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Thank you for purchasing a Honda lawn mower.

This manual covers the operation and maintenance of the Honda HRJ216 lawn mowers.

We want to help you get the best results from your mower and to operate it safely. This manual contains the information on how to do that; please read it carefully.

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

If you have a problem or questions concerning the mower, contact your supplying dealer.

We recommend that you read the guarantee policy to fully understand your rights and responsibilities. The guarantee policy is a separate document provided by your dealer.

Honda Motor Co., Ltd. reserves the right to make changes at any time without notice and without incurring any obligation.

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## **SAFETY MESSAGES**

Pay special attention to statements preceded by the following words;

### **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.

Each message tells you what the hazard is, what can happen, and what you can do to avoid or reduce injury.

## **DAMAGE PREVENTION MESSAGES**

You will also see other important messages that are preceded by the following word:

### **NOTICE**

You **WILL** be **KILLED** or **SERIOUSLY HURT** if you don't follow instructions.

The purpose of these messages is to help prevent damage to your lawn mower, other property, or the environment.

Do not use this lawn mower except for mowing.

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# 1. SAFETY INSTRUCTIONS

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## **▲WARNING**

- To ensure safe operation
- Read and understand the Owner's Manual before operating the mower. Failure to do so could result in personal injury or equipment damage.
- Read instructions carefully, become familiar with controls and proper use of equipment. Know how to stop the engine rapidly.
- Never allow children or people unfamiliar with these instructions to use the lawn mower.
- Never mow while people, especially children, or pets are nearby.
- Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.
- Use the mower for the purpose it is intended for, that is regular mowing.
- Always abide by the rules, laws and other safety regulations.
- While mowing, always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.
- Thoroughly inspect the area where the equipment is to be used and remove all objects which may be thrown by the machine.
- Gasoline is highly flammable:
  - Store fuel in containers specifically designed for this purpose.
  - Refuel outdoors only and do not smoke while refueling.
  - 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.
  - If gasoline is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until the gasoline vapors have dissipated.
  - Install the fuel filler cap securely.
- Visually inspect the mower, including attachments, for any damage and looseness of fastening parts, before each use.
- Look around and underneath the engine for signs of oil or gasoline leaks, before each use.
- Check that there is no abnormal sound or vibration from the mower, before each use.



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- Before using, always visually inspect to see that the blade, blade bolt(s) and mower housing are not worn or damaged. Replace worn or damaged blade and bolt(s) in sets to preserve balance.
  - Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
  - Mow only in daylight or good artificial light.
  - Avoid operating the equipment in wet grass, where feasible.
  - Mowing on slopes:
    - Always be sure of your footing on slopes.
    - Mow across slopes, never up and down.
    - Walk, never run.
    - Exercise extreme caution when changing direction on slopes.
    - Do not mow excessively steep slopes.
  - Use extreme caution when reversing or pulling the lawn mower toward you.
  - Stop the blade if the lawn mower has to be tilted for transporting, when crossing surfaces other than grass and when transporting the lawn mower to and from the area to be mowed.
  - Never operate the lawn mower with defective guards or shields, or without guards devices (for example, discharge guard).
  - Do not attempt to make cutting height adjustments while the engine is running.
  - Do not change the engine governor setting or over-speed the engine.
  - Disengage drive clutch before starting the engine.
  - Start the engine carefully according to the instructions and with feet well away from the blade.
  - Start the engine carefully according to the instructions and with feet well away from the blade.
  - Do not tilt the lawn mower when starting the engine.
  - Do not start the engine when standing in front of the discharge opening.
  - Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.

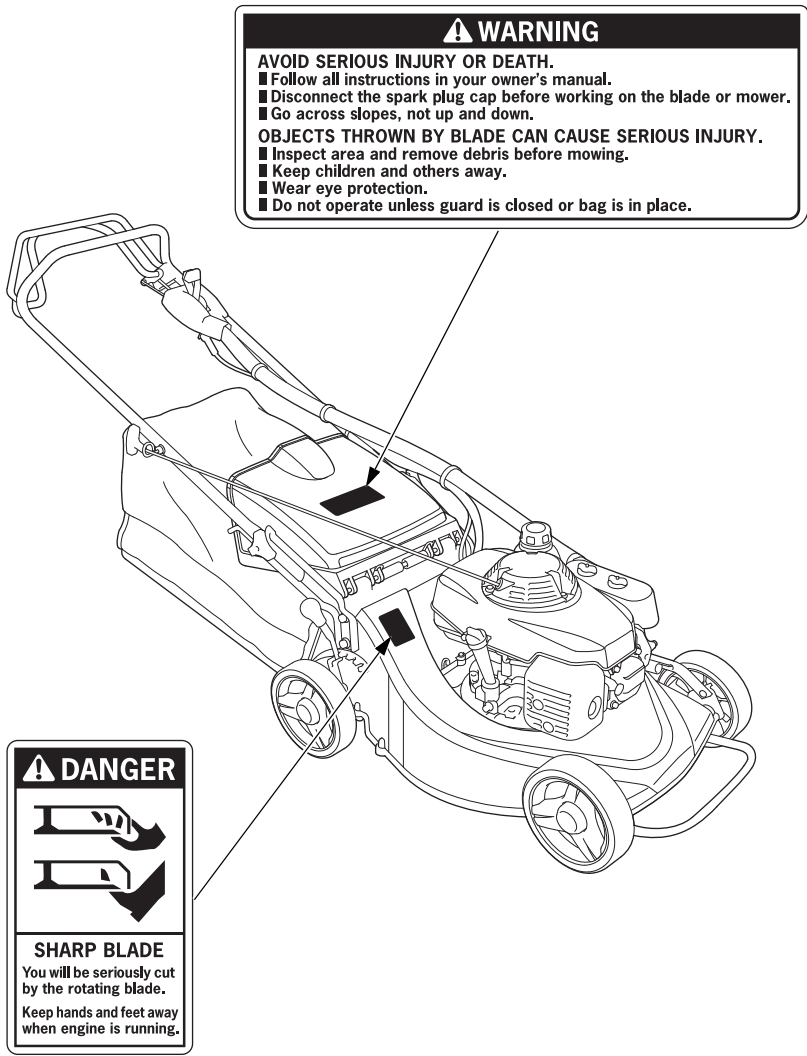
- 
- Never pick up or carry a lawn mower while the engine is running.
  - Stop the engine and disconnect the spark plug cap:
    - Before clearing a blockage or unclogging the lawn mower.
    - Before checking, cleaning or working on the lawn mower.
    - After striking a foreign object. Inspect the lawn mower for damage and make repairs before restarting and operating the lawn mower.
    - If lawn mower starts to vibrate abnormally, check immediately.
  - Stop the engine:
    - Whenever you leave the lawn mower.
    - Before refueling the lawn mower.
  - Reduce the throttle setting during engine shut down and turn the fuel valve off at the conclusion of mowing.
  - Any part from the machine is a potential source of danger if the machine is used in abnormal conditions or if the maintenance is not done correctly.
  - Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.
  - Never store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark.
  - Allow the engine to cool before storing in any enclosure.
  - To reduce the fire hazard, keep the engine, muffler, battery compartment (if applicable) and gasoline storage area free of grass, leaves or excessive grease.
  - Replace worn or damaged parts for safety.
  - If the fuel tank has to be drained, this should be done outdoors.
  - Wear eye protection.
  - To protect you from vibrations, wear appropriate work gloves or limit work hours, and keep engine speed at an appropriate level.
  - To protect you from noises, wear ear plugs or limit work hours.
  - Also, check that the exhaust muffler and the blades are properly installed.
  - To avoid injury, do not touch or remove the springs from the mower.
  - Do not disassemble this machine by yourself, unexpected injury may result.
  - The manufacturer will not assume any liability of the machine, damages to the machine or personal injury resulting from unauthorized modification of the machine.
  - Consult your servicing dealer for parts replacement, or at the time of disposal of your machine.

# SAFETY LABEL LOCATIONS

These labels warn you of potential hazards that can cause serious injury.

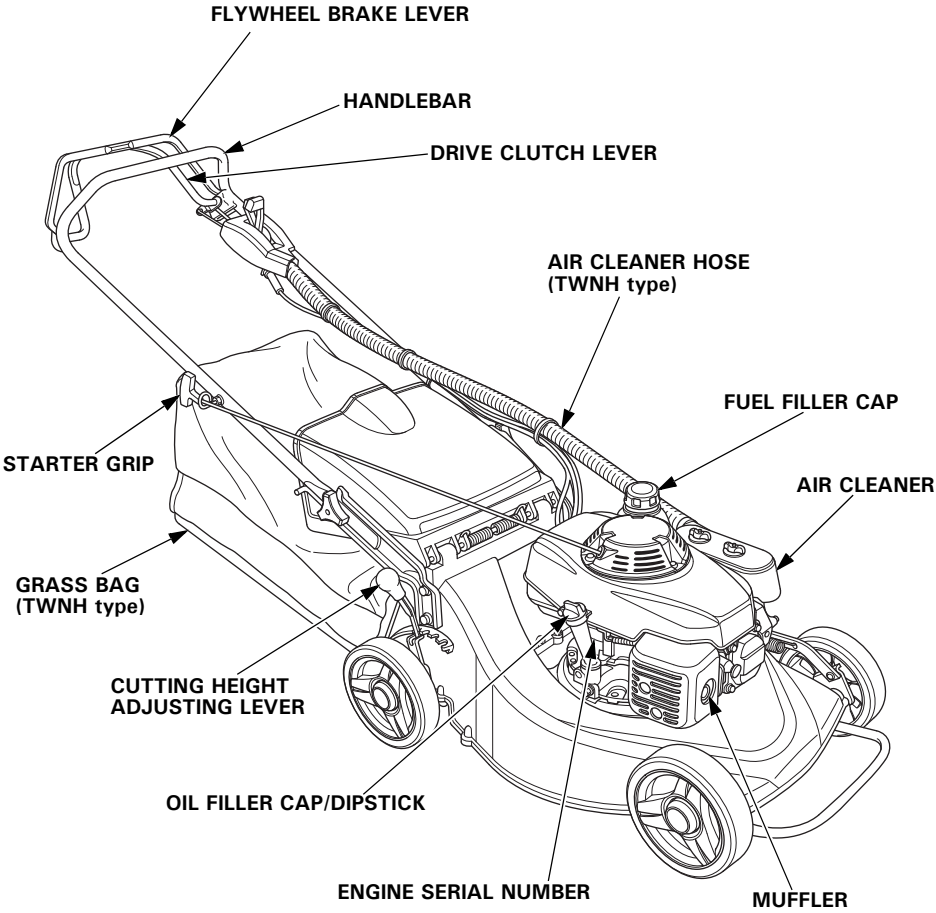
Carefully read the meaning of each label. If a label comes off or becomes hard to read, contact your dealer for a replacement.

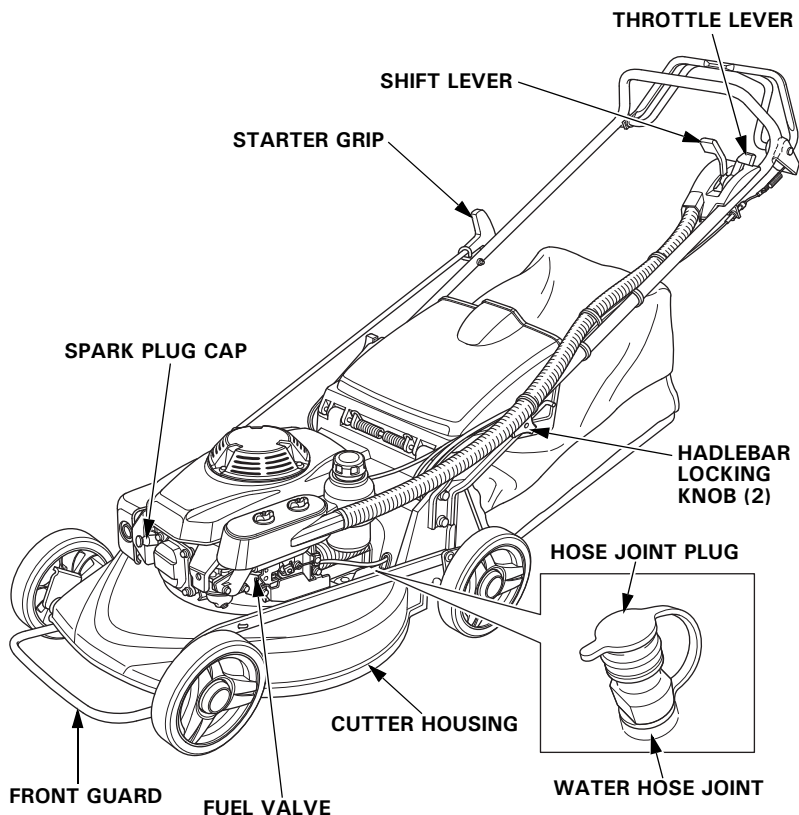
Also, after a repair or parts replacement, check that the label is attached to the new parts. If not, contact your dealer to attach a label.



# 2. COMPONENT IDENTIFICATION

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

Frame serial number: \_\_\_\_\_


Engine serial number: \_\_\_\_\_

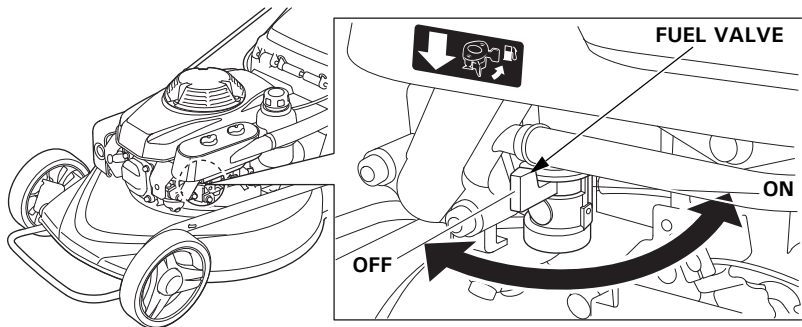
Date of purchased: \_\_\_\_\_

# 3. CONTROLS




## DESCRIPTION OF CONTROLS

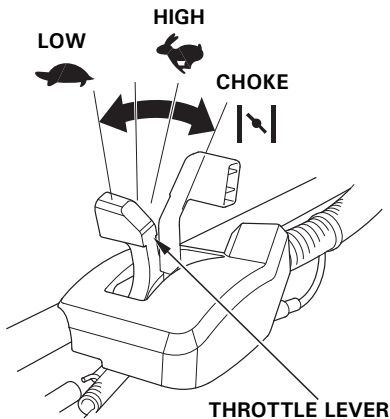
### Fuel Valve

 ..... The fuel valve opens and closes the fuel passage from the fuel tank to the carburetor. The fuel valve must be ON to start and operate the mower. The fuel valve should be kept OFF when the mower is not use.



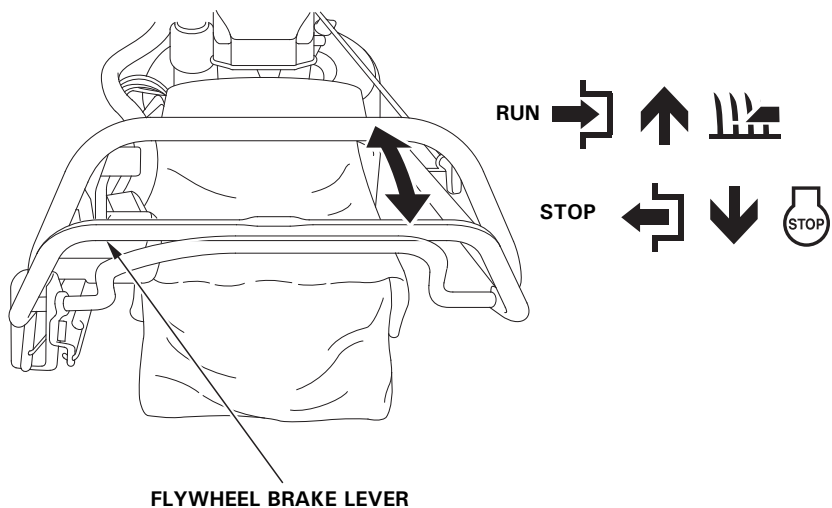
### Throttle Lever

-  CHOKE .... For starting a cold engine.
-  HIGH ..... For restarting a warm engine and for mowing.
-  LOW ..... For idling the engine.



# Flywheel Brake Lever

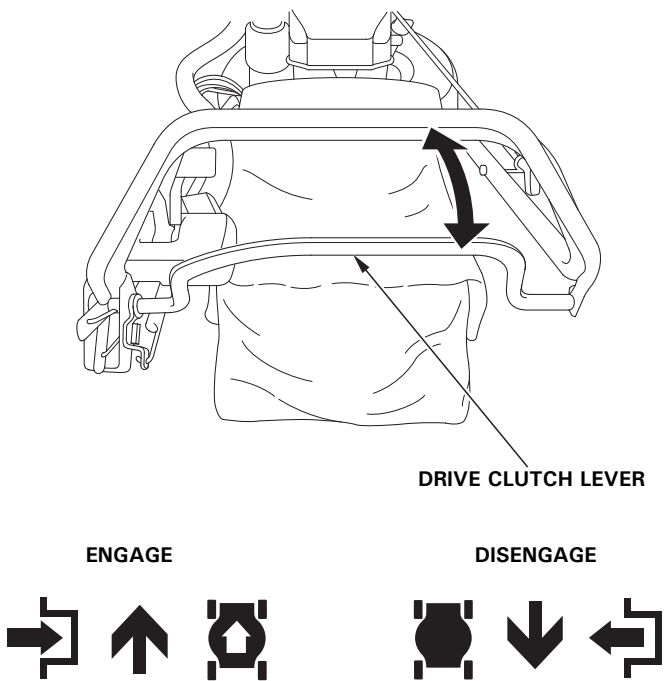
This lever is connected to the engine flywheel brake and the ignition switch. The engine will not start unless this lever is pushed forward.



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# Drive Clutch Lever

The drive clutch lever engages (push forward) and disengages (release) the transmission that drives the rear wheels. The drive clutch lever should only be engaged after the engine has been started.





# Cutting Height Adjustment Lever

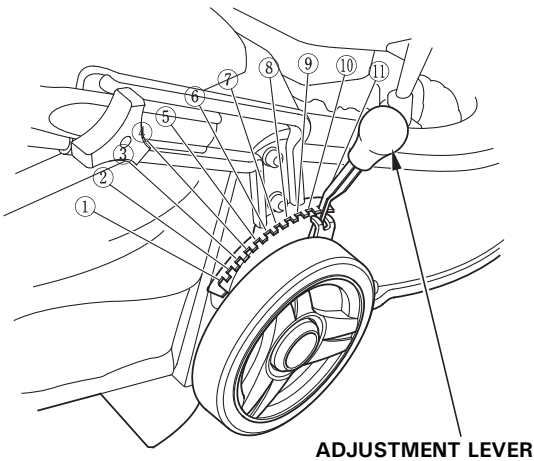
All wheels of the mower can be adjusted to one of lever settings.

The cutting height figures are approximate. The actual height of cut grass will vary with lawn and soil conditions.

Move the adjuster forward to lower and back to raise the cutter housing.

Position    Approx. Height

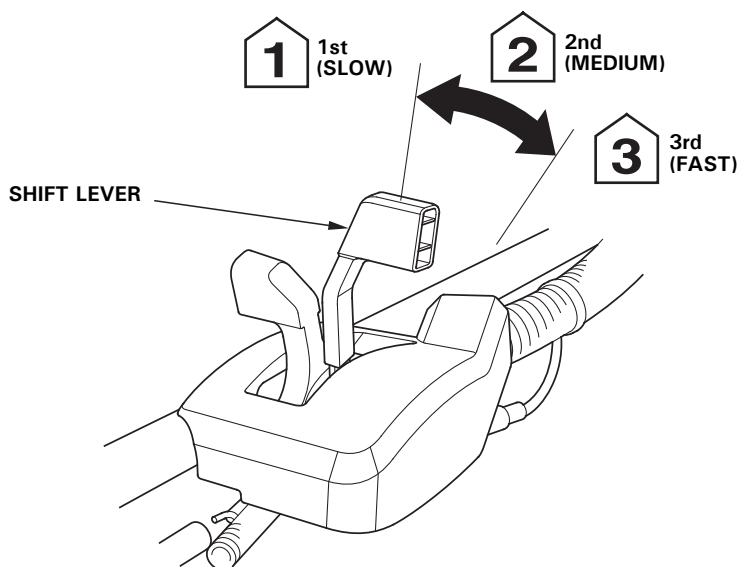
- |   |       |
|---|-------|
| ① | 76 mm |
| ② | 70 mm |
| ③ | 64 mm |
| ④ | 58 mm |
| ⑤ | 51 mm |
| ⑥ | 45 mm |
| ⑦ | 39 mm |
| ⑧ | 33 mm |
| ⑨ | 28 mm |
| ⑩ | 22 mm |
| ⑪ | 16 mm |



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## Shift Lever

The shift lever selects and controls the self-propelled drive speed.



- |          |              |                                                       |
|----------|--------------|-------------------------------------------------------|
| <b>1</b> | 1st (SLOW)   | For mowing thick grass or maneuvering in small areas. |
| <b>2</b> | 2nd (MEDIUM) | For intermediate self-propelled mowing speed.         |
| <b>3</b> | 3rd (FAST)   | For maximum self-propelled transport speed.           |

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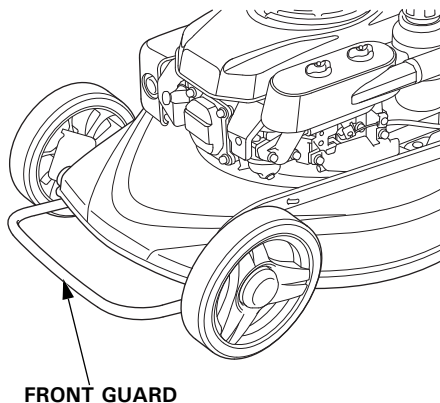
## Front Guard

### NOTICE

Do not step on the front guard.

Do not use the front guard to lift the lawn mower.

Replace the front guard at your servicing dealer whenever it is deformed.

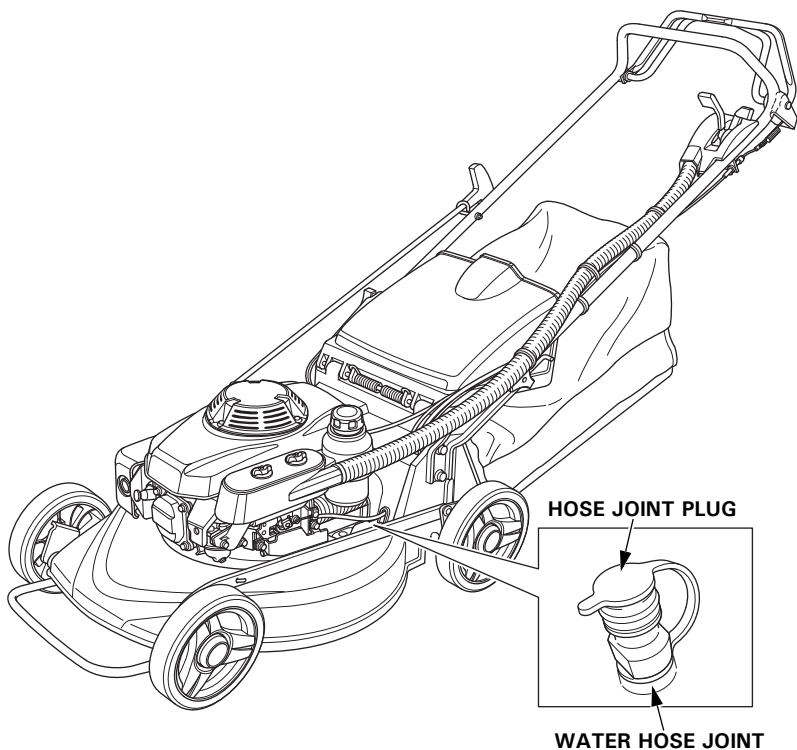


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## Water Hose Joint

The inside of the cutter housing can be cleaned easily by pouring water into the hose joint.

If you found remaining materials attached after washing the cutter housing, clean them using a plastic brush or cloth. For detail of water hose joint using, see page 44.



## 4. PRE-OPERATION CHECKS

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### ARE YOU READY TO MOW?

Be sure to wear protective clothing. Long pants and eye protection can lower your risk of injury from thrown objects. Wear footwear that protects your feet and won't let you slip if you mow on slopes or uneven ground.

### CHECK YOUR LAWN

For your safety and for the safety of others, always inspect the area before mowing.

#### Objects

Anything which can be picked up by the blade and thrown is a potential hazard to you and others. Look for things like stones, sticks, bones, and wire. Remove them from the mowing area.

#### People and Pets

People and animals near the mowing area can move into your path or into a position where they could be struck by thrown objects. Clear the area of people and pets, especially children. Their safety is your responsibility.

#### Lawn

Check the length and condition of the grass, so you will know what cutting height and mowing speed to use.

Avoid mowing wet grass. Not only will wet grass clog your cutter housing and collect in clumps on the lawn, it also gives poor traction, increasing your risk of losing your footing.

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

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## CHECK YOUR MOWER

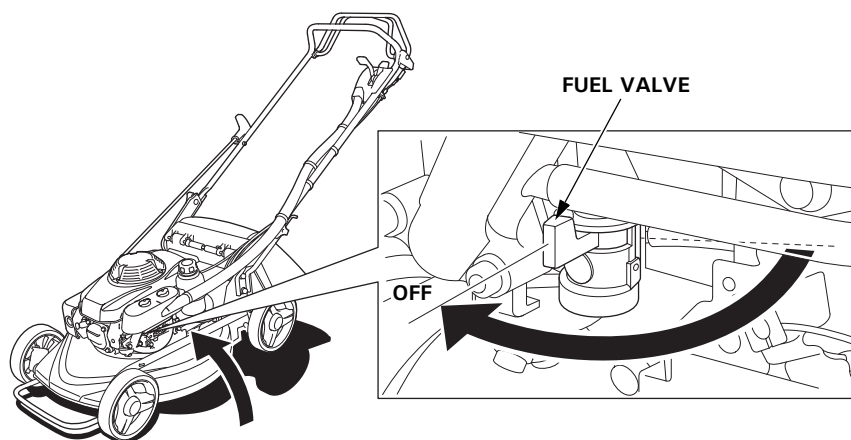
### Blade

Before each use, check the cutter blade for damage or excessive wear.

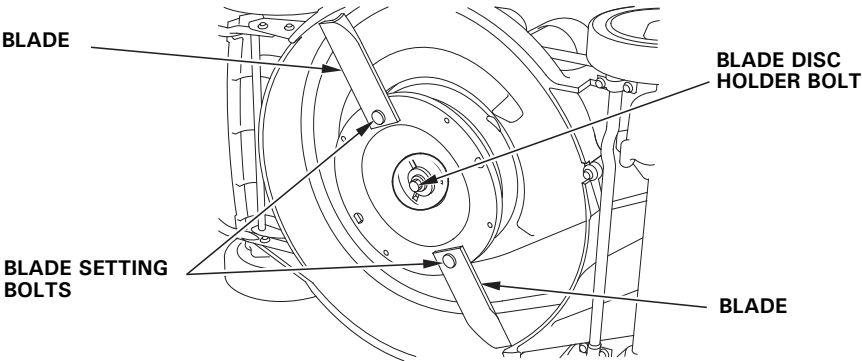
#### **⚠ WARNING**

**To avoid severe personal injury, disconnect the spark plug cap to prevent accidental starting, and wear heavy gloves to protect your hands from the cutter blade.**

1. Stop the engine and turn the fuel valve to the OFF position.
2. Disconnect the spark plug cap from the spark plug (see page 59).
3. Remove the grass bag (if installed).
4. Tilt the mower to the right, so the fuel filler cap side is up. This will help to prevent fuel leakage and hard starting.



5. Inspect the blades for wear and damage.
6. Check that the blade setting bolts and the blade disc holder bolt are tight (see page 64).

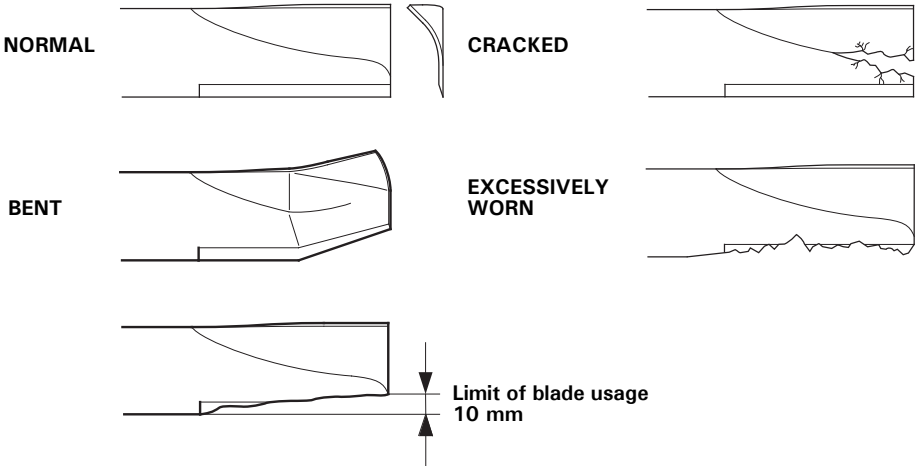


**⚠ WARNING**

**Never operate the mower with a worn, damaged, split or dented blade. A pieces of blade which breaks off and is thrown outwards can cause serious bodily injuries.**

**NOTICE**

Blade wear is increased when the mower is used on sandy soils. Inspect the blade more often when the mower is used in these conditions.



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A dull blade can be sharpened, but a blade that is worn out, bent, cracked, or otherwise damaged must be replaced. A worn or damaged blade can break, causing blade pieces to be thrown from the mower.

When a blade needs sharpening or replacement, take the lawn mower to your servicing dealer. Or, if you have a torque wrench and other proper tools, you can remove and install the blade yourself (see page 62).

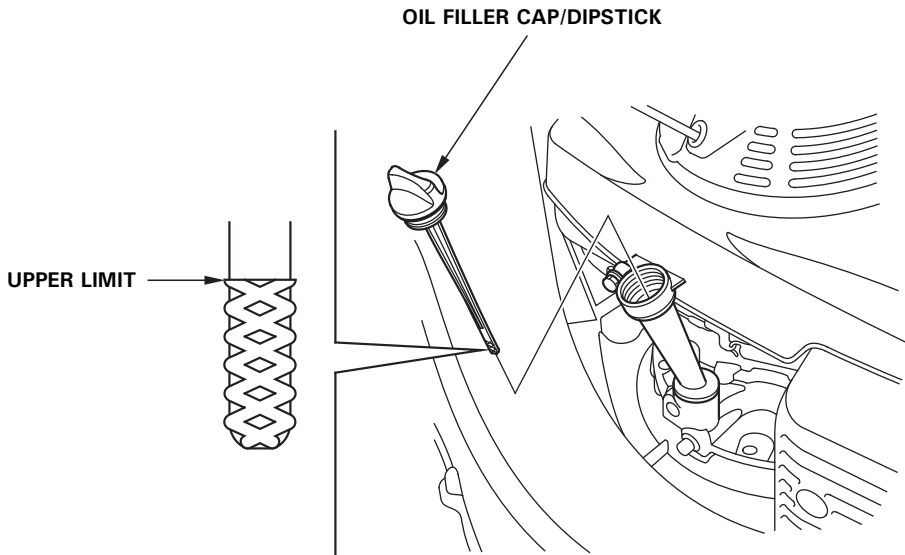


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## Engine Oil Level

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

1. Remove the oil filler cap/dipstick and wipe it clean.
2. Insert and remove the dipstick without screwing it into the filler neck.  
Check the oil level shown on the dipstick.
3. If the oil level is low, fill to the upper limit mark on the dipstick with the recommended oil (see page 54).
4. Reinstall the oil filler cap/dipstick securely.

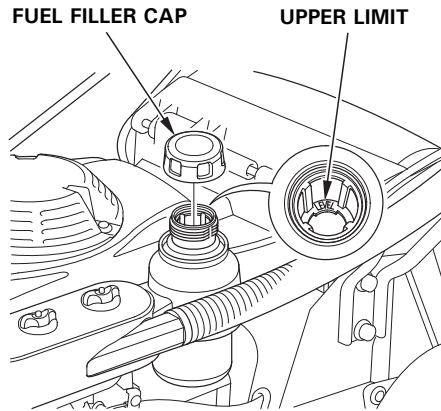


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## Fuel level

Refuel in a well-ventilated area before starting the engine. If the engine has been running, allow it to cool. See page 23 for fuel recommendations.

Remove the fuel filler cap and check the fuel level. Refill the tank if the fuel level is low. Refuel carefully to avoid spilling fuel. Do not overfill; there should be no fuel over the limit mark. After refueling, tighten the fuel filler cap securely.



### **⚠ WARNING**

**Gasoline is highly flammable and explosive.**

**You can be burned or seriously injured when handling fuel.**

- **Stop the engine and keep heat, sparks, and flame away.**
- **Keep heat, sparks, and flame away.**
- **Handle fuel only outdoors.**
- **Keep away from your vehicle.**
- **Wipe up spills immediately.**

Never refuel the mower 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 warranty.

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## Fuel Recommendations

Use unleaded gasoline with a research octane rating of 91 or higher (a pump octane rating of 86 or higher). This engine is certified to operate on unleaded gasoline. Unleaded gasoline produces fewer engine and spark plug deposits and extends exhaust system life.

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

Occasionally you may hear light “spark knock” or “pinging” (metallic rapping noise) while operating under heavy loads. This is no cause for concern. If spark knock or pinging occurs at a steady engine speed, under normal load, change brands of gasoline. If spark knock or pinging persists, see your servicing dealer.

### NOTICE

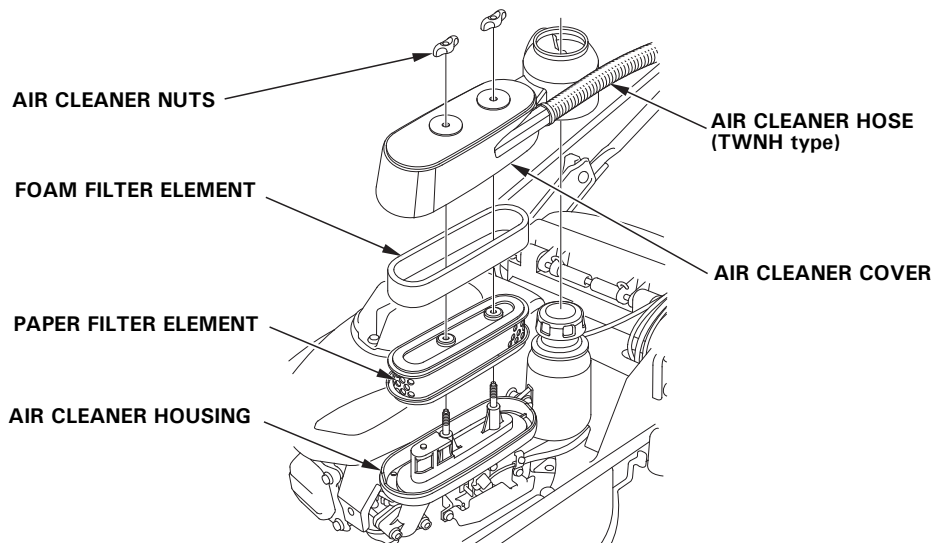
Running the engine with persistent spark knock or pinging can cause engine damage. Running the engine with persistent spark knock or pinging is misuse, and the Warranty does not cover parts damaged by misuse. For oxygenated fuel information, refer to page 46.

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## Air Cleaner

### Inspection

Make sure the air filters are clean and in good condition. A dirty air filter will restrict air flow to the carburetor, reducing engine performance. Refer to page 55 for air cleaner service.



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## Grass Bag (TWNH type)

A lawn mower works like a vacuum cleaner; it blows air through the bag, which traps the grass clippings. Always empty the grass bag before it becomes filled to the limit of its capacity. Bagging performance will diminish after the bag becomes about 90% filled. Also the bag is easier to empty when not packed full.

### Inspection

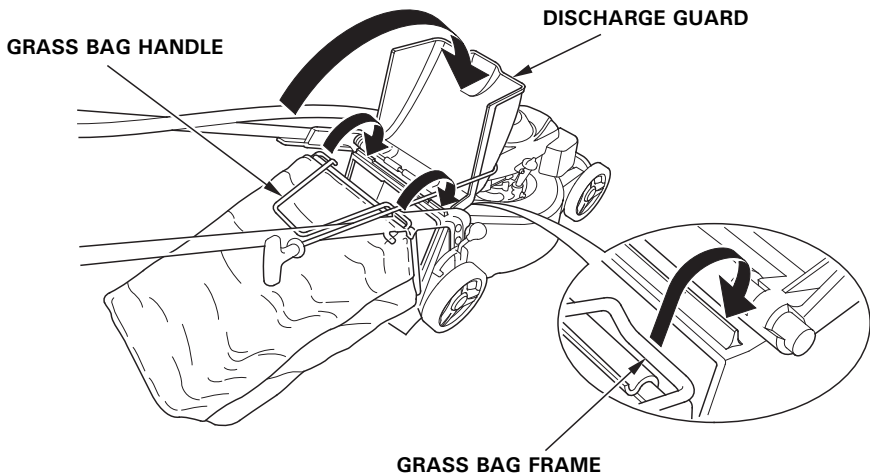
Inspect the grass bag before use.

Check for holes, tears, and excessive wear.

The grass bag will wear during normal use and will eventually require replacement (See page 67).

### Installation

1. Raise the discharge guard, and hook the grass bag frame onto the cutter housing as shown.
2. Release the discharge guard to secure the grass bag in place.



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## **Removal**

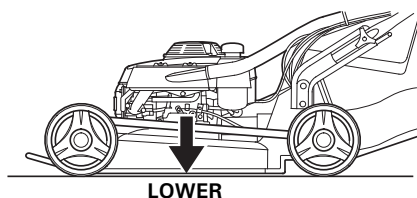
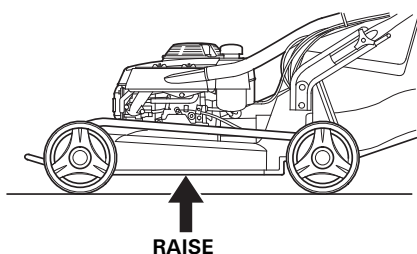
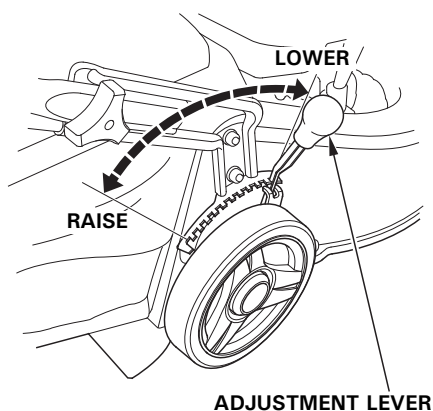
1. Raise the discharge guard, grasp the grass bag handle and remove the grass bag.
2. Release the discharge guard.
3. When the grass bag is clear of the discharge guard, you can lift the grass bag through the handlebars, or remove it from the rear of the mower below the handlebar.

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## Cutting Height

Check the cutter housing cutting height settings. The lowest setting is approximately 16 mm and the highest setting is 76 mm. To adjust cutting height, pull the adjustment lever toward the wheel, and move it into another notch.

If you are not sure what cutting height to select, start with a high setting and check the appearance of the lawn after mowing a small area. Then readjust cutting height if necessary.



## 5. OPERATION

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### MOWING PRECAUTIONS

Before operating the mower for the first time, please review the **SAFETY INSTRUCTIONS** beginning on page 4 and **SAFE MOWING PRACTICES** on pages 37 and 38.

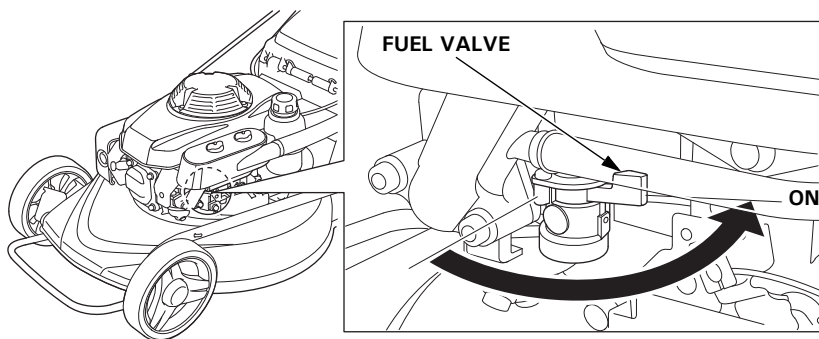
Even if you have operated other mowers, take time to become familiar with how this mower works and practice in a safe area until you build up your skills.

For your safety, avoid starting or operating the engine in an enclosed area such as a garage. Your mower's exhaust contains poisonous carbon monoxide gas which can collect rapidly in an enclosed area and cause illness or death.

### STARTING THE ENGINE

The blade turns when you operate the starter. It is easier to start the engine in a clear or mowed area where the blade can turn freely.

1. Turn the fuel valve to the ON position.

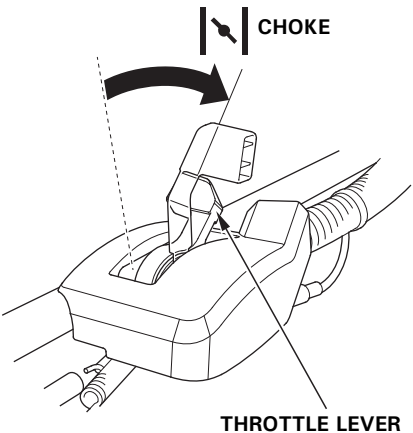




2. Move the throttle lever to the proper starting position.

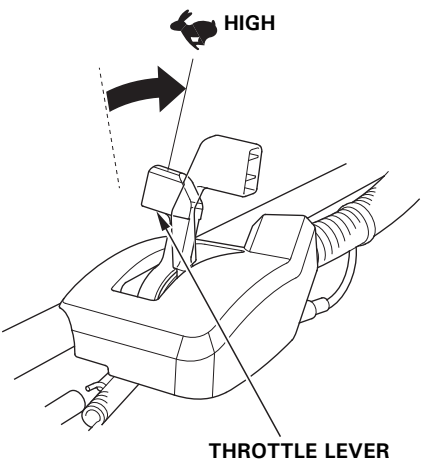
COLD ENGINE:

Move the throttle lever to the CHOKE position.

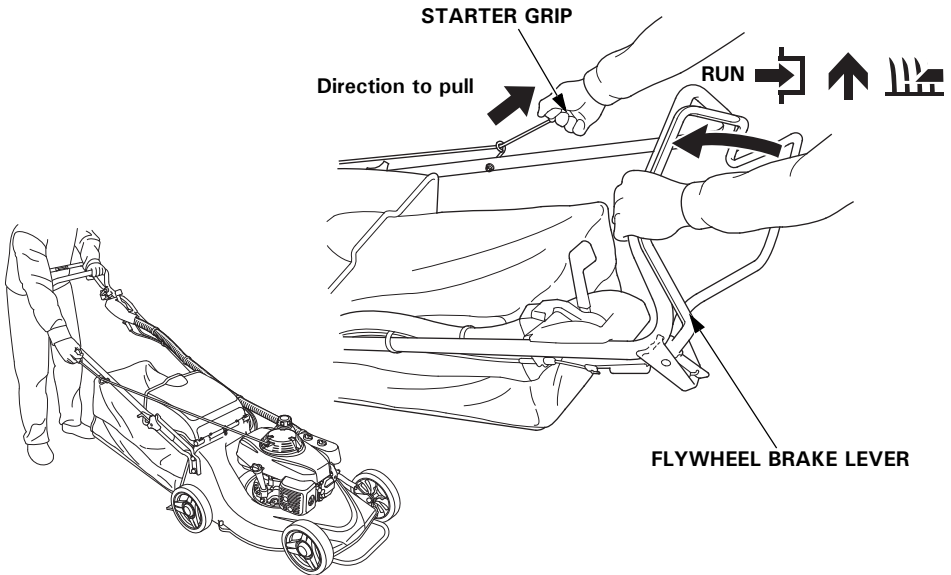


WARM ENGINE:

Move the throttle lever to the HIGH position.



- 
3. Release the drive clutch lever. If the drive clutch lever is engaged, the mower will move forward when you operate the starter.
4. By standing in the back side of the mower at the operating position, push the flywheel brake lever forward and hold it against the handlebar.
- Pull the starter grip lightly until you feel resistance, then pull briskly in the direction of the arrow as shown below. Return the starter grip gently.
- Keep your hands and feet away from the cutter housing at all times when starting and running the engine.
- Continue to hold the flywheel brake lever against the handlebar; the engine will stop if you release the lever.



5. If the CHOKE position was used during starting, move the throttle lever away from the CHOKE position as soon as the engine warms up enough to run smoothly. Set the throttle lever at HIGH to mow or at LOW to idle.

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## OPERATING THE CONTROLS FOR MOWING

### Throttle Lever

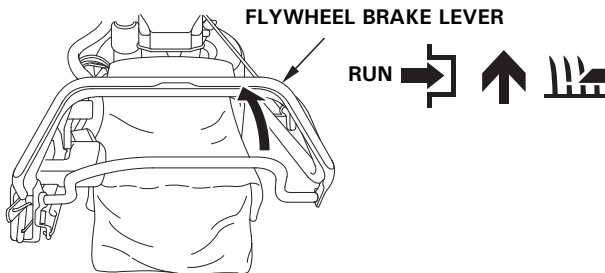
For best cut quality, always mow with the throttle lever in the HIGH position. When the blade rotates at the preset fast speed, it creates a strong fan action that lifts and cuts grass more efficiently. Do not try to increase the preset engine speed, the blade could fracture and come apart.

When you need to leave the mower for any reason, always turn the engine OFF by releasing the flywheel brake lever.

### Flywheel Brake Lever

The lever must be pushed forward against the handlebar to start the engine. If the lever is released backward from the handlebar, the starter grip can not be pulled because the flywheel brake hold the flywheel. Continue to hold the lever against the handlebar to keep the engine running and the blade rotating.

Release the lever to stop the engine and stop blade rotation.



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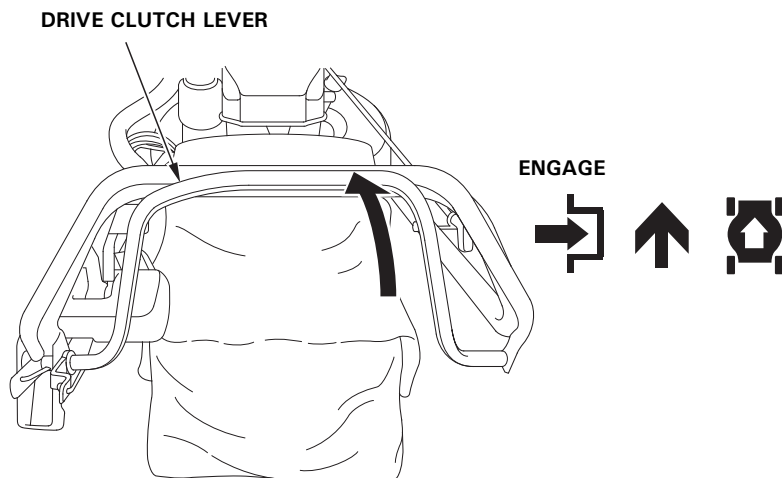
## Drive Clutch Lever

Push the drive clutch lever forward and hold it against the handlebar to propel the mower forward.

Release the drive clutch lever to stop the mower's forward movement.

Always release the drive clutch lever before starting the engine. If the drive clutch is engaged, the mower will move forward when you operate the starter.

Operate the drive clutch lever with a quick and complete motion, so the drive clutch is either fully engaged or released. Hold the drive clutch lever against the handlebar during self-propelled mowing. This will help to extend the service life of the clutch mechanism.

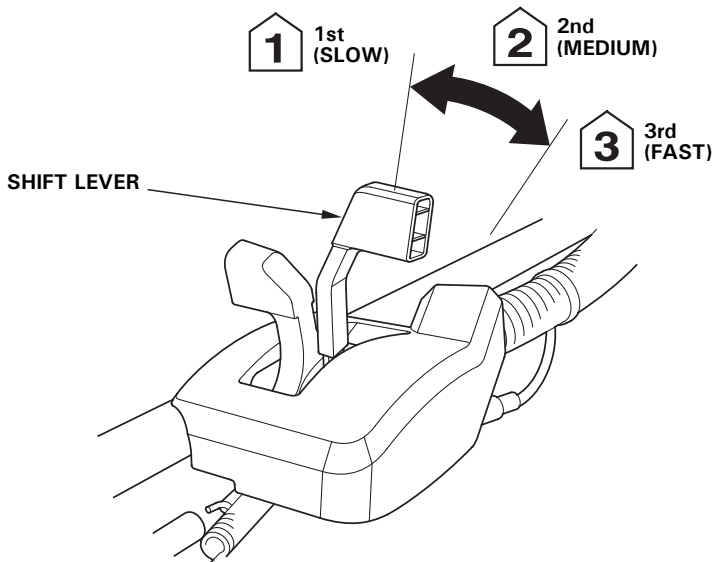


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## Shift Lever

With the drive clutch released, move the shift lever to select 1st (slow), 2nd (medium) or 3rd (fast).

Do not use the throttle lever to adjust your forward speed. Forward speed should be adjusted with the shift lever, not the throttle lever. The throttle lever must remain in the "HIGH" position for good mowing performance. Otherwise, cut quality suffers.



You can shift gears without releasing the drive clutch lever, but the transmission may not shift smoothly if the mower is pulling hard. For smoother operation, release the drive clutch lever before shifting gears.

For maximum mowing performance, use 1st and 2nd gears for mowing and 3rd gear for transporting.

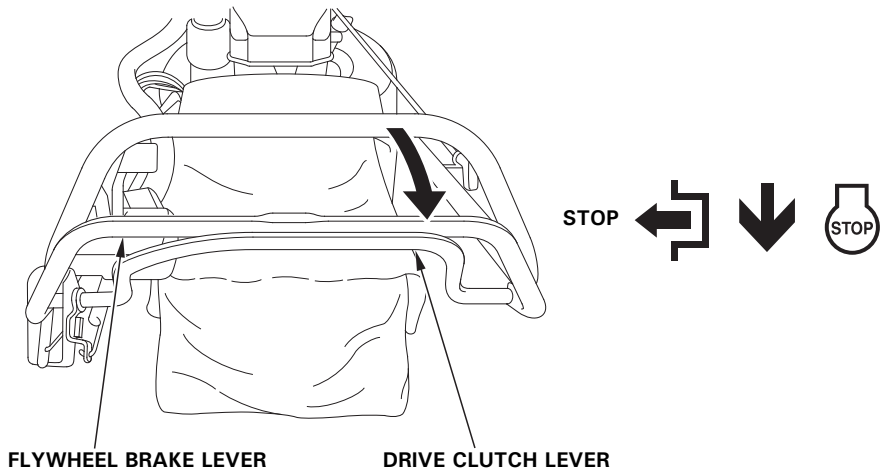
To avoid incomplete gear engagement, be sure the shift lever is centered in one of the three detent positions.

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# STOPPING THE ENGINE

## Emergency Engine Stop

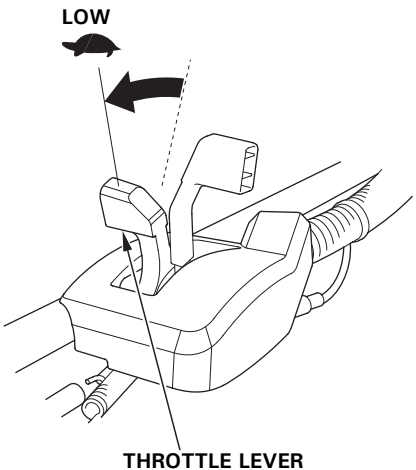
Release the drive clutch lever and flywheel brake lever.



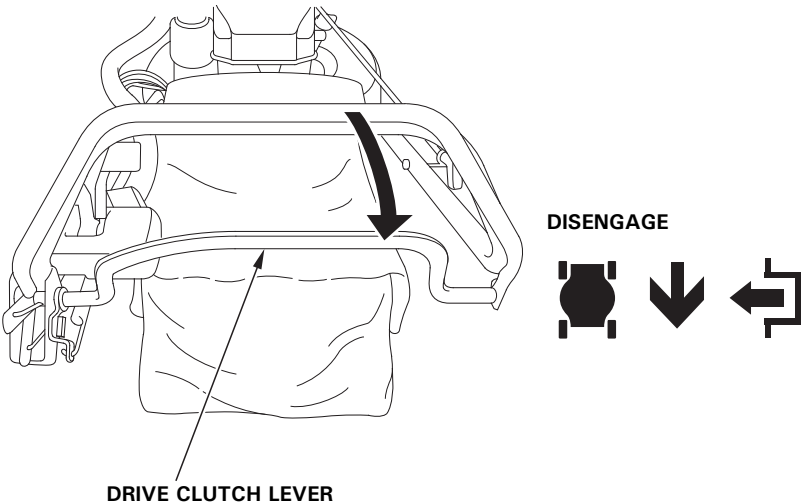
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# Normal Engine Stop

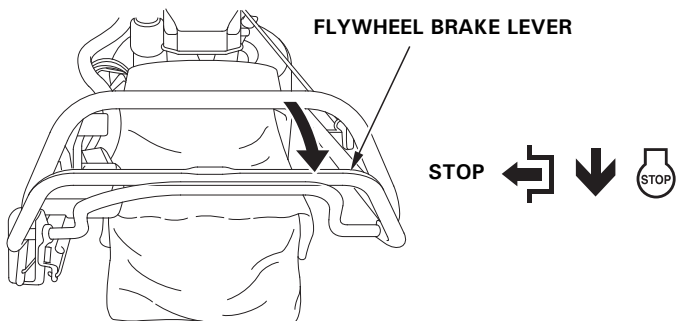
1. Move the throttle lever to the LOW position.



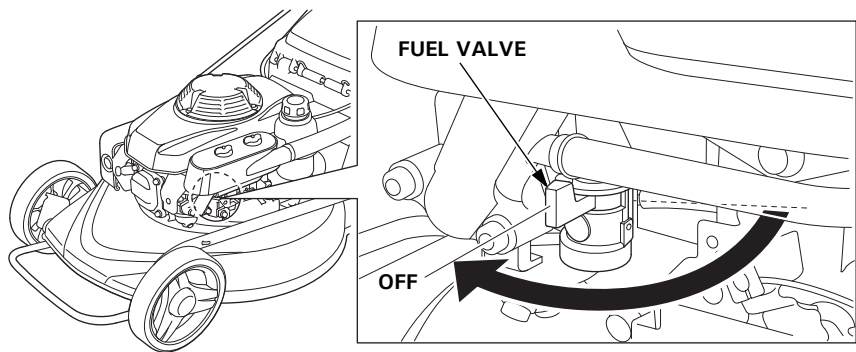
2. Release the drive clutch lever.



3.Release the flywheel brake lever.



4.When the mower is not in use, turn the fuel valve to the OFF position.





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## SAFE MOWING PRACTICES

For your safety, keep all four wheels on the ground and be careful to avoid losing your footing and your control of the mower. Keep a firm grip on the handlebar, and walk, never run, with the mower. Be very careful when mowing uneven or rough ground.

If stuck, do not kick or shove the mower with your foot. Use the handlebar to control the mower.

### **⚠ WARNING**

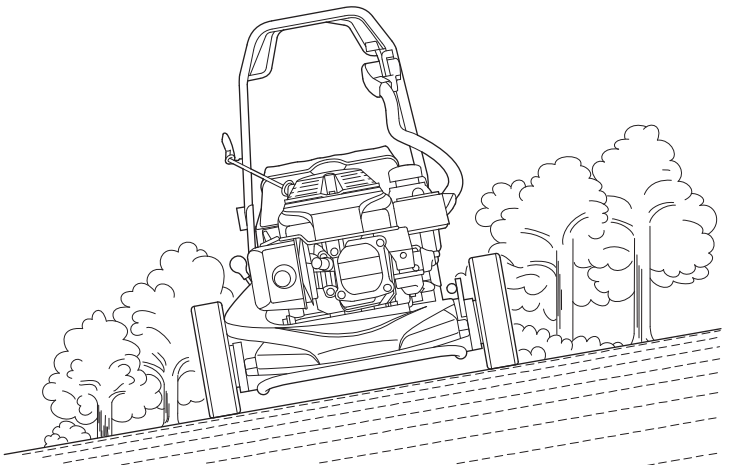
**The blade is sharp and spins at high speed.**

**A spinning blade can cut you severely and can amputate fingers and toes.**

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

### **Slopes**

Mow across slopes, not up and down. Avoid steep slopes (more than  $10^\circ$ ), and be careful when changing direction. Mowing on a slope when the grass is damp or wet could cause you to slip, fall, and lose control of the mower.



**MAXIMUM SLOPE  $10^\circ$**

---

## Obstacles

Use the side of the mower to cut close to large obstacles, such as fences or walls.

Release the drive clutch lever to disengage the drive when mowing around trees and other obstacles. Push the mower around obstacles for better directional control. Be careful when mowing over obstacles embedded in the lawn, such as sprinkler heads, paving, edging, etc. Avoid anything that sticks up above the surface of the lawn.

If the blade hits something, or if the mower starts to vibrate, stop the engine immediately, disconnect the spark plug cap, and check for damage (see page 18 ). Striking objects may damage the blade, bend the crankshaft, and/or break the cutter housing or other components. Vibration usually indicates serious trouble.

### **⚠ WARNING**

**A worn, cracked, or damaged blade can break, and pieces of the damaged blade can become dangerous projectiles.**

**Thrown objects can cause serious injury.**

**Inspect the blade regularly, and do not operate the mower with a worn or damaged blade.**

The Warranty does not cover parts damaged by accident or collision.

## Gravel and Loose Objects

Gravel, loose stones, and landscaping material can be picked up by the mower and thrown many feet with enough force to cause serious personal injury and/or property damage. The best way to prevent potential injury from thrown objects is to release the flywheel brake lever to stop the blade before reaching areas with gravel, loose stones, or landscaping material.

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## MOWING TIPS

### Cutting Height

Consult a local nursery or lawn and garden center for cutting height recommendations and advice about specific types of grasses and growing conditions in your area.

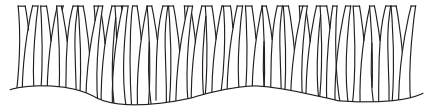
If you look closely, you'll see that most grass has stems and leaves. If you cut off the leaves, you'll scalp the lawn. Let the grass recover between mowings. Your mower will work better, and your lawn will look better.

If your grass gets too tall, cut it once at the highest cutting height setting, then mow again in 2 or 3 days. Don't take off more than one third of total grass height in any one mowing, or brown patches may develop.

Cutting height adjustment is explained on page 27.

### Cutting Width

For an even lawn finish, overlap each mowing swath by approximate 10 cm. If the grass is very tall or thick, use more overlap and a narrower mowing swath.



**LONG ENOUGH**



**TOO SHORT**

---

## **Blade Speed**

The blade must spin very fast to cut properly. Always use the HIGH throttle setting, and keep the engine running at maximum rpm. If engine speed drops, it could mean the engine is being overloaded by the blade trying to cut too much grass. Mow a narrower swath, move the mower slower, or raise the cutting height.

## **Blade Sharpness**

A sharp blade cuts cleanly. A dull blade tears the grass, leaving shredded ends that turn brown. When your blade doesn't cut cleanly anymore, have it sharpened or replaced.

## **Dry Grass**

If the ground is too dry, mowing will stir up a lot of dust. Besides being unpleasant to work in, too much dust will clog the carburetor air filter. If dust is a problem, water your lawn the day before mowing. Mow when the grass is dry to your touch, but the soil is still moist.

## **Wet Grass**

Wet grass is slippery and can make you lose your footing. Also, wet grass clippings will clog the cutter housing and collect in clumps on the lawn. Always wait for wet grass to dry before mowing.

## **Fallen Leaves**

When equipped with the grass bag, your mower can be used to pick up fallen leaves for disposal. If using the mower to bag large amount of fallen leaves, and not for mowing, set the cutting height adjustment lever at highest setting.

If you want to mulch fallen leaves into your lawn, don't let the leaf cover get too deep before you begin. For best results, start mulching while grass still shows through the leaf cover. In places where fallen leaves completely cover the grass remove the leaves by raking, or install a grass bag, so your mower can pick them up for disposal.

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## Clogged Cutter Housing

Before clearing a clogged cutter housing, stop the engine and turn the fuel valve to the OFF position. With the spark plug cap disconnected, tilt the mower so the fuel filler cap side is up.

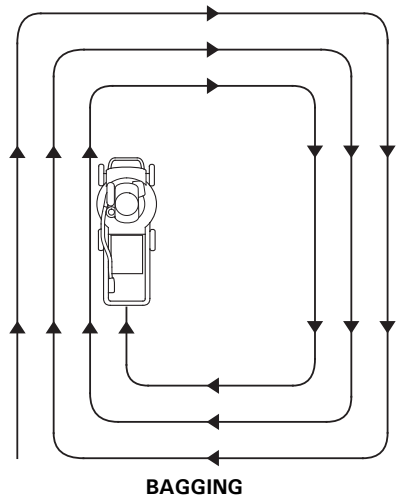
Clear a clogged deck with a stick, not by your hands.

## Mowing Patterns

Your Honda mower will work most efficiently if you use the following mowing patterns as much as possible. Cutter housing and equipment design, and the direction in which the blade rotates, cause these mowing patterns to give the best results.

### Bagging

Use a clockwise mowing pattern. This will give the best bagging performance, leaving the least amount of clippings on the lawn.

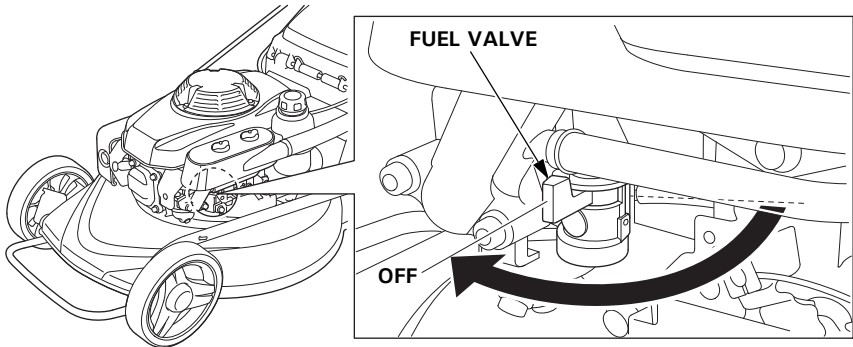


## 6. TRANSPORTING/STORAGE

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### BEFORE LOADING

Stop the engine and turn the fuel valve to the OFF position. This will prevent carburetor flooding and reduce the possibility of fuel leakage. If the engine has been running, allow it to cool for at least 15 minutes before loading the mower on the transport vehicle. A hot engine and exhaust system can burn you and can ignite some materials. Disconnect the spark plug cap from the spark plug (see page 59).



If equipped, remove the grass bag.

### LOADING AND UNLOADING

If a suitable loading ramp is not available, two people should lift the mower on and off the transport vehicle while holding the mower level. Position the mower so all four wheels are on the bed of the transport vehicle. Tie the mower down with rope or straps, and block the wheels. Keep the tie-down rope or straps away from the controls, adjustment levers, cables, and the carburetor. The handlebar can be folded so the mower will take up less space (see page 48).

---

## STORAGE PREPARATION

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

### Cleaning

#### Engine

Wash your mower after use, by hand, and be careful to prevent water from entering the air cleaner and/or muffler.

<b>NOTICE</b>
---------------

Using a garden hose or pressure washing equipment can force water into the air cleaner, which will soak the filter and can enter the carburetor or engine, causing damage.

Cold water on a hot engine can cause damage. If the engine has been running, allow it to cool for at least 30 minutes before washing.

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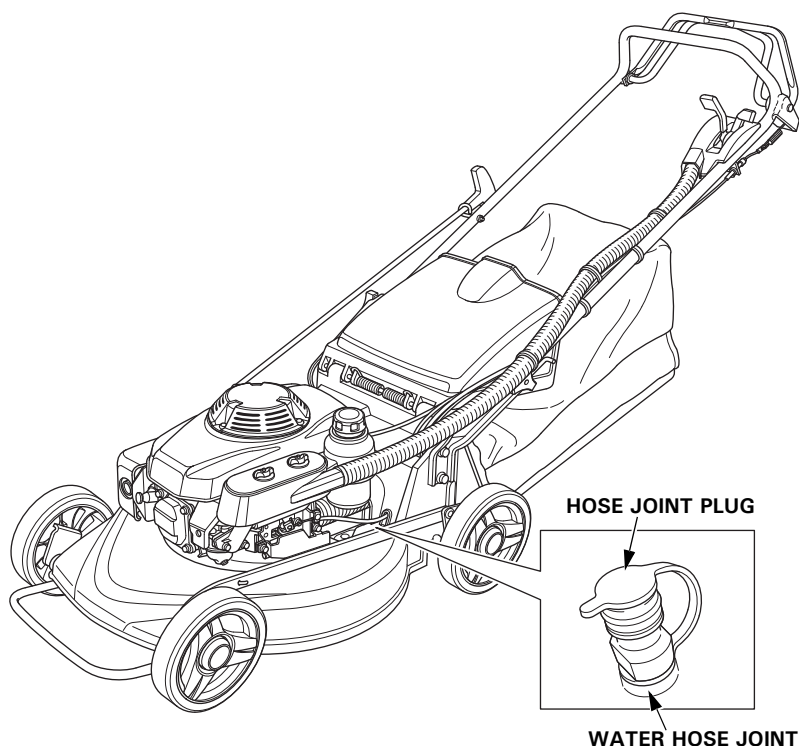
## Cutter Housing

If using a garden hose or pressure washing equipment to clean the upper side of the cutter housing, be careful to avoid getting water into controls and cables, or anywhere near the engine air cleaner or muffler opening.

Washing by water hose joint:

1. To wash the underside of the cutter deck, attach a garden hose to the water hose joint on the cutter deck (see below) and turn water on.
2. Start engine, engage blades, and allow it to run at normal operating speed for several minutes. This should be done in an area where the water and debris can run onto grass or a dirt surface.

**Do not flush the water or debris into the storm water system.**



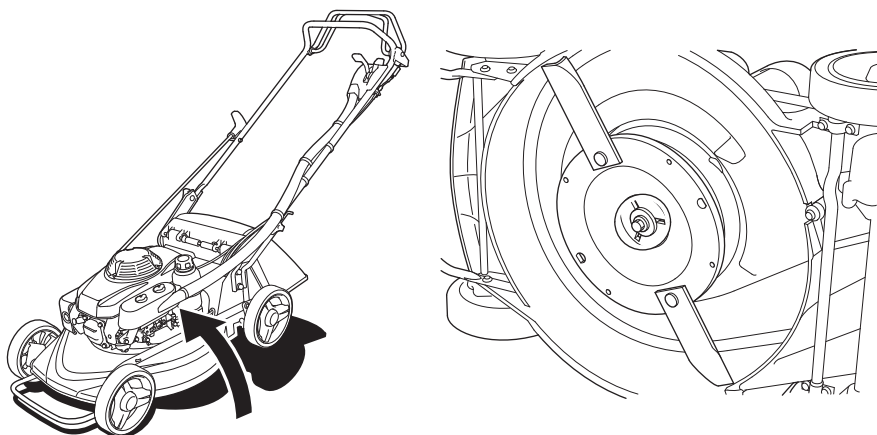


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### Cleaning by hand:

In order to see if any remaining materials attached underside of the cutter housing, clean them using a plastic brush or cloth.

1. Be sure the fuel valve is in the OFF position when resetting the mower, also disconnect the spark plug cap.
2. Wear heavy gloves to protect your hands from the blade.
3. Reset the mower on its right side, so the fuel filler cap side is up. This will help to prevent fuel leakage and hard starting due to carburetor flooding.
4. Clean the cutter housing using a plastic brush or cloth.



### After cleaning:

1. After washing the lawn mower, remove garden hose and wipe dry all accessible surface.
2. With the mower in an upright position, start the engine outdoor and let it run until it reaches normal operating temperature to evaporate any water remaining on the engine.
3. Stop the engine and allow it to cool.
4. After the lawn mower is clean and dry, coat areas that may rust with a light film of oil or silicon spray. Also lubricate the control cable cores with a silicon spray lubricant.

---

## Fuel

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 mower 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 30 days, 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.

You can avoid fuel deterioration problems by draining the fuel tank and carburetor.

### NOTICE

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 23).
- 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 47).

---

## Draining the Fuel Tank and Carburetor

1. Empty the fuel tank into an approved gasoline container. We recommend using a commercially available gasoline hand pump. Do not use an electric pump.
2. Turn the fuel valve to the ON position and loosen the carburetor drain bolt by turning 1 to 2 turns counterclockwise.

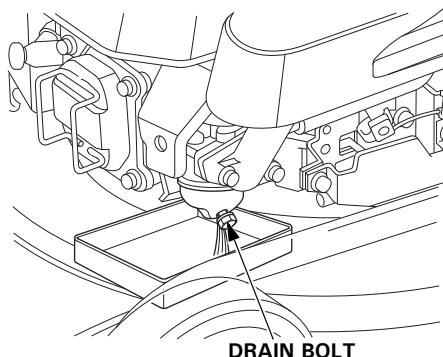
### **▲WARNING**

**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, turn the fuel valve to the OFF position.



## Engine Oil

Change the engine oil (see page 53).

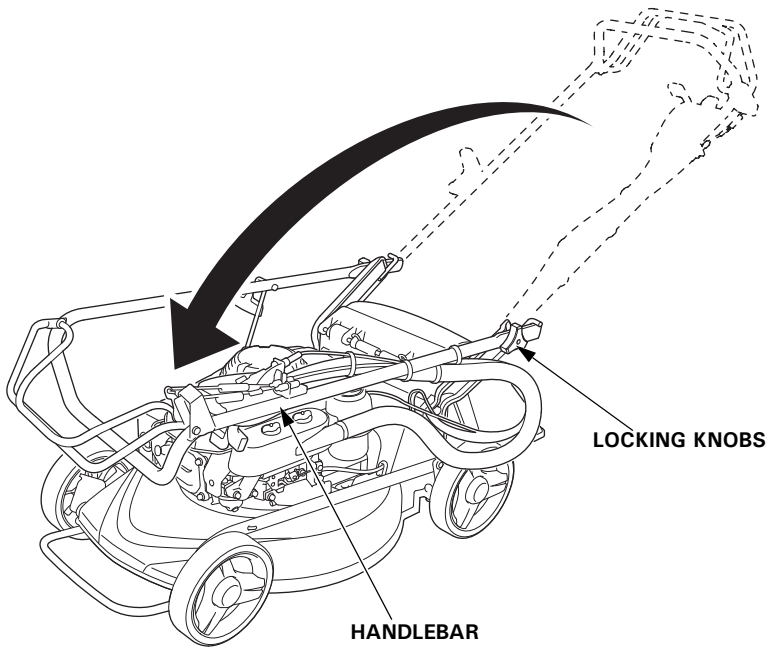
## Engine Cylinder

1. Remove the spark plug (see pages 59).
2. Pour 5–10 cc of clean engine oil into the cylinder.
3. Pull the starter grip several times to distribute the oil in the cylinder. Reinstall the spark plug.
4. Pull the starter grip slowly until resistance is felt, then return the starter grip gently. This closes the valves so moisture cannot enter.

---

## Handlebar Folding

1. Remove the grass bag (if installed).
2. Loosen or remove the two handlebar locking knobs.
3. Pull the handlebar struts to release them from the locating grooves, then swing the handlebar forward with the flywheel brake lever and drive clutch lever held by your hand. Don't allow the cables and air cleaner hose (applicable type) to be bent or pinched.
4. Loosely install the two handlebar locking knobs.



## Handlebar Setting

Squeeze the flywheel brake lever and drive clutch lever to release the flywheel brake and drive clutch lever and raise the handlebar in place in the reverse order of handlebar folding, taking care that the cable and air cleaner hose (applicable type) are not bent or pinched.

---

## STORAGE PRECAUTIONS

If your mower 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, turn the fuel valve to the OFF position to reduce the possibility of fuel leakage.

Place the mower with its wheels on a level surface. Tilting can cause fuel or oil leakage.

The handlebar can be folded for compact storage (see page 48).

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

## REMOVAL FROM STORAGE

Check your mower as described in the *PRE-OPERATION CHECKS* 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 startup. This is normal.

## 7. MAINTENANCE

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### THE IMPORTANCE OF MAINTENANCE

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

#### **⚠ WARNING**

**To avoid the mower starting accidentally, pull off the spark plug cap before carrying out maintenance work.**

**Improper maintenance, or failure to correct a problem before operation, can cause a malfunction in which you can be seriously hurt or killed.**

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

To help you properly care for your mower, 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 mower under severe conditions, such as sustained high-load conditions, consult your servicing dealer for recommendations applicable to your individual needs and use.

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## 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**

**Failure to properly follow maintenance instructions and precautions can cause you to be seriously hurt or killed.**

**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 nonflammable solvent, not gasoline, to clean parts. Keep cigarette, sparks, and flames away from all fuel-related parts.

Remember that an authorized Honda servicing dealer knows your mower 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 SCHEDULE

REGULAR SERVICE PERIOD (4) Perform at every indicated month or operating hour interval, whichever comes first.		Each use	First month or 20 hrs.	Every 3 months or 50 hrs.	Every 6 months or 100 hrs.	Every year or 200 hrs.	Refer to page
ITEM							
Engine oil	Check level	o					21
	Change		o		o (3)		53
Air cleaner	Check	o (5)					24
	Clean			o (1)			55
	Replace		Every year				55
Flywheel brake pad	Check-adjust				o (2)		–
Spark plug	Check-adjust				o		59
	Replace					o	59
Idle speed	Check-adjust					o (2)	–
Valve clearance	Check-adjust					o (2)	–
Combustion chamber	Clean					o (2)	–
Fuel tank and filter	Check	o					–
	Clean					o (2)	–
Fuel tubes	Check		Every 2 years (Replace if necessary) (2)				–
Blade bolt tightness	Check	o					19
Grass bag (applicable type)	Check-clean	o					25
Throttle cable	Check-adjust					o (2)	–
Wheel rachet	Grease					o (2)	–

- (1) Service more frequently when used in dusty areas.
- (2) These items should be serviced by your servicing dealer, unless you have the proper tools and are mechanically proficient. Refer to the Honda shop manual for service procedures.
- (3) Change engine oil every 25 hours when used heavy load or in high ambient temperature.
- (4) For commercial use, log hours of operation to determine proper maintenance intervals.
- (5) Check that Air cleaner hose does not come off and has no damage (slit, break, hole, etc) for "Air cleaner hose type".



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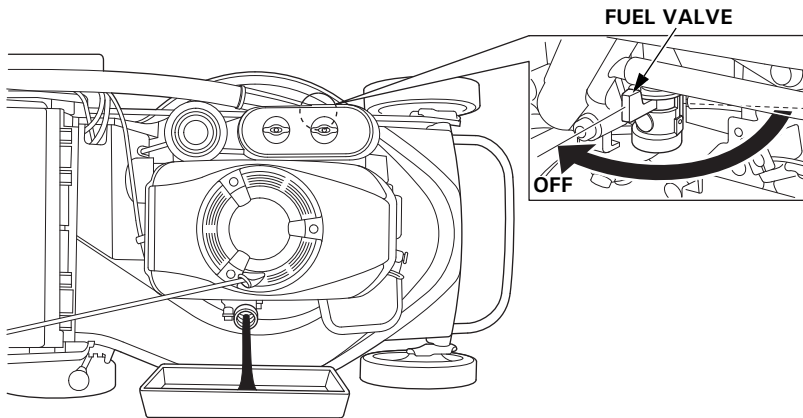
## ENGINE MAINTENANCE

### Engine Oil Change

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

1. Turn the fuel valve to the OFF position to reduce the possibility of fuel leakage (see page 10).
2. Wipe the oil filler area clean, then remove the oil filler cap/dipstick.
3. Place a suitable container next to the mower to catch the used oil, then tilt the mower on its right side. The used oil will drain through the filler neck. Allow the oil to drain completely.

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



4. Fill with the recommended oil. Do not overfill; measure the oil level as shown on page 54.

**Engine oil capacity: 0.65 lit.**

#### NOTICE

Using nondetergent oil can shorten the engine's service life, and using 2-stroke oil can damage the engine.

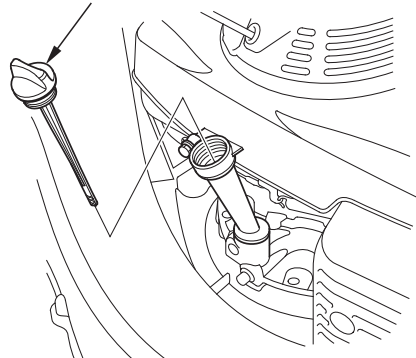
5. After changing the engine oil, and before starting the engine, check the oil level with the mower on a level surface:
- a. Wipe the dipstick clean.
  - b. Insert and remove the dipstick without screwing it into the filler neck. Check the oil level shown on the dipstick.
  - c. If the oil level is low, add oil to reach the upper limit mark on the dipstick. Do not overfill. If the engine is overfilled, the excess oil may get transferred to the air cleaner housing and air cleaner.

**NOTICE**

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

- d. Screw in the oil filler cap/dipstick securely.

OIL FILLER CAP/DIPSTICK

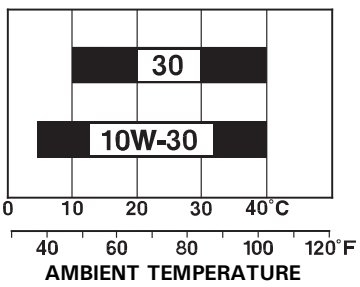
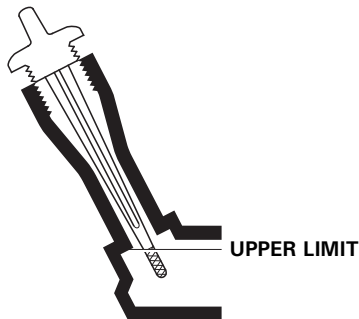


**Engine Oil Recommendations**

Oil is a major factor affecting performance and service life.

Use 4-stroke motor oil that meets or exceeds the requirements for API service classification 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).

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.



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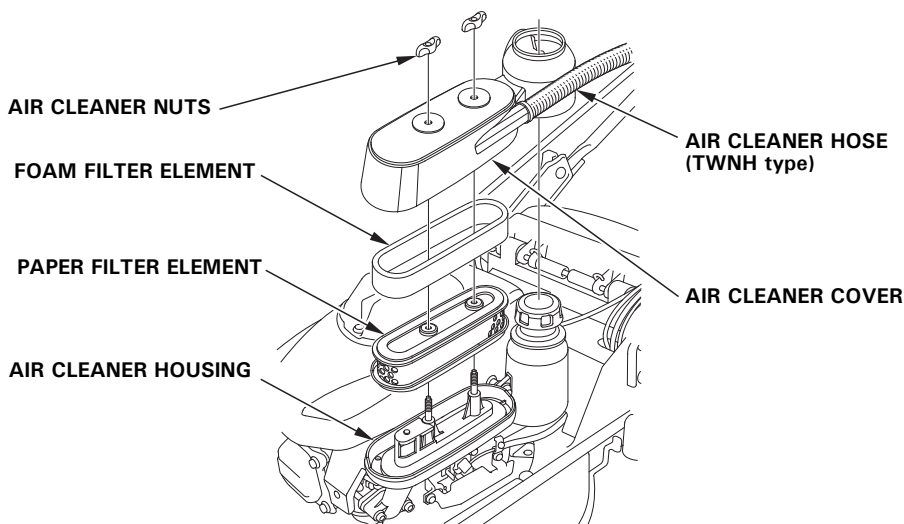
## Air Cleaner Service

Dirty air cleaner will restrict air flow to the carburetor, reducing engine performance. If you operate the mower in very dusty areas, clean the air cleaner more often than specified in the MAINTENANCE SCHEDULE.

### NOTICE

Operating the engine without an air filters, or damaged filters, will allow dirt to enter the engine, causing rapid engine wear. This type of damage is not covered by the Warranty.

1. Unscrew and remove the two air cleaner nuts, then remove the air cleaner cover.
2. Remove the filter elements from the air cleaner housing, and remove the foam filter element from the paper filter element.
3. Inspect the filter elements for holes or tears; and replace them if damaged.

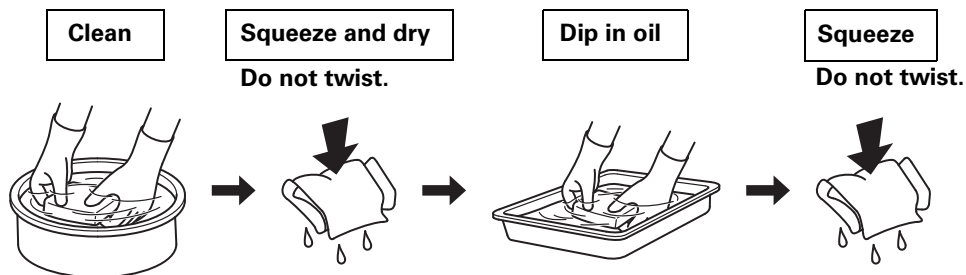


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#### 4. Clean the filter elements.

##### Foam element:

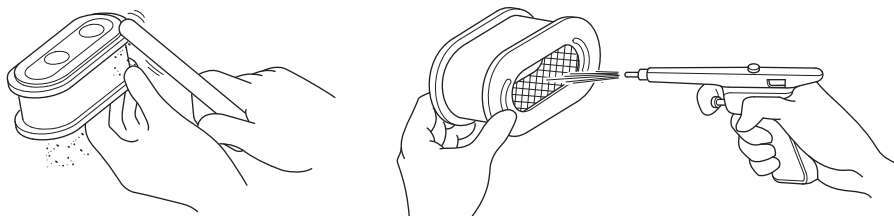
Clean in warm soapy water, rinse and allow to dry thoroughly. Or clean in high flashpoint solvent and allow to dry. Dip the element in clean engine oil and squeeze out all the excess. The engine will smoke during initial startup if too much oil is left in the foam.



##### Paper element:

Tap the element lightly several times on a hard surface to remove excess dirt, or blow compressed air through the filter from the inside out. Never try to brush the dirt off; brushing will force dirt into the fibers.

If you cannot unclog the element with the above procedure, replace it.

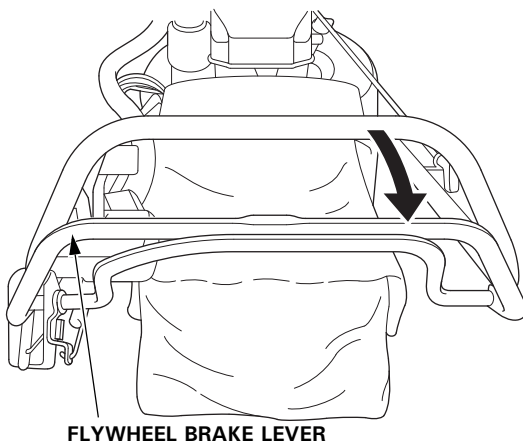


- 
5. Wipe dirt from the inside of the air cleaner housing and cover, using a moist rag. Be careful to prevent dirt from entering the air duct that leads to the carburetor.
  6. Reinstall the filters and cover and tighten the air cleaner nuts securely.

---

## Flywheel Brake Lever Operation Inspection

Start the engine outdoors and move the throttle lever to the HIGH position. Release the flywheel brake lever; the engine should stop quickly. If it does not, take your mower to your servicing dealer for repair.



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## Spark Plug Service

**Recommended spark plug: BPR5ES (NGK) , or W16EPR-U (DENSO)**

**NOTICE**

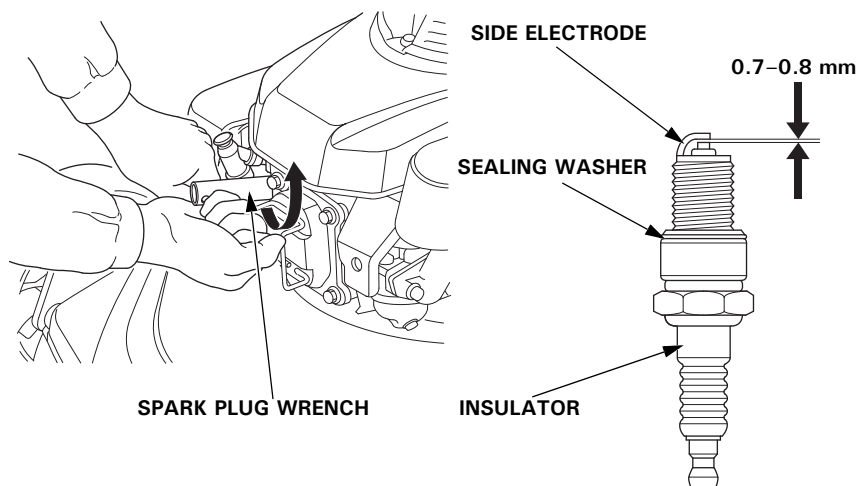
An incorrect spark plug can cause engine damage.

For good performance, the spark plug must be properly gapped and free of deposits.

1. Disconnect the spark plug cap and remove dirt from the area.



2. Use a spark plug wrench to remove the spark plug.
3. Inspect the plug; replace it if the electrode is worn, or if the insulator is cracked or chipped. Clean plug completely if you are going to reuse it.
4. Measure the spark plug gap with a suitable gauge. The gap should be 0.7–0.8 mm. Correct the gap, if necessary, by bending the side electrode.



5. Install the spark plug carefully by hand, to avoid cross-threading.
6. After the spark plug seats, tighten with a spark plug wrench to compress the washer.  
If reinstalling the old spark plug, tighten 1/8 to 1/4 turn after the spark plug seats.  
If installing a new spark plug, tighten 1/2 turn after the spark plug seats.

**NOTICE**

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

7. Install the spark plug cap on the spark plug.



---

## Carburetor Modification for Altitude Operation

At high altitude, the standard 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. High altitude performance can be improved by specific modifications to the carburetor. If you always operate your lawn mower at altitude above 1,500 meters, have your servicing dealer perform this carburetor modifications.

Even with carburetor modification, engine horsepower will decrease about 3.5% for each 300 meters 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 altitude below 1,500 meters with a modified carburetor may cause the engine to overheat and result in serious engine damage. For use at low altitude, have your servicing dealer return the carburetor to original factory specifications.**

## BLADE REMOVAL AND INSTALLATION

If you remove the blade, use a torque wrench to reinstall. Wear heavy gloves to protect your hands. To avoid weakening the blade, or causing imbalance or poor cutting, the blade should be sharpened by trained staff at your servicing dealer. If replacing the blade, use a Honda genuine replacement blade or equivalent.

### Removal:

1. Turn the fuel valve to the OFF position.
2. Disconnect the spark plug cap, then tilt the mower to the right side, so the fuel filler cap side is up.
3. Hold the blade disc firmly, and remove the blade disc holder bolt.

Set a flat blade screwdriver at the engine's bolt to prevent the blade disc from turning when removing the blade disc holder bolt.

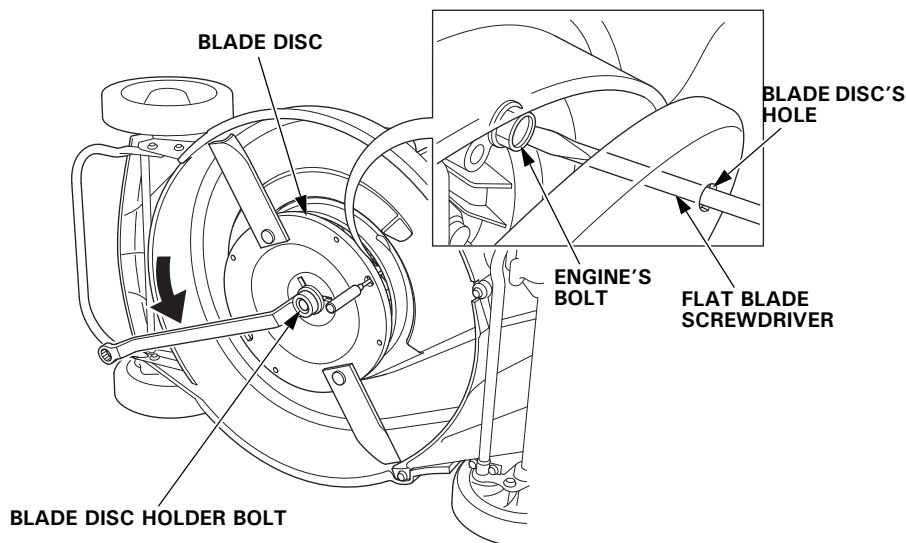
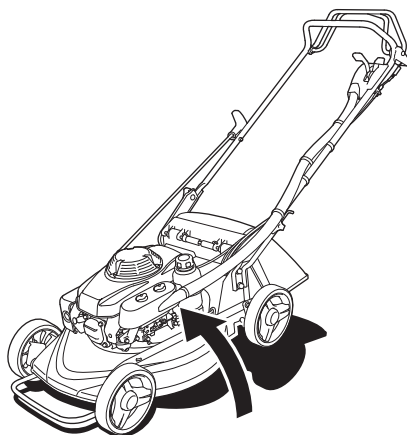
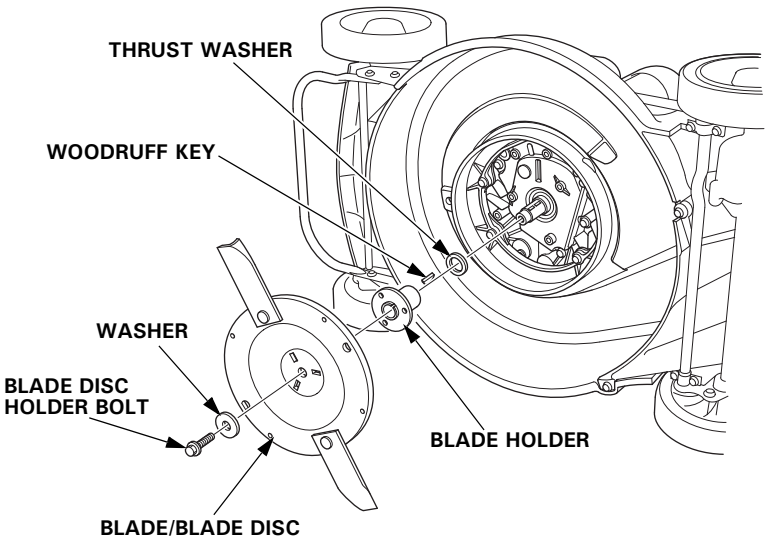
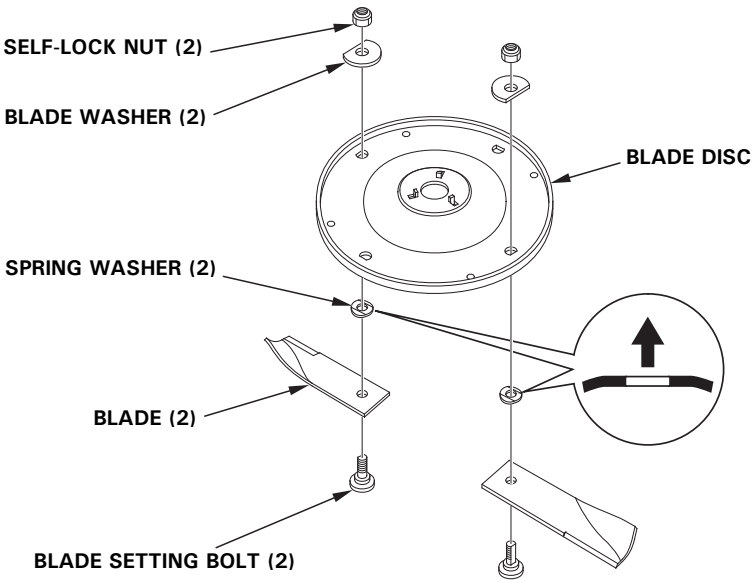


Illustration showing the blade disc holder bolt, washer, blade/blade disc, blade holder, woodruff key, and thrust washer removed.

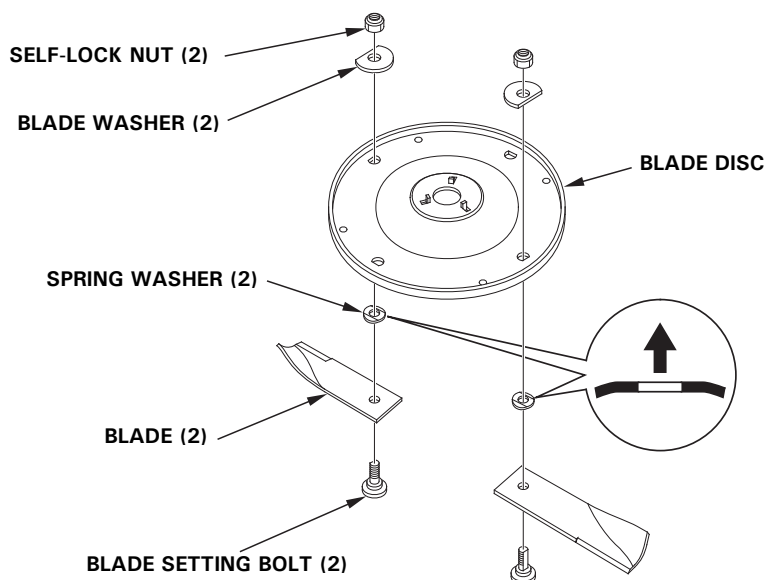


4. Remove the blade setting bolt, blade, spring washer, blade washer and self-lock nut from the blade disc.



## Installation:

1. Clean dirt and grass from the blades, blade disc, and the inside on the cutter housing.
2. Install the blade, spring washer, blade washer and self-lock nut to the blade disc using the blade setting bolt as described below.



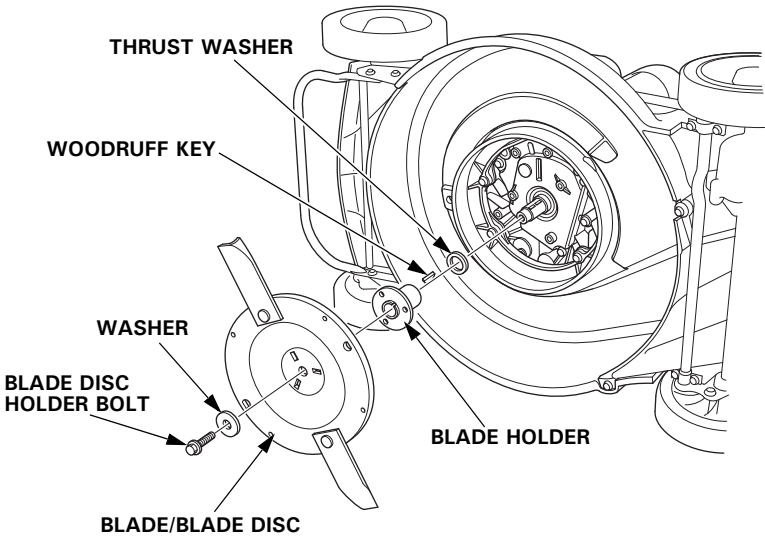
3. Tighten the self-lock nuts with a torque wrench. Prevent the blade disc from turning when tightening the self-lock nuts, tighten the selflock nuts to the specified torque.

The blade setting bolts are specially designed for the mower. Should you ever have to replace them, use only Honda genuine parts. Otherwise, the blade may detach from the mower and cause serious injury.

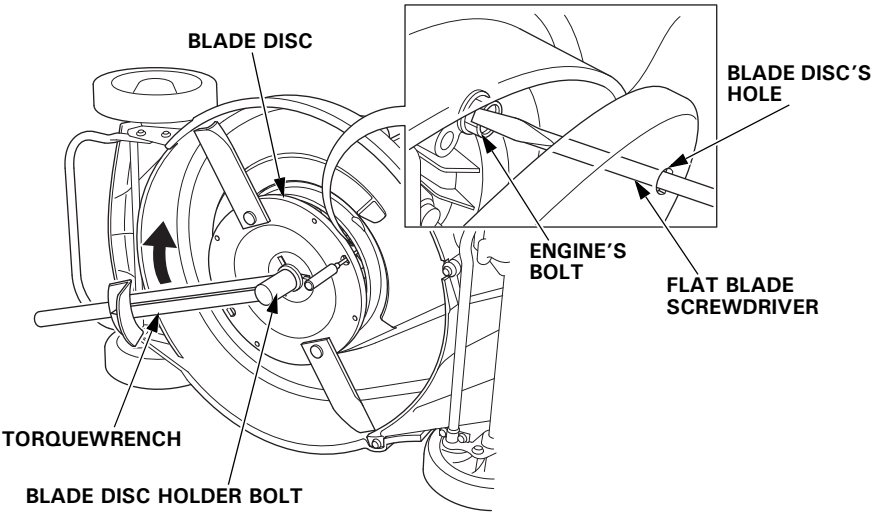
### Self-lock nuts tightenig torque:

**34.3 N·m (3.5 kgf·m)**

4. Install the thrust washer, woodruff key, blade holder, blade/blade disc, washer and blade disc holder bolt.



5. Hold the blade disc firmly, and install the blade disc holder bolt.



---

Tighten the blade disc holder bolt with a torque wrench. Set a flat blade screwdriver at the engine's bolt to prevent the blade disc from turning when tightening the blade disc holder bolt, tighten the blade disc holder bolt to the specified torque.

**Blade disc holder bolt tightening torque:**

**53.9 N·m (5.5 kgf·m)**

6. After installing the blade/blade disc check that it does not interfere with the housing. If the blade contacts the housing, consult an authorized Honda servicing dealer.

**⚠ WARNING**

**A bent blade can be the cause of serious personal injury or accident.**

If you don't have a torque wrench, have your servicing dealer tighten the blade setting bolts and the blade disc holder bolt before you use the mower. If the blade setting bolts and the blade disc holder bolt are overtightened, they could break. If the blade setting bolts and the blade disc holder bolt are not tightened enough, they could loosen or come out. In either case, it would be possible for the blade to fly off while you are operating the mower.

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## **GRASS BAG CLEANING AND REPLACEMENT (TWNH type)**

### **Grass Bag Cleaning**

Wash the bag with a garden hose, and allow it to dry completely before use; a wet bag will clog quickly.

### **Grass Bag Replacement**

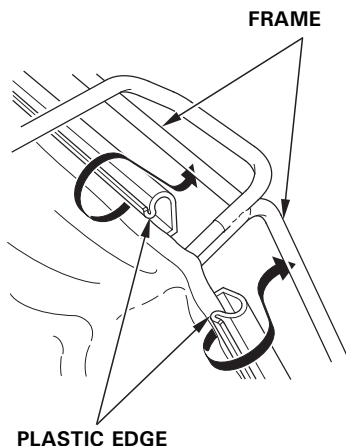
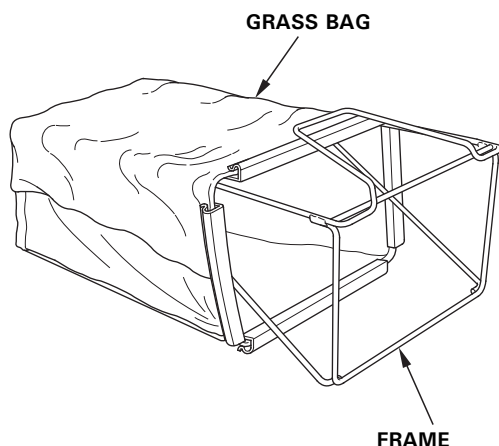
Replace a worn or damaged bag with a Honda genuine bag or its equivalent.

### **Bag Removal**

Unclip the plastic edges of the bag from the frame. Remove the bag from the frame.

### **Bag Installation**

Insert the frame into the new bag. Clip the plastic edges to the frame as shown.



## 8. TROUBLESHOOTING

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### ENGINE PROBLEMS

#### Engine Will Not Start

Possible Cause	Correction
Fuel valve OFF.	Turn fuel valve ON (p. 28).
Throttle lever in wrong position.	Move throttle lever to CHOKE position, unless the engine is warm (p. 29).
Out of fuel.	Refuel (p. 22).
Bad fuel; mower stored without treating or draining gasoline, or refueled with bad gasoline.	Drain fuel tank and carburetor (p. 47). Refuel with fresh gasoline (p. 22).
Spark plug faulty, fouled, or improperly gapped. Spark plug wet with fuel (flooded engine).	Clean, adjust or replace spark plug (p. 59). Dry and reinstall spark plug. Start engine with throttle lever in HIGH position.
Fuel filter clogged, carburetor malfunction, ignition malfunction, valves stuck, etc.	Take mower to your servicing dealer, or refer to shop manual.

#### Loss of Power

Possible Cause	Correction
Throttle not set to HIGH.	Move throttle to HIGH (p. 29).
Grass too tall to cut.	Raise cutting height (p. 27), cut narrower swath (p. 39), or cut more frequently.
Cutter housing clogged.	Clean out cutter housing (p. 44).
Air filter clogged.	Clean or replace air filter (p. 55).
Bad fuel; mower stored without treating or draining gasoline, or refueled with bad gasoline.	Drain fuel tank and carburetor (p. 47). Refuel with fresh gasoline (p. 22).
Fuel filter clogged, carburetor malfunction, ignition malfunction, valves stuck, etc.	Take mower to your servicing dealer, or refer to shop manual.



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## VIBRATION PROBLEMS

### Excessive Vibration

Possible Cause	Correction
Grass and debris lodged under cutter housing.	Clean out cutter housing (p. 44).
Blade loose, bent, damaged, or unbalanced by improper sharpening.	Tighten loose blade bolts. Replace damaged blade (p. 62).
Mechanical damage, such as a bent crankshaft.	Take mower to your servicing dealer, or refer to shop manual.

## MOWING AND BAGGING PROBLEMS

### Poor Cut Quality or Poor Mowing/Bagging Performance

Possible Cause	Correction
Engine speed is too slow to cut well.	Move throttle lever to the HIGH position (p. 29).
Mower is moving too fast for lawn conditions.	Release the drive clutch lever and push more.
Adjustment lever set at incorrect positions.	Set lever at the correct height position (p. 27, 39).
Grass bag overfilled or clogged.	Empty the grass bag. Wash the grass bag if clogged with dirt (p. 67).
Cutter housing clogged.	Clean out the cutter housing (p. 44).
Blade dull, worn, or damaged.	Sharpen or replace blade if necessary (p. 62).
Wrong blade installed.	Take mower to your servicing dealer, or refer to shop manual.

# 9. SPECIFICATIONS

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## MOWER MODELS

Model	HRJ216K3
Description Code	MACC
Type	Self-propelled

## DIMENSIONS,WEIGHTS AND CAPACITIES

Model	HRJ216K3	
Type	TDNH	TWNH
Overall Length	1,740 mm	
Overall Width	570 mm	
Overall Height	1,015 mm (with cutting height set at 28mm)	
Dry mass (weight)	46 kg	49 kg
Wheel Base	625 mm	
Tread	Front	470 mm
	Rear	500 mm
Cutting Width	530 mm	
Grass Bag Capacity	–	70 lit.
Cutting Height (11 steps adjustable)	16–76 mm	
Fuel Tank Capacity	1.5 lit.	

## ENGINE DESIGN AND PERFORMANCE

Model	HRJ216K3
Engine Model	GXV160H2
Engine Type	4-stroke, over head valve forced air-cooled
Displacement	163 cm <sup>3</sup>
Bore and Stroke	Ø 68.0 × 45.0 mm
Compression Ratio	8.0:1
Engine Net Power (in accordance with SAE J1349*)	3.2 kW (4.3 HP) at 3,600 rpm(TDNH type) 2.7 kW (3.6 HP) at 3,000 rpm(TWNH type)
Engine Max. Net Torque (in accordance with SAE J1349*)	9.6 N·m (0.98 kgf·m) at 2,500 rpm (TDNH type) 9.0 N·m (0.92 kgf·m) at 2,500 rpm (TWNH type)
Ignition System	Transistor type magneto ignition
Fuel	Unleaded gasoline with a research octane rating of 91 or higher (a pump octane rating of 86 or higher)
Engine Oil	SAE 10W-30, API SE or later
Engine Oil Capacity	0.65 lit.
Spark Plug Type	BPR5ES (NGK) W16EPR-U (DENSO)
Spark Plug Gap	0.7–0.8 mm
Maximum Engine Speed	3,600 ± 150 rpm (TDNH type) 3,200 ± 150 rpm (TWNH type)
Engine Set Speed (with blades)	3,100 $^{0}_{-150}$ rpm
Idle Speed	1,700 ± 150 rpm
Valve Clearance (cold)	Intake: 0.15 ± 0.02 mm Exhaust: 0.20 ± 0.02 mm

\*: 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 3,600 rpm (TDNH), 3,000rpm (TWNH) (Engine Net Power) and at 2,500 rpm (Engine Max. Net Torque). 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.

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## DRIVE TRAIN

Mechanism from engine to transmission		Shaft drive
Clutch	Type	Dog clutch
	Operation	Manual lever
Transmission	Type	Gear transmission
	Operation	Remote control
	Number of speeds	3 Speeds
	Lubrication system	Oil bath and splash
	Lubricant	Hypoid gear oil SAE #90
	Oil capacity	0.2 lit.
	Ground Speed	1st 0.8 m/sec
		2nd 1.1 m/sec
		3rd 1.4 m/sec

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

# 10. SET-UP INSTRUCTION

## Unpacking

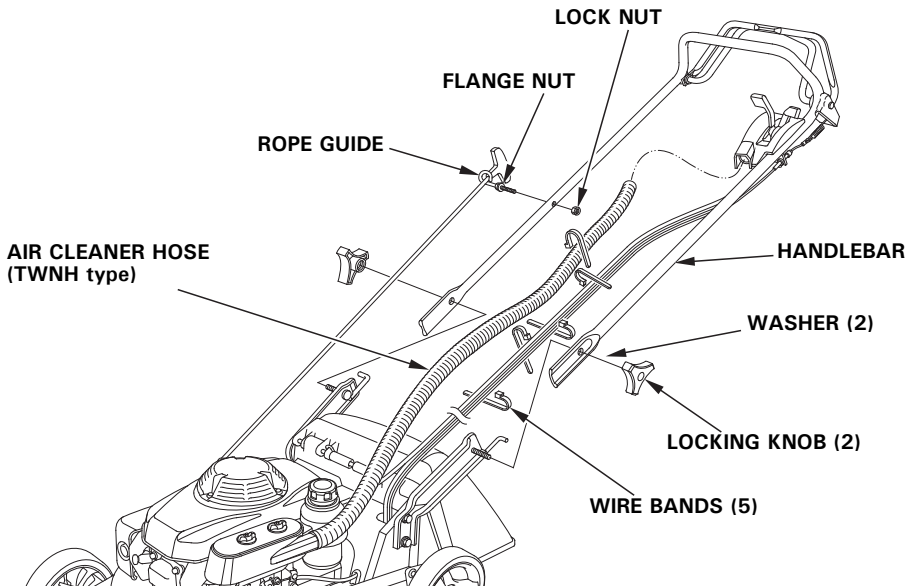
Remove all protective cardboards from the mower, including the piece around the handlebar.

## Grass Bag Installation

Refer to page 67 for grass bag installation.

## Handlebar Setup

1. Remove the locking knobs from the handlebar mounting section of the cutter housing.
2. Set the lower section of the handlebar to the handlebar mounting section of the cutter housing enough so you can raise the handlebar into the normal position.
3. Loosely install the washers and locking knobs.
4. Raise the handlebar in place.
5. Tighten the locking knobs securely.
6. Install the rope guide to the handlebar tighten the flange nut and lock nut securely.
7. Remove the wire bands from the cables.
8. Install the air cleaner hose to the air cleaner cover and throttle lever cover (TWNH type).

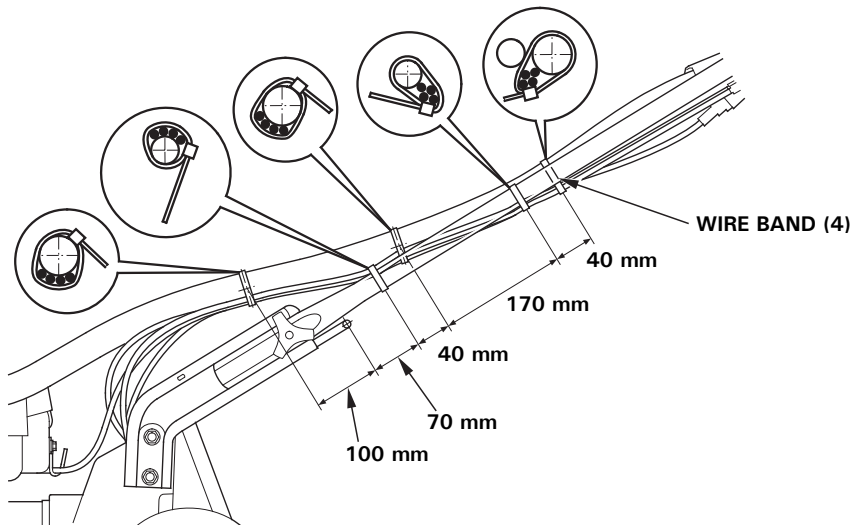


9. Secure the wires and air cleaner hose with the wire band as shown below (TWNH type).

Secure the wires with the wire band as shown below (TDNH type).

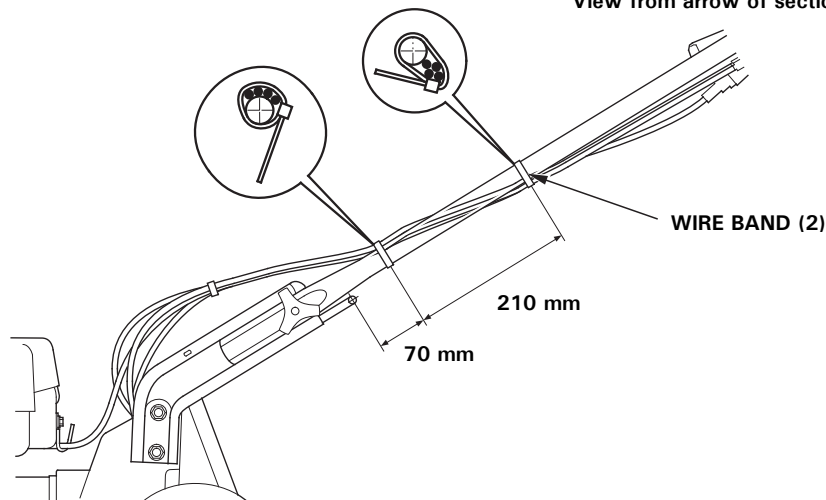
**TWNH type**

**View from arrow of sections**



**TDNH Type**

**View from arrow of sections**



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