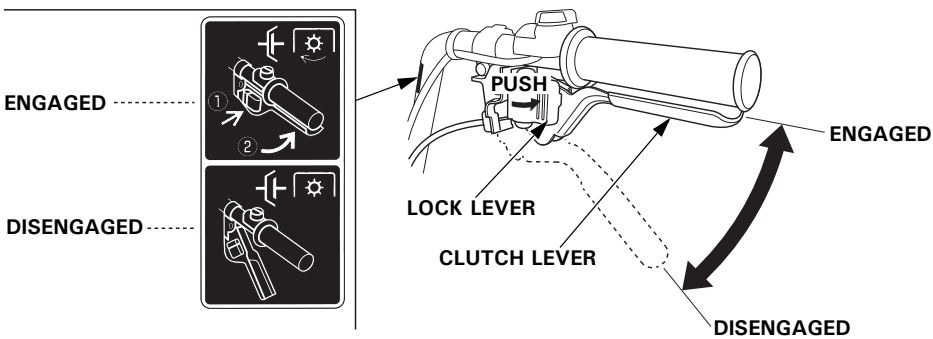


Clutch operation

The clutch engages and disengages the power from the engine to the transmission.

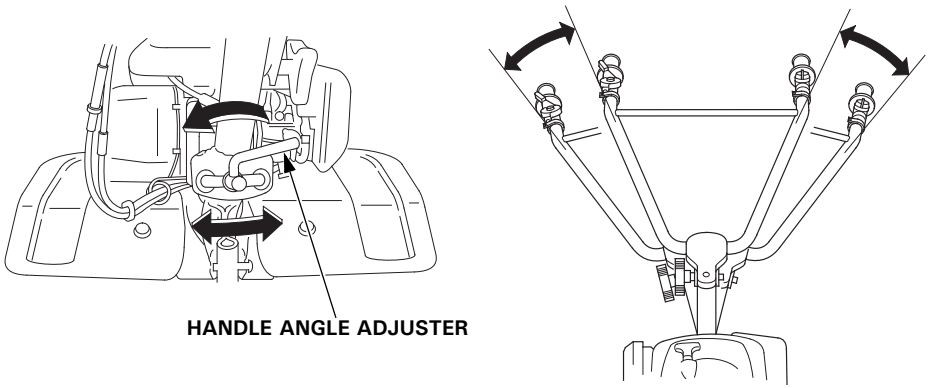
Engage:
1. Push and hold the lock lever.
2. Squeeze the clutch lever.
3. The clutch is engaged, release the lock lever.

Disengage:
Release the clutch lever.



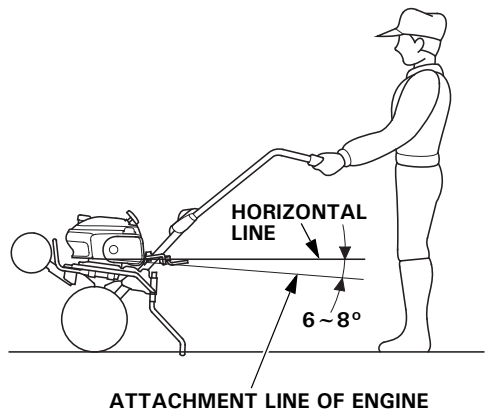
Handle angle adjustment (GET2 type)

The handle can be adjusted at three different angles in either direction. To adjust, loosen the handle angle adjuster and turn the handle column to the required position. After adjustment, tighten the adjuster securely.



Normal operating angle

Lower the handle slightly so the front of the machine is raised about 6~8°.



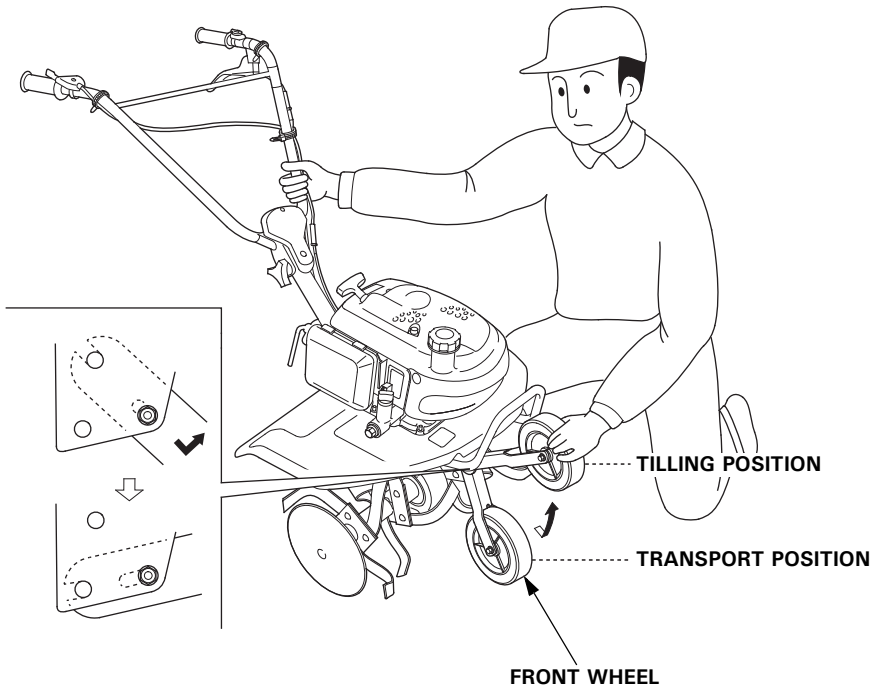
To get the maximum advantage from the tiller, try to hold the machine at the angle shown while you are tilling the ground:

Front wheel

After getting to the tilling site, move the front wheel to the raised position before tilling. Always stop the engine before lowering or raising the wheel.

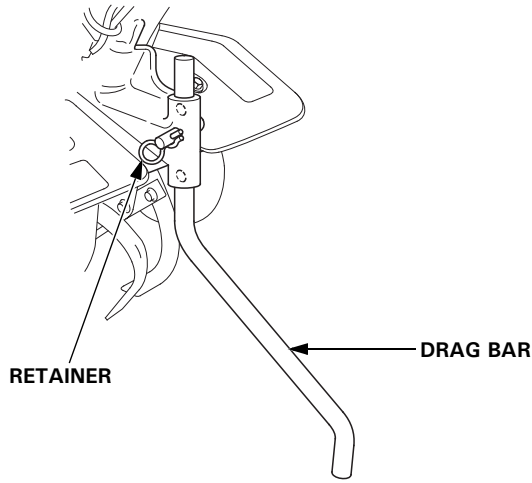
To raise or lower the wheel, pull out the wheel assembly, move the wheel, then release the wheel assembly.

NOTE:
Hold the handlebar with your right hand and pull out the edge of front wheel with your left hand.



Tilling depth adjustment

Tilling depth can be adjusted by removing the retainer and sliding the drag bar up or down as necessary.



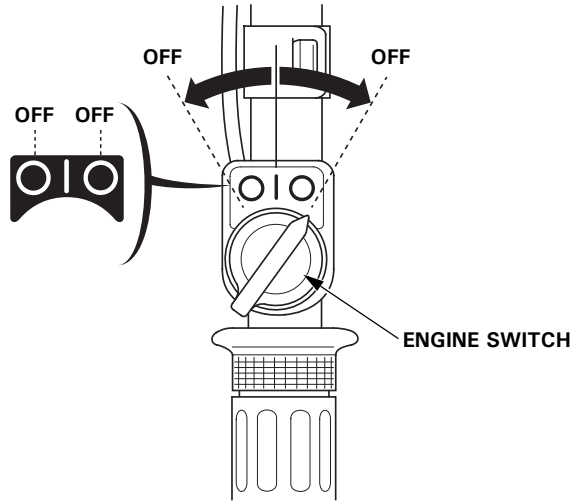
CAUTION:

- **Do not use the tiller with a rotor whose diameter is in excess of 280 mm.**
- **Operating the tiller on grades could cause the tiller to tip over.**
- **Allowing any one to operate this tiller without proper instruction may result in injury.**
- **Wear sturdy, full coverage footgear. Operating this tiller with bare feet, or with open toe shoes or sandals increases your risk of injury.**
- **Do not use the tiller in the night.**
- **When the rotor is clogged with mud, pebbles etc., immediately stop the engine and clean the rotor in a safe place. Be sure to wear heavy gloves when cleaning the rotor.**
  To prevent damage, check the tiller for any signs of damage or other faults each time the tiller is used after it has been operated last.

7. STOPPING THE ENGINE

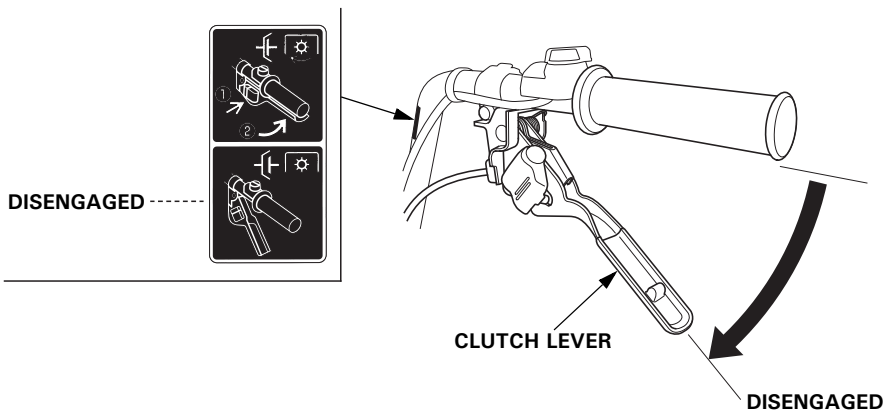
In an emergency:

- Turn the engine switch OFF.

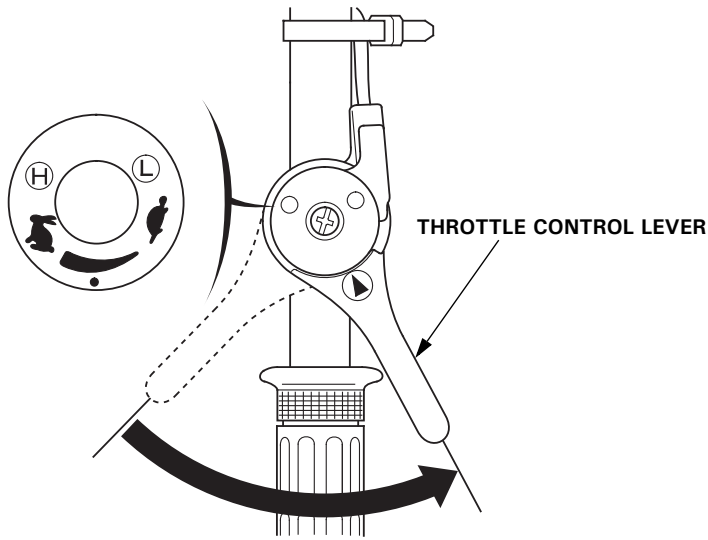


In normal use:

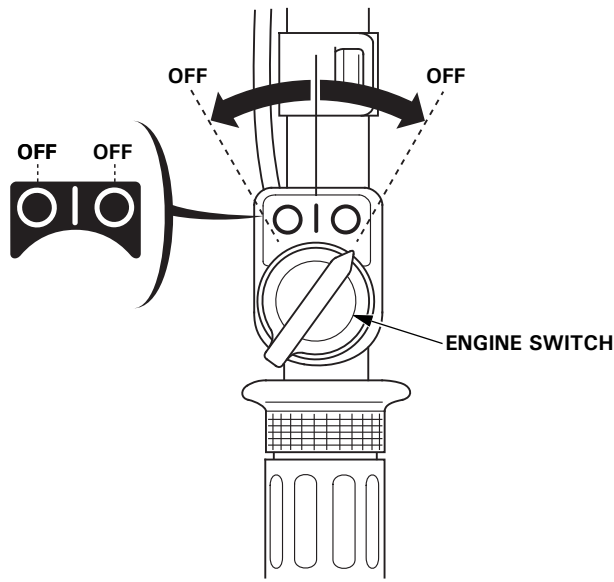
1. Release the clutch lever to the DISENGAGED position.



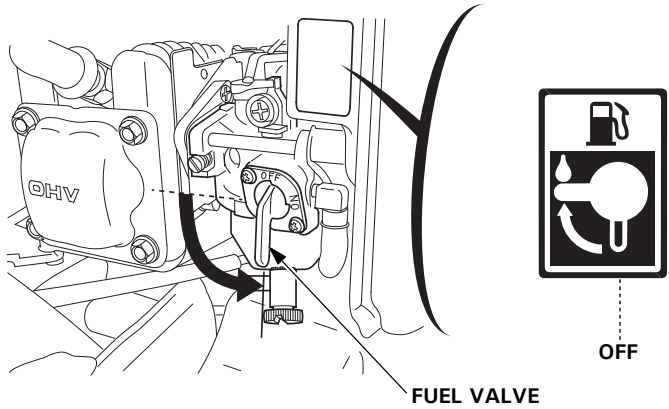
2. Move the throttle control lever fully to the right.



3. Turn the engine switch OFF.



4. Turn the fuel valve to the OFF position.



The purpose of the maintenance schedule is to keep the tiller in the best operating condition. Inspect or service as scheduled in the table below.

⚠WARNING

Shut off the engine before performing any maintenance. Exhaust contains poisonous carbon monoxide gas; Exposures cause loss of consciousness and may lead to death. If the engine must be run, make sure the area is well ventilated.

CAUTION:

Use only genuine Honda parts or their equivalent for maintenance or repair. Replacement parts which are not of equivalent quality may damage the tiller.

Maintenance schedule

REGULAR SERVICE PERIOD (2) Perform at every indicated month or operating hour interval, whichever comes first. / ITEM		After storage	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		o					14
	Change	o		o		o (4)		32
Air cleaner	Check		o					16
	Clean				o (1)			33
	Replace						o	33
Tiller outside	Check		o					13
Clutch lever function	Check		o					19
Engine operation	Check		o					13
Wiring and cables	Check		o					13
Bolts and nuts tightens	Check-tightness		o					13
Transmission oil	Check	o						15
Spark plug	Check-adjust					o		34
	Replace						o	34
Clutch cable	Check-adjust			o		o		38
Throttle cable	Check-adjust						o	37
Idle speed	Check-adjust						o (3)	—
Clutch shoe	Check						o (3)	—
Fuel tank and filter	Clean	o (3)				o (3)		—
Valve clearance	Check-adjust						o (3)	—
Combustion chamber	Clean	After every 300 hrs. (3)						—
Fuel tube	Check	Every 2 years (Replace if necessary) (3)						—

(1) Service every 10 operating hours or every day when used in dusty areas.

(2) Log hours of operation to determine proper maintenance intervals.

(3) These items should be serviced by your servicing dealer.

(4) Change engine oil every 50 hours when used under heavy load or in high ambient temperatures.

Changing the engine oil

Make sure the area around the drain plug and the oil filler cap are clean.

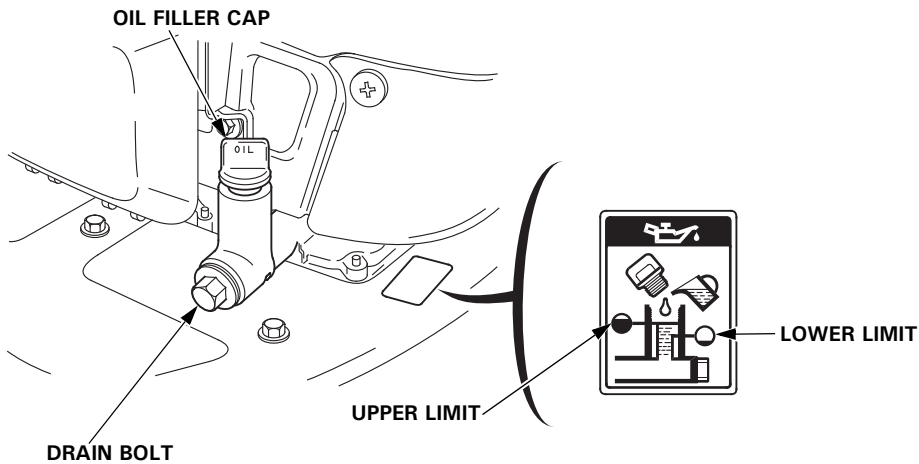
1. Remove the oil filler cap and the drain bolt to drain.
2. After reinstalling the drain bolt, refill the crankcase with the recommended oil (see page 14).

   • **TORQUE:** 54 N·m (5.5 kgf·m, 40 lbf·ft)

3. Check if the oil level is up to the level gauge.

   Oil capacity: 0.30 L (0.32 US qt, 0.26 Imp qt)

NOTE:
Draining the oil while the engine is still warm will make draining easily.



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

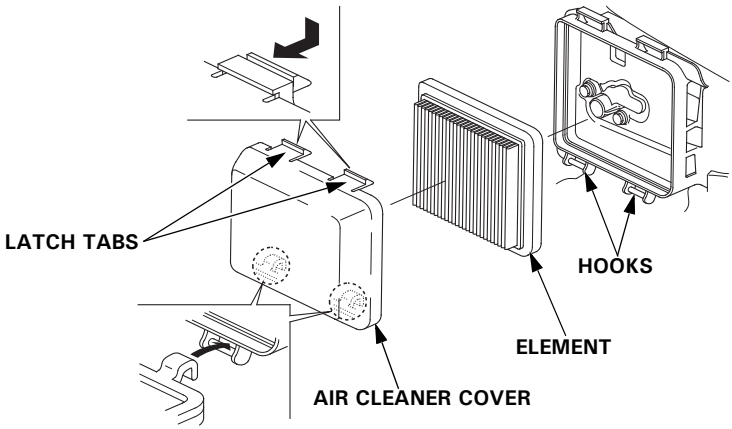
NOTE:
Please dispose of used motor oil in a manner that is compatible with the environment. We suggest you take it in a sealed container to your local service station for reclamation. Do not throw it in the trash or pour it on the ground.

Servicing the air cleaner

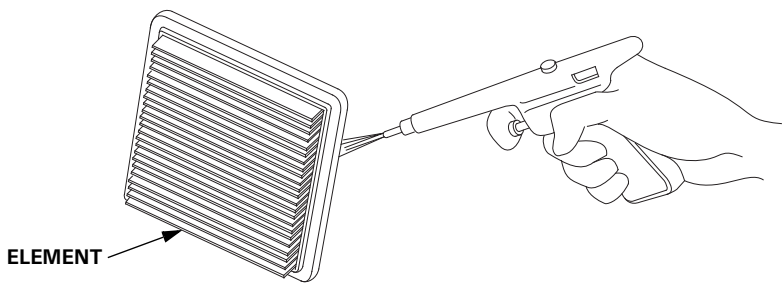
A dirty air cleaner will restrict air flow to the carburetor. To prevent carburetor malfunction, service the air cleaner regularly. Service more frequently when operating the engine in extremely dusty areas.

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

1. Press the latch tabs on the fuel tank side of the air cleaner cover and remove the air cleaner cover.



2. Remove the element. Carefully check the element for holes or tears and replace it if damaged.
3. Tap the element lightly several times on a hard surface to remove excess dirt, or blow compressed air through the filter from the inside out. Never try to brush the dirt off; brushing will force dirt into the fibers. Replace the element if it is excessively dirt.



4. Install the element and the air cleaner cover.

Spark plug service

Recommended spark plug: CR4HSB (NGK)
U14FSR-UB (DENSO)

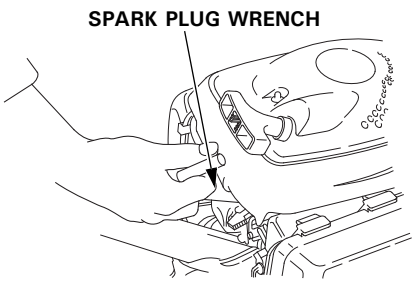
To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.

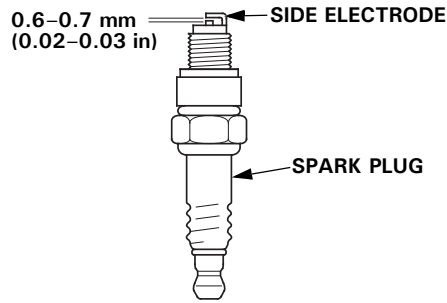
1. Remove the spark plug cap.
   Use the spark plug wrench to remove the spark plug.

⚠WARNING

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

2. Visually inspect the spark plug. Discard it if the insulator is cracked or chipped. Clean the spark plug with a wire brush if it is to be reused.
3. Measure the plug gap with a feeler gauge.
   Correct as necessary by bending the side electrode.
   The gap should be: 0.6–0.7 mm (0.02–0.03 in)





4. Check that the spark plug washer is in good condition and thread the spark plug in by hand to prevent cross-threading.
5. After seating it by hand, tighten a new spark plug 1/2 turn with the wrench to compress the washer. If you are reusing a plug, it should only take 1/8–1/4 turn.

   • **TORQUE:** 11.8 N·m (1.2 kgf·m, 8.7 lbf·ft)

CAUTION:
The spark plug must be securely tightened. An improperly tightened plug can become very hot and possibly damage the engine.
Never use a spark plug with an improper heat range.

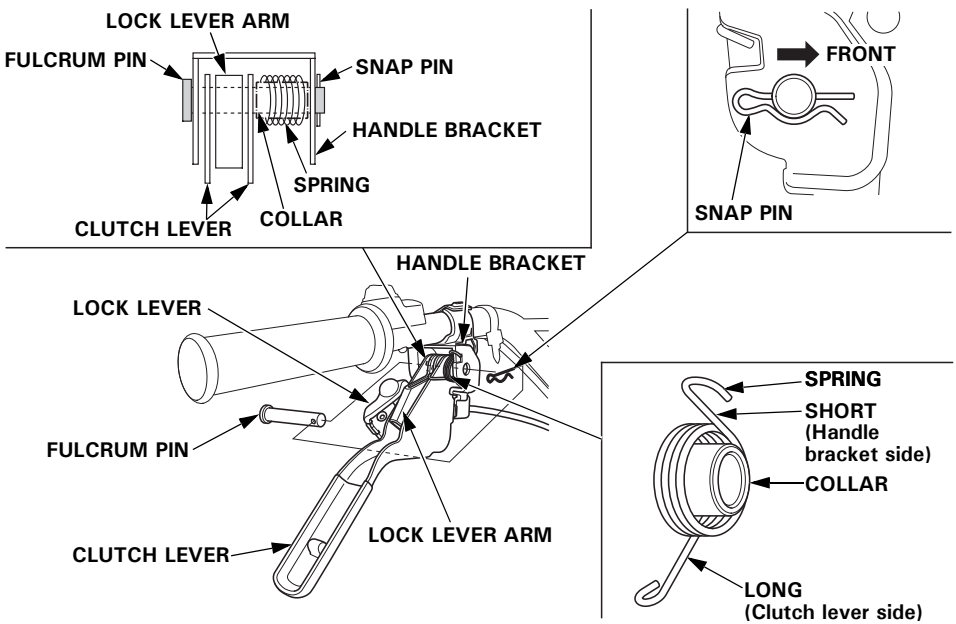
Clutch lever cleaning

If the lock lever and clutch lever do not operate smoothly, or the clutch engages by squeezing the clutch lever without pushing the lock lever, disassemble and clean the clutch lever.

NOTE:
Be aware of the spring and collar coming off when you disassemble the clutch lever. The spring and collar are located in between the right side of the clutch lever and the handle bracket.

1. Pull off the snap pin from the lever fulcrum pin.
2. By holding the clutch lever, spring and collar, pull out the lever fulcrum pin.
   Detach the clutch lever, spring and collar.
3. Remove any dirt or foreign objects.
   Wipe off and clean the fulcrum of the clutch lever and lock lever arm.

NOTE:
Do not apply any oil or cleaner liquid to the clutch lever, lock lever and lock lever arm.
Oil or cleaner liquid will attract dirt and foreign objects.



4. Set the collar to the spring, and position them between the right side of the clutch lever and the handle bracket (see page 35).
   With the spring and collar set in this position, slide in the lever fulcrum pin.
5. Set the snap pin in the direction shown in the illustration (see page 35).
6. Check the lock lever and clutch lever for smooth operation.
   If the lock lever and clutch lever do not operate smoothly, or the clutch engages by squeezing the clutch lever without pushing the lock lever, take the tiller to your servicing dealer.

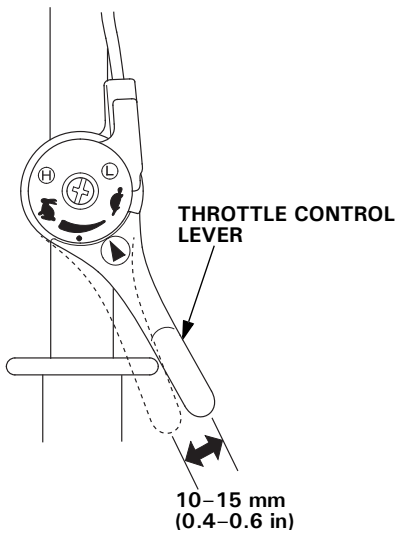
Throttle cable adjustment

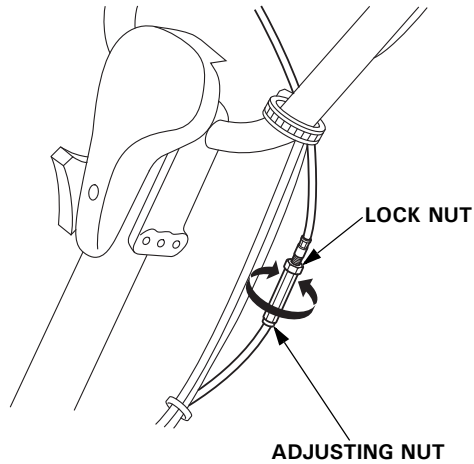
Measure the free play at the lever tip.

Free play: 10–15 mm (0.4–0.6 in)

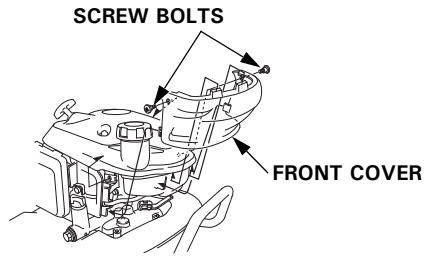
If the free play is incorrect, loosen the lock nut and turn the adjusting nut in or out as required.

After adjusting the free play, tighten the lock nut firmly.



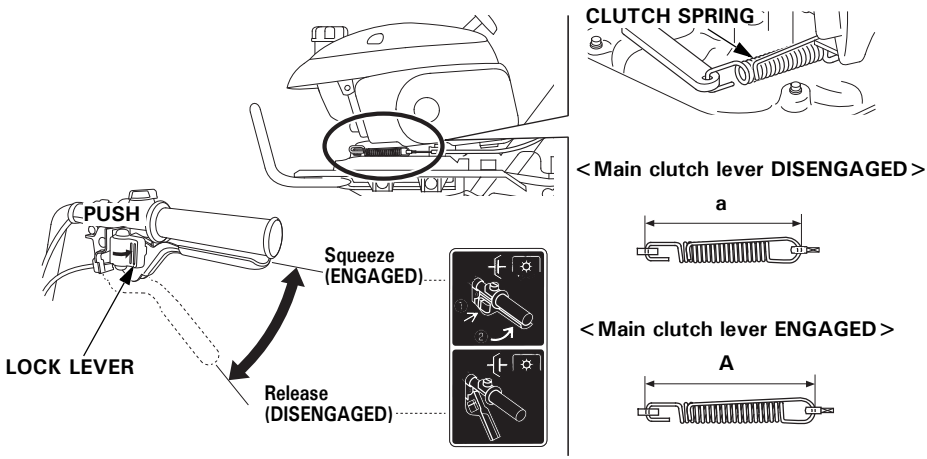


Clutch cable adjustment

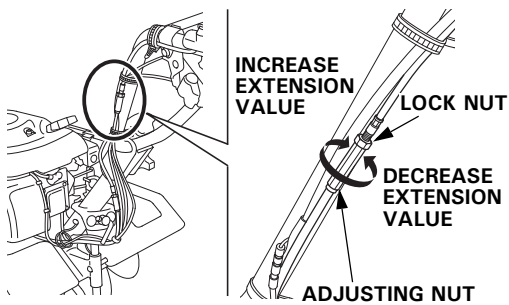


1. Remove the two screw bolts from front cover, and remove the front cover.
2. Set the handlebar height in the center position (see page 24).
3. Push and hold the lock lever. Measure the spring lengths when the clutch lever is operated to the DISENGAGED and ENGAGED positions.
4. With the clutch lever ENGAGED, adjust so that the extension value of the clutch spring is as measured below.

   Extension value:
   A (ENGAGED) - a (DISENGAGED) = 2 ± 0.5 mm (0.08 ± 0.02 in)



5. Loosen the lock nut and turn the adjusting nut to obtain the correct extension value of the clutch spring. After adjustment, tighten the lock nut securely.
6. Reinstall the front cover.



Transporting

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

To prevent fuel spillage, drain the fuel when transporting the tiller, turn the engine switch to the OFF position, and keep the tiller level (see page 40).

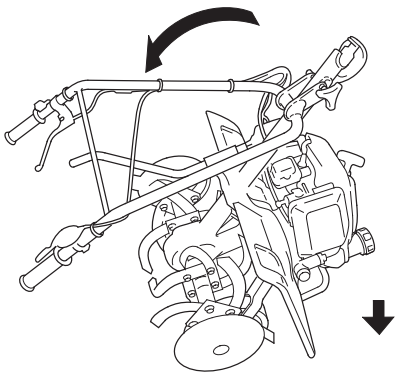
Take care not to drop or strike the tiller when transporting.

Loading and unloading

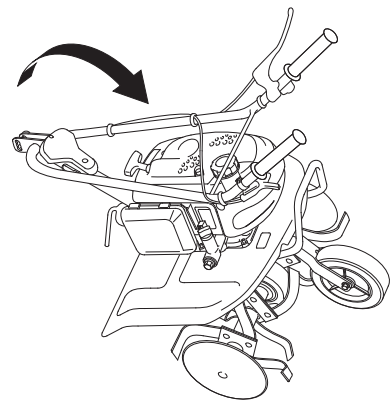
If a suitable loading ramp is not available, two people should lift the tiller on and off the transport vehicle while holding the tiller level.

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.

The handlebar can be folded either front or back so the tiller will take up less space (see page 24).



Fold to the back side.



Fold to the front side.

Storage

Do not place the tiller with the handlebars on the ground. It will cause the oil entering the cylinder or the fuel spillage.

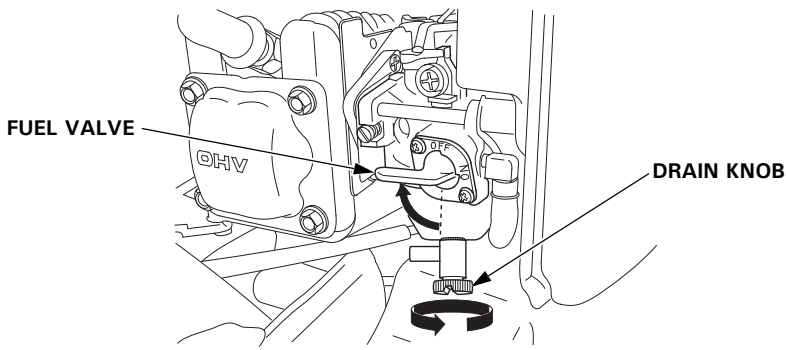
Preparation for storage

To prepare the tiller for extended storage (over 30 days), the following should be accomplished to ensure that the tiller will be ready for use when required.

⚠WARNING

Gasoline is flammable and explosive under certain conditions. Do not smoke or allow flames or sparks near the equipment while draining fuel.

- Drain the fuel.
  Gasoline which is left in the carburetor for a long time will produce chemical action and adversely affect the carburetor components. Completely drain the gasoline into an approved container in the following manner.
  a. Turn the fuel valve to the ''ON'' position to drain the gasoline in the fuel tank.
  b. By loosening the drain knob, drain the carburetor.
  c. Retighten the carburetor drain knob.
- Close valve.
  Pull the starter grip until it becomes hard to pull (the piston is coming up on the compression stroke). In this position, both valves will be closed. This will protect valve seats.
- Change engine oil (see page 32).
- Cover tiller and store in a dry, dust-free area.



When the engine will not start:
1. Is there enough fuel?
2. Is the fuel valve on?
3. Is gasoline reaching the carburetor?
   To check, loosen the drain knob with the fuel valve on. Fuel should flow out freely. Retighten drain knob.

⚠WARNING

Gasoline is flammable and explosive under certain conditions. Do not smoke or allow flames or sparks near the equipment while draining fuel.

4. Is the engine switch on?
5. Is the spark plug in good condition?
   Remove and inspect the spark plug. Clean, readjust gap and dry the spark plug. Replace it if necessary.
6. If the engine still does not start, take the tiller to your servicing dealer.

11. SPECIFICATIONS

Model	F220 K1
Description Code	FAAJ

Dimensions and weight

Type	DET2	GET2
Overall length	1,280 mm (50.4 in)	
Overall height	1,035 mm (40.7 in)	
Overall width	615 mm (24.2 in)	
Dry mass [weight]	30 kg (66 lbs)	31 kg (68 lbs)

Engine

Model	GXV57T
Type	4 stroke, OHV, single cylinder, forced air cooled
Displacement	57.3 cm^3 (3.50 cu-in)
Bore × Stroke	45.0 × 36.0 mm (1.77 × 1.42 in)
Engine net power (in accordance with SAE J1349*)	1.5 kW (2.0 PS)/4,800 rpm
Spark plug	CR4HSB (NGK) U14FSR-UB (DENSO)
Ignition system	Transistor magneto ignition
Fuel tank capacity [with engine in level position]	0.70 L (0.18 US gal, 0.15 Imp gal)
Engine oil capacity	0.30 L (0.32 US qt, 0.26 Imp qt)
Clutch	Shoe clutch
Transmission oil capacity	0.90 L (0.95 US qt, 0.79 Imp qt)

* The power rating of the engine indicated in this document is the net power output tested on a production engine for the engine model and measured in accordance with SAE J1349 at 4,800 rpm (Engine Net Power). Mass production engines may vary from this value.
  Actual power output for the engine installed in the final machine will vary depending on numerous factors, including the operating speed of the engine in application, environmental conditions, maintenance, and other variables.

Noise and Vibration

Sound pressure level at operator's ears (EN ISO 11200: 1995)	75 dB (A)
Uncertainty	2 dB (A)
Measured sound power level (2000/14/EC, 2005/88/EC)	90 dB (A)
Uncertainty	2 dB (A)
Guaranteed sound power level (2000/14/EC, 2005/88/EC)	92 dB (A)
Vibration level at hand arm (EN1033: 1995)	6.4 m/s^2
Uncertainty (EN12096: 1997 Annex D)	2.6 m/s^2

Tune-up

ITEM	SPECIFICATION	MAINTENANCE
Spark plug gap	0.6–0.7 mm (0.02–0.03 in)	Refer to page: 34
Valve clearance	IN: 0.06–0.10 mm EX: 0.09–0.13 mm	See your authorized Honda dealer
Other specification	No other adjustments needed.	

NOTE: Specifications are subject to change without notice.

MEMO