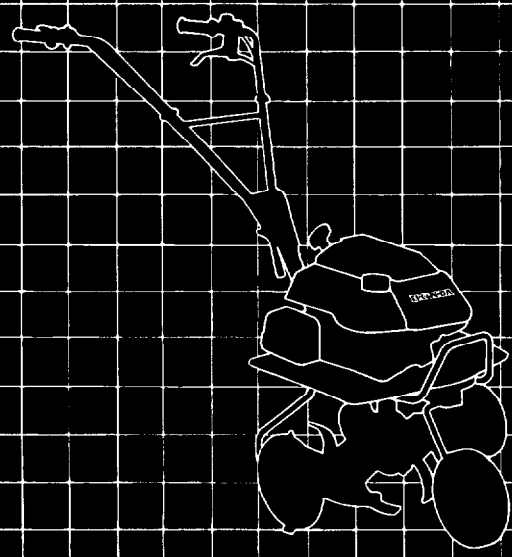
HONDA
Power
Equipment

Owner's Manual
TILLER
F210



Thank you for purchasing a Honda tiller.

This manual covers operation and maintenance of the F210 tiller. All information in this publication is based on the latest product information available at the time of approval for 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.

READ THIS OWNER'S MANUAL CAREFULLY. Pay special attention to these symbols and any instructions that follow:

⚠DANGER —**Indicates serious injury or death WILL result if instructions are not followed.**

⚠WARNING —**Indicates a strong possibility that serious injury or death could result if instructions are not followed.**

⚠CAUTION —**Indicates a possibility that minor injury can result if instructions are not followed.**

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

NOTE: Gives helpful information.

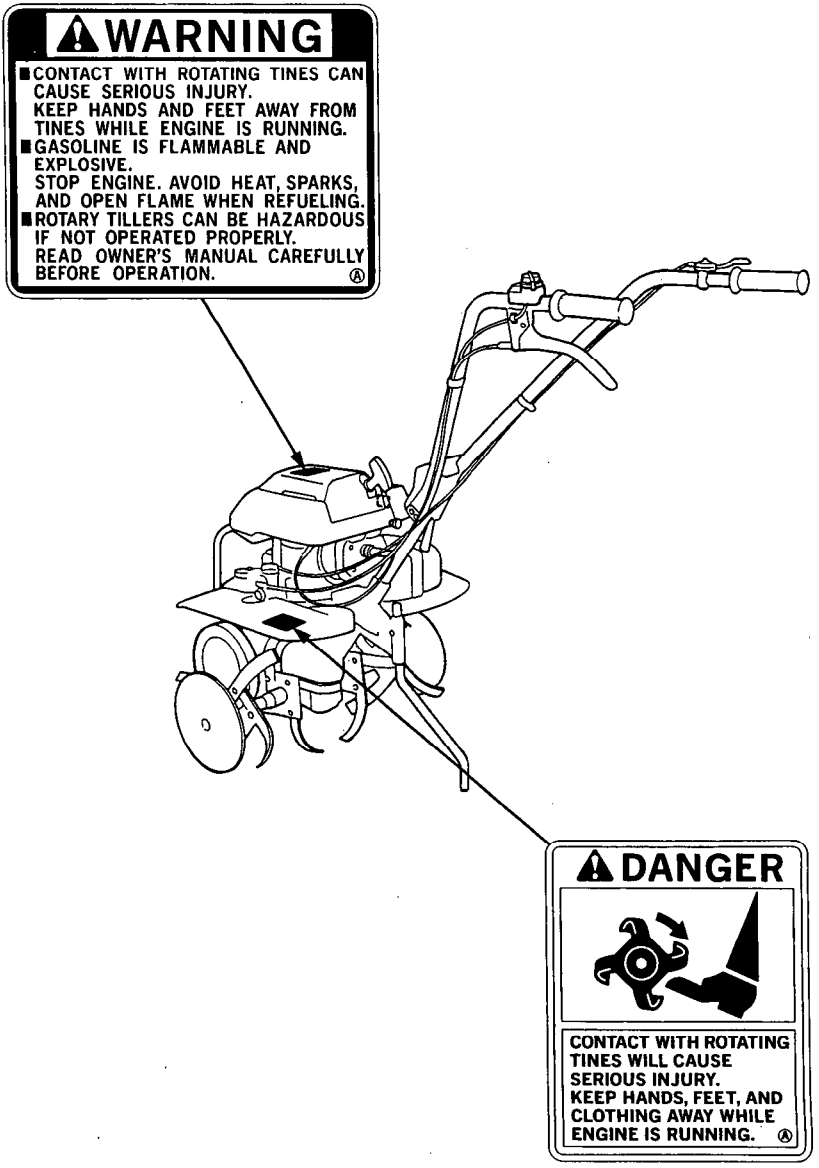
Honda tillers are designed to give safe and dependable service if operated according to instructions. Operating this tiller requires special effort on your part to ensure your safety and the safety of others.

⚠WARNING Using this product for a purpose not intended may cause injury or property damage. Read and understand this Owner's Manual before operating this tiller.

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

CONTENTS

Read all safety instructions before operating.



⚠ WARNING

To ensure safe operation—

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

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 (Fan cover, recoil starter cover) are in place.
- 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.
- 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.

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.

Rotating Tines Hazard

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.

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 continuing use.
- Pieces thrown from worn or damaged tines can cause serious injury. Always inspect the tines before using the tiller.

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.

- Refuel in a well-ventilated area with the engine stopped.
- 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 storting the tiller indoors.

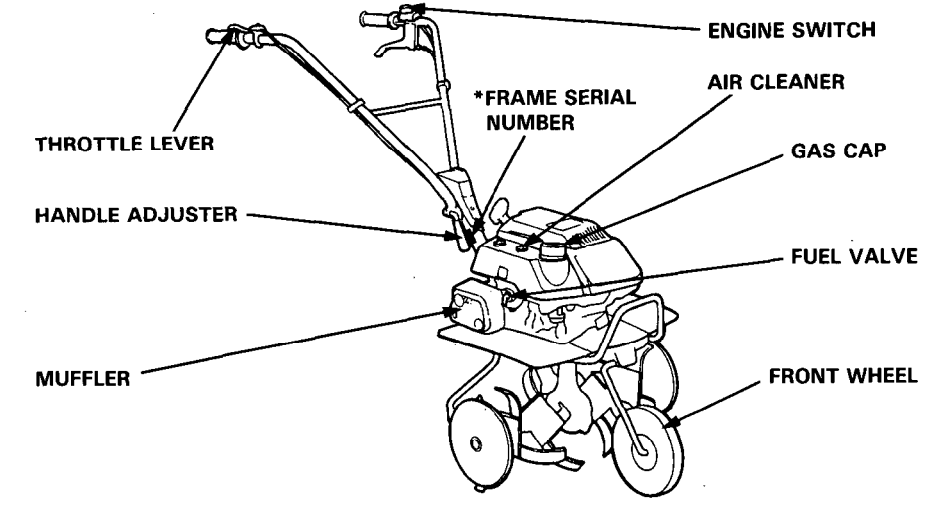
Carbon Monoxide Poisoning Hazard

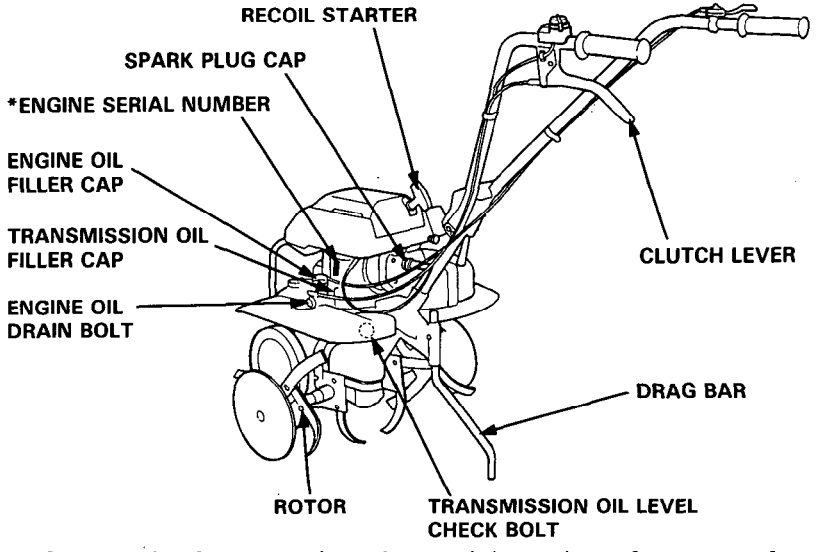
Exhaust contains poisonous carbon monoxide, a colorless and odorless gas. Breathing exhaust can cause loss of consciousness and may lead to death.

- 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.

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 20°.





* Record the frame and engine serial numbers for your reference. Refer to the serial numbers when ordering parts, and when making technical or warranty inquiries (see page 29).

Frame serial number: _____

Engine serial number: _____

3. PRE-OPERATION CHECK

ENGINE OIL

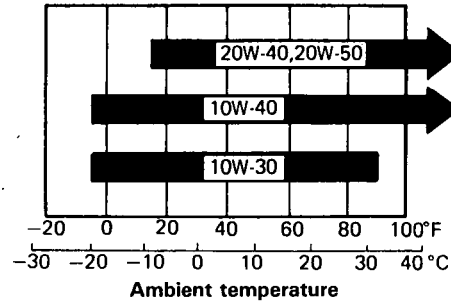
IMPORTANT NOTICE **Running the engine with low oil level will cause serious engine damage.**

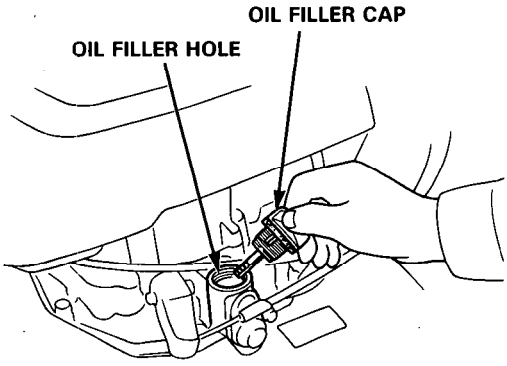
1. Remove the oil filler cap and wipe the dipstick clean.
2. Insert the dipstick into the oil filler hole, but do not screw it in.
3. If the level is low, add enough recommended oil to bring it to the upper level mark on the dipstick.

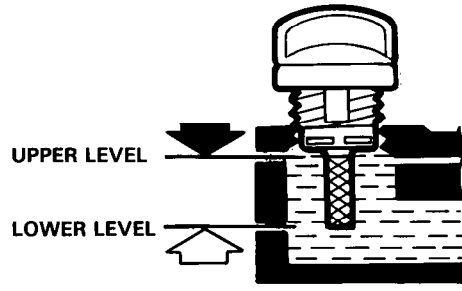
Use high-detergent, premium quality 4-stroke engine oil, certified to meet or exceed U.S. automobile manufacturer's requirements for API Service Classification SG, SF/CC, CD.

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

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







GASOLINE

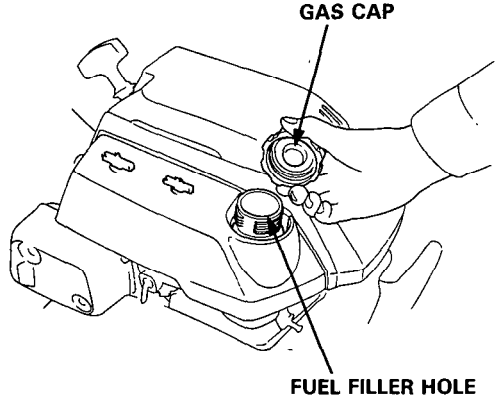
Remove the gas cap and check the fuel level. Refill the tank if the level is low.
Fuel tank capacity: 0.9 ℓ (0.95 US qt)

⚠WARNING

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

- **Refuel in a well ventilated area with the engine stopped. Keep flames and sparks away, and do not smoke in the area.**
- **Gasoline vapors or spilled gasoline may ignite.**
- **Refuel carefully to avoid spilling gasoline. Avoid overfilling the fuel tank (there should be no gas in the filler neck). After refueling, tighten the gas cap securely. If any gasoline was spilled, make sure the area is dry before starting the engine.**
- **After use, part the tiller on a level surface. Be sure the storage area is well ventilated, do not allow flames or sparks in the storage area.**

After refueling, be sure to tighten the GAS cap firmly.



Gasoline Recommendation

Pump octane rating: 86 or higher

We recommend unleaded gasoline because it produces fewer engine and spark plug deposits and extends the exhaust system life.

If "spark knock" (metallic rapping noise) or persistent "pinging" occurs at a steady engine speed under normal load, change brands of gasoline. If spark knock or pinging persists, see an authorized Honda tiller dealer.

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

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

Occasionally you may hear light spark knock while operating under heavy loads. This is no cause for concern. It simply means your engine is operating efficiently.

Never use stale or contaminated gasoline or an oil/gasoline mixture. Avoid getting dirt or water in the gas tank.

GASOLINES CONTAINING ALCOHOL

If you decide to use a gasoline containing alcohol (gasohol), be sure its octane rating is at least as high as that recommended by Honda (see Gasoline Recommendation on page 9). There are two types of "gasohol": one containing ethanol, and the other containing methanol.

Never use gasoline containing more than 5% methanol, even if it has cosolvents and corrosion inhibitors.

IMPORTANT NOTICE **Using gasohol that contains more than 10% ethanol, or gasoline containing methanol (methyl or wood alcohol) that does not also contain cosolvents and corrosion inhibitors for methanol, can cause serious fuel system damage and poor engine performance.**

Honda cannot endorse the use of gasoline containing methanol since evidence of its suitability is as yet incomplete.

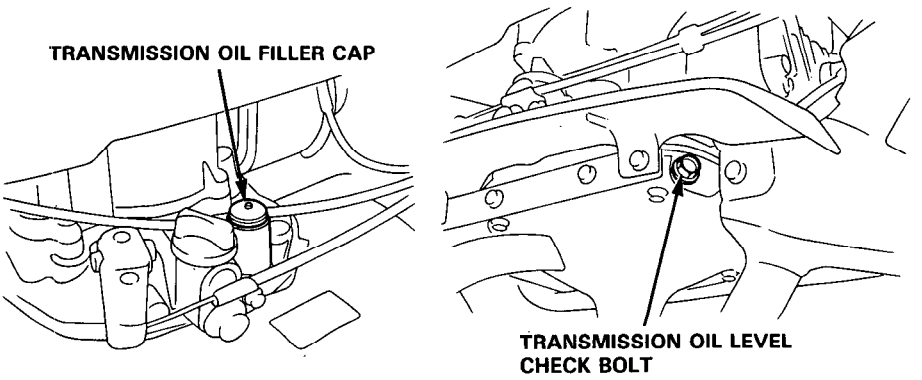
NOTE: Fuel system damage or engine performance problems resulting from the use of gasoline that contains alcohol is not covered under the warranty.

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.

NOTE: If you notice any undesirable operating symptoms while using a gasoline that contains alcohol, or one that you think contains alcohol, switch to a gasoline that you know does not contain alcohol.

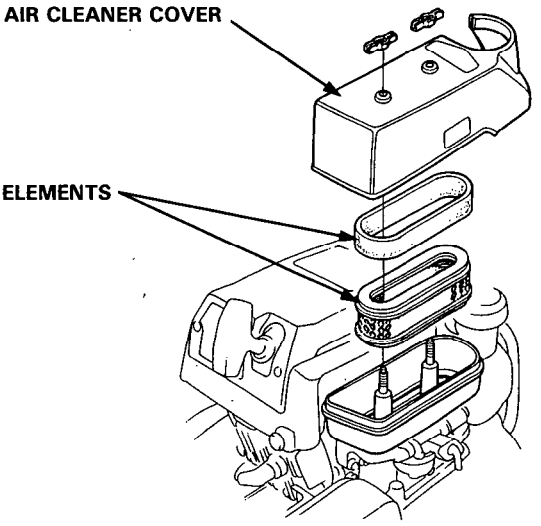
- **Transmission gear oil**

Place the tiller on a level surface and remove the transmission oil filler cap. The oil should be level with the lower edge of the oil filler hole. Add recommended engine oil if the level is low (see page 8).



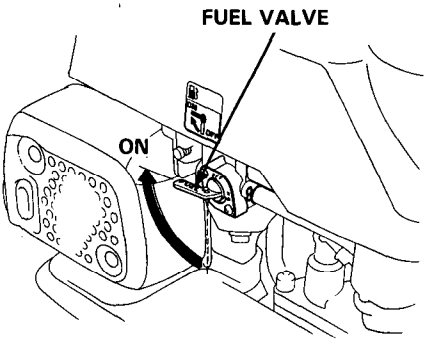
- **Air cleaner**

Check cleaner for dirt or obstruction of elements (see page 21).



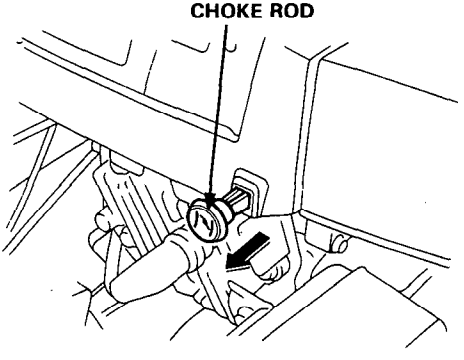
⚠CAUTION Be sure the clutch is disengaged, to prevent immediate rotation of the tines, which may cause loss of control and possible injury.

1. Turn the fuel valve ON.

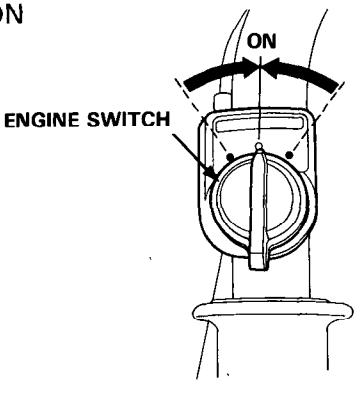


2. Pull the choke rod out.

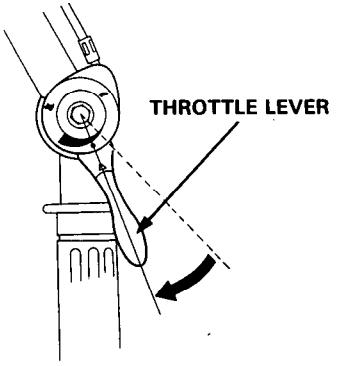
   NOTE: Do not use the choke if the engine is warm or the air temperature is high.



3. Turn the engine switch to the ON position.

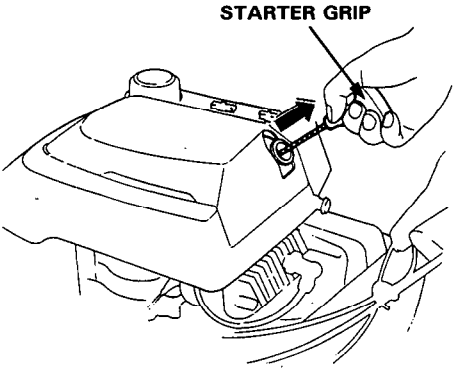


4. Move the throttle lever slightly to the left.

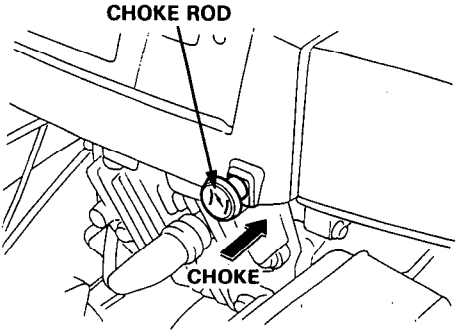


5. Pull the starter grip lightly until resistance is felt, then pull briskly.

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



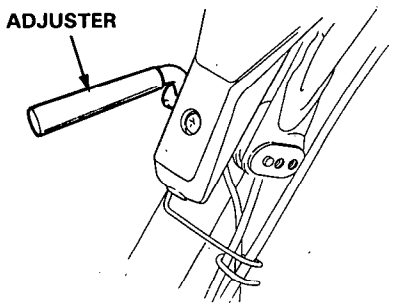
6. Push the choke rod in as the engine warms up.



1. Handlebar height adjustment

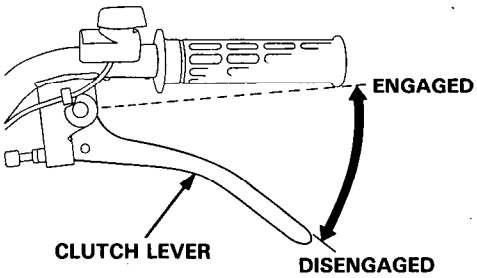
IMPORTANT NOTICE **Before adjusting the handlebar, place the tiller on firm level ground to prevent the handle from collapsing accidentally.**

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



2. Clutch

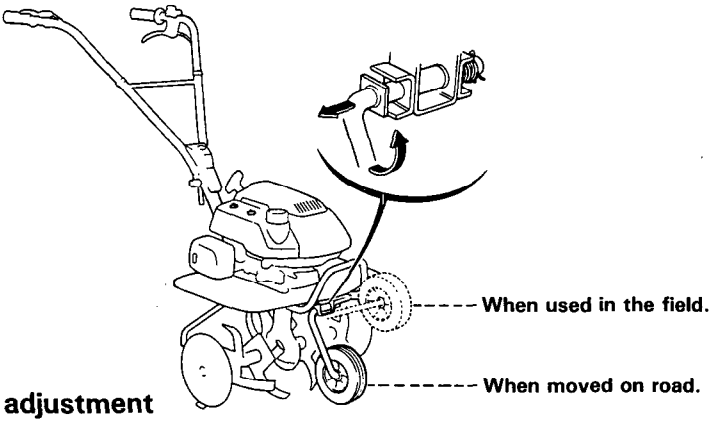
The clutch engages and disengages the power from the engine to the tines. When the clutch lever is squeezed, the clutch is engaged and power is transmitted to the tines. When the lever is released, the clutch is disengaged and power is not transmitted to the tines.



3. Front wheel

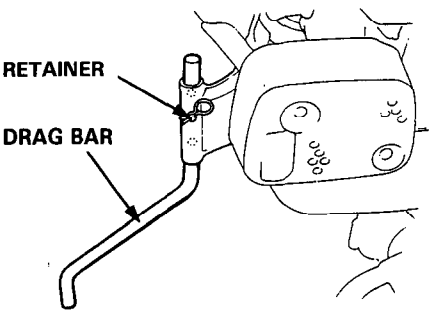
- To move the tiller from place to place when not tilling:
  Working from the right side of the tiller, pull the wheel arm toward you, pivot the wheel down and then release the wheel arm. Be sure that the arm locks in place.

- To prepare for tilling:
  Pull the wheel arm out, pivot the wheel up and release the arm.



4. Tilling depth adjustment

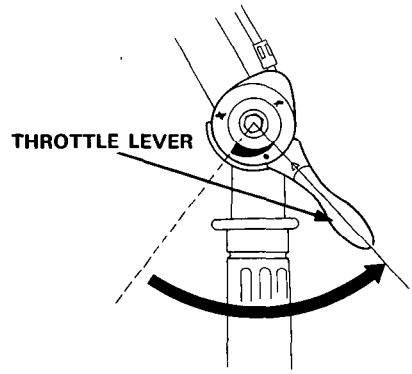
Tilling depth can be adjusted by removing the retainer and sliding the drag bar up or down as necessary.



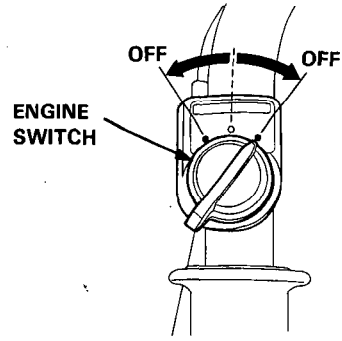
5. Handling tips

- 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 tines 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.
- When turning, push down on the handlebars to bring the tiller's weight to the rear; this will make turning easier.

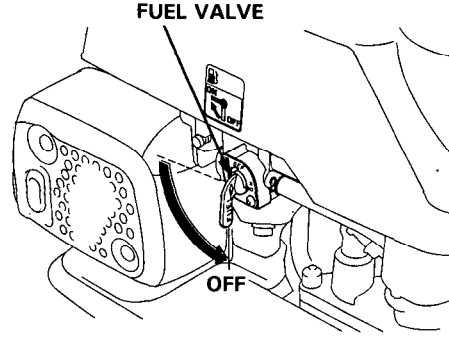
1. Move the throttle lever fully to the right.



2. Turn the engine switch to the OFF position.



3. Turn the fuel valve OFF.



NOTE: In case of an emergency, turn the engine switch to the OFF position immediately.

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 fuel mixture may also foul the spark plugs and cause hard starting.

High altitude performance can be improved by installing a smaller diameter main fuel jet in the carburetor and readjusting the pilot screw. If you always operate the engine at altitudes higher than 6,000 feet above sea level, have an authorized Honda tiller dealer perform this carburetor modification.

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

IMPORTANT NOTICE **Once a carburetor is jetted for high altitude use, operation at lower altitudes without rejetting may result in reduced performance, overheating, and serious engine damage.**

It is especially important to rejet a carburetor when going from a higher altitude to a lower one. At lower altitudes, the air/fuel mixture may become excessively lean.

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. If the engine must be run, make sure the area is well ventilated. The exhaust contains poisonous carbon monoxide gas.

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

Maintenance Schedule

ITEM	REGULAR SERVICE PERIOD Performed at every indicated month or operating hour interval, whichever comes first.	EACH USE	FIRST MONTH OR 20 HRS	EVERY 3 MONTHS OR 50 HRS	EVERY 6 MONTHS OR 100 HRS	EVERY YEAR OR 300 HRS
Engine oil	Check level	O				
	Change		O		O	
Transmission oil	Check level	O				
Air cleaner	Check	O				
	Clean			O(1)		
Clutch cable	Adjust		O		O	
Spark plug	Clean-Readjust				O	
Throttle cable	Adjust					O
Fuel filter	Check	O				
	Clean				O	
Valve clearance	Check-Readjust					O(2)
Combustion chamber and valves	Clean-Relap					O(2)
Fuel tank	Clean					O(2)
Fuel line	Check (Replace if necessary)	Every 2 years (2)				

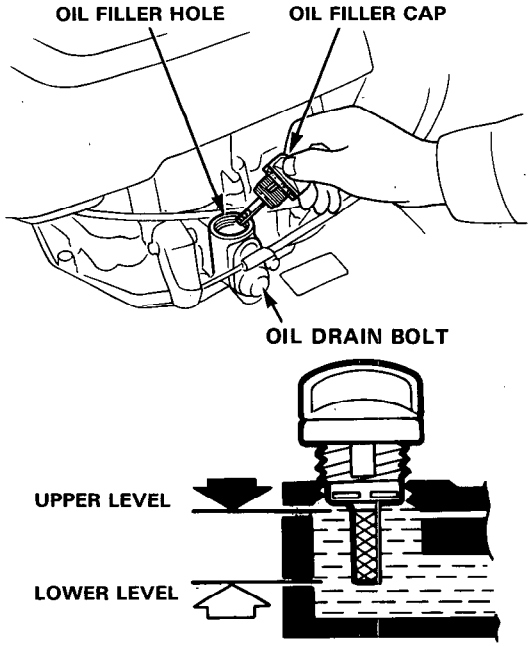
NOTE (1): Service more frequently when used in dusty areas.
(2): These items should be serviced by an authorized Honda dealer, unless the owner has the proper tools and is mechanically proficient. See the Honda Shop Manual.

1. Changing oil

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

1. Remove the oil drain bolt and filler cap to drain.
2. Reinstall the drain bolt and fill the crankcase to the upper level with the recommended oil (P. 8).
3. Reinstall and tighten the filler cap.

OIL CAPACITY: 0.4 ℓ (0.42 US qt)



⚠CAUTION Used motor oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible 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.

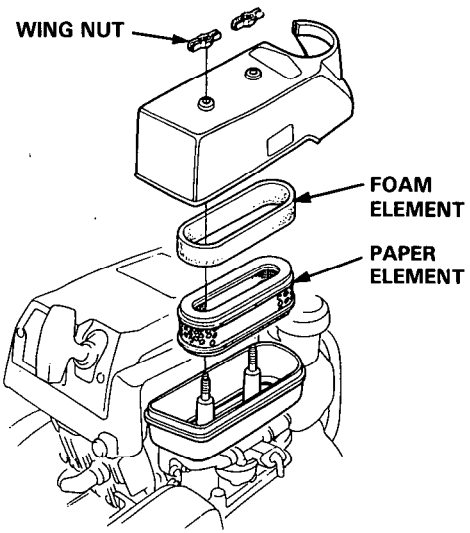
2. Air cleaner service

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

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

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

1. Remove the wing nuts and the air cleaner cover. Remove the elements and separate them. Carefully check both elements for holes or tears and replace if damaged.
2. 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 start-up if too much oil is left in the foam.
3. Paper element: 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.



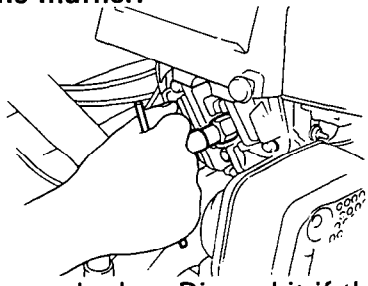
3. Spark plug service

Recommended spark plug: BMR4A (NGK)
W14MR-U (ND)

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

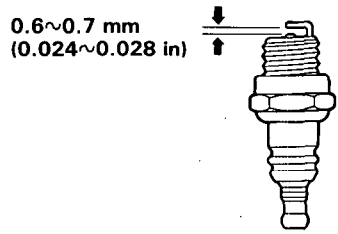
1. Remove the spark plug cap.

⚠CAUTION 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. The gap should be 0.6—0.7 mm (0.024—0.028 in). Correct as necessary by bending the side electrode.



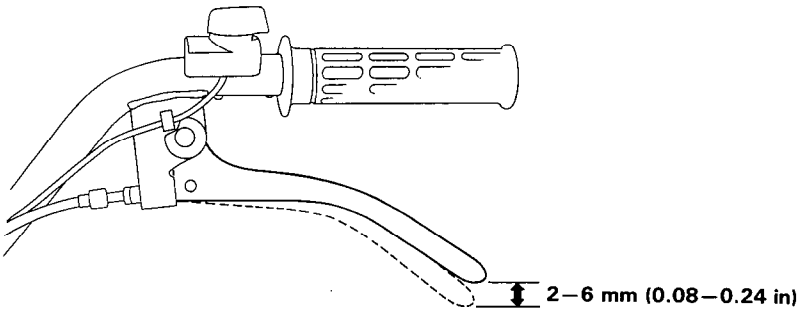
4. Thread the plug in by hand to prevent cross-threading.
5. After seating it by hand, tighten a new spark plug 1/2 turn with the wrench to compress the washer. If you are reusing a plug, it should only take 1/8—1/4 turn.

IMPORTANT NOTICE 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 heart range.

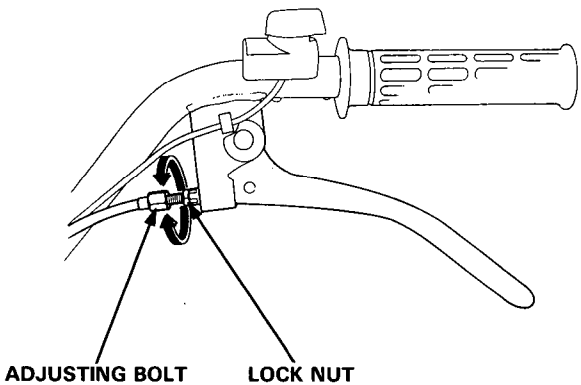
4. Clutch cable adjustment

1. Check the clutch lever free play at the lever tip as illustrated.

   Clutch lever free play: 2—6 mm (0.08—0.24 in)



2. If the clearance is incorrect, loosen the lock nut and turn the adjusting bolt in or out as required.
3. After adjustment, tighten the lock nut securely. Then start the engine and check for proper clutch lever operation.

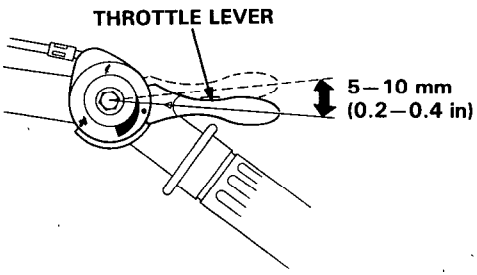


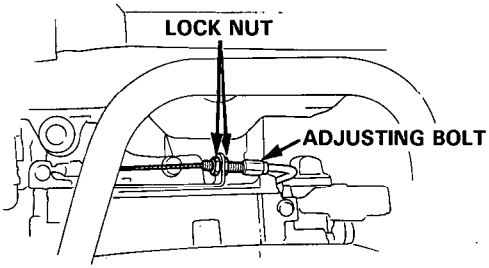
5. Throttle cable adjustment

Measure the free play at the lever tip.

Free play: 5—10 mm (0.2—0.4 in)

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





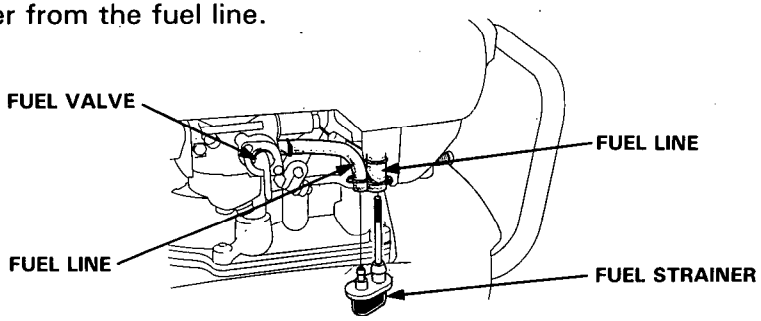
6. Fuel strainer cleaning

Water or sediment accumulated in the fuel strainer can cause loss of power or hard starting. To prevent engine malfunction, service the fuel strainer regularly.

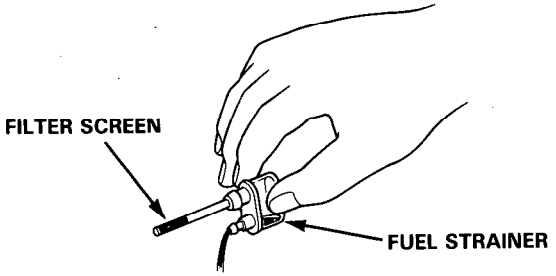
⚠WARNING

- **Gasoline is flammable and explosive under certain conditions. Do not smoke or allow flames or sparks near the equipment while draining fuel.**
- **Always work in a well-ventilated area.**
- **Be sure that any fuel drained from the mower is stored in a safe container.**
- **Wipe up any spilled gasoline at once.**

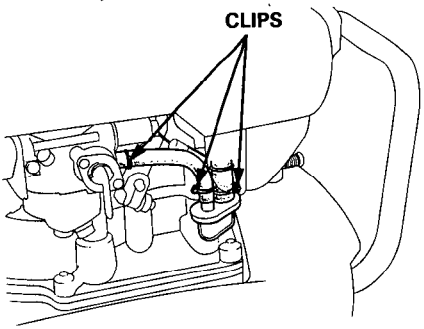
1. Turn the fuel valve to the off position. Disconnect the fuel line from the fuel valve and drain fuel into a safe container.
2. After the fuel tank has been drained thoroughly, remove the fuel strainer from the fuel line.



3. Remove water and sediment from the filter screen and fuel strainer.



4. Reinstall the fuel strainer, reconnect the fuel lines and secure them with the clips.

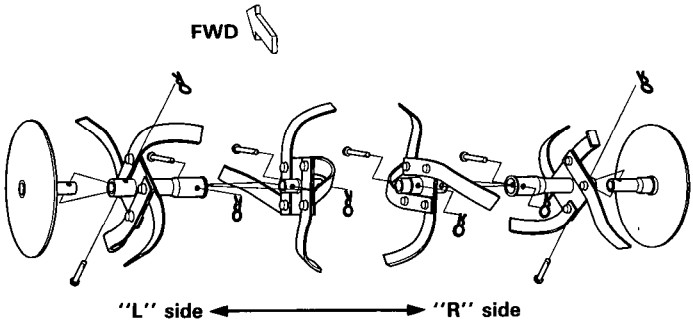


NOTE: Turn the fuel valve ON and check for leaks.

7. Rotor assembly

Install the tine assemblies and side disks as illustrated below.

NOTE: Use of the side disks is optional. They are designed to enhance tilling operations and their use is recommended to:
1) keep the tiller aligned for furrowing (especially on slopes);
2) protect plants and other such objects when tilling around them;
3) prevent hooking the tines in objects such as chainlink and picket fences when tilling close to them.



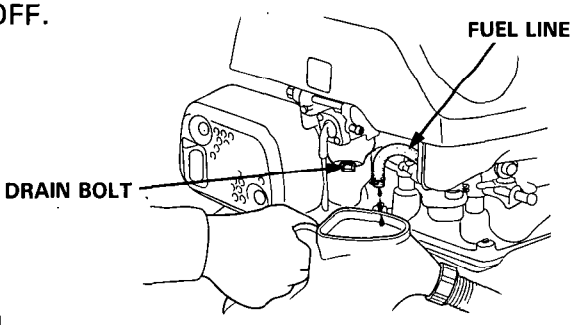
8. TRANSPORTING/STORAGE

Transporting

- Turn off the fuel valve.
- Keep the tiller level. Do not lay it on it side or lean it back on its handlebars.
- Tie the tiller down securely with a suitable strap or rope to prevent it from tipping over.

Preparation for storage (Over 30 days):

- Drain the gasoline from the fuel tank and carburetor:
  Remove the fuel line from the fuel valve, and drain all gasoline from the fuel tank into a safe container.
  Remove the carburetor drain bolt to drain gasoline from the carburetor.
  Reinstall the fuel line and tighten the drain bolt securely. Turn the fuel valve OFF.



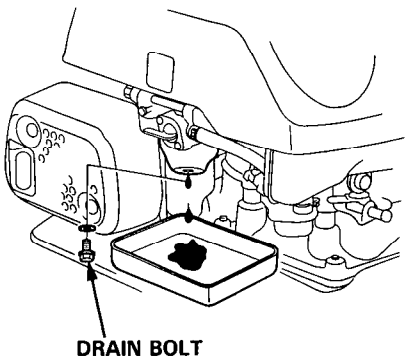
⚠WARNING Gasoline is flammable and explosive under certain conditions. Do not smoke or allow flames or sparks near the equipment while draining fuel.

- Pull the starter handle until resistance is felt. At this point the piston is coming up on its compression stroke and both the intake and the exhaust valves are closed. This will help to protect the engine from internal corrosion during storage.
- Drain the engine oil and refill the engine with fresh oil.
- Clean the tiller and coat areas of possible rust with a light film of oil.
- Coat the cylinder walls with oil. (If anticipated storage will exceed 1 year.) Remove the spark plug and pour two or three tablespoonsful of clean oil into the cylinder.
  Pull the starter handle slowly to distribute the oil over the cylinder walls.
  Leave the piston on its compression stroke to close the valves.
  Reinstall the spark plug.
- Cover the tiller and store on a level surface in a dry, dust-free area.
- Store the tiller in an upright position; otherwise, oil may enter the cylinder.

When the engine will not start;
1. Is there enough fuel?
2. Is the fuel valve on?
3. Is the engine switch ON?
4. Is gasoline reaching the carburetor?

To check, loosen the drain bolt with the fuel valve on. Fuel should flow out freely. Retighten the drain bolt.

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



5. Is there a spark at the spark plug?

   a. Remove the spark plug cap. Clean any dirt from around the spark plug base, then remove the spark plug.
   b. Install the spark plug in the plug cap.
   c. Turn the engine switch on.
   d. Ground the side electrode to any engine ground and pull the recoil starter to see if sparks jump across the gap.
   e. If there is no spark, replace the plug and check again.
      If OK, try to start the engine according to the instructions.

6. If the engine still does not start, take the tiller to an authorized Honda dealer.

10. SPECIFICATIONS

Model	F210
Power products description code	F210
Dimensions and weight Dry Weight	27.5 kg (60.6 lb)
Length	1,250 mm (49.2 in)
Width	585 mm (23.0 in)
Height	960 mm (37.8 in)
Engine Model	GV100K1
Type	Single cylinder, 4-stroke, forced air cooled, side valve, gasoline
Displacement	90 cm^3 (5.5 cu in)
Bore x Stroke	50 x 46 mm (1.97 x 1.81 in)
Ignition System	Transistorized ignition
Spark Plug	BMR4A (NGK), W14MR-U (ND)
Oil Capacity	0.4 ℓ (0.42 US qt)
Fuel Tank Capacity	0.9 ℓ (0.24 US gal)
Clutch	Internal expanding shoe
Transmission oil capacity	0.95 ℓ (1.0 US qt)

NOTE: Specifications are subject to change without notice.

Owner Satisfaction

Your satisfaction and goodwill are important to your dealer and to us. All Honda warranty details are explained in the Distributor's Limited Warranty. Normally, any problems concerning the product will be handled by your dealer's service department. If you have a warranty problem that has not been handled to your satisfaction, we suggest you take the following action:

- Discuss your problem with a member of dealership management. Often complaints can be quickly resolved at that level. If the problem has already been reviewed with the Service Manager, contact the owner of the dealership or the General Manager.

- If your problem still has not been resolved to your satisfaction, contact:

  American Honda Motor Co., Inc.
  P.O. Box 50
  Gardena, California 90247-0805
  Telephone: (213) 604-2400

We will need the following information in order to assist you:

- Your name, address, and telephone number
- Product model and serial number
- Date of Purchase
- Dealer name and address
- Nature of problem

After reviewing all the facts involved, you will be advised of what action can be taken. Please bear in mind that your problem will likely be resolved at the dealership, using the dealer's facilities, equipment, and personnel, so it is very important that your initial contact be with the dealer.

Your purchase of a Honda product is greatly appreciated by both your dealer and American Honda Motor Co., Inc. We want to assist you in every way possible to assure your complete satisfaction with your purchase.

HONDA

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