This manual should be considered a permanent part of the motorcycle and should remain with the motorcycle when it is resold.

This Owner's Manual covers the ST1300 and ST1300 ABS models. You may find descriptions of equipment and features that are not on your particular model.
All illustrations are based on the ST1300 ABS model, unless noted otherwise.

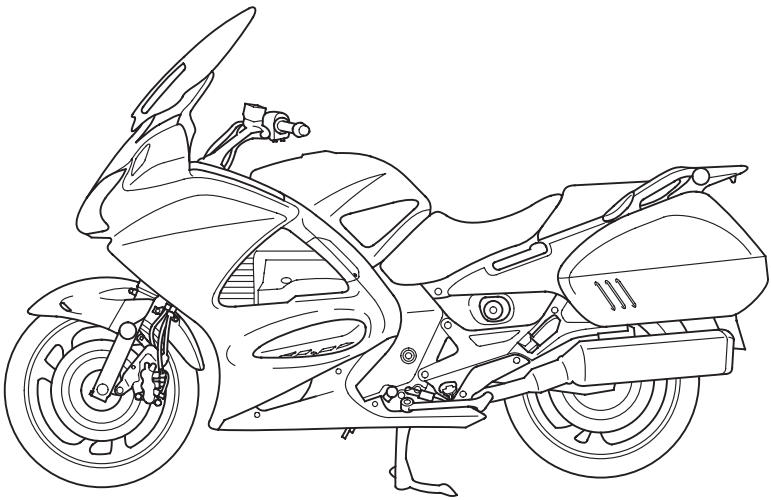
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The vehicle pictured on the front cover may not match your vehicle.

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2009
Honda ST1300/A
OWNER'S MANUAL



Introduction

Congratulations on choosing your Honda motorcycle.

When you own a Honda, you're part of a worldwide family of satisfied customers— people who appreciate Honda's reputation for building quality into every product.

Before riding, take time to get acquainted with your motorcycle and how it works. To protect your investment, we urge you to take responsibility for keeping your motorcycle well maintained. Scheduled service is a must, of course. But it's just as important to observe the break-in guidelines, and perform all pre-ride and other periodic checks detailed in this manual.

We also recommend that you read this owner's manual before you ride. It's full of facts, instructions, safety information, and helpful tips. To make it easy to use, the manual contains a detailed list of topics at the beginning of each section, and both an in-depth table of contents and an index at the back of the book.

As you read this manual, you will find information that is preceded by a NOTICE symbol. This information is intended to help you avoid damage to your Honda, other property, or the environment.

Introduction

Read the Warranties Booklet (page 194) thoroughly so you understand the coverages that protect your new Honda and are aware of your rights and responsibilities.

If you have any questions, or if you ever need special service or repairs, remember that your Honda dealer knows your motorcycle best and is dedicated to your complete satisfaction.

Please report any change of address or ownership to your Honda dealer so we will be able to contact you concerning important product information.

You may also want to visit our website at www.honda.com.

Happy riding!

California Proposition 65 Warning
WARNING: This product contains or emits chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

A Few Words About Safety

Your safety, and the safety of others, is very important. And operating this motorcycle safely is an important responsibility.

To help you make informed decisions about safety, we have provided operating procedures and other information on labels and in this manual. This information alerts you to potential hazards that could hurt you or others.

Of course, it is not practical or possible to warn you about all hazards associated with operating or maintaining a motorcycle. You must use your own good judgment.

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

- **Safety Labels** — on the motorcycle.
- **Safety Messages** — preceded by a safety alert symbol ⚠ and one of three signal words: **DANGER, WARNING,** or **CAUTION**.

These signal words mean:

⚠ DANGER	**You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.**
⚠ WARNING	**You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.**
⚠ CAUTION	**You CAN be HURT if you don't follow instructions.**

- **Safety Headings** — such as Important Safety Reminders or Important Safety Precautions.
- **Safety Section** — such as Motorcycle Safety.
- **Instructions** — how to use this motorcycle correctly and safely.

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

Contents

These pages give an overview of the contents of your owner's manual. The first page of each section lists the topics covered in that section.

Motorcycle Safety..... 1
Important safety information you should know, plus a look at the safety-related labels on your motorcycle.

Instruments & Controls..... 11
The location and function of indicators, gauges, and controls on your motorcycle and operating instructions for various controls and features.

Before Riding..... 37
The importance of wearing a helmet and other protective gear, how to make sure you and your motorcycle are ready to ride, and important information about loading.

Basic Operation & Riding..... 51
How to start and stop the engine, shift gears, and brake. Also, riding precautions and important information about riding with a passenger or cargo.

Servicing Your Honda..... 67
Why your motorcycle needs regular maintenance, what you need to know before servicing your Honda, an owner maintenance schedule, and instructions for specific maintenance and adjustment items.

Contents

Tips **143**
How to store and transport your motorcycle and how to be an environmentally responsible rider.

Taking Care of the Unexpected **149**
What to do if you have a flat tire, your engine won't start, etc.

Technical Information **173**
ID numbers, technical specifications, and other technical facts.

Consumer Information **191**
Information on warranties, emission controls, how to get Honda service manuals, and...
"Reporting Safety Defects" **199**

Table of Contents **200**
Sequential listing of topics in this owner's manual.

Index **206**

Quick Reference
Handy facts about fuel, engine oil, tire sizes, and air pressures.

Motorcycle Safety

This section presents some of the most important information and recommendations to help you ride your motorcycle safely. Please take a few moments to read these pages. This section also includes information about the location of safety labels on your motorcycle.

Important Safety Information 2
Accessories & Modifications 4
Safety Labels 6

Important Safety Information

Your motorcycle can provide many years of service and pleasure—if you take responsibility for your own safety and understand the challenges you can meet while riding.

There is much that you can do to protect yourself when you ride. You'll find many helpful recommendations throughout this manual. The following are a few that we consider to be most important.

Always Wear a Helmet
It's a proven fact: helmets significantly reduce the number and severity of head injuries. So always wear an approved motorcycle helmet and make sure your passenger does the same. We also recommend that you wear eye protection, sturdy boots, gloves, and other protective gear (page 38).

Take Time to Learn & Practice
Even if you have ridden other motorcycles, take time to become familiar with how this motorcycle works and handles. Practice in a safe area until you build your skills and get accustomed to the motorcycle's size and weight.

Because many accidents involve inexperienced or untrained riders, we urge all riders to take a certified course approved by the Motorcycle Safety Foundation (MSF). See page 40 .

Ride Defensively
The most frequent motorcycle collision happens when a car turns left in front of a motorcycle. Another common situation is a car moving suddenly into your lane.

Always pay attention to other vehicles around you, and do not assume that other drivers see you. Be prepared to stop quickly or make an evasive maneuver. For other riding tips, see the booklet, *You and Your Motorcycle Riding Tips*, which came with your new motorcycle (USA only).

Make Yourself Easy to See
Some drivers do not see motorcycles because they are not looking for them. To make yourself more visible, wear bright reflective clothing, position yourself so other drivers can see you, signal before turning or changing lanes, and use your horn when it will help others notice you.

Ride within Your Limits
Pushing limits is another major cause of motorcycle accidents. Never ride beyond your personal abilities or faster than conditions warrant. Remember that alcohol, drugs, fatigue, and inattention can significantly reduce your ability to make good judgments and ride safely.

Don't Drink and Ride
Alcohol and riding don't mix. Even one drink can reduce your ability to respond to changing conditions, and your reaction time gets worse with every additional drink. So don't drink and ride, and don't let your friends drink and ride either.

Keep Your Honda in Safe Condition
It's important to keep your motorcycle properly maintained and in safe riding condition. To help avoid problems, inspect your motorcycle before every ride and perform all recommended maintenance. Never exceed load limits (page 44), and do not modify your motorcycle (page 5) or install accessories that would make your motorcycle unsafe (page 4).

Accessories & Modifications

Modifying your motorcycle or using non-Honda accessories can make your motorcycle unsafe. Before you consider making any modifications or adding an accessory, be sure to read the following information.

⚠ WARNING

Improper accessories or modifications can cause a crash in which you can be seriously hurt or killed.

Follow all instructions in this owner's manual regarding accessories and modifications.

Accessories

We strongly recommend that you use only Honda Genuine Accessories that have been specifically designed and tested for your motorcycle. Because Honda cannot test all other accessories, you must be personally responsible for proper selection, installation, and use of non-Honda accessories.
Check with your Honda dealer for assistance and always follow these guidelines:

- Make sure the accessory does not obscure any lights, reduce ground clearance and lean angle, limit suspension travel or steering travel, alter your riding position, or interfere with operating any controls.
- Do not add any electrical equipment that will exceed the motorcycle's electrical system capacity (page 179). A blown fuse can cause a loss of lights or engine power (page 167).
- Do not pull a trailer or sidecar with your motorcycle. This motorcycle was not designed for these attachments, and their use can seriously impair your motorcycle's handling.
- Carefully consider the weight of any accessories and any cargo stored in those accessories to avoid exceeding the maximum weight limits.
  For more information, see *Load Limits*, page 44 .

Modifications

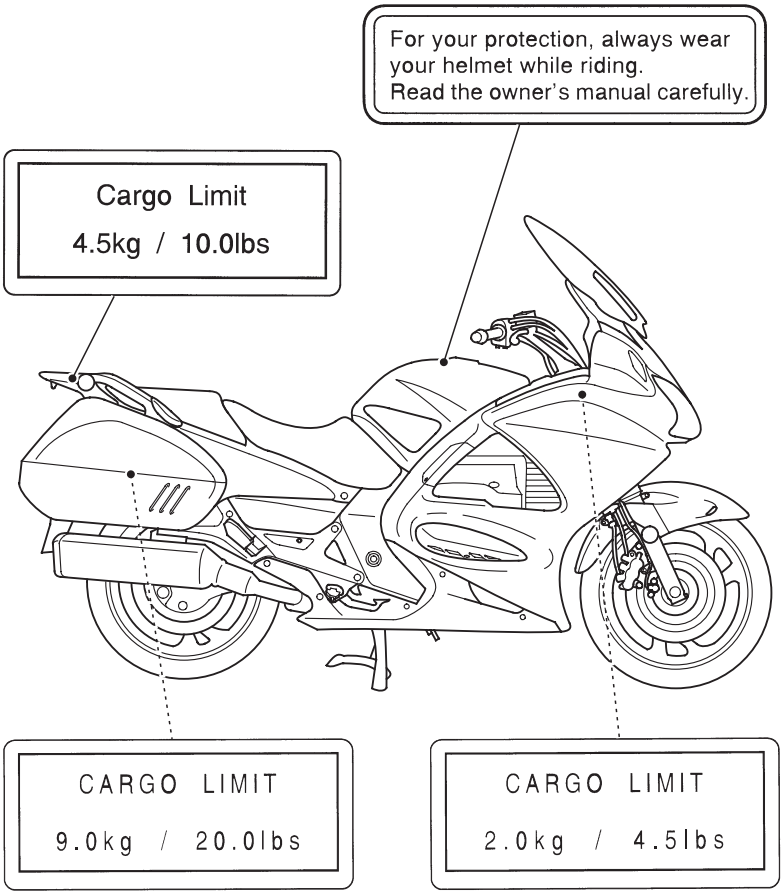
We strongly advise you not to remove any original equipment or modify your motorcycle in any way that would change its design or operation. Such changes could seriously impair your motorcycle's handling, stability, and braking, making it unsafe to ride.

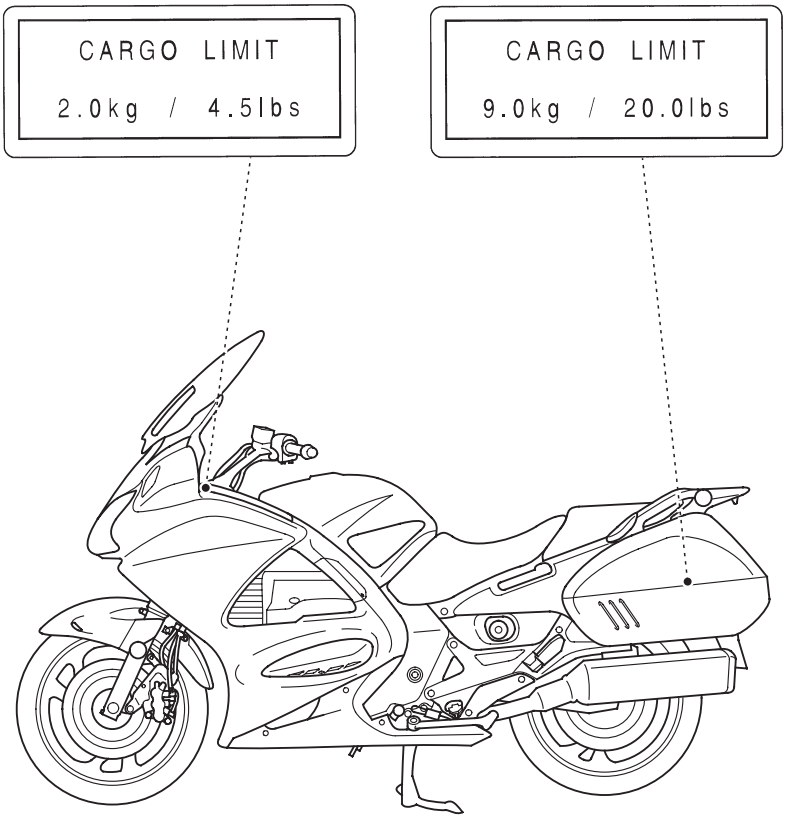
Removing or modifying your lights, exhaust system, emission control system, or other equipment can also make your motorcycle illegal.

Safety Labels

Safety labels on your motorcycle either warn you of potential hazards that could cause serious injury or they provide important safety information. Read these labels carefully and don't remove them.

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




CARGO LIMIT
2.0kg / 4.5lbs
CARGO LIMIT
9.0kg / 20.0lbs

Safety Labels

＜For USA＞

TIRE INFORMATION

Cold tire pressures :
[Up to maximum weight capacity]
Front 290kPa 2.90kgf/cm² 42psi
Rear 290kPa 2.90kgf/cm² 42psi
[Up to 90kg(200lbs) load]
Front 290kPa 2.90kgf/cm² 42psi
Rear 290kPa 2.90kgf/cm² 42psi
Maximum weight capacity : 182kg(401lbs)
Tire size : Front 120/70ZR18M/C (59W)
Rear 170/60ZR17M/C (72W)

Tire brand	Front	Rear
BRIDGESTONE	BT020F F	BT020R F
DUNLOP	D220FST L	D220ST L

Min. recommend tire center tread depth.
Front 1.5mm (0.06in.) Rear 2.0mm (0.08in.)

Read owner's manual.

This motorcycle is equipped with tubeless tires.

＜For Canada＞

TIRE INFORMATION

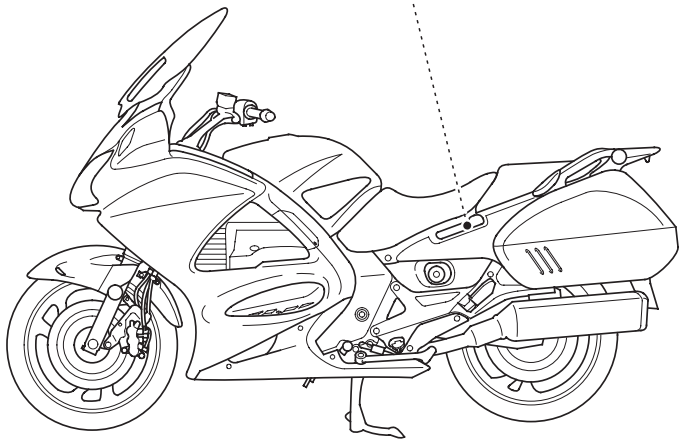
Cold tire pressures :
[Up to maximum weight capacity]
Front 290kPa 2.90kgf/cm² 42psi
Rear 290kPa 2.90kgf/cm² 42psi
[Up to 90kg(200lbs) load]
Front 290kPa 2.90kgf/cm² 42psi
Rear 290kPa 2.90kgf/cm² 42psi
Maximum weight capacity : 186kg(410lbs)
Tire size : Front 120/70ZR18M/C (59W)
Rear 170/60ZR17M/C (72W)

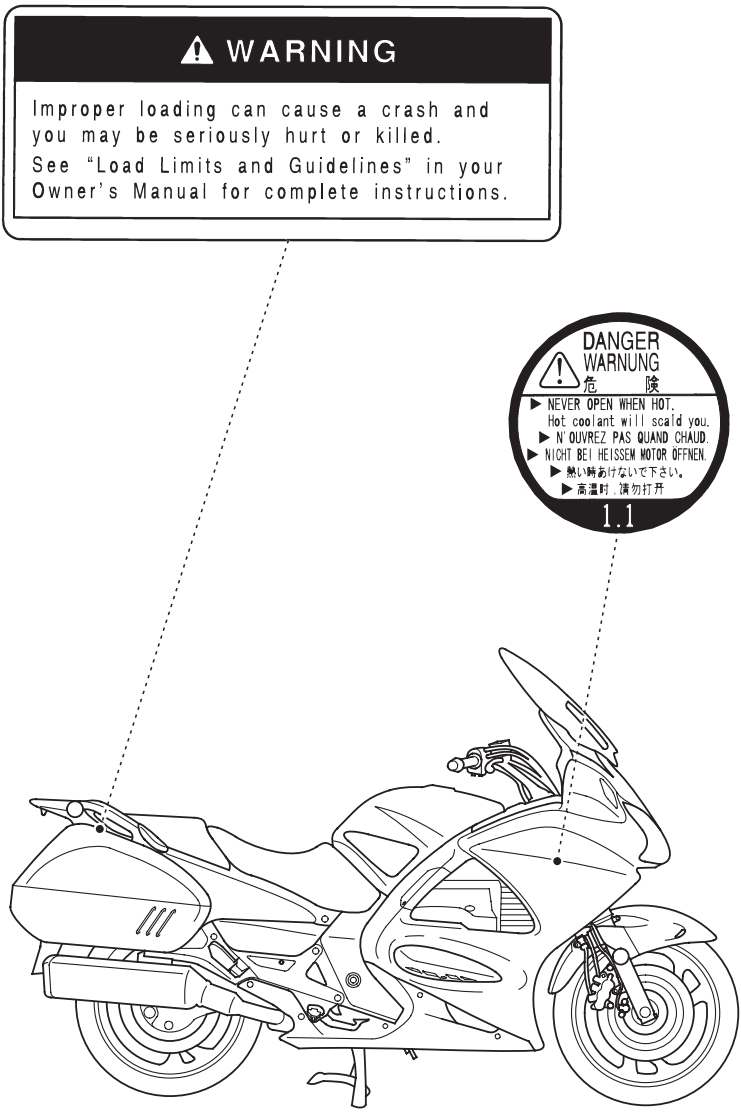
Tire brand	Front	Rear
BRIDGESTONE	BT020F F	BT020R F
DUNLOP	D220FST L	D220ST L

Min. recommend tire center tread depth.
Front 1.5mm (0.06in.) Rear 2.0mm (0.08in.)

Read owner's manual.

This motorcycle is equipped with tubeless tires.




⚠ WARNING
Improper loading can cause a crash and you may be seriously hurt or killed.
See "Load Limits and Guidelines" in your Owner's Manual for complete instructions.
DANGER
WARNUNG
危 険
▶ NEVER OPEN WHEN HOT.
Hot coolant will scald you.
▶ N'OUVREZ PAS QUAND CHAUD.
▶ NICHT BEI HEISSEM MOTOR ÖFFNEN.
▶ 熱い時あけないで下さい。
▶ 高温时，请勿打开
1.1

Instruments & Controls

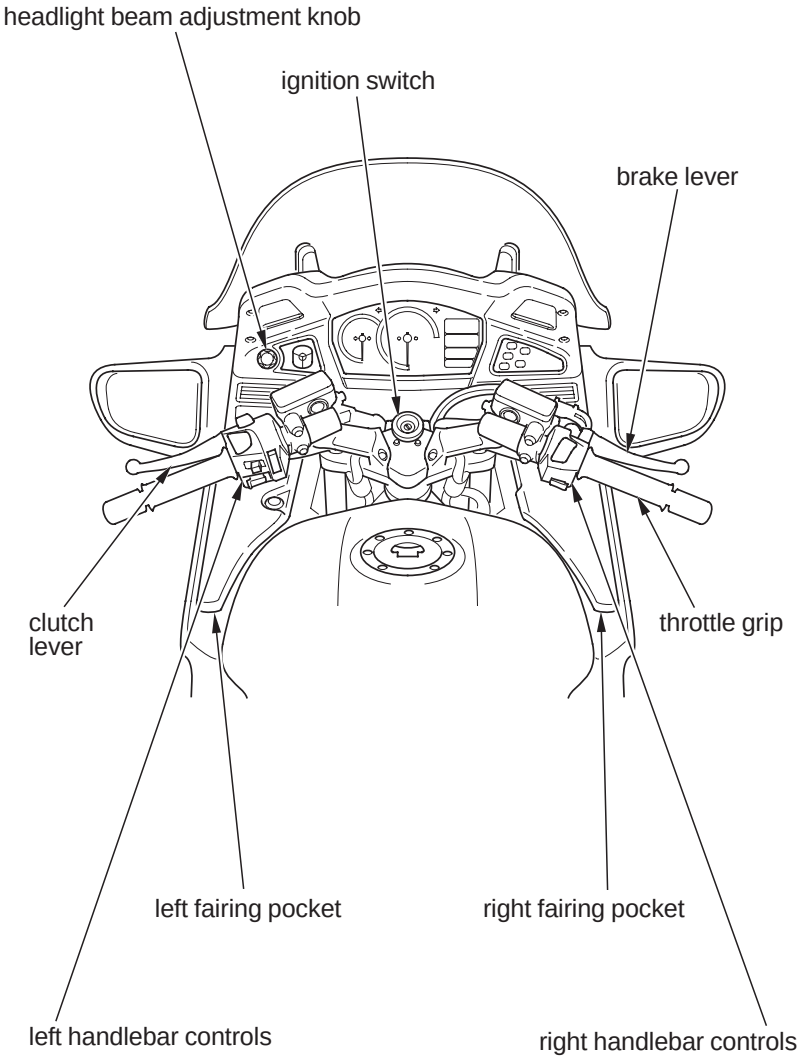
This section shows the location of all gauges, indicators, and controls you would normally use before or while riding your motorcycle.

The items listed on this page are described in this section. Instructions for other components are presented in other sections of this manual where they will be most useful.

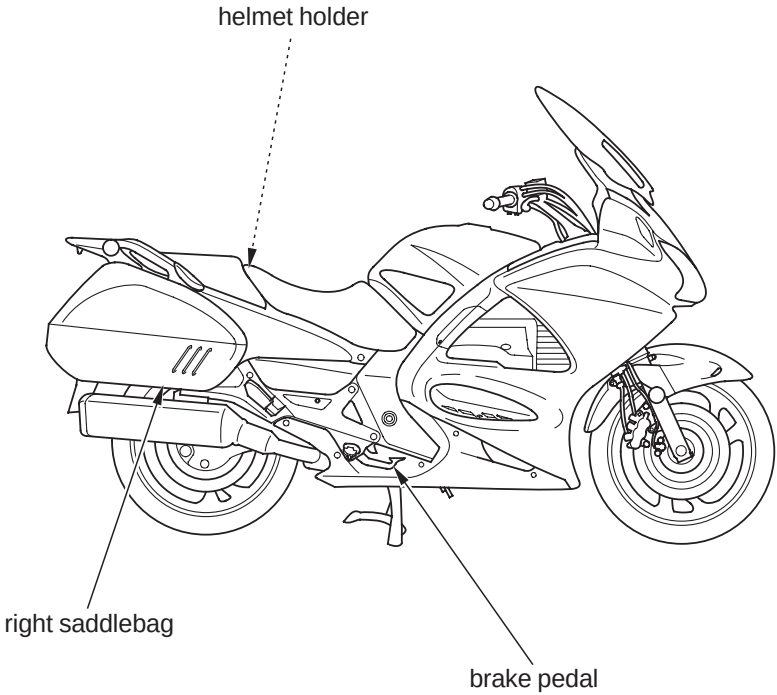
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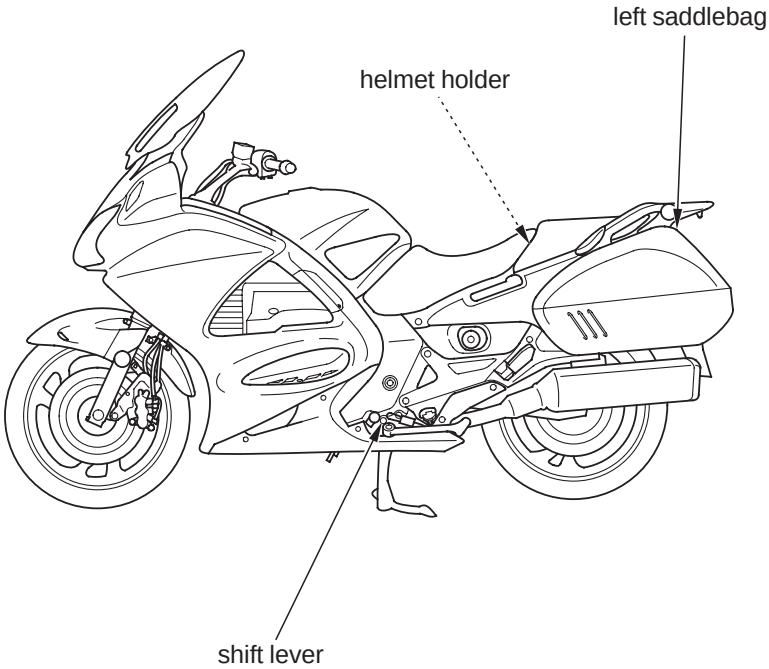
Operation Component Locations



Operation Component Locations



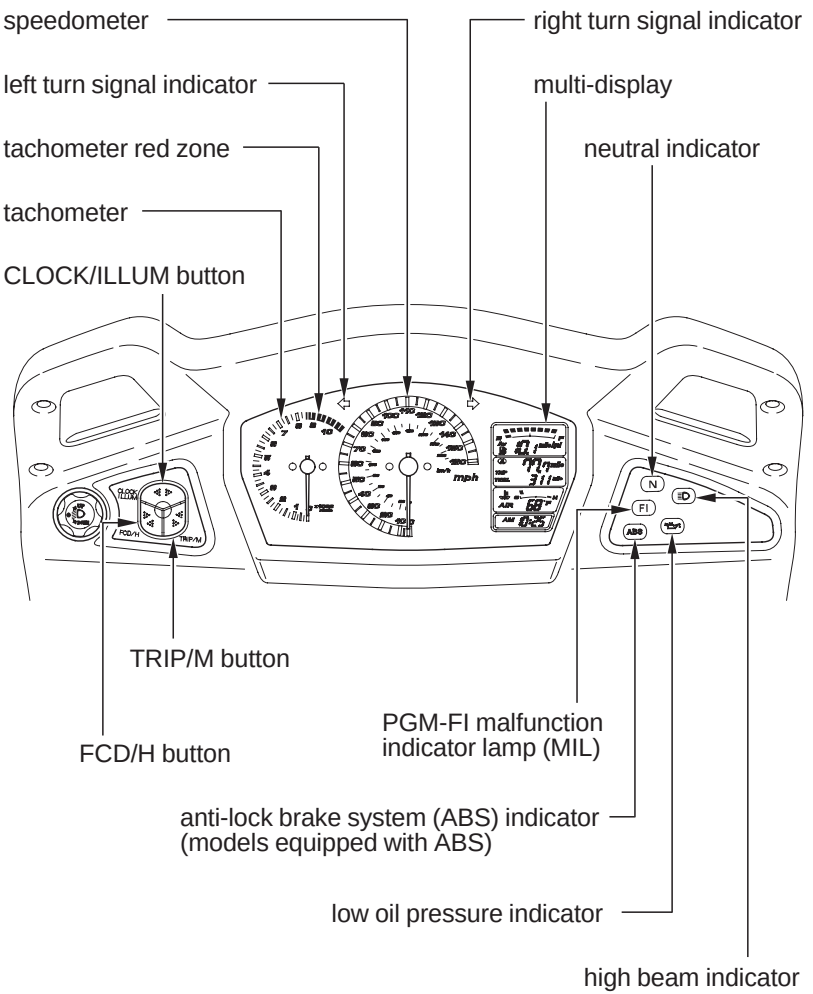
Operation Component Locations



Gauges & Indicators

The gauges, indicators and displays on your motorcycle keep you informed, alert you to possible problems, and make your riding safer and more enjoyable. Refer to the gauges, indicators and displays frequently. Their functions are described on the following pages.

Speedometer, odometer & tripmeter read in miles and kilometers.



Gauges & Indicators

Lamp Check

The low oil pressure indicator comes on when you turn the ignition switch ON so you can check that it is working. The indicator remains on until after the engine is started.

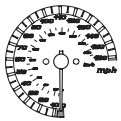
The PGM-FI malfunction indicator lamp lights for a few seconds and then goes off when you turn the ignition switch ON.

(Models equipped with ABS)
The anti-lock brake system (ABS) indicator comes on when you turn the ignition switch ON. This indicator goes off after you ride the motorcycle at a speed above 6 mph (10 km/h).

When applicable, the high beam and neutral indicators come on when you turn the ignition switch ON and remain on until you select the low beam or shift out of neutral.

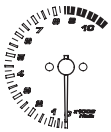
These indicators are identified in the table on pages 17 — 19 with the words: *Lamp Check.*

If one of these indicators does not come on when it should, have your Honda dealer check for problems.



speedometer

Shows riding speed in miles (USA) or kilometers (Canada) per hour.



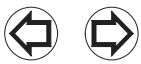
tachometer

Shows engine speed in revolutions per minute (rpm).



tachometer red zone

Shows excessive engine rpm range (indicated from the beginning of the tachometer red zone) in which operation may damage the engine. Do not let the tachometer needle enter the red zone.



turn signal indicator (amber)

Flashes when either turn signal operates.



neutral indicator (green)

Lights when the transmission is in neutral.



low oil pressure indicator (red)

Lights when engine oil pressure is low enough to cause engine damage. If the low oil pressure indicator lights during operation, pull safely to the side of the road. See page 166 for instructions and cautions. *Lamp Check*.



PGM-FI malfunction indicator lamp (MIL) (red)

Lights when there is any abnormality in the PGM-FI (Programmed Fuel Injection) system. Should also light for a few seconds and then go off when the ignition switch is turned ON and the engine stop switch is at RUN. If the indicator comes on at any other time, reduce speed and take your motorcycle to a Honda dealer as soon as possible. *Lamp Check.*



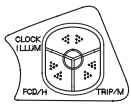
anti-lock brake system (ABS) indicator (red)
(models equipped with ABS)

Lights when there is any abnormality in the anti-lock brake system (ABS). Normally, this indicator comes on when the ignition switch is turned ON, and goes off after you ride the motorcycle at a speed above 6 mph (10 km/h). If the indicator comes on while riding, stop the motorcycle in a safe place and turn off the engine. Refer to *ABS Indicator*, page 61. For information about ABS, see page 60. *Lamp Check.*



high beam indicator (blue)

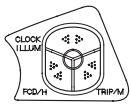
Lights when the headlight is on high beam.



CLOCK/ILLUM button

Use this button for the following purposes.

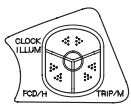
- To adjust time
- To adjust display illumination



FCD/H button

Use this button for the following purposes.

- To adjust time
- To select and reset the fuel mileage meter
- To change the mileage units for the odometer/tripmeter and available driving distance



TRIP/M button

Use this button for the following purposes.

- To adjust time
- To select and reset the tripmeter

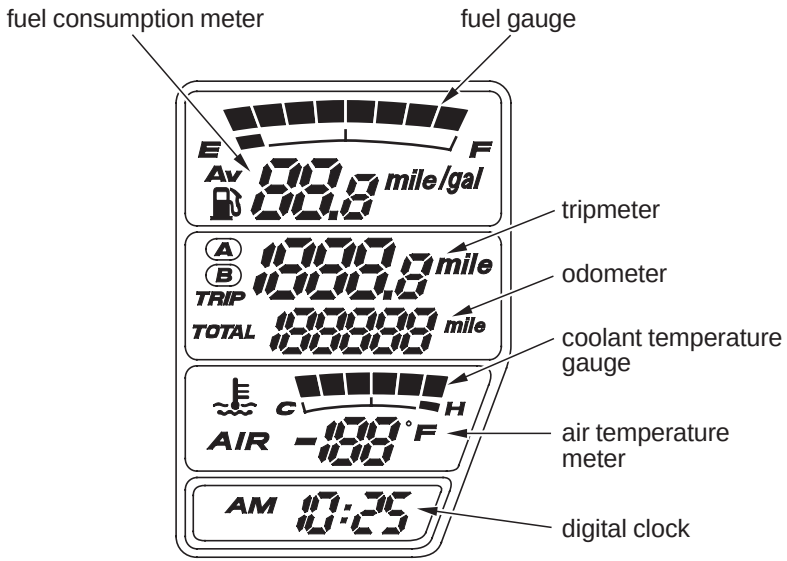
Multi-display

Your motorcycle is equipped with a Multi-display that presents various displays. This section explains display functions and operations.

Initial Display

When the ignition switch is turned ON, the display will temporarily show all the modes (except the digital clock) and digital segments so you can make sure the liquid crystal display is functioning properly.

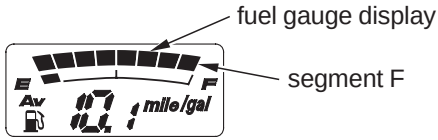
Both the digital clock and tripmeter will reset if the battery is disconnected.



Fuel Gauge

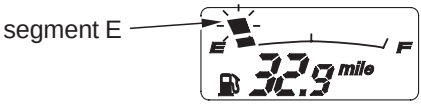
The fuel gauge liquid crystal display shows the approximate fuel supply available in a graduated display. When the segment F goes on, the fuel tank capacity including reserve is:

7.66 US gal (29.0 ℓ)



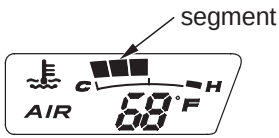
When segment E flashes, fuel will be low and you should refill the tank as soon as possible. The amount of fuel left in the tank with the vehicle set upright is approximately:

1.32 US gal (5.0 ℓ)



Coolant Temperature Gauge

When the segment begins to move above the C (Cold) mark, the engine is warm enough for the motorcycle to be ridden. The normal operating temperature range is within the section between the H and C marks.



If segment H flashes, stop the engine and check the reserve tank coolant level. Read pages 105 – 107 and do not ride the motorcycle until the problem has been corrected.

NOTICE

Continuing to ride with an overheated engine can cause serious engine damage.

Multi-display

Air Temperature Meter

The air temperature meter shows air temperature digitally.

USA : Fahrenheit (°F),
Canada : Centigrade (°C).

Temperature Display

Below 13°F (−11°C)	‘‘- -’’ is displayed.
Between 14°F − 122°F (−10°C − 50°C)	Actual air temperature is indicated.
Above 122°F (50°C)	The display will remain and blink ‘‘122°F (50°C)’’.

The temperature sensor is located in the upper fairing. Therefore, the temperature reading can be affected by heat reflection from the road surface, engine heat, and the exhaust from the surrounding traffic. This can cause an error in the temperature reading when your speed is under 19 mph (30 km/h).

《For USA》



《For Canada》

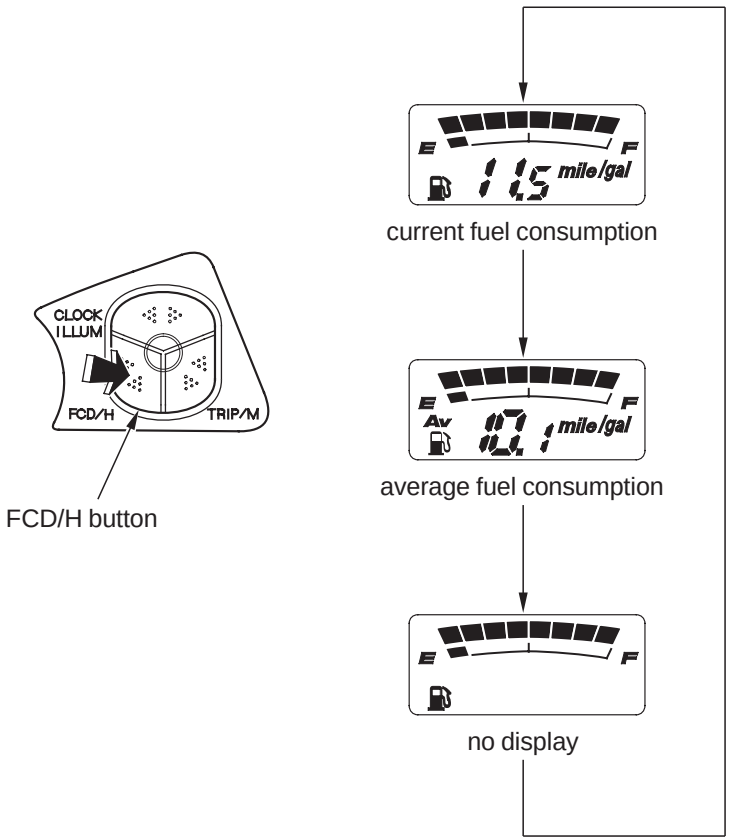


air temperature meter

Fuel Consumption Meter

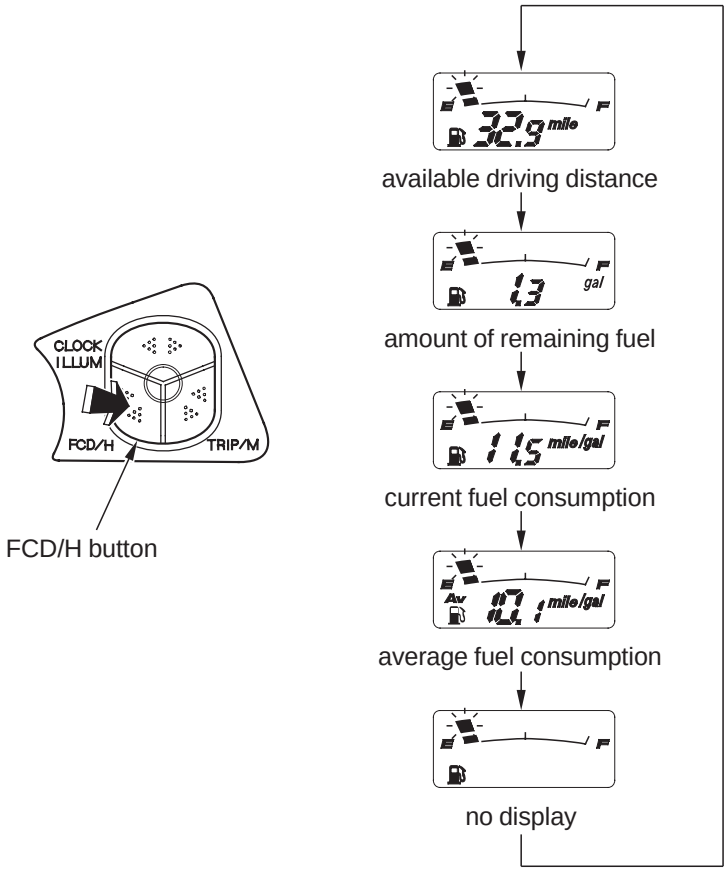
The fuel consumption meter allows display of the available driving distance, the amount of remaining fuel, the current fuel consumption and the average fuel consumption. Briefly pressing the FCD/H button changes the display as described below. The available driving distance and the amount of remaining fuel are indicated when the fuel in the fuel tank becomes 1.32 US gallons (5.0 liters) or less.

《When more than 1.32 US gallons (5.0 liters)》



Multi-display

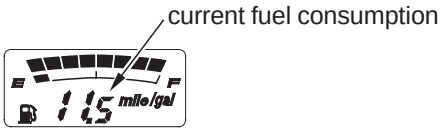
《When less than 1.32 US gallons (5.0 liters)》



- When the remaining fuel becomes 1.32 US gallons (5.0 liters) or less, the display automatically changes to the available driving distance (unless no display has been selected).
- When the battery terminal is disconnected, the available driving distance, the amount of remaining fuel and the average fuel consumption memories will be reset.
- When the battery terminal is disconnected with 1.32 US gallons (5.0 liters) or less fuel remaining, the available driving distance and the amount of remaining fuel shown may be inaccurate in some cases.

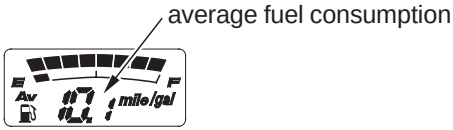
Current Fuel Consumption

The display will show ‘‘mile/gal’’ (USA) or ‘‘km/ ℓ ’’ (Canada).
Indicates the momentary fuel consumption of each 15 seconds during engine operation. With motorcycle speed 3 mph (5 km/h) or below ‘‘- -’’ is displayed.
When ‘‘- -’’ blinks, go to your Honda dealer for service.

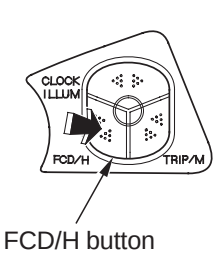


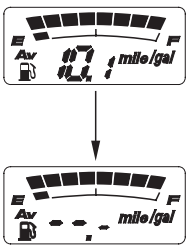
Average Fuel Consumption

The display will show ‘‘mile/gal’’ (USA) or ‘‘km/ ℓ ’’ (Canada).
The average fuel consumption after reset until that moment is indicated every 15 seconds.
When ‘‘- -’’ blinks, go to your Honda dealer for service.



To Reset Average Fuel Consumption:
Press and hold the FCD/H button for more than 2 seconds with the display in the average fuel consumption mode.





Multi-display

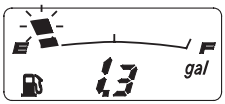
Available Driving Distance

The available driving distance displays in either ‘‘mile’’ (USA) or ‘‘km’’ (Canada).
When the amount of remaining fuel becomes less than 1.32 US gallons (5.0 liters), the estimated allowable distance is indicated.
When the amount of remaining fuel becomes less than 0.53 US gallons (2.0 liters), ‘‘- -’’ will be indicated.
The indicated available driving distance is calculated based on the driving conditions, and the indicated figure may not always be the actual allowable distance. When the fuel gauge nears E or when the E segment blinks, fill fuel promptly.



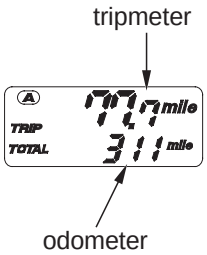
Remaining Fuel

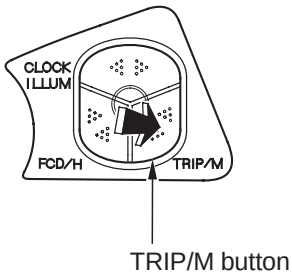
The display will show ‘‘gal’’ (USA) or ‘‘ ℓ ’’ (Canada).
When the amount of remaining fuel becomes less than 1.32 US gallons (5.0 liters), the estimated amount of remaining fuel is indicated.
When the amount of remaining fuel becomes less than 0.53 US gallons (2.0 liters), ‘‘- -’’ will be indicated.
The amount of remaining fuel is calculated from the driving conditions.
The indicated amount of remaining fuel may be different from the actual amount. When the fuel gauge nears E or when the E segment blinks, fill fuel promptly.



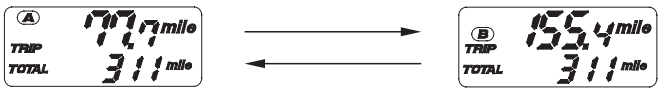
Odometer/Tripmeter

- ODO (Odometer) —— shows the total miles or kilometers ridden.
- TRIP (Tripmeter) —— shows the number of miles or kilometers ridden since you last reset the meter.





The tripmeter will show mileage in two sub modes, ‘‘tripmeter A’’ and ‘‘tripmeter B.’’
Press the TRIP/M button to select the ‘‘tripmeter A’’ or ‘‘tripmeter B’’ mode.



To reset the tripmeter, press and hold the TRIP/M button for more than 2 seconds with the display in the ‘‘tripmeter A’’ or ‘‘tripmeter B’’ mode.



Multi-display

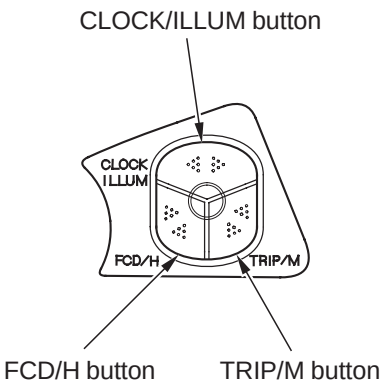
Digital Clock

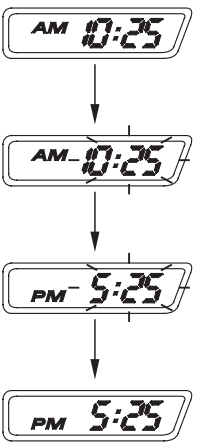
The display shows the hour and minute.

To adjust the time:

1. Turn the ignition switch to ON or ACC.
2. Press and hold the CLOCK/ILLUM button for more than 2 seconds. The clock will be set in the adjust mode with the display flashing.
3. To set the hour, press and release the FCD/H button until the desired hour appears.
   - Quick setting — press and hold the FCD/H button until the desired hour appears.
4. To set the minute, press and release the TRIP/M button until the desired minute appears.
   - Quick setting — press and hold the TRIP/M button until the desired minute appears.
5. To end the adjustment, press the CLOCK/ILLUM button after the last adjustment, or turn the ignition switch OFF.

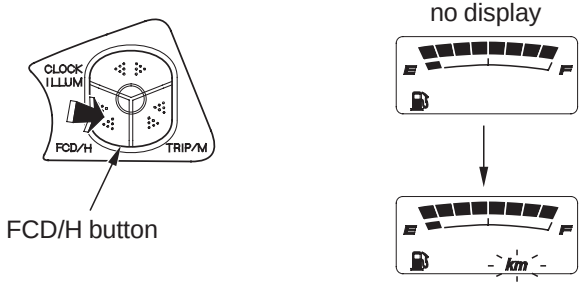
After turning the ignition switch OFF, the clock will display for 10 days.





Mileage Unit Change

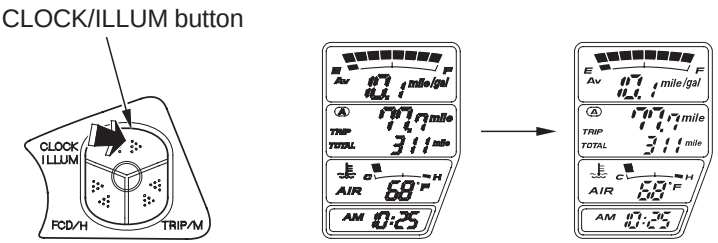
The odometer/tripmeter/available driving distance displays in either ‘‘mile’’ or ‘‘km’’.
When the fuel consumption meter is no display, press and hold the FCD/H button for more than 2 seconds to change the unit ‘‘mile’’ or ‘‘km’’.



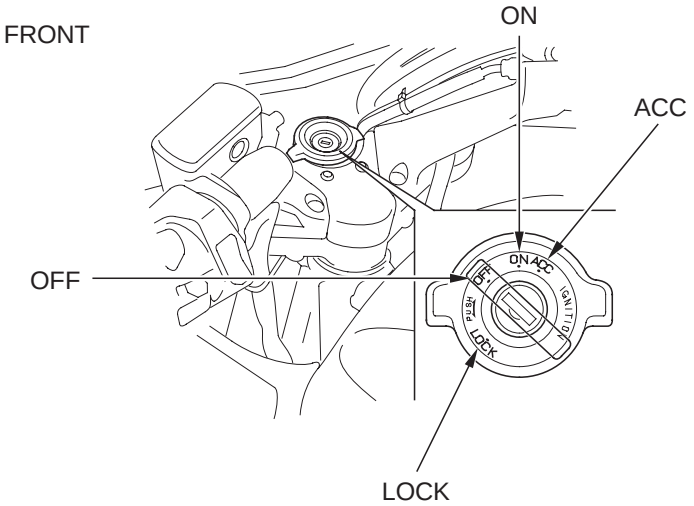
Display Illumination Adjustment

The brightness of a display can be adjusted in three stages.

To adjust the brightness of the display, press the CLOCK/ILLUM button.



Ignition Switch



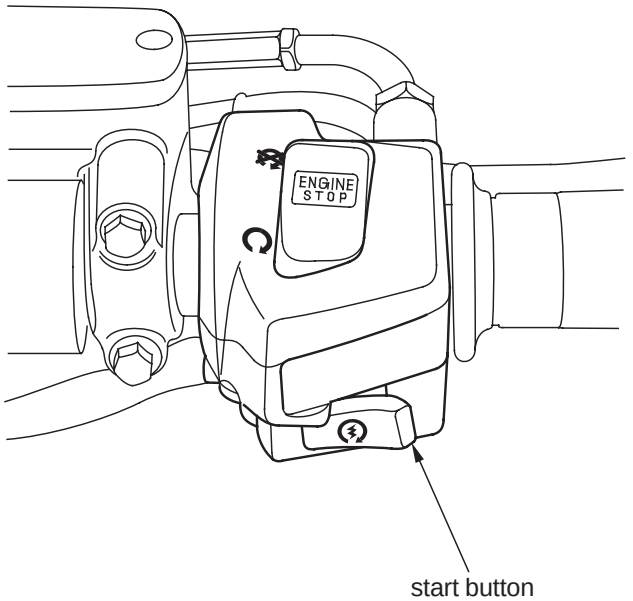
The ignition switch is used for starting and stopping the engine (page 53) and to lock the steering for theft prevention (page 63). Insert the key and turn it to the right for the ON and ACC (accessory) positions. Push down on the key and turn it to the left to the LOCK (steering lock) position.

Key Position	Function	Key Removal
ACC	Only the accessory circuits function.	cannot be removed
ON	Electrical circuits on.	cannot be removed
OFF	No electrical circuits function.	can be removed
LOCK (steering lock)	No electrical circuits function. Locks the steering head.	can be removed

To unlock the steering lock, insert and push down on the key and turn it to the right to the OFF position.

Start Button

RIGHT HANDLEBAR



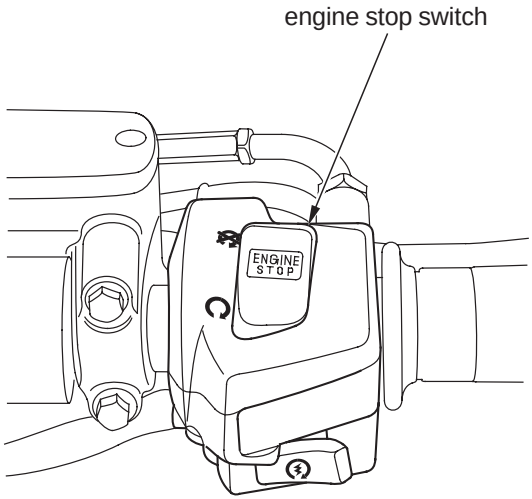
The start button is used for starting the engine. Pushing the button starts the engine. See *Starting Procedure*, page 54 .

When the start button is pushed, the starter motor will crank the engine; the headlight will automatically go out, but the taillight will stay on.

The starter motor will not operate if the engine stop switch is in the OFF position when the start button is pushed.

Engine Stop Switch

RIGHT HANDLEBAR



OFF
RUN

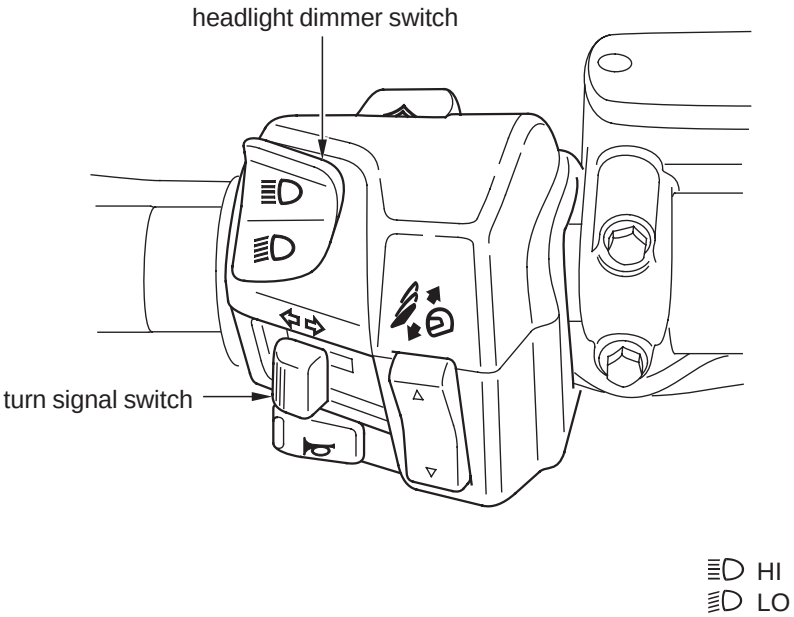
The engine stop switch is used to stop the engine in an emergency. To operate, push the switch to the OFF position. The switch must be in the RUN position to start the engine, and it should normally remain in the RUN position even when the engine is OFF.

If your motorcycle is stopped with the ignition switch ON and the engine stop switch OFF, the headlight and taillight will remain on, resulting in battery discharge.

Headlight Dimmer Switch

The headlight dimmer switch is used to change between the high and low headlight beams. To operate, turn the switch to HI for high beam, LO for low beam.

LEFT HANDLEBAR



Turn Signal Switch

The turn signal switch is used to signal a turn or a lane change. To operate, move the switch all the way in the proper direction and release it. The appropriate turn signal lights will start blinking. To cancel the light, push the switch in.

Horn Button

The horn is used to alert other motorists. To operate, push the button.

Windscreen Height Adjustment Switch

The windscreen height adjustment switch is used to raise or lower your windscreen to suit your riding preference. For instructions, see page 49 .

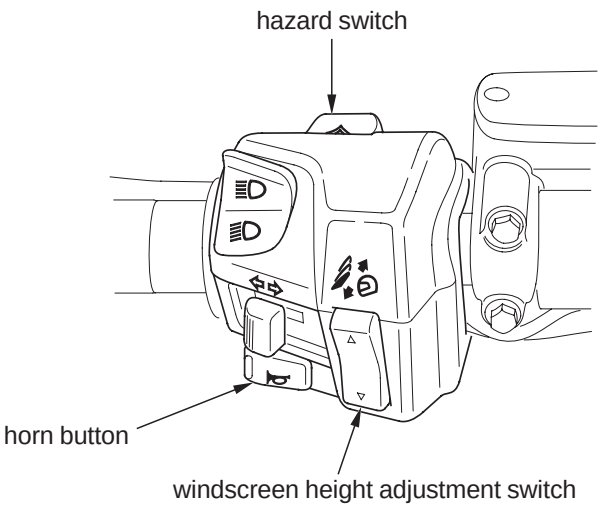
Hazard Switch

The hazard switch is used to activate the hazard lights on your motorcycle if you need to stop near heavy traffic or if your motorcycle is disabled.

To operate, turn the ignition key to the ON or ACC position, and push the hazard switch. The front and rear turn signals will blink simultaneously until you push the switch again.

Be sure to turn the switch off when the hazard warning is no longer required, or the turn signals will not work properly and may confuse other drivers.

LEFT HANDLEBAR



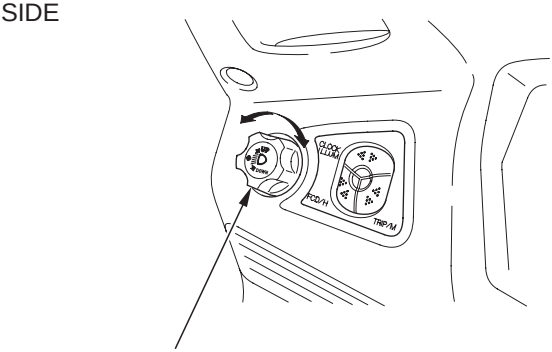
Headlight Beam Adjustment Knob

The adjustment knob is used to raise or lower the height of the headlight beam. You may need to adjust the headlight if you change to a lighter or heavier load than you normally carry on your motorcycle.

If you carry a heavier or lighter than normal load, you may need to adjust your headlight beam so you can better see the road ahead and don't blind oncoming drivers. Obey local laws and regulations concerning headlight adjustment.

To operate, turn the ignition switch to ON.
To lower the beam, turn the headlight beam adjustment knob counterclockwise.
To raise the beam, turn the knob clockwise.

LEFT SIDE



headlight beam adjustment knob

Before Riding

Before each ride, you need to make sure you and your Honda are both ready to ride. To help get you prepared, this section discusses how to evaluate your riding readiness, what items you should check on your motorcycle, and adjustments to make for your comfort, convenience, or safety. This section also includes important information about loading.

For information about adjusting the suspension on your Honda, see page 117 .

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- Rider Training 40

Is Your Motorcycle Ready to Ride? 41
- Pre-ride Inspection 41

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Cargo Compartments 45
- Saddlebags 45
- Fairing Pockets 46

Comfort & Convenience Adjustment 47
- Windscreen Height Adjustment 48

Are You Ready to Ride?

Before you ride your motorcycle for the first time, we urge you to:
- Read this owner's manual.
- Make sure you understand all the safety messages.
- Know how to operate all the controls.

Before each ride, be sure:
- You feel well and are in good physical and mental condition.
- You are wearing an approved motorcycle helmet (with chin strap tightened securely), eye protection, and other protective clothing.
- You don't have any alcohol or drugs in your system.

Make sure your passenger is ready to ride, too, and is wearing proper gear including a helmet.

If you must carry an extra helmet while riding, use a commercially available elastic cord, strap, or net to secure the helmet to the seat.

Protective Apparel

For your safety, we strongly recommend that you always wear an approved motorcycle helmet, eye protection, boots, gloves, long pants, and a long-sleeved shirt or jacket whenever you ride.
Although complete protection is not possible, wearing proper gear can reduce the chance of injury when you ride.
Following are suggestions to help you choose the proper gear.

Helmets and Eye Protection

Your helmet is your most important piece of riding gear because it offers the best protection against head injuries. A helmet should fit your head comfortably and securely. A bright-colored helmet and reflective strips can make you more noticeable in traffic.

An open-face helmet offers some protection, but a full-face helmet offers more. Regardless of the style, look for a DOT (Department of Transportation) sticker on any helmet you buy (USA only). Always wear a face shield or goggles to protect your eyes and help your vision.

⚠ WARNING

Not wearing a helmet increases the chance of serious injury or death in a crash.

Be sure you and your passenger always wear a helmet, eye protection, and other protective apparel when you ride.

Additional Riding Gear

In addition to a helmet and eye protection, we also recommend:

- Sturdy boots with non-slip soles to help protect your feet and ankles.
- Leather gloves to help protect your hands.
- A motorcycle riding suit or jacket for comfort as well as protection. Bright-colored and reflective clothing can help make you more noticeable in traffic. Avoid loose clothes that could get caught on any part of your motorcycle.

Are You Ready to Ride?

Rider Training

Developing your riding skills is an on-going process. Even if you have ridden other motorcycles, take time to become familiar with how this motorcycle works and handles. Practice riding the motorcycle in a safe area to build your skills. Do not ride in traffic until you get accustomed to the motorcycle's controls, and feel comfortable with its size and weight.

We urge all riders to take a certified course approved by the Motorcycle Safety Foundation (MSF). New riders should start with the basic course, and even experienced riders will find the advanced course beneficial. For information about the MSF training course nearest you, call the national toll-free number: (800) 446-9227.

Other riding tips can be found in the *Riding Tips* booklet that came with your motorcycle (USA only).

Is Your Motorcycle Ready to Ride?

Before each ride, it's important to inspect your motorcycle and make sure any problem you find is corrected. A pre-ride inspection is a must, not only for safety, but because having a breakdown, or even a flat tire, can be a major inconvenience.

⚠ WARNING

Improperly maintaining this motorcycle or failing to correct a problem before riding can cause a crash in which you can be seriously hurt or killed.

Always perform a pre-ride inspection before every ride and correct any problems.

Pre-ride Inspection

Check the following items before you get on the motorcycle:

Tires & Wheels	Look at the tires. If a tire appears low, use an air pressure gauge to check its pressure. Also look for signs of excessive wear (page 126) or damage to the tires and wheels.
Leaks, Loose Parts	Walk around your motorcycle and look for anything that appears unusual, such as a leak or loose cable.
Lights	Make sure the headlight, brakelight, taillight, and turn signals are working properly.

Is Your Motorcycle Ready to Ride?

If you are carrying a passenger or cargo, also check the following:

Load Limits Make sure you do not exceed the load limits (page 44).

Cargo Check that all cargo is secure.

Adjustments Adjust the rear suspension (page 117) according to your load.

Check these items after you get on the motorcycle:

Throttle Rotate the throttle to check it moves smoothly without binding.

Brakes Pull the brake lever and press on the brake pedal to check that they operate normally.

Indicators Turn the ignition on and check for normal operation of the indicators (page 16).

Gauges Check the fuel level and other gauges (page 15).

If you haven't ridden the motorcycle in over a week, you should also check other items, such as the oil level and other fluids. See *Periodic Maintenance* (page 73). Periodic maintenance should also be done at least once a month, no matter how often you ride.

Remember, be sure to take care of any problem you find, or have your Honda dealer correct it before you ride.

Load Limits & Guidelines

Your motorcycle has been designed to carry you and one passenger. When you carry a passenger, you may feel some difference during acceleration and braking. But so long as you keep your motorcycle well-maintained, with good tires and brakes, you can safely carry loads within the given limits and guidelines.

However, exceeding the weight limit or carrying an unbalanced load can seriously impair your motorcycle's handling, braking, and stability. Non-Honda accessories, improper modifications, and poor maintenance can also reduce your safety margin.

Loading

How much weight you put on your motorcycle, and how you load it, are important to your safety. Anytime you ride with a passenger or cargo, you should be aware of the following information.

⚠ WARNING

Overloading or improper loading can cause a crash and you can be seriously hurt or killed.

Follow all load limits and other loading guidelines in this manual.

Load Limits & Guidelines

Load Limits

Following are the load limits for your motorcycle:

maximum weight capacity:	= 401 lbs (182 kg)
includes the weight of the rider, passenger, all cargo, and all accessories.	= 410 lbs (186 kg) (Canada only)
maximum cargo weight: includes following maximum compartment weights:	= 58 lbs (26.5 kg)
rear carrier	= 10.0 lbs (4.5 kg)
each saddlebag	= 20.0 lbs (9.0 kg)
each fairing pocket	= 4.5 lbs (2.0 kg)

The weight of added accessories will reduce the maximum cargo weight you can carry.

Loading Guidelines

Improperly loading your motorcycle can affect its stability and handling. Even if your motorcycle is properly loaded, you should ride at reduced speeds and never exceed 80 mph (130 km/h) when carrying cargo.

Follow these guidelines whenever you carry a passenger or cargo:

- Check that both tires are properly inflated (page 126).
- If you change your normal load, you may need to adjust the rear suspension (page 117).
- To prevent loose items from creating a hazard, make sure that all cargo is tied down securely before you ride.
- Place cargo weight as low and close to the center of your motorcycle as possible.
- Balance cargo weight evenly on both sides.
- Make sure all cargo compartments are securely closed.
- Check the headlight beam adjustment if you change your normal load.
- Do not attach large or heavy items (such as a sleeping bag or tent) to the handlebar, forks, or fender.

Your motorcycle comes with lockable dual saddlebags and front fairing pockets. Instructions on how to open, close, and lock these compartments follow.

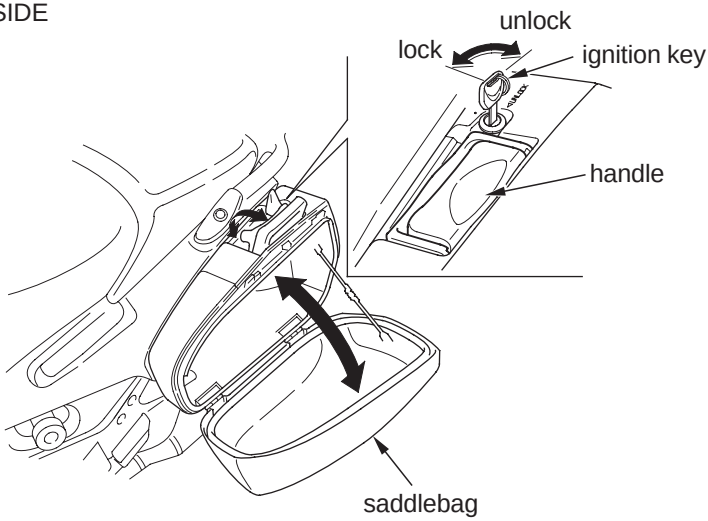
Saddlebags

The saddlebags are for lightweight items. Cargo in both saddlebags should not exceed:

20.0 lbs (9.0 kg) each

However, regardless of compartment capacity, be sure you do not exceed the maximum load and cargo weight limits (page 44).

LEFT SIDE



To Open the Saddlebags

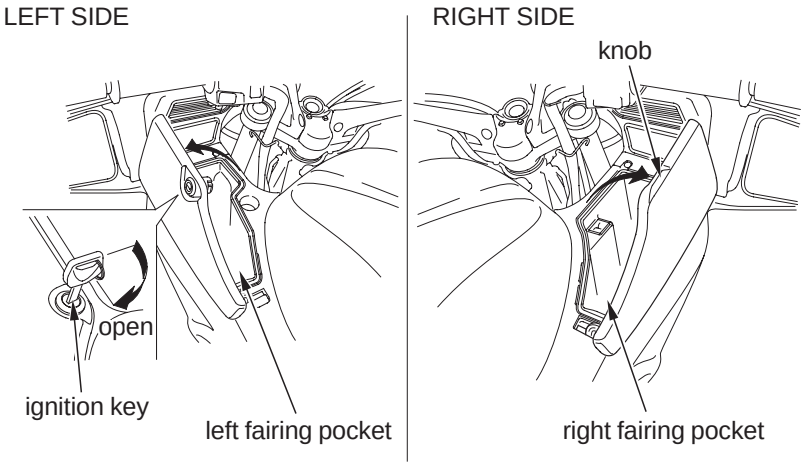
Install the ignition key and turn it clockwise. Pull the handle up to open the saddlebags.

To Lock the Saddlebags

Close the saddlebags and handle. Turn the ignition key counterclockwise and make sure the saddlebags are locked.

Cargo Compartments

Fairing Pockets



The fairing pockets are for lightweight items.
Cargo in each fairing pocket should not exceed:
4.5 lbs (2.0 kg)

To open the left fairing pocket, insert the ignition key, and turn it clockwise.
To open the right fairing pocket, pull the knob.

To shut each fairing pocket, place your hands flat on the edges of its lid and press down until it is firmly closed.

Make sure the fairing pockets are closed before riding.

Be careful not to flood this area when washing your motorcycle.

Take care to keep gasoline, brake fluid, or other chemical solvents off the pocket covers. They will damage the surface of the pocket covers.

Do not store valuables in the fairing pockets.

Comfort & Convenience Adjustment

Your motorcycle has many features you can adjust to suit your personal preference and increase your comfort and convenience, and your passenger's as well.

We recommend that you take time to check the following items and make any desired adjustments before each ride:

Windscreen Height — Your windscreen height can be adjusted higher or lower (pages 48, 49).

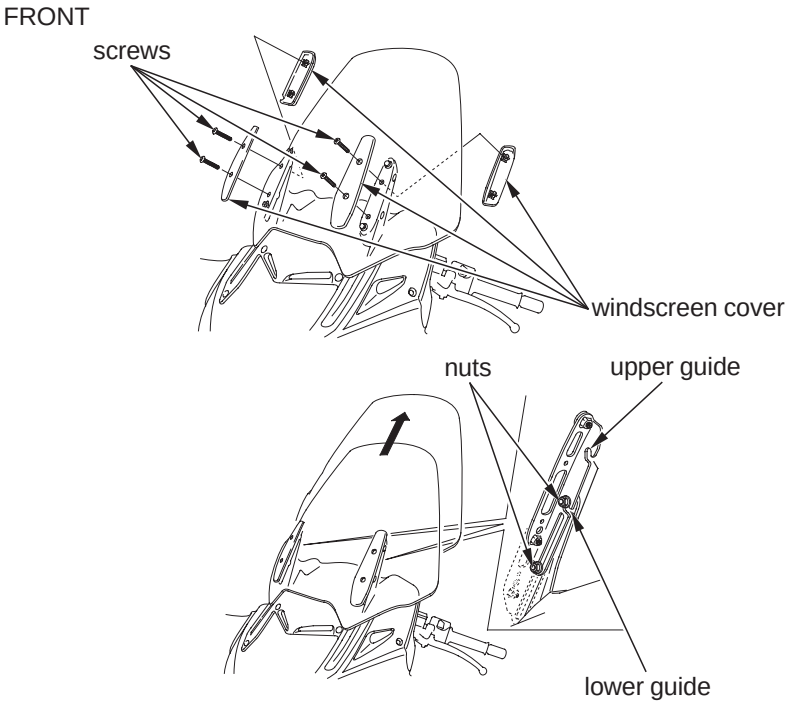
Seat Height — Your front seat height can be adjusted to one of three positions (page 85).

Comfort & Convenience Adjustment

Windscreen Height Adjustment

The height of the initial position may be adjusted 2.3 in (60 mm) to a higher or lower position.

To Adjust the Height of an Initial Configuration



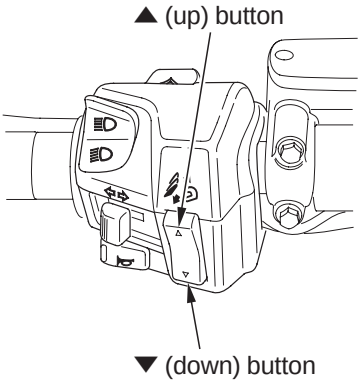
1. Remove the windscreen cover by removing the screws.
   To raise:
   Loosen the nuts and slide the windscreen to set the lower guide.
   To lower:
   Loosen the nuts and slide the windscreen to set the upper guide.
2. Tighten the nuts and install the windscreen cover after adjustment. Make sure the windscreen is locked before riding.

Comfort & Convenience Adjustment

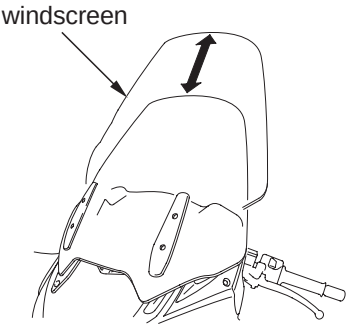
The maximum amount of height adjustment is about 7.4 in (190 mm). Adjust the height with the adjusting buttons according to your preference as described below.

To Adjust the Height of the Windscreen

LEFT HANDLEBAR



FRONT



1. Turn the ignition switch ON.
   To raise the windscreen:
   push the ▲ (up) button.
   To lower the windscreen:
   push the ▼ (down) button.

The windscreen will be raised or lowered while the adjusting buttons are kept depressed.
When you lower the windscreen, please check the new position will allow safe operation of the motorcycle.

Basic Operation & Riding

This section gives basic riding instructions, including how to start and stop your engine, and how to use the throttle, clutch, and brakes. It also provides important information on riding with a passenger or cargo.

To protect your new engine and enjoy optimum performance and service life, refer to Break-in Guidelines (page 182).

To protect the catalytic converters in your motorcycle's exhaust system, avoid extended idling and the use of leaded gasoline.

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- Flooded Engine 54
- Bank Angle Sensor Ignition Cut-off System 55
- How to Stop the Engine 55

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- Theft-prevention Tips 65

Riding with a Passenger or Cargo 66

Safe Riding Precautions

Before riding your motorcycle for the first time, please review the *Motorcycle Safety* section beginning on page 1, and the *Before Riding* section beginning on page 37 .

Even if you have ridden other motorcycles, take time to become familiar with how this motorcycle works and handles. Practice in a safe area until you build your skills and get accustomed to the motorcycle's size and weight.

Make sure flammable materials such as dry grass or leaves do not come in contact with the exhaust system when riding, idling, or parking your motorcycle.

Starting & Stopping the Engine

Always follow the proper starting procedure described below.

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

Your motorcycle can be started with the transmission in gear by pulling in the clutch lever before operating the starter.

Your motorcycle is equipped with a side stand ignition cut-off system. If the side stand is down — the engine cannot be started unless the transmission is in neutral. If the side stand is up — the engine can be started in neutral, or in gear with the clutch lever pulled in. After starting with the side stand down, the engine will stop if the transmission is put in gear before raising the side stand.

Preparation

Before starting, insert the key, turn the ignition switch ON, and confirm the following:

- The transmission is in neutral (neutral indicator is ON).
- The engine stop switch is set to RUN.
- The low oil pressure indicator is ON.
- The PGM-FI malfunction indicator lamp (MIL) is OFF.
- The ABS indicator light is ON (models equipped with ABS).

The low oil pressure indicator should go off a few seconds after the engine starts. If the low oil pressure indicator lights during operation, stop the engine immediately and check the engine oil level.

Starting & Stopping the Engine

Starting Procedure

This motorcycle has a fuel-injected engine with an automatic fast idle. Follow the procedure indicated below.

Any Air Temperature

- Press the start button with the throttle completely closed.

The engine will not start if the throttle is fully open (because the electronic control module cuts off the fuel supply).

Snapping the throttle or fast idling for more than about 5 minutes at normal air temperature may cause exhaust pipe discoloration.

Flooded Engine

If the engine fails to start after repeated attempts, it may be flooded with excess fuel. To clear a flooded engine:

1. Leave the engine stop switch set to RUN.
2. Open the throttle fully.
3. Press the start button for 5 seconds.
4. Follow the normal starting procedure.
5. If the engine starts, then open the throttle slightly if idling is unstable.
   If the engine does not start, wait 10 seconds, then follow steps 1 — 4 again.

If the engine still won't start, refer to *If Your Engine Quits or Won't Start,* page 151 .

Bank Angle Sensor Ignition Cut-off System

Your motorcycle's banking (lean angle) sensor system is designed to automatically stop the engine if the motorcycle is overturned.

Before restarting the engine, you must turn the ignition switch to the OFF position and then back to ON. The engine will not restart until you perform this procedure.

How to Stop the Engine

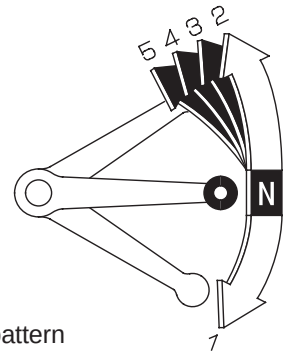
Normal Engine Stop
To stop the engine, shift into neutral and turn the ignition switch OFF.

The engine stop switch should normally remain in the RUN position even when the engine is OFF.

If your motorcycle is stopped with the ignition switch ON and the engine stop switch OFF, the headlight and taillight will remain on, resulting in battery discharge.

Emergency Engine Stop
To stop the engine in an emergency, use the engine stop switch. To operate, press the switch to the OFF position.

Shifting Gears



shifting pattern

Your motorcycle has five forward gears in a one-down, four-up shift pattern which is coordinated with a hydraulically actuated clutch system.

Learning when to shift gears comes with experience. Keep the following tips in mind:

- As a general rule, shift while moving in a straight line.
- Close the throttle and pull the clutch lever in completely before shifting. Improper shifting may damage the engine, transmission, and drive train.
- Learn to recognize the engagement point as you release the clutch lever. It is at this point the transmission of power to the rear wheel resumes.
- Upshift to a higher gear or reduce throttle before engine rpm (speed) gets too high. Learn the relationship between engine sound and the normal shifting points.
- Downshift to a lower gear before you feel the engine laboring (lugging) at low rpm.
- Avoid downshifting to help slow your motorcycle when engine rpm is near its allowable maximum (near the tachometer red zone). In this situation, the rev limiter in the engine ignition control module may not prevent excessive engine speed which could damage the engine.
- To prevent transmission damage, do not coast or tow the motorcycle for long distances with the engine off.

Recommended Shift Points

Ride in the highest gear that lets the engine run and accelerate smoothly. This will give you good fuel economy and effective emissions control. When changing gears under normal conditions, use these recommended shift points:

Shifting Up:

From 1st to 2nd:	12 mph (20 km/h)
From 2nd to 3rd:	19 mph (30 km/h)
From 3rd to 4th:	25 mph (40 km/h)
From 4th to 5th:	31 mph (50 km/h)

Shifting Down:

From 5th to 4th:	22 mph (35 km/h)
From 4th to 3rd:	16 mph (25 km/h)

Pull the clutch lever in when speed drops below 9 mph (15 km/h), when engine roughness is evident, or when engine stalling is imminent; and shift down to 1st gear for acceleration.

While You Are Riding

While you are riding, occasionally check your gauge and indicators. Continuing to ride with the low oil pressure indicator (red) on or the coolant temperature gauge segment at the H (hot) mark can cause serious engine damage. Also keep an eye on the fuel gauge.

Braking

Your motorcycle is equipped with a Linked Braking System. Operating the front brake lever applies the front brake and a portion of the rear brake. Operating the rear brake pedal applies the rear brake and a portion of the front brake. For full braking effectiveness, use both the lever and pedal simultaneously, as you would with a conventional motorcycle braking system.

To slow or stop, apply the brake lever and brake pedal smoothly, while downshifting to match your speed.

Gradually increase braking as you feel the brakes slowing your speed. The increase in engine compression from downshifting will help slow your motorcycle.

To prevent stalling the engine, pull the clutch lever in before coming to a complete stop. For support, put your left foot down first, then your right foot when you have finished braking.

When possible, reduce your speed or complete braking before entering a turn. Avoid braking or closing the throttle quickly while turning. Either action may cause one or both wheels to slip and reduce your control of your motorcycle.

Your ability to brake in a turn and to brake hard in an emergency situation are important riding skills. We suggest attending a Motorcycle Safety Foundation experienced rider training course (page 40) to retain these skills.

When riding in wet or rainy conditions, or on loose surfaces, the ability to maneuver and stop will be reduced. All of your actions should be smooth under these conditions. Rapid acceleration, braking or turning may cause loss of control.
For your safety, exercise extreme caution when braking, accelerating or turning.

When descending a long, steep grade, use engine compression braking by downshifting, with intermittent use of both brakes. Continuous brake application can overheat the brakes and reduce their effectiveness.

Braking

Riding with your foot resting on the brake pedal or your hand on the brake lever may actuate the brakelight, giving a false indication to other drivers. It may also overheat the brakes, reducing effectiveness.

(Models not equipped with ABS)
As with a conventional motorcycle braking system, excessively hard application of the brake controls may cause wheel lock, reducing control of the motorcycle.

Applying the brakes too hard may cause the wheels to lock and slide, reducing control of your motorcycle. If this happens, release the brake controls, steer straight ahead until you regain control, then reapply the brakes more gently.

Braking

Anti-Lock Brake System (ABS)

(Models equipped with ABS)
This model is also equipped with an Anti-lock Brake System (ABS) designed to help prevent wheel lock up during hard braking on uneven or other poor surfaces while running straight. Although the wheel may not lock up－if you are braking too hard in a turn the motorcycle can still lose traction, causing a loss of control.

In some situations, a motorcycle with ABS may require a longer stopping distance to stop on loose or uneven surfaces than an equivalent motorcycle without ABS.

ABS cannot make up for road conditions, bad judgment, or improper operation of the brakes. It is still your responsibility to ride at reasonable speeds for weather, road surface, and traffic conditions, and to leave a margin of safety.

ABS is self-checking and always on.

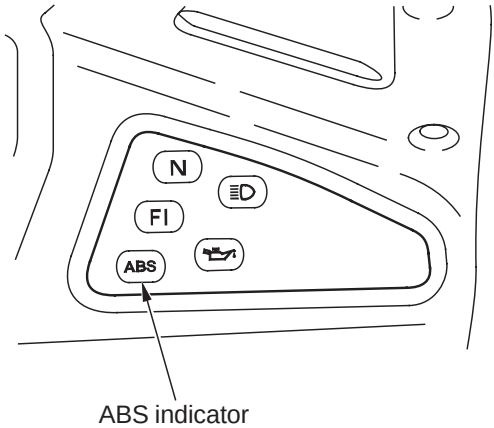
ABS may also be activated by braking while riding over a sharp drop or rise in the road level.
It is important to follow the tire recommendations (see page 130). The ABS computer works by comparing wheel speed.
Non-recommended tires can affect wheel speed and may confuse the ABS computer.

ABS does not function at low speeds (approximately 6 mph (10 km/h) or below).

ABS does not function if the battery is discharged.

ABS Indicator

(Models equipped with ABS)
Normally, this indicator comes on when the ignition is turned ON, and goes off after you ride the motorcycle at a speed above 6 mph (10 km/h). If there is an ABS problem, the indicator comes on and remains on or blinks. The ABS system does not operate when the ABS indicator is on or blinking.



Braking

If the ABS indicator comes on while riding, stop the motorcycle in a safe place and turn off the engine.

Turn the ignition ON again. The indicator should come on, and go off after you ride the motorcycle at speeds above 6 mph (10 km/h). If it does not go off, ABS is not functioning, but the brakes still work the Linked Braking System and provide normal stopping ability. However, you should have the system checked by Honda dealer as soon as possible.

The ABS indicator may come on if you turn the rear wheel while the motorcycle is upright on the stand. This is normal. Turn the ignition OFF, then turn it ON. The indicator should come on, then go off after you run the motorcycle above 6 mph (10 km/h).

A red LED is used for the ABS indicator light. Be sure that the LED lights when the ignition is ON. If the LED fails to light, see your Honda dealer.

1. Look for a level parking area. If you can't park on a paved surface, make sure the ground surface is firm.
   If you must park on a hill, leave the transmission in gear and position the rear tire against the curb at a 45 degree angle.

Make sure flammable materials such as dry grass or leaves do not come in contact with the exhaust system when parking your motorcycle. Refer to *Catalytic Converters*, page 187 .

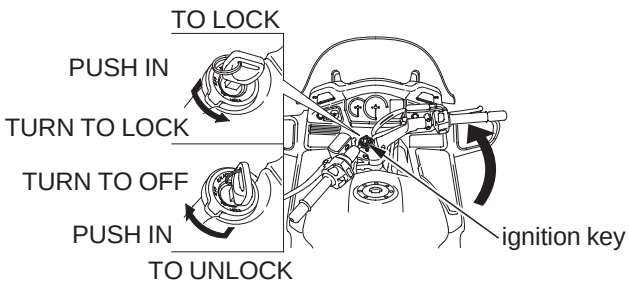
2. Use the side or center stand to support the motorcycle while parked.
   - To lower the side stand, use your foot to guide it down. Remember that lowering the side stand with the transmission in gear will stop the engine, even if the clutch lever is pulled in. That is a function of the side stand ignition cut-off system.

   - Check that the side stand is down all the way so that the side stand ignition cut-off system (page 53) is activated.

   - If you have to park on a soft surface, insert something solid under the center stand for support.

   - To lower the center stand, stand on the left side of the motorcycle. Hold the center stand grip attached to the left side below the seat. Press down on the tip of the stand with your right foot, and simultaneously pull up and back on the center stand grip.

3. Use the steering lock, which locks the handlebar in place. Turn the handlebar all the way to the left or right. Push in on the ignition key and turn it to LOCK. Remove the key.
   (To unlock the steering lock, insert and push down on the key and turn it to the right to the OFF position.)

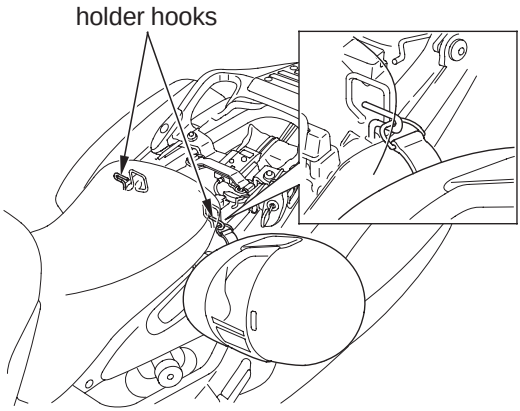


(cont'd)

Parking

4. Use the helmet holder(s) to secure your helmet(s) with your motorcycle:
   - Remove the rear seat (page 84).
   - Hang your helmet(s) on the holder hook(s).
   - Install the rear seat and lock it securely.

UNDER REAR SEAT



⚠ WARNING

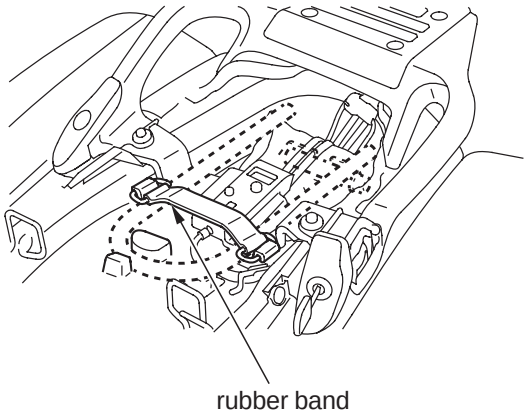
Riding with a helmet attached to the holder can interfere with the rear wheel or suspension and could cause a crash in which you can be seriously hurt or killed.

Use the helmet holder only while parked. Do not ride with a helmet secured by the holder.

Theft-prevention Tips

- Park your motorcycle in a locked garage whenever possible. If a garage isn't available, park in a concealed area or in a well-lit area with enough pedestrian traffic to discourage a thief.
- Always take the ignition key with you.
- Always use the steering lock (page 63), even if you're parking for just a minute or two. A thief can easily push an unlocked motorcycle to a waiting truck.
- In addition to the steering lock, use a good quality anti-theft device made specifically to lock a motorcycle to a secure object.
- If you decide to use an anti-theft device, select one of good quality and be sure to follow the manufacturer's instructions.
- The rear fender has a storage compartment to store a U-shaped lock under the rear seat. After storing, use the rubber band to securely fasten the lock. Some U-shaped locks may not be stored in the compartment due to their size or design.
- Keep your owner's manual, current registration, and insurance information with your motorcycle. This will make it easier for the authorities to find you if your motorcycle is stolen and recovered.

UNDER REAR SEAT



Riding with a Passenger or Cargo

Your motorcycle is designed to carry you and one passenger. Whenever you add a passenger or cargo, you must be careful not to exceed the total load limits for this vehicle (*Load Limits*, page 44). Make sure your cargo is properly secured (*Loading Guidelines*, page 44).

Also consider adjusting the suspension (page 117) and headlight beam (page 35) for the extra load.

Be aware that carrying a passenger or heavy cargo can affect acceleration, braking, and handling.

Before riding with a passenger, make sure your passenger is wearing the proper protective apparel (page 38).

Tell your passenger to hold the grab rail or your waist, lean with you in the turns, and keep their feet on the passenger footpegs at all times, even when the motorcycle is stopped at a traffic light.

Servicing Your Honda

To help keep your motorcycle in good shape, this section includes a Maintenance Schedule for required service, a list of periodic checks you should perform at least once a month, and step-by-step instructions for specific maintenance tasks. You'll also find important safety precautions, information on fuels and oils, and tips for keeping your Honda looking great.

For information about the exhaust emission and noise emission requirements of the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and Environment Canada (EC), see page 183 .

For information about replacing fuses, see page 167 .

USA only

Maintenance, replacement or repair of the emission control devices and systems may be performed by any motorcycle repair establishment or individual using parts that are ''certified'' to EPA standards.

Before You Service Your Honda

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The following table summarizes the three types of inspections and servicing recommendations for your motorcycle. Both the pre-ride inspection and the scheduled maintenance at the recommended intervals are necessary to assure safe and dependable performance. The periodic checks provide additional confidence in your motorcycle's performance.

Type of Inspection/ Service	Refer to page:	When Performed	Who Performs
Pre-ride Inspection	41	before every ride	you
Periodic Maintenance	73	monthly*	you
Maintenance Schedule	74	interval on schedule	your Honda dealer**

* more often if you ride frequently or long distances; or anytime you clean your motorcycle

** unless you have the proper tools and service data and are mechanically qualified

The Importance of Maintenance

Keeping your motorcycle well-maintained is absolutely essential to your safety. It's also a good way to protect your investment, get maximum performance, avoid breakdowns, and have more fun. A properly maintained motorcycle will also help to reduce air pollution.

Remember, proper maintenance is the owner's responsibility. Be sure to inspect your motorcycle before each ride, perform the periodic checks, and follow the Maintenance Schedule in this section.

⚠ WARNING

Improperly maintaining this motorcycle or failing to correct a problem before you ride can cause a crash in which you can be seriously hurt or killed.

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

If your motorcycle overturns or is involved in a crash, be sure your Honda dealer inspects all major parts, even if you are able to make some of the repairs yourself.

Maintenance Safety

This section includes instructions on how to perform some important maintenance tasks. If you have basic mechanical skills, you can perform many of these tasks with the tools provided with your motorcycle.

Other tasks that are more difficult and require special tools are best performed by professionals. Wheel removal should normally be handled only by a Honda technician or other qualified mechanic. Instructions are included in this manual only to assist in emergency service.

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.

Maintenance Safety

Important Safety Precautions

- Make sure the engine is off before you begin any maintenance or repairs. This will help eliminate several potential hazards:
  Carbon monoxide poisoning from engine exhaust. Be sure there is adequate ventilation whenever you operate the engine.
  Burns from hot motorcycle 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 help prevent the motorcycle from falling over, park it on a firm, level surface, using the center stand.
- To reduce the possibility of a fire or explosion, be careful when working around gasoline. Use only non-flammable solvent, not gasoline, to clean parts. Keep cigarettes, sparks, and flames away from all fuel-related parts.

Remember that your Honda dealer knows your motorcycle 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. If you have the tools and skills required for additional maintenance jobs, you can purchase an official Honda Service Manual (page 192).

Periodic Maintenance

In addition to the regularly scheduled maintenance (page 74) and daily pre-ride inspection (page 41), consider performing the periodic checks on the following page at least once a month, even if you haven't ridden your motorcycle, or as often as once a week if you ride frequently or for long distances. It's a good idea to perform this maintenance any time you clean your motorcycle.

Check the odometer reading and perform any scheduled maintenance checks that are needed (page 74). Remember, more frequent checks may be needed for riding in severe conditions.

Tires & Wheels	Check the air pressure with a gauge and add air if needed (page 125). Examine the tread for wear (page 126). Look closely for nails, embedded objects, cuts, and other types of damage (page 126). Rotate the rear wheel so you can inspect the entire surface. Check the condition of the wheels.
Fluids	Check the levels of the engine oil (page 101), coolant (page 106), brake fluid (page 121), clutch fluid (page 113), and final drive oil (page 110). Add the correct fluid as necessary, and investigate the cause of any low fluid level.
Lights	Make sure the headlight, brakelight, taillight, and turn signals are working properly.
Freeplay	Check the freeplay of the throttle grip (page 112).
Fuses	Make sure you have a full supply of spare fuses.
Nuts & Bolts	Check the major fasteners and tighten as needed.

Maintenance Schedule

The required Maintenance Schedule that follows specifies how often you should have your motorcycle serviced, and what things need attention. It is essential to have your motorcycle serviced as scheduled to maintain safe, dependable performance and proper emission control.

The service intervals in this Maintenance Schedule are based on average riding conditions. Some items will need more frequent service if you ride in unusually wet or dusty areas or at full throttle. Consult your Honda dealer for recommendations applicable to your individual needs and use.

Some items in the Maintenance Schedule can be performed with basic mechanical skills and hand tools. Procedures for these items are provided in this manual. Other items involve more extensive procedures and may require special training, tools, and equipment. We recommend that you have your Honda dealer perform these tasks unless you have advanced mechanical skills and the required tools and equipment. Procedures for such items in this schedule are provided in an official Honda Service Manual available for purchase (page 190).

Maintenance Schedule

If you do not feel capable of performing a given task or need assistance, remember that your Honda dealer knows your motorcycle best and is fully equipped to maintain and repair it. If you decide to do your own maintenance, use only Honda Genuine Parts or their equivalents for repair or replacement to ensure the best quality and reliability.

Perform the pre-ride inspection (page 41) and owner maintenance (page 76) at each scheduled maintenance period.

Each item on the maintenance schedule requires some mechanical knowledge. Certain items (particularly those marked * and **) may require more technical information and tools. Consult your Honda dealer.

* Should be serviced by your Honda dealer, unless you have the proper tools and service data and are mechanically qualified. Refer to the official Honda Service Manual (page 192).
** In the interest of safety, we recommend these items be serviced only by your Honda dealer.

Summary of Maintenance Schedule Notes & Procedures:

NOTES:

1. At higher odometer readings, repeat at the frequency interval established here.
2. Service more frequently if the motorcycle is ridden in unusually wet or dusty areas.
3. Replace every 2 years, or at indicated odometer interval, whichever comes first. Replacement requires mechanical skill.

Maintenance Procedures:

I: inspect and clean, adjust, lubricate, or replace, if necessary
C: clean
A: adjust
L: lubricate
R: replace

Maintenance Schedule

		ITEMS	NOTE	FREQUENCY / ODOMETER READING (Note 1)								Refer to page
				× 1,000 mi	0.6	4	8	12	16	20	24	
				× 1,000 km	1.0	6.4	12.8	19.2	25.6	32.0	38.4	
EMISSIONS-RELATED ITEMS	*	FUEL LINE					I		I		I	—
	*	THROTTLE OPERATION					I		I		I	—
		AIR CLEANER	2					R			R	108
		SPARK PLUGS					I		R		I	115
	*	VALVE CLEARANCE							I			—
		ENGINE OIL			INITIAL= 600 mi (1,000 km) or 1 month: R REGULAR= EVERY 8,000 mi (12,800 km) or 12 months: R							98
		ENGINE OIL FILTER			R		R		R		R	102
	*	ENGINE IDLE SPEED			I	I	I	I	I	I	I	114
		RADIATOR COOLANT	3				I		I		R	105
	*	COOLING SYSTEM					I		I		I	—
	*	SECONDARY AIR SUPPLY SYSTEM					I		I		I	—
	*	EVAPORATIVE EMISSION CONTROL SYSTEM						I			I	—

* Should be serviced by your Honda dealer, unless you have the proper tools and service data and are mechanically qualified. Refer to the official Honda Service Manual (page 192).

		ITEMS	NOTE	FREQUENCY / ODOMETER READING (Note 1)								
				× 1,000 mi	0.6	4	8	12	16	20	24	Refer
				× 1,000 km	1.0	6.4	12.8	19.2	25.6	32.0	38.4	to page
NON-EMISSION-RELATED ITEMS		FINAL DRIVE OIL					I		I		R	110
		BRAKE FLUID	3			I	I	R	I	I	R	121
		BRAKE PADS WEAR				I	I	I	I	I	I	123
		BRAKE SYSTEM			I		I		I		I	120
	*	BRAKELIGHT SWITCH					I		I		I	—
	*	HEADLIGHT AIM					I		I		I	—
		CLUTCH SYSTEM					I		I		I	113
		CLUTCH FLUID	3			I	I	R	I	I	R	113
		SIDE STAND					I		I		I	131
	*	SUSPENSION					I		I		I	—
	*	NUTS, BOLTS, FASTENERS			I		I		I		I	—
	**	WHEELS/TIRES					I		I		I	—
	**	STEERING HEAD BEARINGS			I		I		I		I	—

* Should be serviced by your Honda dealer, unless you have the proper tools and service data and are mechanically qualified. Refer to the official Honda Service Manual (page 192).

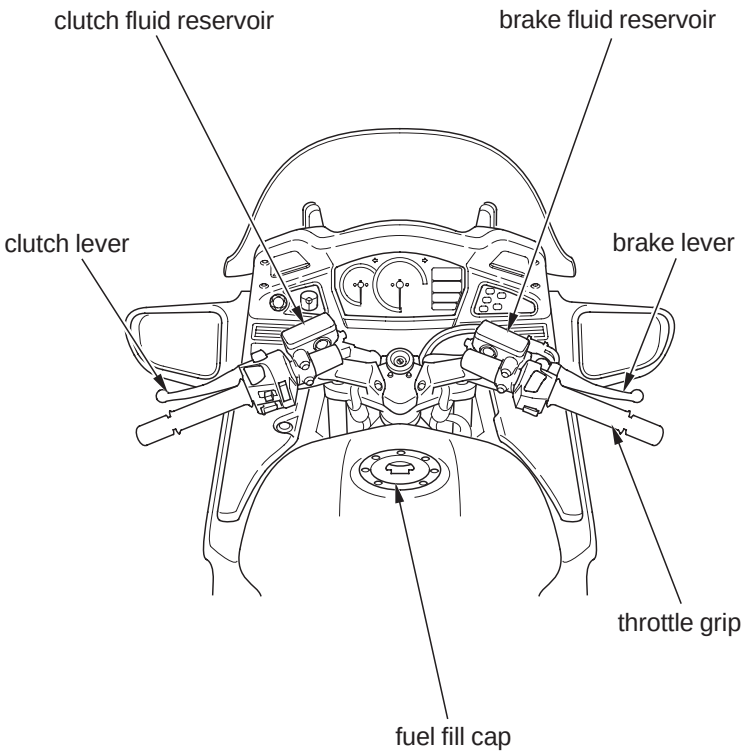
** In the interest of safety, we recommend these items be serviced only by your Honda dealer.

Maintenance Record

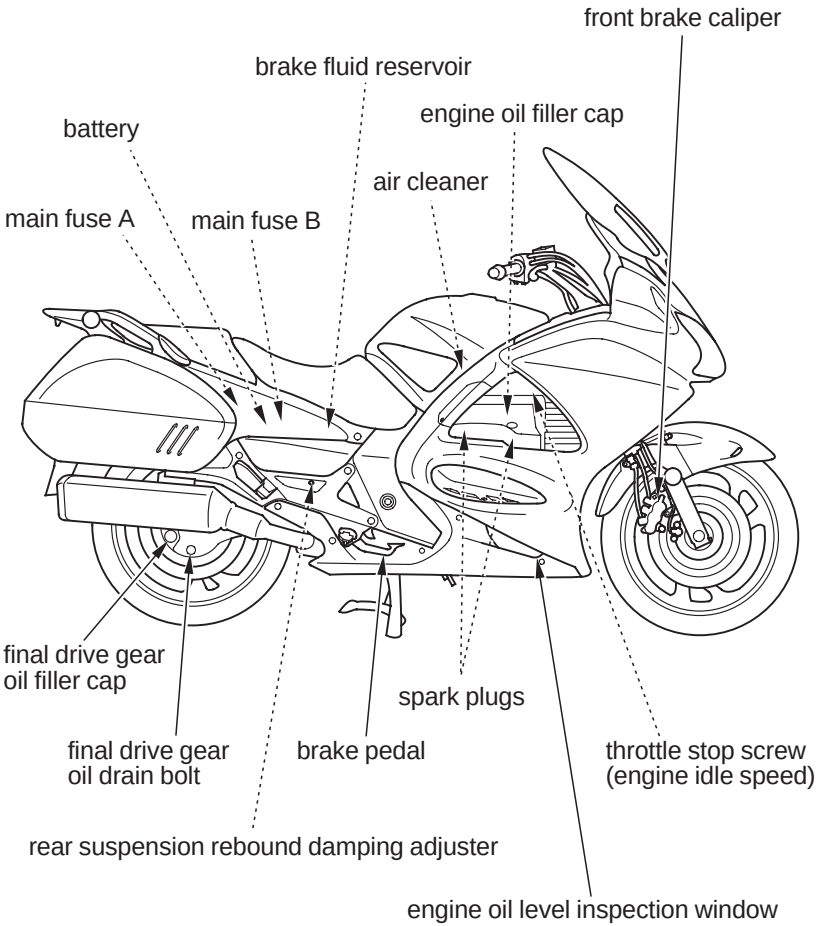
Keeping an accurate maintenance record will help ensure that your motorcycle is properly maintained. Retain detailed receipts to verify the maintenance was performed. If the motorcycle is sold, these receipts should be transferred with the motorcycle to the new owner. Make sure whoever performs the maintenance completes this record. All scheduled maintenance, including the 600 mile (1,000 km) initial maintenance, is considered a normal owner operating cost and will be charged for by your dealer. Use the space under Notes to record anything you want to remind yourself about or mention to your dealer.

Miles (km)	Odometer	Date	Performed By:	Notes
600 (1,000)				
4,000 (6,400)				
8,000 (12,800)				
12,000 (19,200)				
16,000 (25,600)				
20,000 (32,000)				
24,000 (38,400)				
28,000 (44,800)				
32,000 (51,200)				
36,000 (57,600)				
40,000 (64,000)				
44,000 (70,400)				
48,000 (76,800)				
52,000 (83,200)				

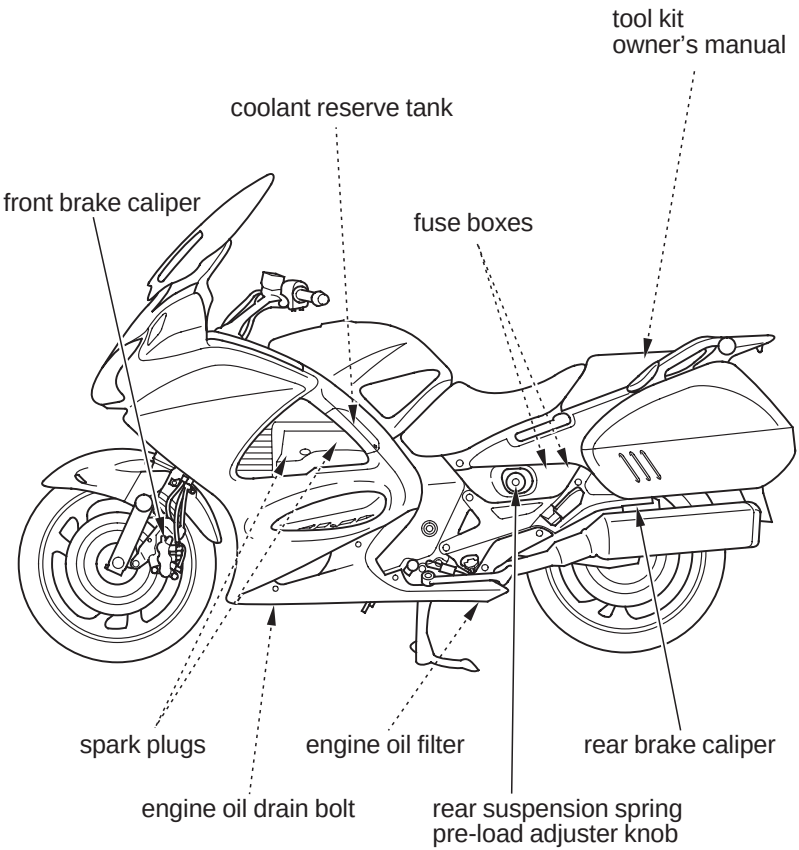
Maintenance Component Locations



Maintenance Component Locations



Maintenance Component Locations

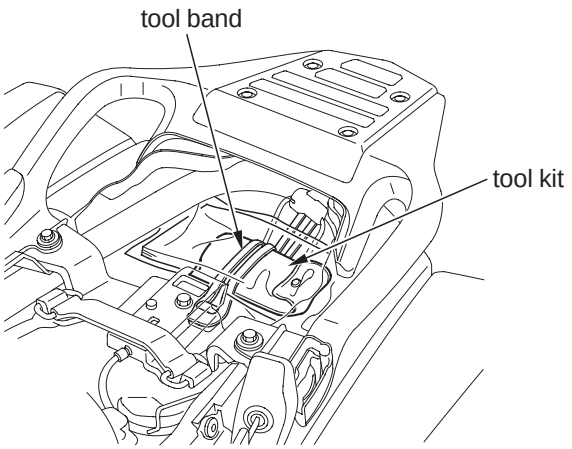


Tool Kit

The tool kit is stored under the rear seat (page 84).

An optional, larger tool kit may be available. Check with your Honda dealer's parts department.

UNDER REAR SEAT

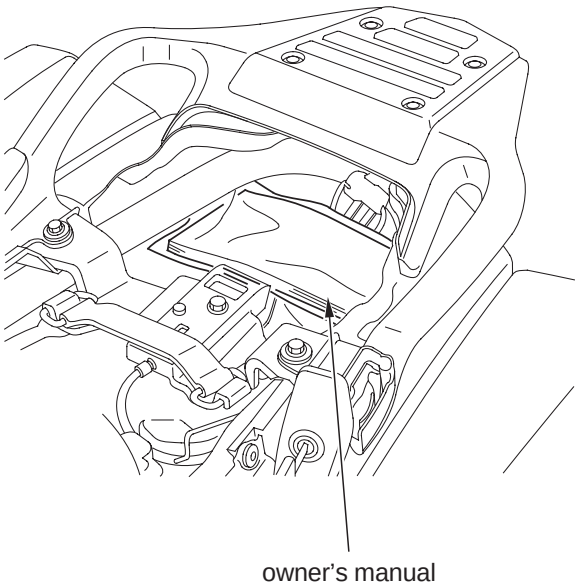


Owner's Manual Storage

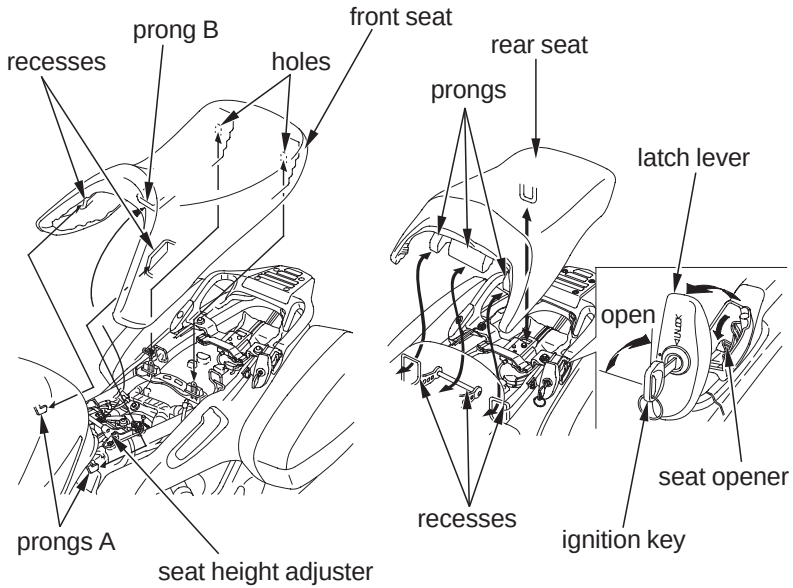
Your motorcycle provides storage for the owner's manual so you'll have it with you for easy reference. Store your owner's manual (and other documents) in the plastic storage bag in the owner's manual storage compartment under the rear seat (page 84).

Be careful not to flood this area when washing your motorcycle.

UNDER REAR SEAT



Seat Removal



To Remove the Rear Seat

Insert the ignition key and turn it clockwise to open the latch lever. Pull the rear seat back and up while depressing a seat opener.

To Remove the Front Seat

Pull the front seat back and up.

To Install the Front Seat

Insert the prongs A into the recesses. Insert the prong B into the seat height adjuster. Push down on the rear of the front seat.

Be sure to align the holes in the rear of the front seat with the adjuster when you install the front seat.

To Install the Rear Seat

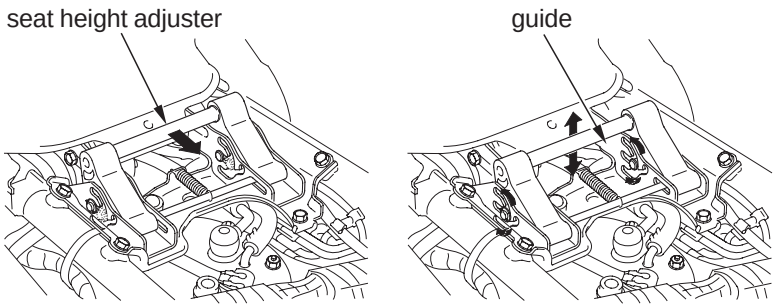
Install the front seat. Insert the prongs into the recesses under the frame cross member and then push down on the rear of the rear seat. Close the latch lever and turn the ignition key counterclockwise.

Be sure the seat is locked securely in position after installation.

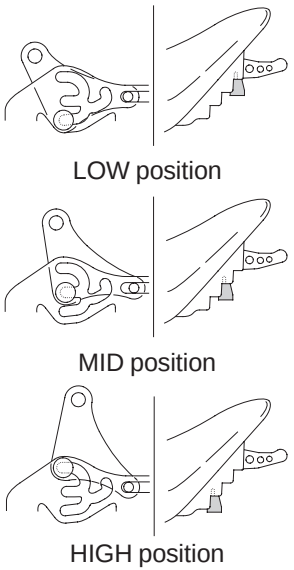
The front seat can be adjusted to one of three positions in 0.6 in (15 mm) increments.
Adjust the height according to your preference as described below.

To Adjust the Height of the Seat

1. Remove the front and rear seats (page 84).
2. Slide the seat height adjuster toward the rear, then set it in the guide.



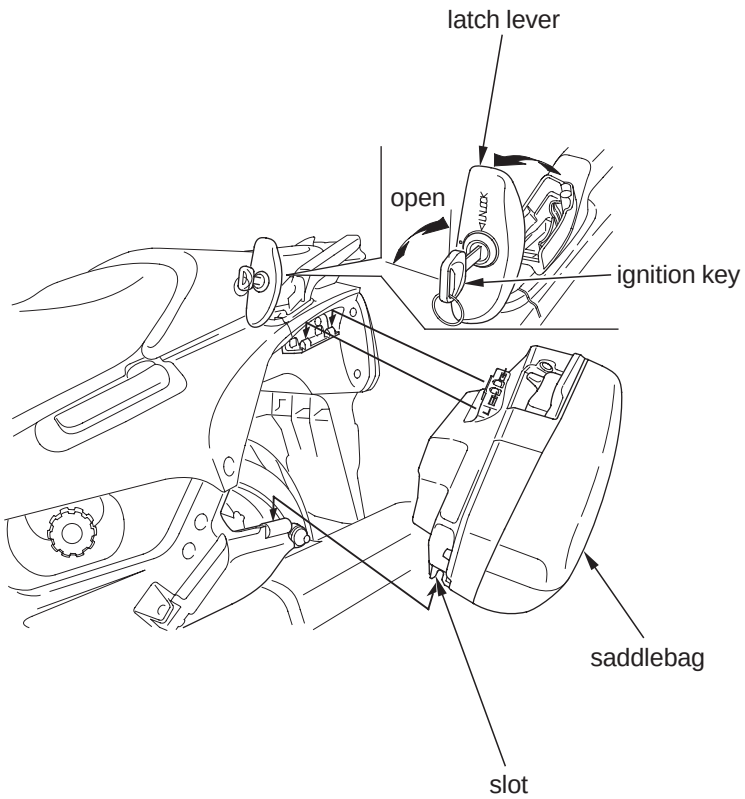
Be sure to align the holes in the rear of the front seat with the adjuster when you install the front seat.



3. Install the front and rear seats (page 84).

Saddlebag Removal

LEFT SIDE



To Remove the Saddlebags

Insert the ignition key and turn it clockwise to open the latch lever. Remove the saddlebag by lifting up and pulling it out toward you as shown. After removing, lock the latch lever with the ignition key.

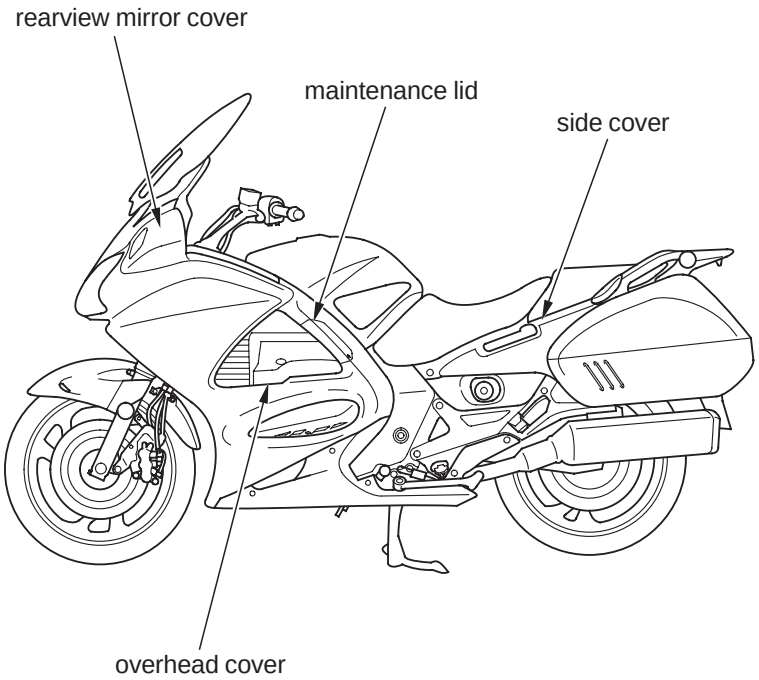
To Install the Saddlebags

Installation can be done in the reverse order of removal.
After installing the saddlebag, check that the slot engages securely.
Close the latch lever and turn the ignition key counterclockwise.
Make sure the latch levers are locked before riding.

Cover Removal

Refer to *Safety Precautions* on page 72 .

Left side shown; right side similar



Cover Removal

Side Cover Removal

Refer to *Safety Precautions* on page 72 .

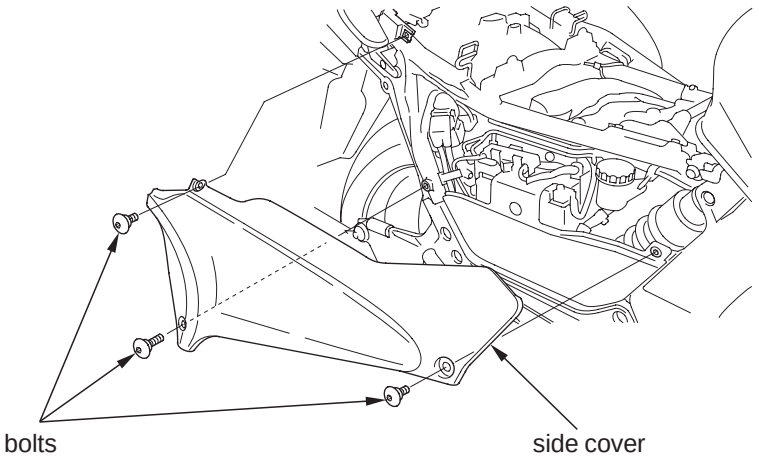
Both the side covers must be removed for fuse maintenance.
The right side cover must be removed for battery maintenance.

The right and left side covers can be removed in the same manner.

Removal
1. Remove the saddlebag (page 86).
2. Remove the front and rear seats (page 84).
3. Remove the side cover by removing the bolts.

Installation
- Installation can be done in the reverse order of removal.

RIGHT SIDE



Maintenance Lid Removal

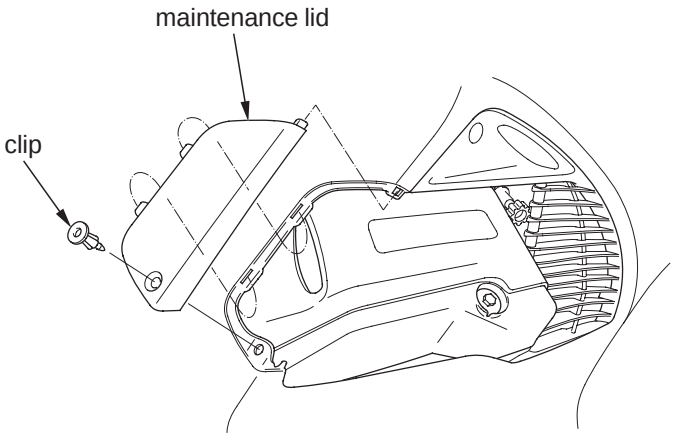
Refer to *Safety Precautions* on page 72 .

Both maintenance lids must be removed to remove the overhead cover.
The left maintenance lid must be removed for coolant maintenance.

The right and left maintenance lids can be removed in the same manner.

Remove the maintenance lid by removing the clip (page 92).

RIGHT SIDE



Cover Removal

Overhead Cover Removal

Refer to *Safety Precautions* on page 72 .

Both overhead covers must be removed for spark plug maintenance.
The right overhead cover must be removed for engine oil maintenance.

The right and left overhead covers can be removed in the same manner.

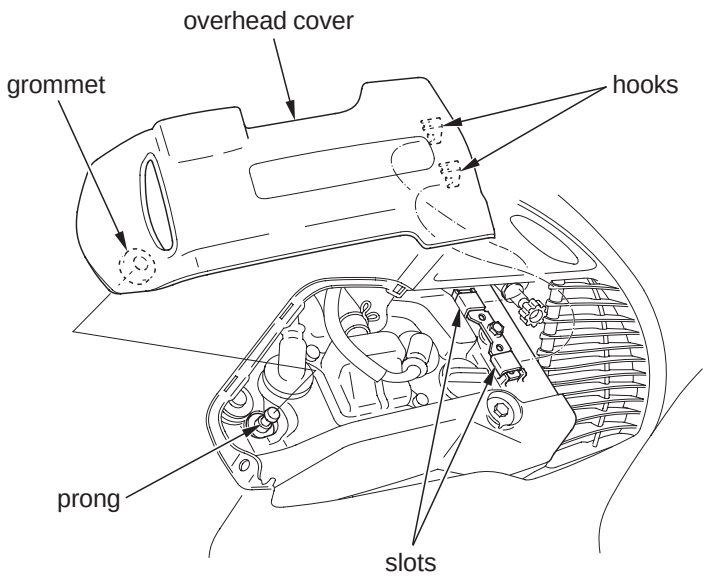
Removal

1. Remove the maintenance lid (page 89).
2. Remove the prong from the grommet.
3. Remove the overhead cover by removing the hooks from the slots.

Installation

- Installation can be done in the reverse order of removal.

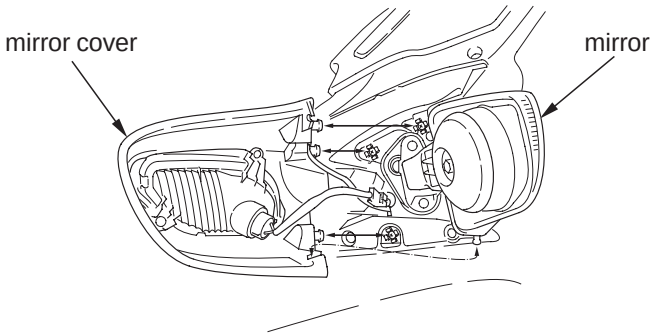
RIGHT SIDE



Refer to *Safety Precautions* on page 72 .

Both rearview mirror assemblies use a special breakaway mount which allows a controlled separation of the mirror assembly from its base upon impact with an obstacle. A short cable keeps the mirror assembly connected to the mirror bracket.

LEFT SIDE



Inspection

- Check the mirror for the correct angle.
- Press on the mirror cover firmly until it clicks into position on the mirror mount.
- After reinstalling, check the mirror for the correct angle and the front turn signals for proper operation.

For your safety, be sure to immediately reinstall any separated mirror assembly. Otherwise, the mirror and turn signal will not be available to you while riding.

If a mirror assembly is damaged so badly that it cannot be reused or reinstalled on its base, remove it from the base and transport the motorcycle to your Honda dealer for repair.

NOTICE

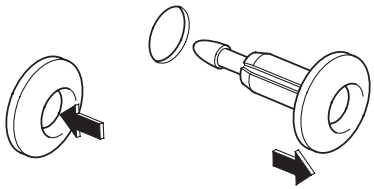
Riding with a mirror assembly hanging by its retaining cable may damage the motorcycle's plastic body.

Clip Removal

Removal

1. Press down on the center pin to release the lock.
2. Pull the clip out of the hole.

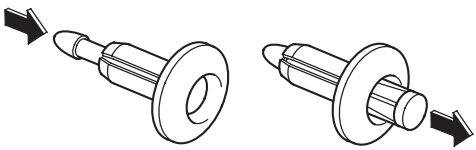
1. 2.



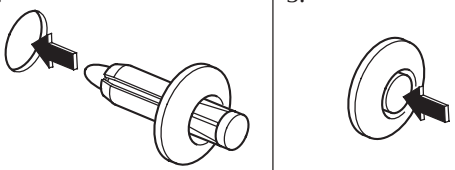
Installation

1. Push the bottom of the pin.
2. Insert the clip into the hole.
3. Lightly press down on the center pin to lock the clip.

1.



2. 3.



Raising the Fuel Tank

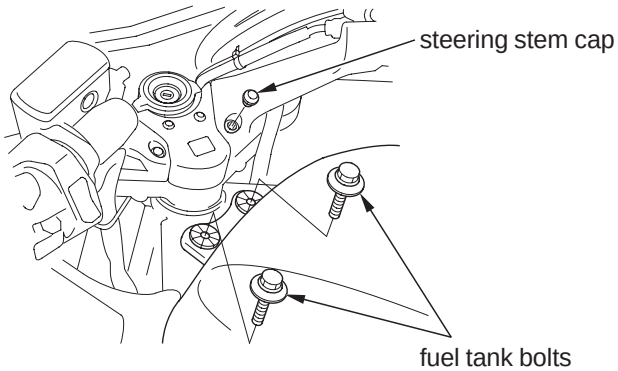
Refer to *Safety Precautions* on page 72 .

The fuel tank must be raised to service the air cleaner.
The fuel tank does not require draining for this procedure.

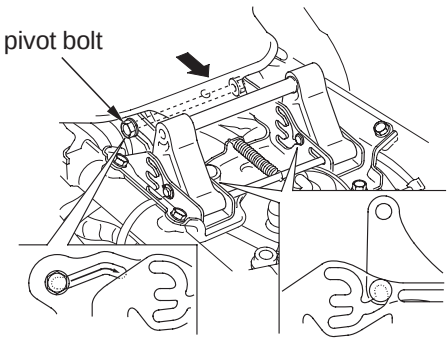
To Raise:

1. Place the motorcycle on its center stand with the transmission in neutral and the ignition switch off. Check that the fuel fill cap is closed.
2. Remove the front and rear seats (page 84).
3. The seat adjuster is set in the maintenance position after sliding it to the rear of the motorcycle.
4. Remove the fuel tank bolts and steering stem cap.
5. Loosen the pivot bolt and slide the fuel tank to the rear of the motorcycle.

LEFT SIDE



UNDER FRONT SEAT



(cont'd)

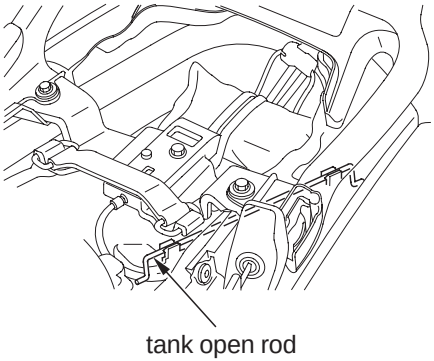
Raising the Fuel Tank

6. Remove the tank open rod from under the rear seat.
7. Raise the front of the fuel tank and place the tank open rod between the front of the fuel tank and steering stem.

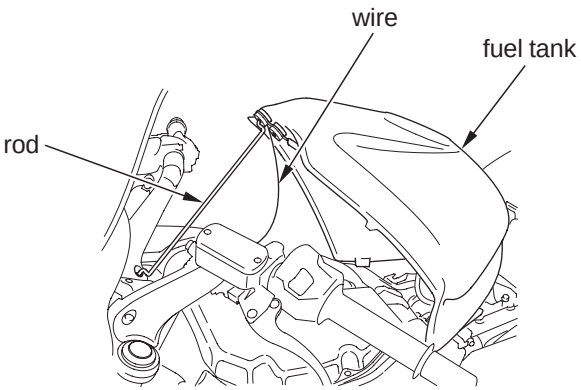
Do not raise the fuel tank higher than the wire allows.

8. Tighten the pivot bolt.

UNDER REAR SEAT



LEFT SIDE



Refer to *Safety Precautions* on page 72 .

Fuel Recommendation

type	premium unleaded
pump octane number	91 (or higher)

We recommend that you use premium unleaded fuel because it produces fewer engine deposits and extends the life of exhaust system components.

The use of leaded gas will damage the catalytic converters.

Your engine is designed to use any premium gasoline that has a pump octane number of 91 or higher. Gasoline pumps at service stations normally display the pump octane number. For information on the use of oxygenated fuels, see page 188 .

Use of lower octane gasoline can cause persistent ‘‘pinging’’ or ‘‘spark knock’’ (a loud rapping noise) which, if severe, can lead to engine damage. Light pinging experienced while operating under a heavy load, such as climbing a hill, is no cause for concern.

If pinging or spark knock occurs at a steady engine speed under normal load, change brands of gasoline. If pinging or spark knock persists, consult your Honda dealer.

Fuel

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

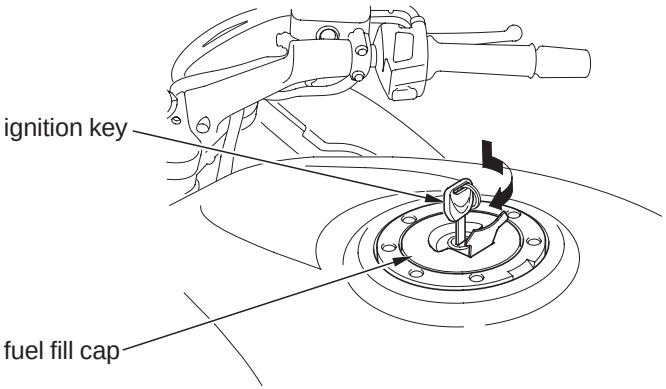
Fuel Capacity

Fuel tank capacity, including reserve:
7.66 US gal (29.0 ℓ)

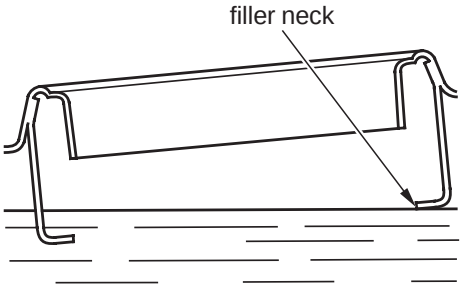
The tank should be refilled as soon as possible when the E segment in the fuel gauge flashes.

Refueling Procedure

Refer to *Safety Precautions* on page 72 .



1. Insert the ignition key in the fuel fill cap and turn it clockwise.
2. Open the fuel fill cap.



3. Add fuel until the level reaches the bottom of the filler neck.
   Avoid overfilling the tank. There should be no fuel in the filler neck.

⚠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.
- Handle fuel only outdoors.
- Wipe up spills immediately.

4. After refueling, push the fuel fill cap closed until it snaps and locks.
5. Remove the ignition key from the cap.

Engine Oil & Filter

Engine oil quality is a major factor that affects both the performance and the service life of the engine.

Using the proper oil (page 99) and filter, and regularly checking, adding, and changing oil will help extend your engine's life. Even the best oil wears out. Changing oil helps get rid of dirt and deposits in the engine. Operating the engine with old or dirty oil can damage your engine. Running the engine with insufficient oil can cause serious damage to the engine and transmission.

Change the engine oil as specified in the maintenance schedule on page 76 .

When running in very dusty conditions, oil changes should be performed more frequently than specified in the maintenance schedule.

Oil Recommendation

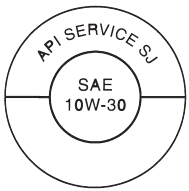
API classification	SG or higher except oils labeled as energy conserving on the circular API service label
viscosity (weight)	SAE 10W-30
JASO T 903 standard	MA
suggested oil*	Pro Honda GN4 4-stroke oil (USA & Canada), or Honda 4-stroke oil (Canada only), or an equivalent motorcycle oil.

* Suggested oils are equal in performance to SJ oils that are not labeled as energy conserving on the circular API service label.

- Your motorcycle does not need oil additives. Use the recommended oil.
- Do not use oils with graphite or molybdenum additives. They may adversely affect clutch operation.
- Do not use API SH or higher oils displaying a circular API ‘‘energy conserving’’ service label on the container. They may affect lubrication and clutch performance.



NOT RECOMMENDED

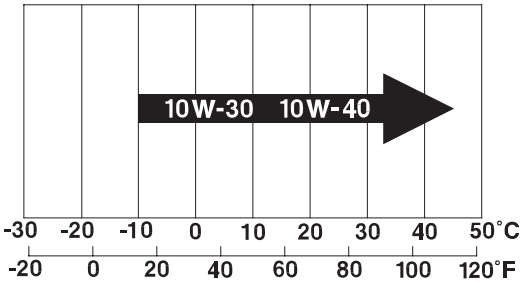


OK

- Do not use non-detergent, vegetable, or castor based racing oils.

Engine Oil & Filter

Other viscosities shown in the following chart may be used when the average temperature in your riding area is within the indicated range.

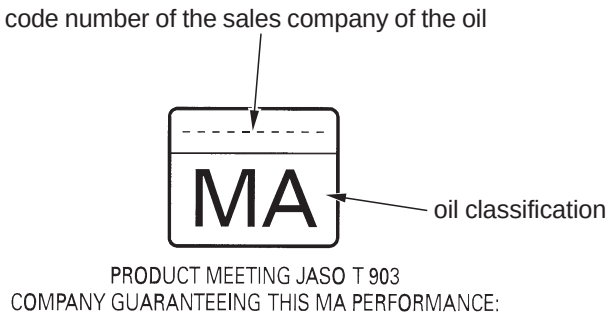


JASO T 903 standard

The JASO T 903 standard is an index for engine oils for 4-stroke motorcycle engines.

There are two classes: MA and MB.

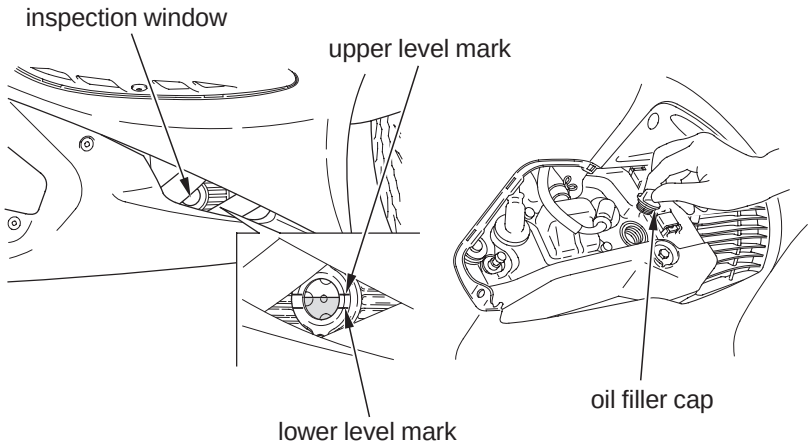
Oil conforming to the standard is labeled on the oil container. For example, the following label shows the MA classification.



Checking & Adding Oil

Refer to *Safety Precautions* on page 72 .

RIGHT SIDE



1. Park your motorcycle on its center stand on a firm, level surface.
2. Start the engine and let it idle for 3－5 minutes. Make sure the low oil pressure indicator goes off. If the indicator remains on, stop the engine immediately.
3. Stop the engine and wait 2－3 minutes.
4. Check that the oil level is between the upper and lower level marks in the inspection window.
   - If the oil is at or near the upper level mark － you do not have to add oil.
   - If the oil is below or near the lower level mark － remove the right overhead cover (page 90), the oil filler cap and add the recommended oil until it reaches the upper level mark. (Do not overfill.)
5. Reinstall the oil filler cap, and right overhead cover.
6. Check for oil leaks.

Engine Oil & Filter

Changing Engine Oil & Filter

Refer to *Safety Precautions* on page 72 .

Your motorcycle's oil filter has very specific performance requirements. Use a new Honda Genuine oil filter or a filter of equal quality specified for your model.

NOTICE

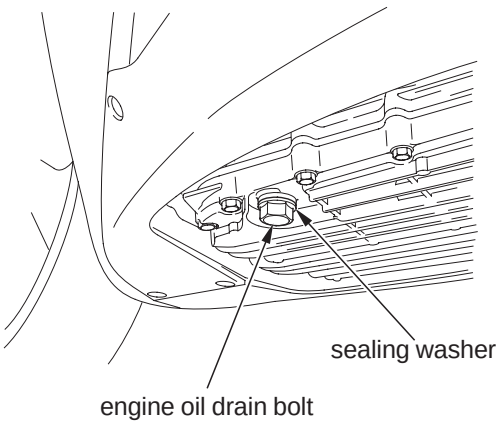
Using the wrong oil filter may result in leaks or engine damage.

This procedure requires mechanical skill and professional tools such as a torque wrench and oil filter wrench, as well as a means for disposing of the drained fluid (page 145). If you do not have the skills or the tools, see your Honda dealer.

Drain the Engine Oil:

1. Park your motorcycle on its center stand on a firm, level surface.
2. If the engine is cold, start it and let it idle for 3−5 minutes. Turn the engine off. Wait 2−3 minutes for the oil to settle.
3. Place a drain pan under the engine oil drain bolt.
4. To drain the oil, remove the oil filler cap, engine oil drain bolt, and sealing washer.

FRONT, UNDER ENGINE



Install a New Oil Filter:

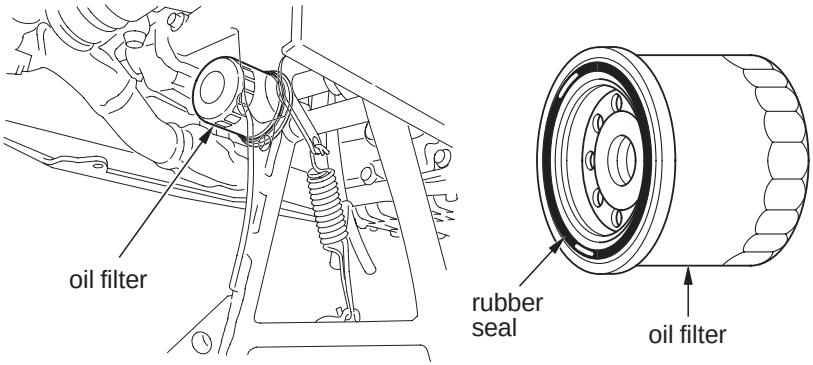
5. Remove the oil filter with a filter wrench and let the remaining oil drain out. Discard the oil filter in an approved manner (page 147).
6. Pour the drained oil into a suitable container and dispose of it in an approved manner (page 147).

NOTICE

Improper disposal of drained fluids is harmful to the environment.

7. Apply a thin coat of engine oil to the rubber seal of a new oil filter.

UNDER ENGINE



8. Install the new oil filter and tighten it by hand.
9. Using an oil filter wrench attachment and a torque wrench, tighten the new oil filter to the specified torque:
   20 lbf·ft (26 N·m , 2.7 kgf·m)
10. Check the condition of the sealing washer on the engine oil drain bolt. Replace the washer every other time the oil is changed.
    Install the engine oil drain bolt and tighten it to the specified torque:
    22 lbf·ft (29 N·m , 3.0 kgf·m)

(cont'd)

Engine Oil & Filter

Add Engine Oil:

11. Fill the crankcase with the recommended oil (page 99), approximately:
    4.1 US qt (3.9 ℓ)
12. Install the oil filler cap securely.
13. Start the engine and let it idle for 3－5 minutes.
14. Stop the engine and wait 2－3 minutes.
15. Check that the oil level is at the upper level mark in the oil inspection window (page 101).
16. Check that there are no oil leaks.

If a torque wrench is not used for installation, see your Honda dealer as soon as possible to verify proper assembly.

Coolant

Your motorcycle's liquid cooling system dissipates engine heat through the coolant jacket that surrounds the cylinder and cylinder head.

Maintaining the coolant will allow the cooling system to work properly and prevent freezing, overheating, and corrosion.

Coolant Recommendation

Use Pro Honda HP coolant or an equivalent high quality ethylene glycol antifreeze containing corrosion protection inhibitors specifically recommended for use in aluminum engines. Check the antifreeze container label.

Use only distilled water as a part of the coolant solution. Water that is high in mineral content or salt may be harmful to the aluminum engine.

NOTICE

Using coolant with silicate inhibitors may cause premature wear of water pump seals or blockage of radiator passages. Using tap water may cause engine damage.

The factory provides a 50/50 solution of antifreeze and water in this motorcycle. This coolant solution is recommended for most operating temperatures and provides good corrosion protection.

Decreasing the concentration of antifreeze to less than 40% will not provide proper corrosion protection.

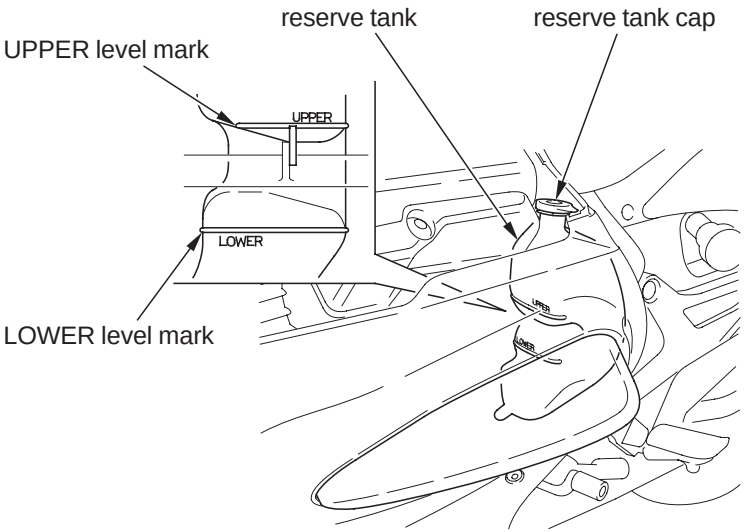
Increasing the concentration of antifreeze is not recommended because it decreases cooling system performance. Higher concentrations of antifreeze (up to 60%) should only be used to provide additional protection against freezing. Check the cooling system frequently during freezing weather.

Coolant

Checking & Adding Coolant

Refer to *Safety Precautions* on page 72 .

LEFT SIDE



1. With the engine at normal operating temperature, check the coolant level in the reserve tank. It should be between the UPPER and LOWER level marks. If the reserve tank is empty, or if coolant loss is excessive, check for leaks and see your Honda dealer for repair.
2. Remove the left maintenance lid (page 89).
3. Remove the reserve tank cap.
   Always add coolant to the reserve tank. Do not attempt to add coolant by removing the radiator cap.
4. Add coolant to the reserve tank as required to bring the coolant level to the UPPER level mark.
5. Reinstall the left maintenance lid.

Coolant Replacement

Refer to *Safety Precautions* on page 72 .

Coolant should be replaced by your Honda dealer, unless you have the proper tools and service data and are mechanically qualified. Refer to the official Honda Service Manual (page 192).

⚠ WARNING

Removing the radiator cap while the engine is hot can cause the coolant to spray out, seriously scalding you.

Always let the engine and radiator cool down before removing the radiator cap.

To properly dispose of drained coolant, refer to *You & the Environment*, page 147 .

NOTICE

Improper disposal of drained fluids is harmful to the environment.

Air Cleaner

Refer to *Safety Precautions* on page 72 .

Service the air cleaner more frequently if you ride in unusually wet or dusty areas. Your Honda dealer can help you determine the correct service interval for your riding conditions.

Your motorcycle's air cleaner has very specific performance requirements. Use a new Honda Genuine air cleaner specified for your model or an air cleaner of equivalent quality.

NOTICE

Using the wrong air cleaner may result in premature engine wear.

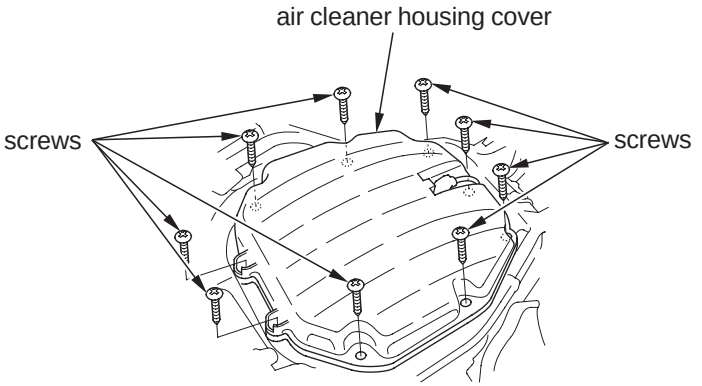
Proper air cleaner maintenance can prevent premature engine wear or damage, expensive repairs, low engine power, poor gas mileage, and spark plug fouling.

NOTICE

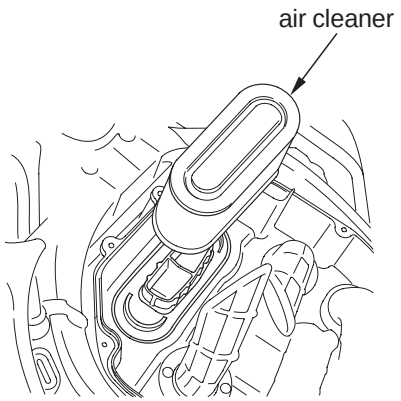
Improper or lack of proper air cleaner maintenance can cause poor performance and premature engine wear.

Replacement

1. Raise the fuel tank (page 93).
2. Remove the air cleaner housing cover by removing the screws.



3. Remove and discard the air cleaner.
4. Install a new air cleaner.
5. Install the removed parts in the reverse order of removal.



Final Drive Oil

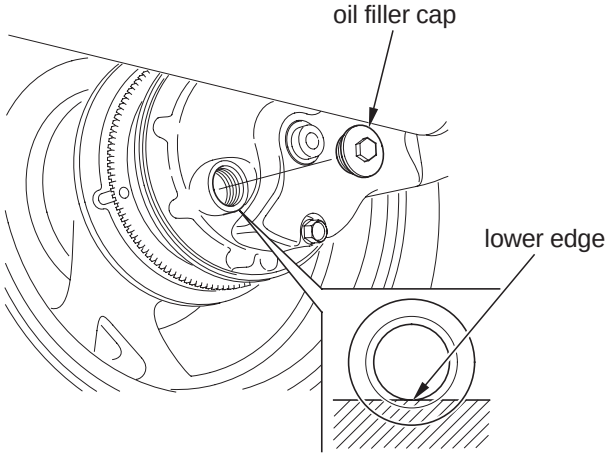
Oil Recommendation

type	hypoid gear oil
viscosity (weight)	SAE 80

Checking & Adding Oil

Refer to *Safety Precautions* on page 72 .

RIGHT REAR

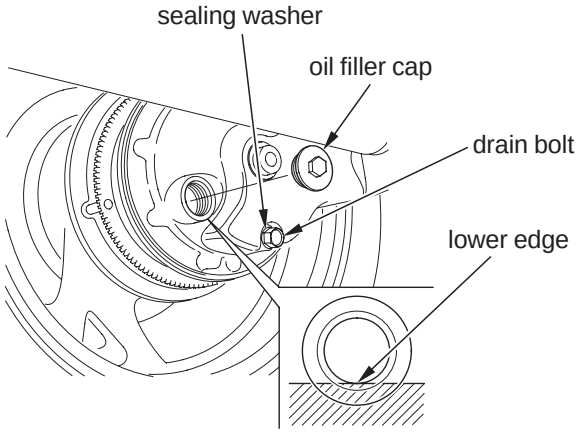


1. Place the motorcycle on its center stand on a firm, level surface.
2. Remove the oil filler cap.
3. Check the oil level. It should be flush with the lower edge of the oil filler hole.
4. If the level is low, check for oil leaks. Add the recommended oil through the oil filler hole until it reaches the lower edge of the opening.
5. Install the oil filler cap.

Changing Oil

Refer to *Safety Precautions* on page 72 .

RIGHT REAR



Change the oil with the final drive at normal operating temperature to assure complete and rapid draining.

1. Place the motorcycle on its center stand on a firm, level surface.
2. Place a drain pan under the drain bolt.
3. Remove the oil filler cap, drain bolt and sealing washer.
4. After the oil has completely drained, check that the sealing washer is in good condition. Reinstall the drain bolt with its sealing washer (or a new washer, if necessary) and tighten it to the specified torque:
   15 lbf·ft (20 N·m , 2.0 kgf·m)
5. Pour the drained oil into a suitable container and dispose of it in an approved manner (page 145).

NOTICE

Improper disposal of drained fluids is harmful to the environment.

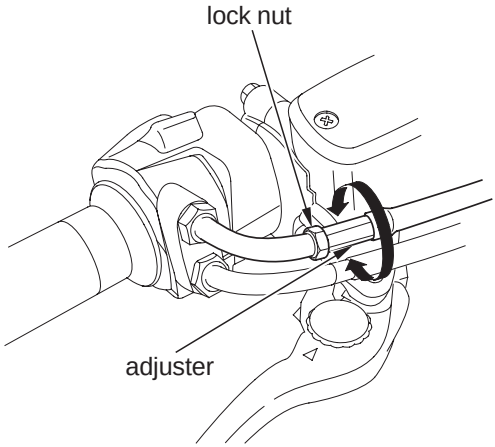
6. Fill the final drive with the recommended oil:
   5.2 US oz (155 cm^3)
   Make sure the final drive oil level is at the lower edge of the oil filler inspection hole.
7. Install the oil filler cap.

Throttle

Throttle Freeplay

Refer to *Safety Precautions* on page 72 .

RIGHT HANDLEBAR



Inspection

Check freeplay at the throttle grip flange. Freeplay:

1/16－1/4 in (2－6 mm)

If necessary, adjust to the specified range.

Adjustment

1. Loosen the lock nut.
2. Turn the adjuster.
3. After adjustment, check for smooth rotation of the throttle grip from fully closed to fully open in all steering positions.

Throttle Inspection

Refer to *Safety Precautions* on page 72 .

1. Check that the throttle assembly is positioned properly and the securing bolts are tight.
2. Check for smooth rotation of the throttle from fully open to fully closed in all steering positions. If there is a problem, see your Honda dealer.

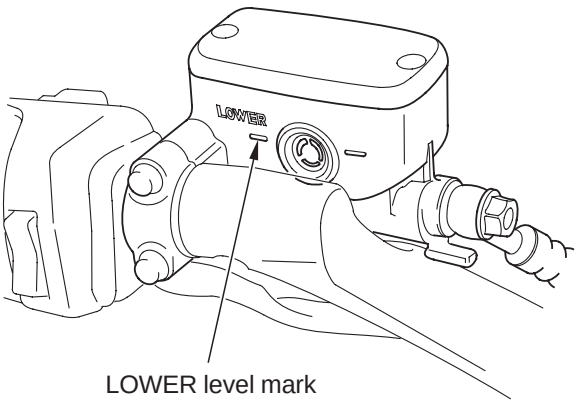
Your motorcycle has a hydraulically-actuated clutch. There are no adjustments to perform, but the clutch system must be inspected periodically for fluid level and leakage.

If the motorcycle creeps or stalls when shifted into gear, or if the clutch slips, causing acceleration to lag behind engine speed, there is probably air in the clutch system. See your Honda dealer to have the air bled out of the system.

Fluid Level Inspection

Refer to *Safety Precautions* on page 72 .

LEFT HANDLEBAR



LOWER level mark

Check that the fluid level is above the LOWER level mark. If the fluid level is below the LOWER level mark, it indicates fluid leakage. See your Honda dealer for repair.

Other Inspections

- Make sure there are no fluid leaks.
- Check for deterioration or cracks in the hose and fittings.
- Check that the clutch lever assembly is positioned properly and the securing bolts are tight.

Engine Idle Speed

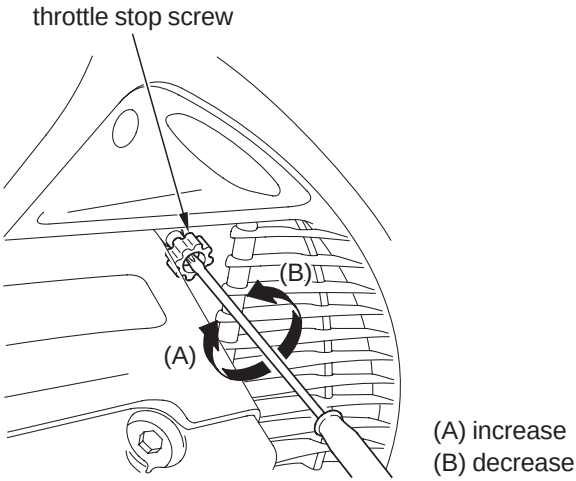
Remember, idle speed adjustment is not a ‘‘cure-all’’ for other problems in your engine’s fuel-delivery system. Adjusting the idle speed will not compensate for a fault elsewhere.

The engine must be at normal operating temperature for accurate idle speed adjustment.

Idle Speed Adjustment

Refer to *Safety Precautions* on page 72 .

RIGHT SIDE



1. If the engine is cold, start it and warm it up with 10 minutes of stop-and-go riding. Stop the engine.
2. Place your motorcycle on its center stand on a firm, level surface.
3. Adjust idle speed with the throttle stop screw.
   Idle speed (in neutral):
   1,000 ± 100 rpm

Spark Plug Recommendation

standard spark plug	CR7EH-9 (NGK) or U22FER9 (DENSO)
for extended high speed riding	CR8EH-9 (NGK) or U24FER9 (DENSO)

Use only the recommended type of spark plugs in the recommended heat range.

NOTICE

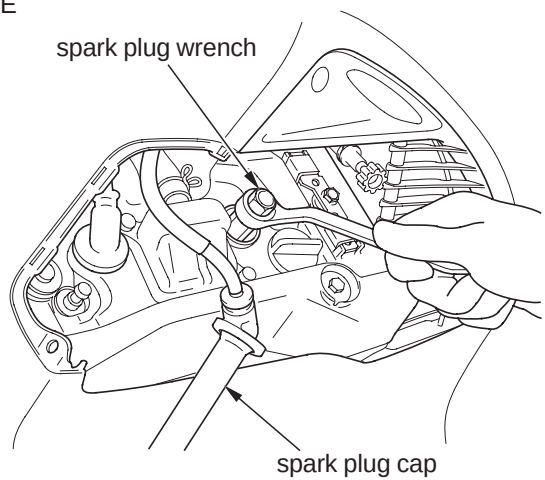
Using spark plugs with an improper heat range can cause engine damage.

Spark Plug Inspection & Replacement

Refer to *Safety Precautions* on page 72 .

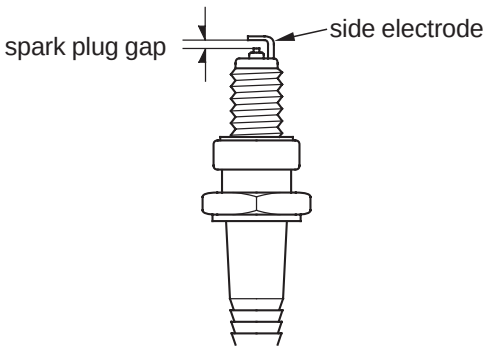
1. Remove the right and left maintenance lids (page 89).
2. Remove the right and left overhead covers (page 90).
3. Clean any dirt from around the spark plug bases.
4. Disconnect the spark plug caps. Take care to avoid damaging the spark plug wire when disconnecting the caps.
5. Using the spark plug wrench, remove the spark plugs.

RIGHT SIDE



(cont'd)

6. Inspect the electrodes and center porcelain for deposits, corrosion, or carbon fouling. If the corrosion or deposits are heavy, replace the plug. Clean a carbon or wet-fouled plug with a plug cleaner, if available, or a wire brush.
7. Check the spark plug gap using a wire-type feeler gauge. If adjustment is necessary, bend the side electrode carefully.
   The gap should be:
   0.031–0.035 in (0.80–0.90 mm)



8. With the plug washers attached, thread the spark plugs in by hand to prevent cross-threading.
9. Tighten each spark plug:
   - If the old plug is good:
     1/8 turn after it seats.
   - If installing a new plug, tighten it twice to prevent loosening:
     a) First, tighten the plug:
        NGK: 1/2 turn after it seats.
        DENSO: 1 turn after it seats.
     b) Then loosen the plug.
     c) Next, tighten the plug again:
        1/8 turn after it seats.

NOTICE

Improperly tightened spark plugs can damage the engine. If a plug is too loose, a piston may be damaged. If a plug is too tight, the threads may be damaged.

10. Reinstall the spark plug caps. Take care to avoid pinching any cables or wires.
11. Reinstall the right and left overhead covers and maintenance lids.

Suspension

Your front and rear suspension systems use springs and hydraulic damping devices that suspend your weight and most of the weight of your motorcycle.

The spring pre-load for your rear suspension system adjusts the amount of force required to begin compression of the spring.

The oil damper systems hydraulically control the natural compression and rebound of the suspension springs so that traction and comfort are maintained as the wheels ride over road surfaces.

Consider adjusting your suspension whenever you change your normal load, by adding or subtracting a passenger, cargo, or accessories, or when the road or riding conditions change.

The way you ride your motorcycle and the type of ride you want to experience can also influence your suspension needs.

You may adjust the spring pre-load and the rebound damping of rear suspension system.

Lower spring pre-load and softer damping provide a softer ride and are usually preferred for light loads and smooth roads. Higher spring pre-load and firmer damping provide a firmer ride and are recommended for heavy loads, rough road conditions, and faster, more challenging riding.

Rear Suspension Adjustment

The rear suspension can be adjusted for rider (and passenger) weight and riding conditions by changing the spring pre-load and rebound damping.

The rear shock absorber includes a damper unit that contains high pressure nitrogen gas. Do not attempt to disassemble, service, or dispose of the damper; see your Honda dealer. The instructions found in this owner's manual are limited to adjustments of the shock assembly only.

Suspension

Rear Suspension Spring Pre-load

Refer to *Safety Precautions* on page 72 .

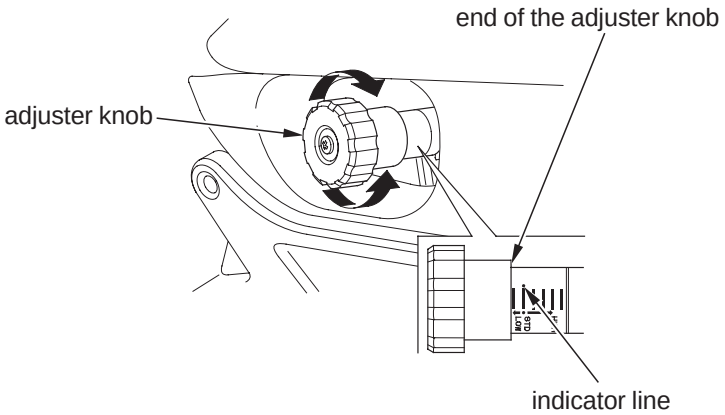
The spring pre-load adjuster knob has 35 spring pre-load positions (clicks) or more for different load or riding conditions.

To adjust the spring pre-load, turn the adjuster knob.

To adjust to the standard position:

1. Turn the spring pre-load adjuster knob counterclockwise until it will no longer turn (lightly seats).
   This is the full LOW setting.
2. Turn the adjuster clockwise by 7 clicks. At that position, the end of the adjuster knob should be aligned with the indicator line. This is the standard position.

LEFT SIDE



To Reduce Spring Pre-load (LOW):
For a light load and smooth road conditions, turn the adjuster counterclockwise toward LOW.

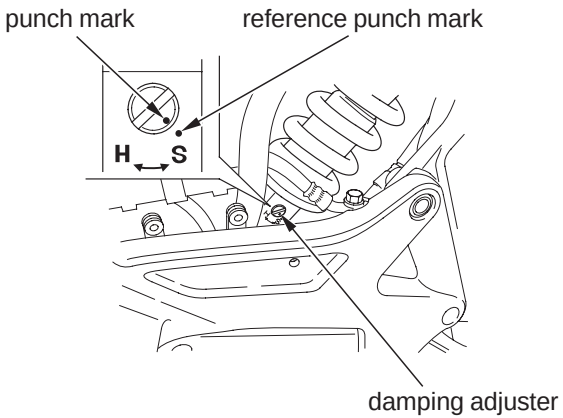
To Increase Spring Pre-load (HIGH):
For a firmer ride and rough road conditions, turn the adjuster clockwise toward HIGH.

Rear Suspension Damping

Refer to *Safety Precautions* on page 72 .

Rebound Damping

RIGHT UNDER



To adjust to the standard position:

1. Turn the damping adjuster clockwise until it will no longer turn (lightly seats). This is the full hard setting.
2. Turn the adjuster counterclockwise approximately 1 turn so that the punch mark on the adjuster aligns with the reference punch mark. This is the standard position.

To Reduce Rebound Damping (SOFT):
For a light load and smooth road conditions, turn the adjuster counterclockwise toward SOFT (S).

To Increase Rebound Damping (HARD):
For a firmer ride and rough road conditions, turn the adjuster clockwise toward HARD (H).

Brakes

The hydraulic braking systems on your motorcycle dissipate the heat generated by the friction of the brake pads on the brake discs as the wheels are slowed.

As the brake pads wear, the brake fluid level will drop. A leak in the system will also cause the level to drop.

Frequently inspect the system to ensure there are no fluid leaks. Periodically inspect the brake fluid level and the brake pads for wear.

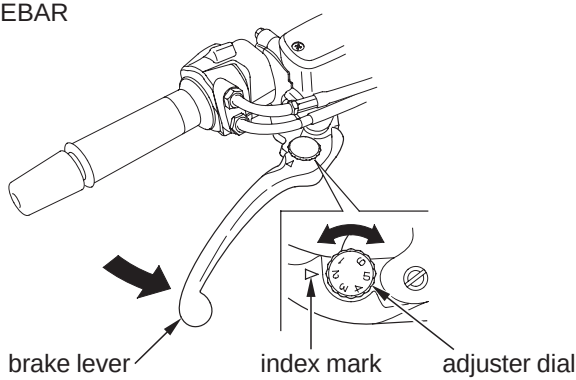
If the brake lever or brake pedal freeplay does not feel within the normal range while riding, check the brake pads for wear (page 123). Worn pads should be replaced. If the pads are not worn beyond the recommended limit, there is probably air in the brake system. See your Honda dealer to have the air bled from the system.

Front Brake Lever Adjustment

Refer to *Safety Precautions* on page 72 .

The distance between the tip of the brake lever and the grip may be adjusted.

RIGHT HANDLEBAR



1. Turn the adjuster dial while pushing the brake lever forward.
2. Align the index mark on the brake lever with the numbers on the adjuster dial.
3. Apply the brake, release it, then spin the wheel and check that it rotates freely. Repeat this procedure several times.

Brake Fluid Recommendation

brake fluid	Honda DOT 4 Brake Fluid

The recommended brake fluid is Honda DOT 4 Brake Fluid, or any brake fluid of equal quality and performance. Use fresh brake fluid from a sealed container. Be sure to read the label before opening the sealed container. An opened container may be contaminated or may have absorbed moisture from the air.

Fluid Level Inspection

Refer to *Safety Precautions* on page 72 .

If your inspection indicates a low fluid level, have your Honda dealer add the recommended brake fluid.

Do not add or replace brake fluid, except in an emergency. If you do add fluid, have your Honda dealer check the system as soon as possible.

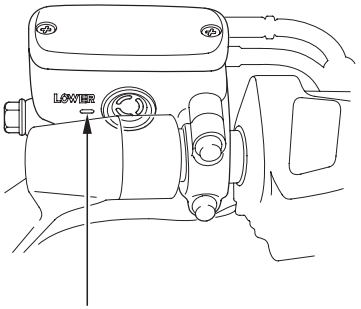
NOTICE

Brake fluid can damage plastic and painted surfaces. Handle with care.

Wipe up spills immediately. Avoid brake fluid contact with skin or eyes. If it comes in contact with your eyes, wash them out with clean water and immediately call a doctor. If it comes in contact with your skin, wash with clean water and, if necessary, call a doctor.

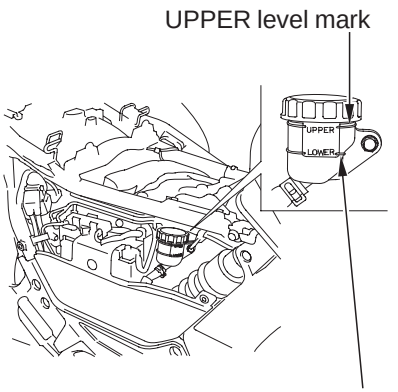
Brakes

RIGHT HANDLEBAR



LOWER level mark

RIGHT SIDE



1. Place your motorcycle in an upright position on a firm, level surface.
2. Check the fluid level.
   Front: It should be above the LOWER level mark.
   Rear: It should be between the UPPER and LOWER level marks.

   If the level is at or below the LOWER level mark, check the brake pads for wear.

Worn pads should be replaced. If the pads are not worn beyond the recommended limit, have your brake system inspected for leaks.

Other Inspections

- Make sure there are no fluid leaks.
- Check for deterioration or cracks in the hoses and fittings.

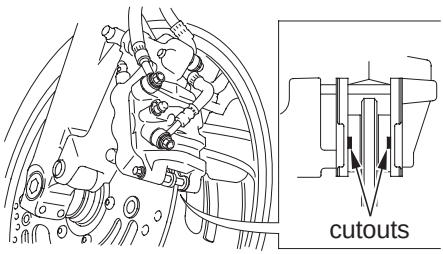
Brake Pad Wear

Refer to *Safety Precautions* on page 72 .

Brake pad wear depends upon the severity of usage, the type of riding, and road conditions. Generally, the pads will wear faster on wet and dirty roads. Inspect the pads at each regular maintenance interval (page 77).

Front Brake

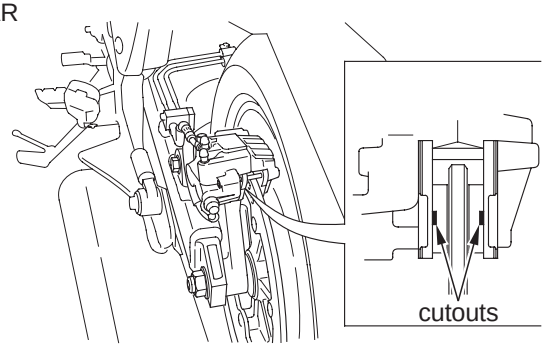
LEFT FRONT (right side similar)



Always inspect both pads in both the right and left front brake calipers. Check the cutouts in each pad. If either pad is worn to the cutout, replace both pads as a set. See your Honda dealer for this service.

Rear Brake

LEFT REAR



Check the cutouts in each pad. If either pad is worn to the cutout, replace both pads as a set. See your Honda dealer for this service.

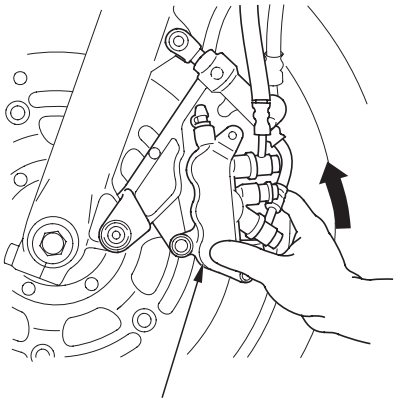
Brakes

Brake System Inspection

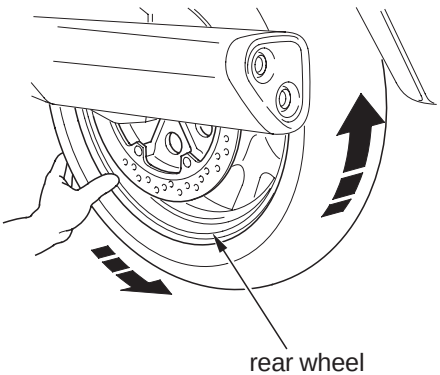
Refer to *Safety Precautions* on page 72 .

1. Place the motorcycle on its center stand, stop the engine, and place the transmission in neutral.
2. Move the left caliper assembly upward while slowly rotating the rear wheel. The brake system is normal if the rear wheel stops. If the rear wheel does not stop, see your Honda dealer.

LEFT FRONT



LEFT REAR



Tires

To safely operate your motorcycle, your tires must be the proper type and size, in good condition with adequate tread, and correctly inflated for the load you are carrying.

⚠ WARNING

Using tires that are excessively worn or improperly inflated can cause a crash in which you can be seriously hurt or killed.

Follow all instructions in this owner's manual regarding tire inflation and maintenance.

The following pages give detailed information on how and when to check your air pressure, how to inspect your tires for wear and damage, and our recommendations for tire repair and replacement.

Air Pressure

Refer to *Safety Precautions* on page 72 .

Properly inflated tires provide the best combination of handling, tread life, and riding comfort. Generally, underinflated tires wear unevenly, adversely affect handling, and are more likely to fail from being overheated. Overinflated tires make your motorcycle ride harshly, are more prone to damage from road hazards, and wear unevenly.

We recommend that you visually check your tires before every ride and use an air pressure gauge to measure the air pressure at least once a month or any time you think the tires might be low. Even tires that are in good condition may lose one to two psi per month if not checked and adjusted regularly.

Tires

Tubeless tires have some degree of self-sealing ability if they are punctured. However, because leakage is often very slow, you should look closely for punctures whenever a tire is not fully inflated.

Always check air pressure when your tires are ‘‘cold’’, after the motorcycle has been parked for at least three hours. If you check air pressure when your tires are ‘‘warm’’ — even if your motorcycle has only been ridden for a few miles — the readings will be higher. If you let air out of warm tires to match the recommended cold pressures, the tires will be underinflated.

The recommended ‘‘cold’’ tire pressures are:

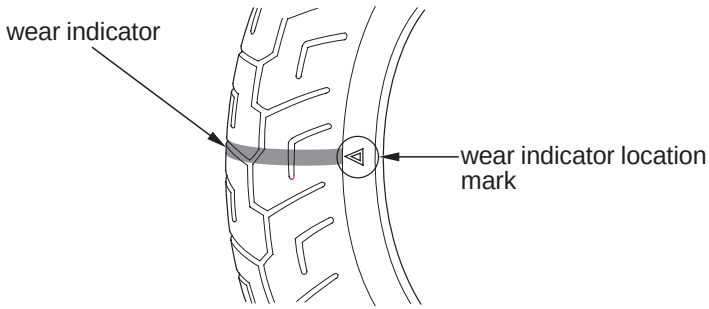
front	42 psi (290 kPa , 2.90 kgf/cm²)
rear	42 psi (290 kPa , 2.90 kgf/cm²)

Inspection

Refer to *Safety Precautions* on page 72 .

Whenever you check the tire pressures, you should also look for:

- Bumps or bulges in the side of the tire or the tread. Replace any tire that has a bump or bulge.
- Cuts, slits, or cracks in the tires.
  Replace the tire if you can see fabric or cord.
- Nails or other foreign objects embedded in the side of the tire or tread.
- Excessive tread wear.



Also, if you hit a pothole or hard object while riding, pull to the side of the road as soon as you safely can and carefully inspect the tires for damage.

For the best performance, you should replace a tire before the tread depth at the center reaches the following limits:

front	0.06 in (1.5 mm)
rear	0.08 in (2.0 mm)

If the wear indicators are visible, replace the tire immediately as it is no longer safe.

Tire Service Life

The service life of your tires is dependent on many factors, including, but not limited to, riding habits, road conditions, vehicle loading, tire pressure, maintenance history, speed, and environmental conditions (even when the tires are not in use).
In addition to your regular inspections and tire pressure maintenance, it is recommended that you have annual inspections performed once the tires reach 5 years old. It is also recommended that all tires be removed from service after 10 years from the date of manufacture, regardless of their condition or state of wear.
The last four digits of the TIN (tire identification number) (1) are found on the sidewall of the tire, and indicate the date of manufacture.

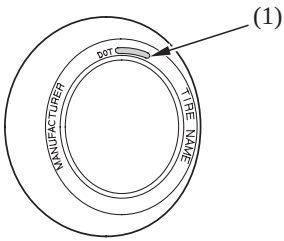
Tire Identification Number (TIN)
The tire identification number (TIN) is a group of numbers and letters that look like the following example. TIN is located on the sidewall of the tire.

DOT $\underset{(2)}{\times\times\times\times}$ $\underset{(3)}{\times\times\times\times}$ $\underset{(4)}{22\ 07}$

(cont'd)

DOT − This indicates that the tire meets all requirements of the U.S. Department of Transportation.
(2) × × × × − Factory code
(3) × × × × − Tire type code
(4) 22 07 − Date of manufacture
Year
Week

TIRE LABELING EXAMPLE



(1) tire identification number (TIN)

Tire Repair

Refer to *Safety Precautions* on page 72 .

We strongly recommend that you replace, not repair, any tire that is punctured or damaged. As discussed below, a tire that is repaired, either temporarily or permanently, will have lower speed and performance limits than a new or undamaged tire.

A temporary repair can sometimes be made in an emergency situation. However, since a temporary repair may not hold, you must ride very slowly, preferably without any cargo or passenger, and have the tire replaced or permanently repaired as soon as possible.
(For more information on temporary repairs, see *If You Have a Flat Tire*, page 154 .)

A permanent repair, such as an internal plug patch, can be made if a tire has only a small puncture in the tread area. With such a repair, you should not exceed 50 mph (80 km/h) for the first 24 hours, or 80 mph (130 km/h) at any time thereafter. In addition, you may not be able to safely carry as much weight. If you choose to have a tire repaired, be sure the repair work is performed by a professional and that the wheel is balanced before you ride.

If you have a tire professionally repaired at a non-Honda facility, we recommend that you have the work checked by your Honda dealer.

Tire Replacement

Refer to *Safety Precautions* on page 72 .

The tires that came on your motorcycle were designed to match the performance capabilities of your motorcycle and provide the best combination of handling, braking, durability, and comfort.

When replacing, use the original equipment tires or equivalent tires of the same size, construction, speed rating, and load range as the originals.

⚠ WARNING

Installing improper tires on your motorcycle can affect handling and stability. This can cause a crash in which you can be seriously hurt or killed.

Always use the size and type of tires recommended in this owner's manual.

Tires

The recommended tires for your motorcycle are:

front	BRIDGESTONE BT020F F DUNLOP D220FST L	120/70ZR18M/C (59W)
rear	BRIDGESTONE BT020R F DUNLOP D220ST L	170/60ZR17M/C (72W)
type	radial, tubeless	

Whenever you replace a tire, remember:
- Have the wheel balanced after the tire is installed.
- Have the tire replaced by your Honda dealer if possible.

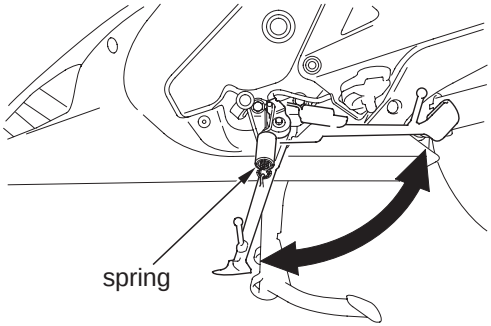
If you have a tire professionally replaced at a non-Honda facility, we recommend that you have the work checked by your Honda dealer.

Important Safety Reminders
- Do not install a tube inside a tubeless tire on this motorcycle. Excessive heat build-up can cause the tube to burst.
- Use only tubeless tires on this motorcycle. The rims are designed for tubeless tires, and during hard acceleration or braking, a tube-type tire could slip on the rim and cause the tire to rapidly deflate.
- Do not install car tires on this motorcycle. During installation the tire may separate from the rim with enough force to cause serious injury or death.
- When replacing tires, use only the recommended tires as shown above and on the tire information label. Use of other tires on the model equipped with ABS may impair proper ABS function. The ABS computer works by comparing wheel speed.
  Non-recommended tires can affect wheel speed and may confuse the ABS computer.

Side Stand

Refer to *Safety Precautions* on page 72 .

LEFT SIDE



- Check that the side stand assembly is working properly. If the side stand is stiff or squeaky, clean the pivot area and lubricate the pivot bolt with clean grease.
- Check the spring for damage or loss of tension.
- Check the side stand ignition cut-off system:
  1. Sit on the motorcycle and put the transmission in neutral.
  2. Raise the side stand.
  3. Start the engine.
  4. Pull the clutch lever in.
  5. Shift the transmission into gear.
  6. Lower the side stand all the way.

The engine should stop as you lower the side stand. If the engine doesn't stop, see your Honda dealer for service.

Battery

Your motorcycle has a maintenance-free type battery. You do not have to check the battery electrolyte level or add distilled water as you would with a conventional-type battery.

NOTICE

Your battery is a maintenance-free type and can be permanently damaged if the cap strip is removed.

Electrical accessories use current from the battery, even when the ignition is OFF. Limited operation also allows the battery to discharge. If you have electrical accessories on your motorcycle or do not ride frequently, we recommend that you charge the battery frequently (see *Battery Charging*, page 135).

If you do not expect to ride your motorcycle for at least two weeks, we recommend you remove the battery, or at least disconnect the battery cables (negative cable first).

If you plan to store your motorcycle, see *Battery Storage*, page 133 .

If your battery seems weak and/or is leaking electrolyte (causing slow starting or other electrical problems), see your Honda dealer.

WARNING: Battery posts, terminals and related accessories contain lead and lead compounds. **Wash your hands after handling.**

Battery Storage

Refer to *Safety Precautions* on page 72 .

If you plan to store your motorcycle, we recommend you remove the battery and store it where it can be charged at least every 30 days to maintain its service life.

If you do not remove the battery, we recommend disconnecting the battery cables (negative cable first).

You will get the best storage results from removing the battery and slow (trickle) charging it every 30 days (see *Battery Charging*, page 135).

Before you remove the battery, be sure to read all the information that follows, as well as the information on the battery label.

⚠WARNING

The battery gives off explosive hydrogen gas during normal operation.

A spark or flame can cause the battery to explode with enough force to kill or seriously hurt you.

Wear protective clothing and a face shield, or have a skilled mechanic do the battery maintenance.

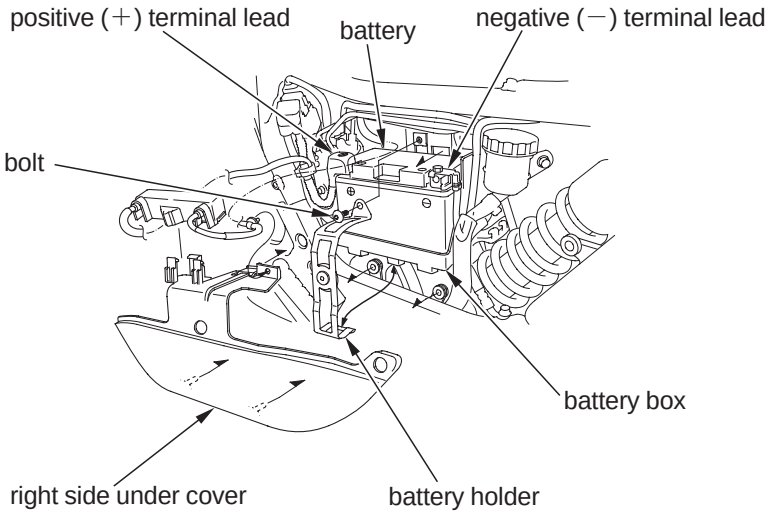
Battery

The battery is located in the battery box behind the right side cover.

Removal

1. Make sure the ignition switch is OFF.
2. Remove the right side cover (page 88).
3. Remove the right side under cover.
4. Disconnect the negative (−) terminal lead from the battery first.
5. Remove the battery holder by removing the bolt.
6. Disconnect the positive (+) terminal lead.
7. Pull the battery out of the battery box.
8. Charge the battery (see following section), unless you have been riding regularly.
9. Store your battery in an easy-to-reach location off the floor, in an area protected from freezing temperatures and direct sunlight.
10. Clean the battery box after removing the battery for storage. Dry the battery box and, if paint is missing, re-paint the area.
11. Slow charge the battery (see following section) once every 30 days.

RIGHT SIDE



Installation

1. Reinstall in the reverse order of removal. Be sure to connect the positive (+) terminal first, then the negative (−) terminal.
2. Check all bolts and other fasteners are secure.

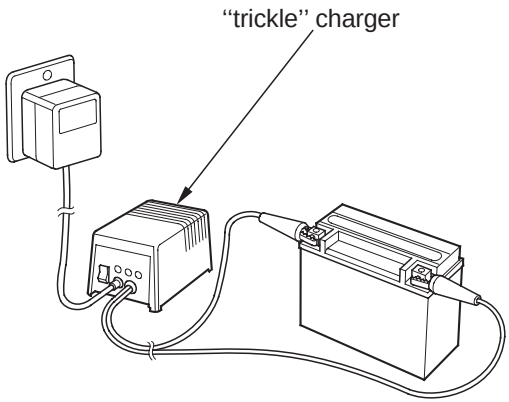
Battery Charging

Refer to *Safety Precautions* on page 72 .

Be sure to read the information that came with your battery charger and follow the instructions on the battery. Improper charging may damage the battery.

We recommend using a ‘‘trickle’’ charger for home charging. These units can be left connected for long periods without risking damage to the battery. However, do not intentionally leave the charger connected longer than the time period recommended in the charger’s instructions.

Avoid using an automotive-type battery charger. An automotive charger can overheat a motorcycle battery and cause permanent damage.



Appearance Care

Frequent cleaning and polishing will keep your Honda looking newer longer. Frequent cleaning also identifies you as an owner who values your motorcycle. A clean motorcycle is also easier to inspect and service.

General Recommendations

Refer to *Safety Precautions* on page 72 .

- To clean your motorcycle, you may use:
  - —water
  - —a mild, neutral detergent and water
  - —a mild spray and wipe cleaner/polisher
  - —a mild spray and rinse cleaner/degreaser and water
- Avoid products that contain harsh detergents or chemical solvents that could damage the metal, paint, and plastic on your motorcycle.
- If your motorcycle is still warm from recent operation, give the engine and exhaust system time to cool off.
- Park in a shady area. Washing your motorcycle in bright sunlight may cause the finish to fade because water droplets intensify the sun's brightness. Spotting is also more likely because surface water can dry before you have time to wipe it off.
- Clean your motorcycle regularly to protect surface finishes.
- We recommend the use of a garden hose to wash your motorcycle. High pressure washers (like those at coin-operated car washes) can damage certain parts of your motorcycle.

NOTICE

High pressure water (or air) can damage certain parts of your motorcycle.

- After cleaning, inspect for damage, wear, and leaks (fuel, oil, coolant, brake, and clutch fluid).

Washing Your Motorcycle with a Mild Detergent

Refer to *Safety Precautions* on page 72 .

1. Rinse your motorcycle thoroughly with cool water to remove loose dirt.
2. Fill a bucket with cool water. Mix in a mild, neutral detergent, such as dish washing liquid or a product made especially for washing motorcycles or automobiles.
3. Wash your motorcycle with a sponge or a soft towel. As you wash, check for heavy grime. If necessary, use a mild cleaner/degreaser to remove the grime.
4. After washing, rinse your motorcycle thoroughly with plenty of clean water to remove any residue. Detergent residue can corrode alloy parts.
5. Dry your motorcycle with a chamois or a soft towel. Leaving water on the surface to air dry can cause dulling and water spots. As you dry, inspect for chips and scratches.
6. Start the engine and let it idle for several minutes. The engine heat will help dry moist areas.
7. As a precaution, ride your motorcycle at a slow speed and apply the brakes several times. This will help dry the brakes and restore normal braking performance.

   If the inside of the headlight lens appears clouded immediately after washing, it should clear after a few minutes of riding.

Appearance Care

Cleaning Your Windscreen

Refer to *Safety Precautions* on page 72 .

Using plenty of water, clean the windscreen with a soft cloth or sponge. (Avoid using detergents or any kind of chemical cleaner on the windscreen.) Dry with a soft, clean cloth.

NOTICE

To avoid possible scratching or other damage, use only water and a soft cloth or sponge to clean the windscreen.

For a dirtier windscreen, use a diluted neutral detergent with a sponge and plenty of water. Make sure to wash off all the detergent. (Detergent residue may cause windscreen cracks.)

Replace the windscreen if scratches cannot be removed and they obstruct clear vision.

Take care to keep battery electrolyte, brake fluid, or other chemical solvents off the windscreen. They will damage the plastic.

Spray Cleaning Your Motorcycle

Refer to *Safety Precautions* on page 72 .

Avoid using spray cleaner products on the tires or suspension components.

Suggestions for using spray cleaner(s) follow:

Motorcycle Condition	Recommended Cleaning
Dust and fingerprint smudges.	Apply a spray cleaner/polish and wipe the paint, chrome, glass, and clear plastic.
Light road grime.	Spray any difficult-to-reach or very dirty areas with a spray cleaner/degreaser. Rinse and dry. Apply a spray cleaner/polish and wipe with a non-abrasive cloth.
Heavy grime. Oil leaks. Brake dust.	Use a spray cleaner/degreaser. If necessary, rub with a sponge. Rinse and dry. Apply a spray cleaner/polish and wipe with a non-abrasive cloth.
Dull, corroded chrome or aluminum.	Apply a high quality chrome/aluminum polish and wipe with a non-abrasive cloth.

Appearance Care

Painted Aluminum Wheel Maintenance

Refer to *Safety Precautions* on page 72 .

Aluminum may corrode from contact with dirt, mud, or road salt. Clean the wheels after riding through any of these substances. Use a wet sponge and mild detergent. Avoid stiff brushes, steel wool, or cleaners containing abrasives or chemical compounds.

After washing, rinse with plenty of water and dry with a clean cloth.

If the paint is chipped, apply touch-up paint.

Exhaust Pipe And Muffler Maintenance

Refer to *Safety Precautions* on page 72 .

The exhaust pipe and muffler are stainless steel but may become stained by mud or dust.

To remove mud or dust, use a wet sponge and a liquid kitchen abrasive, then rinse well with clean water. Dry with chamois or a soft towel.

If necessary, remove heat stains by using a commercially available fine texture compound. Then rinse by the same manner as removing mud or dust.

Clean the Matte Painted Surface

Refer to *Safety Precautions* on page 72 .

Use a soft cloth or sponge, plenty of water, and a mild detergent to clean the matte paint. Dry with a soft, clean cloth.

Do not use polishing compounds or wax containing polishing compounds. These can damage or discolor the paint.

To keep your Honda looking new, clean and polish it frequently.

Finishing Touches

Refer to *Safety Precautions* on page 72 .

After washing your motorcycle, consider using a commercially available spray cleaner/polish or quality liquid or paste wax to finish the job. Use only a non-abrasive polish or wax made specifically for motorcycles or automobiles. Apply the polish or wax according to the instructions on the container.

If a surface on your motorcycle is chipped or scratched, your Honda dealer has touch-up paint to match your motorcycle's color. Be sure to use your motorcycle's color code (page 175) when you buy touch-up paint.

If the frame has a chip that exposes the metal, first apply primer (to prevent corrosion) and then apply the touch-up paint. Several thin layers of touch-up paint are better than one thick coat.

Tips

Here's a few helpful tips on how to store and transport your Honda, and how to be an environmentally responsible motorcycle owner.

Storing Your Honda 144
Transporting Your Motorcycle 146
You & the Environment 147

Storing Your Honda

If you won't be riding for an extended period, such as during the winter, thoroughly inspect your motorcycle and correct any problem before storing it. That way, needed repairs won't be forgotten and it will be easier to get your motorcycle running again.

For more information about storage, refer to the *Honda Motorcycle Winter Storage Guide*, available from your Honda dealer (USA only).

We suggest you perform the following procedures to keep your motorcycle in top condition. These storage procedures will reduce the deterioration that can occur during storage.

Preparation for Storage

Refer to *Safety Precautions* on page 72 .

This procedure requires a means for draining and disposing of drained fuel (page 147).

1. Change the engine oil and filter (page 102).
2. Make sure the cooling system is filled with a 50/50% antifreeze solution (page 105).
3. Fill the fuel tank. Make sure the fuel fill cap is properly installed.
4. To prevent rusting in the cylinders, perform the following:
   - Remove the spark plug caps from the spark plugs. Using tape or string, secure the caps to any convenient plastic body part so that they are positioned away from the spark plugs.
   - Remove the spark plugs from the engine and store them in a safe place. Do not connect the spark plugs to the spark plug caps.
   - Pour a tablespoon (15－20 cc) of clean engine oil into each cylinder and cover the spark plug holes with a piece of cloth.
   - With the engine stop switch in the RUN position, press the start button several times to crank the engine and distribute the oil.
   - Reinstall the spark plugs and spark plug caps.

5. Remove the battery and charge it fully. Store it in an area protected from freezing temperatures and direct sunlight. Slow charge the battery (page 135) once a month.
6. Wash and dry your motorcycle. Wax all painted surfaces (except matte painted surfaces). Apply rust-inhibiting oil to the chrome pieces.
7. Inflate the tires to their recommended pressures (page 125).
8. Store your motorcycle in an unheated area, free of dampness, away from sunlight, with a minimum of daily temperature variation.
9. Cover your motorcycle with a porous material. Avoid using plastic or similar non-breathing, coated materials that restrict air flow and allow heat and moisture to accumulate.

Removal from Storage

Refer to *Safety Precautions* on page 72 .

1. Uncover and clean your motorcycle.
2. If your motorcycle has been stored for more than four months — change the engine oil (page 102).
3. If your motorcycle has been stored for more than two months — ask your Honda dealer to drain and replace the fuel.
4. Charge the battery (page 135) as required. Install the battery.
5. Perform a pre-ride inspection (page 41), then test-ride your motorcycle at low speeds.

Transporting Your Motorcycle

If your motorcycle needs to be transported, it should be carried on a motorcycle trailer, or a truck or trailer with a flatbed area. Do not tow your motorcycle, as towing can seriously damage the transmission.

When contacting a towing or transporting service, be sure to ask if they have a flatbed area, a loading ramp or power ramp to safely lift the motorcycle, and motorcycle tie-down straps.

You & the Environment

Owning and riding a motorcycle can be enjoyable, but you must do your part to protect nature.

Following are tips on how you can be an environmentally responsible motorcycle owner.

- **Choose Sensible Cleaners.** Use a biodegradable detergent when you wash your motorcycle. Avoid aerosol spray cleaners that contain chlorofluorocarbons (CFCs) which damage the atmosphere's protective ozone layer. Don't throw cleaning solvents away; see the following guidelines for proper disposal.
- **Recycle Wastes.** It's illegal and thoughtless to put used engine oil in the trash, down a drain, or on the ground. Used oil, gasoline, coolant, and cleaning solvents contain poisons that can hurt refuse workers and contaminate our drinking water, lakes, rivers, and oceans. Before changing your oil, make sure you have the proper containers. Put oil and other toxic wastes in separate sealed containers and take them to a recycling center. Call your local or state office of public works or environmental services to find a recycling center in your area, and to get instructions on how to dispose of non-recyclable wastes.

Taking Care of the Unexpected

This section discusses the more common problems that can occur with your motorcycle while you're riding. It tells you how to evaluate each problem and what actions you can take to try to resume riding. If the problem cannot be safely solved, this section also gives instructions on the proper way to have your motorcycle transported.

For information about transporting your motorcycle, see page 146 .

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If You Have a Flat Tire 154
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If the Low Oil Pressure Indicator Lights 166
If a Fuse Blows 167
If You Crash 170
If You Lose Your Key 171
If Your Battery Is Low (or Dead) 172

Taking Care of the Unexpected

General Guidelines

Keeping your motorcycle well-maintained is the best way to reduce the possibility of having a problem on the road.

Remember to take along your owner's manual, the tool kit that came with your motorcycle, and any other items (such as tire repair supplies and additional tools) that might help you solve a problem on your own.

Should you ever have a problem while riding, please follow these guidelines:

- Always put personal safety first.
- Take time to assess the situation and your options before deciding what to do.
- If the problem is relatively minor and you have the tools, supplies, and skills to make a temporary repair, be sure to have permanent repairs made as soon as possible.
- Do not continue riding if you are hurt or your motorcycle is not in safe riding condition.

Additional recommendations for specific problems follow.

If Your Engine Quits or Won't Start

Proper operation and maintenance can prevent starting and engine performance problems. In many cases, the cause of the problem may be a simple operational oversight.

If you have a problem starting the engine—or experience poor engine performance—the following information may help you. If you can't correct the problem, see your Honda dealer.

If your motorcycle won't start, listen as you press the start button. If you don't hear the starter motor turning, refer to the *Starter motor doesn't operate* symptom. If you can hear the starter motor working normally, refer to the *Starter motor works, but the engine won't start* symptom.

SYMPTOM: **Starter motor doesn't operate.**	
POSSIBLE CAUSE	WHAT TO DO
ignition switch OFF	Turn the ignition switch ON.
engine stop switch OFF	Turn the engine stop switch to RUN.
transmission not in neutral	Shift into neutral.
side stand down (when transmission not in neutral)	Put the transmission in neutral or raise the side stand and pull the clutch lever in.
blown fuse	Replace with a new fuse of the same rating (page 167).
battery lead loose	Tighten the battery lead.
low (or dead) battery	Charge the battery (page 135). If charging doesn't help, see your Honda dealer.
faulty starter motor	If all possible causes are negative, the starter motor may be faulty. See your Honda dealer.

If Your Engine Quits or Won't Start

SYMPTOM: **Starter motor works, but the engine won't start.**	
POSSIBLE CAUSE	WHAT TO DO
out of fuel	Fill the fuel tank.
flooded engine	See *Flooded Engine* (page 54).
loose or unconnected spark plug caps	Install the spark plug caps securely. If the engine still won't start, see your Honda dealer.
loose battery cables	Tighten the battery terminal bolts.
weak battery	Charge the battery (page 135). If charging doesn't help, see your Honda dealer.

SYMPTOM: **Engine starts, but stalls as you shift into gear.**	
POSSIBLE CAUSE	WHAT TO DO
side stand down	Raise the side stand. Start again.

SYMPTOM: **Engine starts, but runs poorly.**	
POSSIBLE CAUSE	WHAT TO DO
idles roughly, too fast, stalls	Check engine idle adjustment (page 114). If the problem persists, see your Honda dealer.
overheating	Check the coolant temperature gauge. Refer to *If Your Engine Overheats,* page 164.
low oil pressure	Check the low oil pressure indicator. Refer to *If the Low Oil Pressure Indicator Lights,* page 166.
runs erratically, misfires	May damage catalytic converters. See your Honda dealer.
blubbers (rich fuel mixture)	See your Honda dealer.
sooty exhaust (rich fuel mixture)	See your Honda dealer.
detonates or pings under load	If applicable, switch to the recommended octane gasoline (page 95) or change your brand of gasoline. If the problem persists, see your Honda dealer.
afterfires (backfires)	May damage catalytic converters. See your Honda dealer.
pre-ignition (runs on after ignition switched OFF)	May damage catalytic converters. See your Honda dealer.

If You Have a Flat Tire

A flat tire is always unwelcome, especially if you are far from help. If you think you are losing air, or you hit a pothole or hard object, pull safely to the side of the road so you can inspect the tires and assess the situation. (Be sure to park on a firm, level surface and use the center stand for support.) You should examine the tire treads and sidewalls for foreign objects or damage. If you find a tire that has been punctured or damaged, you have two options.

Option 1:
Have Your Motorcycle Transported
If a tire has a major puncture or a cut in the tread or sidewall, or the bead has come loose from the rim, there is probably not much you can do except have your motorcycle transported to a Honda dealer or other qualified service facility. Even with a simple puncture, this may be the safest and least troublesome solution. For transporting instructions, see page 146 .

Option 2:
Make a Temporary Roadside Repair
If a tire has only a minor nail puncture and is not completely flat, you may be able to make an emergency repair that could allow you to continue riding to where you can get the tire replaced or permanently repaired.

⚠ WARNING

Riding your motorcycle with a temporary tire repair can be risky. If the temporary repair fails, you can crash and be seriously injured or killed.

If you must ride with a temporary tire repair, ride slowly and carefully and do not exceed 30 mph (50 km/h) until the tire is permanently repaired or replaced.

If You Have a Flat Tire

Due to the uncertainty of any temporary repair, you should ride slowly (not over 30 mph, 50 km/h) and carefully (preferably without a passenger or cargo) until the tire is replaced or permanently repaired. Stop frequently and check the air pressure. If the tire is losing pressure, it may be unsafe to continue riding. As the tire gets low, it will affect the handling of your motorcycle (especially with a passenger and cargo), and it may overheat and blow out.

Types of Temporary Repairs

The following types of temporary repairs generally require a source of air to inflate the tire. Possible sources include CO_2 cartridges or cans of compressed air designed to inflate a tire.

- **Inflate the tire:** Tubeless tires have some self-sealing ability if they are punctured and the result is usually just a slow leak. If this is the case, you can try inflating the tire to see if it will hold air pressure. If you can see a nail or other object embedded in the tire tread, do not remove it at this time.
- **Plug the hole:** The idea here is to do something to temporarily stop the leak. If you have a tubeless tire repair kit, you can pull out the nail and try inserting an external plug in the puncture. Follow the instructions that came with the repair kit and be sure to inflate the tire to the correct pressure.

Should You Repair or Replace a Tire?

We strongly recommend that you replace, not permanently repair, any tire that is punctured or damaged, even if the tire has only a minor puncture. For a full discussion of repairs and replacement, see page 128.

If You Have a Flat Tire

Emergency Front Wheel Removal/Installation

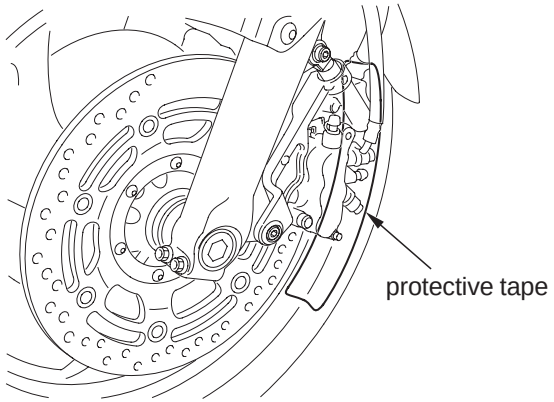
Refer to *Safety Precautions* on page 72 .

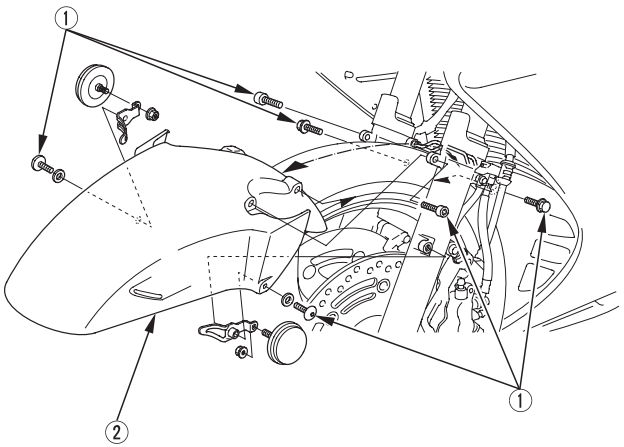
We recommend wheel removal be done only by your Honda dealer or another qualified mechanic. Do not attempt to remove the wheel on your own. Wheel removal requires mechanical skill and professional tools.

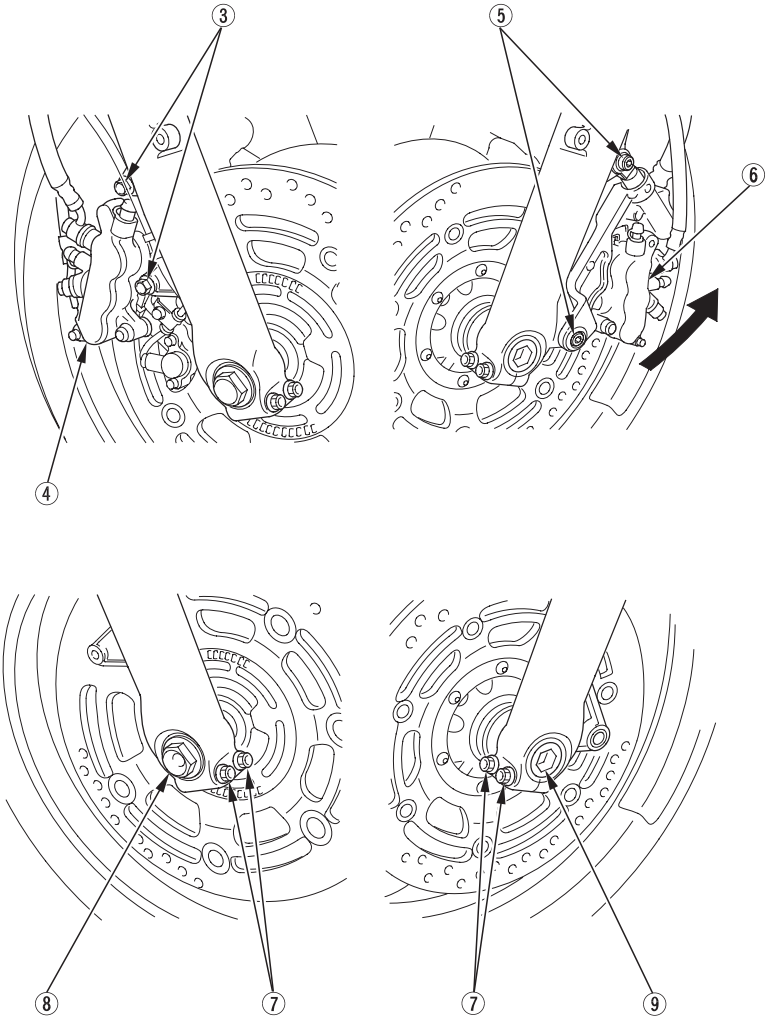
Removal

1. Park your motorcycle on a firm, level surface.
2. Raise the front wheel off the ground by placing a support block under the engine, being careful to avoid contact with the exhaust pipe and front lower cover.
3. Remove the parts in sequence, according to the order in the illustration.
   - When removing and installing the wheel, be careful not to damage the sensor and pulser ring (model equipped with ABS).
   - To avoid damage to the brake hose during removal, support the caliper assembly so that it doesn't hang from the hose. Do not twist the brake hose.
   - Avoid getting grease, oil, or dirt on the disc or pad surfaces. Any contamination can cause poor brake performance or rapid pad wear after reassembly.
   - Avoid depressing the brake lever and brake pedal when the wheel is off the motorcycle. This will force the caliper pistons out of the cylinders. The result will be loss of brake fluid. If this occurs, the brake system will require service. See your Honda dealer for this service.

For related torque specifications, see page 159. Cover both sides of the front wheel with protective tape or an equivalent.
The numbers indicate the disassembly sequence.

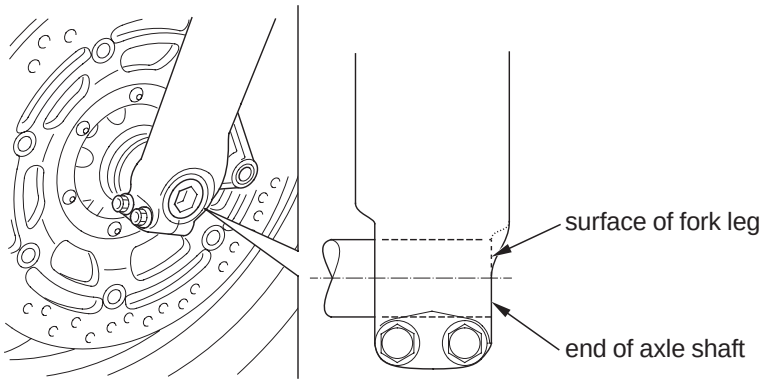





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Installation

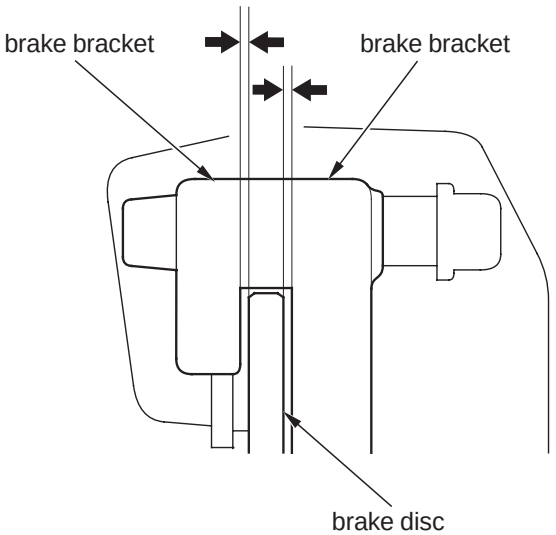
1. Install the side collars in the wheel and position it between the fork legs. Insert the front axle shaft from the left side, through the left fork leg and wheel hub.
2. Align the end of the front axle shaft with the surface of the fork leg.



3. Tighten the front axle pinch bolts on the left fork leg to the specified torque:
   16 lbf·ft (22 N·m , 2.2 kgf·m)
4. Tighten the front axle bolt to the specified torque:
   58 lbf·ft (79 N·m , 8.1 kgf·m)
5. Install the brake caliper assembly onto the fork leg.
   To avoid damaging the brake pads while installing the brake caliper assembly, carefully fit the brake disc between the pads.
6. Install the right caliper fixing bolts and left caliper socket bolts and tighten to the specified torque:
   23 lbf·ft (31 N·m , 3.2 kgf·m)

(cont'd)

7. Operate the front brake and pump the fork several times. Check for free wheel rotation after the brake is released. Recheck the wheel if the brake drags or the wheel does not rotate freely.
8. If the clearances between each surface of the brake disc and the brake bracket (not the brake pads) are symmetrical, follow the next step.
   If the clearances are not symmetrical, loosen the left axle pinch bolts and pull the left fork outward or push inward to adjust the clearance. Then follow the next step.
9. Tighten the front axle pinch bolts on the right fork leg to the specified torque:
   16 lbf·ft (22 N·m , 2.2 kgf·m)
   - Visually check that the clearances between each surface of the brake disc and the brake bracket (not the brake pads) are symmetrical.



10. After installing the wheel, apply the brake lever AND brake pedal several times, then recheck both discs for caliper holder to disc clearance. Do not operate the motorcycle without adequate clearance.
    - Check for free wheel rotation after the brake lever and brake pedal are released. Recheck the wheel if the brake drags or if the wheel does not rotate freely.
    - After installing the wheel, operate the brake lever AND brake pedal several times until you feel pressure. You must restore pressure from BOTH the lever AND the pedal because this motorcycle is equipped with a Linked Braking System.
    - Verify proper brake operation before riding.

11. Remove the protective tapes from the front wheel.
12. Reassemble the removed parts in the reverse order of removal.

    If a torque wrench was not used for installation, see your Honda dealer as soon as possible to verify proper assembly. Improper assembly may lead to loss of braking capability.

If You Have a Flat Tire

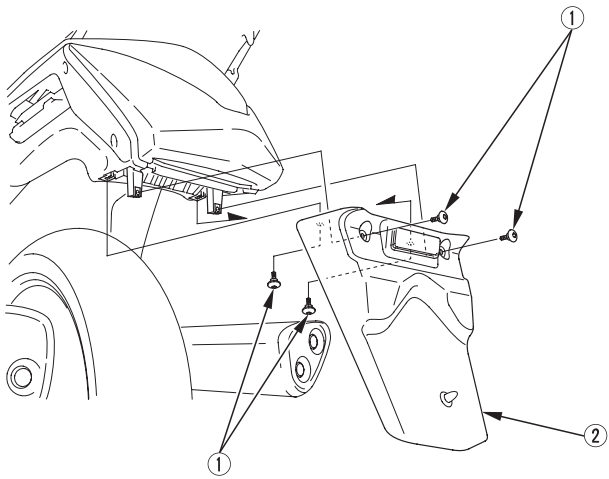
Emergency Rear Wheel Removal/Installation

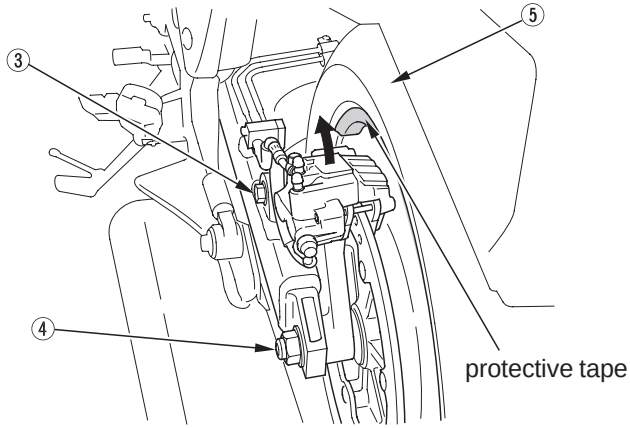
Refer to *Safety Precautions* on page 72 .

We recommend wheel removal be done only by your Honda dealer or another qualified mechanic. Do not attempt to remove the wheel on your own. Wheel removal requires mechanical skill and professional tools.

Removal

1. Park your motorcycle on its center stand on a firm, level surface.
2. Remove the saddlebags (page 86).
3. Remove the parts in sequence, according to the order in the illustration.
   - To avoid damage to the brake hose during removal, support the caliper assembly so that it doesn't hang from the hose. Do not twist the brake hose.
   - Avoid getting grease, oil, or dirt on the disc or pad surfaces. Any contamination can cause poor brake performance or rapid pad wear after reassembly.
   - Avoid depressing the brake lever and brake pedal when the wheel is off the motorcycle. This will force the caliper pistons out of the cylinders. The result will be loss of brake fluid. If this occurs, the brake system will require service. See your Honda dealer for this service.
   - When removing and installing the wheel, be careful not to damage the sensor and pulser ring (model equipped with ABS).





Installation

1. Reassemble the removed parts in the reverse order of removal.
   - Before installing the wheel, check that the wheel hub and final drive gear splines are coated with molybdenum disulfide paste (USA only: Pro Honda Moly 60 Paste, or equivalent).
   - Be sure the splines on the wheel hub fit into the final gear case.
   - Fit the brake disc carefully between the brake pads to avoid damaging the pads.
2. Tighten the rear axle nut to the specified torque:
   80 lbf·ft (108 N·m , 11.0 kgf·m)
   Tighten the rear caliper stopper bolt to the specified torque:
   51 lbf·ft (69 N·m , 7.0 kgf·m)
3. After installing the wheel, apply the brake several times and then check if the wheel rotates freely. Recheck the wheel if the brake drags or if the wheel does not rotate freely.
4. Operate the brake pedal and check the brake operation.
5. Inspect the brake system (page 124).

If a torque wrench was not used for installation, see your Honda dealer as soon as possible to verify proper assembly. Improper assembly may lead to loss of braking capability.

If Your Engine Overheats

Normally, the segments on your coolant temperature gauge begin to move above the C (cold) mark and remain within the section between C (cold) and H (hot) marks. Hot weather may cause the number of segments the gauge displays to climb faster than normal. So will temporary stress such as climbing a hill. If you're stuck in stop-and-go traffic, the number of segments may climb some, but the radiator fan is designed to prevent overheating. Be aware of these variations as you monitor the gauge.

If the number of segments climbs toward H (hot) mark for no apparent reason or the segment H flashes, pull safely to the side of the road. If possible, park in a shady area.

NOTICE

Continuing to ride with an overheated engine can cause serious engine damage.

- A steaming engine indicates a coolant leak. Shut the engine off and wait until the steaming stops. Look for a leak, but don't touch the engine or radiator system. Let everything cool off first.
- If there's no obvious problem, leave the engine on so the fan and coolant circulating system can continue working. Monitor the temperature gauge. The number of segments the gauge displays may drop after a brief stop with no load on the engine.
- Check the radiator fans.
  If the fans are not working, turn the engine off. Open the fuse box (page 167) and check the radiator fan fuse. If the fuse is blown, replace it with the proper (same rating) spare fuse. Start the engine. If the number of segments climbs toward H (hot) mark and the segment H flashes, turn the engine off.
  If the radiator fans are working, visually check the coolant level in the reserve tank, located below the left maintenance lid. It isn't necessary to touch the radiator system.

- If the reserve tank is low or empty, don't ride without adding coolant (page 106). After adding coolant, turn the engine on and check the temperature gauge.
  If the number of segments do not drop, do not ride. The engine needs repair. Transport your motorcycle to a Honda dealer (page 146).
  If the temperature drops to normal, check the coolant level. If it has gone down, add more coolant.

If you are able to resume riding, continue to monitor the gauge frequently.

If there's a mild leak, you can ride for awhile, carefully watching the gauge. Be prepared to stop and add more coolant or water. If the leak is bad, transport your motorcycle to a Honda dealer (page 146).

If the Low Oil Pressure Indicator Lights

If you check your engine oil level regularly, you should never see the low oil pressure indicator while riding. Normally, it will only light momentarily when you turn the ignition switch ON. Occasionally, it may flicker at or near idling speed.

Low oil pressure may be caused by an oil leak, a low oil level, or some problem in the engine's lubrication system.

If the indicator comes on while you're riding, don't ignore it. Pull safely to the side of the road. If possible, pull the clutch lever in and coast to a stop. Stop the engine as soon as it's safe to do so.

NOTICE

Continuing to ride with low oil pressure can cause serious engine damage.

- Check for an oil leak.
- Then check the oil level. If necessary, add the recommended oil (page 101) to the upper level mark. If you must leave your motorcycle to get oil, secure it as much as possible.
- After adding oil, start the engine, and check that the low oil pressure indicator goes off. Check for a possible leak.
  If the indicator goes off and there is no leak — resume riding. If there is a leak — do not ride the motorcycle until the leak is repaired by a Honda dealer.

If a Fuse Blows

All of the electrical circuits on your motorcycle have fuses to protect them from damage caused by excess current flow (short circuit or overload).

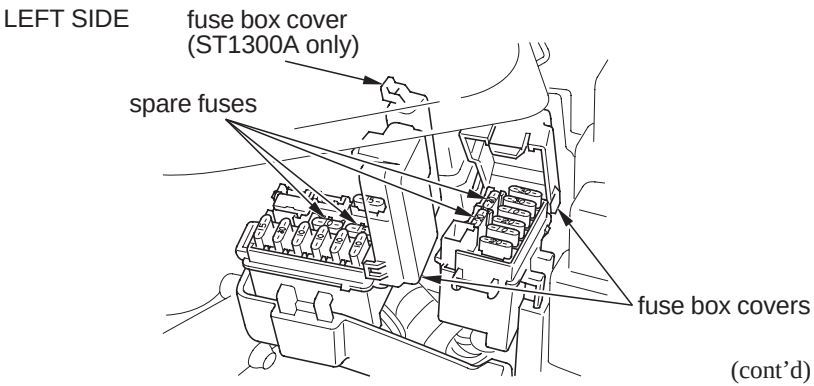
If something electrical on your motorcycle stops working, the first thing you should check for is a blown fuse.
Determine from the chart on the circuit fuse box cover which fuse or fuses control that component. Check those fuses first, but check all the fuses before looking elsewhere for another possible cause of the problem. Replace any blown fuses and check component operation.

- The circuit fuse box (including spare fuses) is located behind the left side cover.
- The main fuse A (and spare) are located near the starter motor magnetic switch behind the right side cover.
- The main fuse B is located behind the right side cover.

Recommended Fuses

main fuse A	30 A
main fuse B	65 A
other fuses	30 A, 20 A, 15 A, 10 A

Circuit Fuses Access:
1. To prevent an accidental short circuit, turn the ignition switch OFF before checking or replacing the fuses.
2. Remove the left side cover (page 88).
3. Open the fuse box covers.



(cont'd)

4. To check or replace a circuit fuse, pull the old fuse out of its retaining clips with the fuse remover. Look for a burned wire inside the fuse. If the fuse is blown, replace it with a spare fuse of the same rating.

If you do not have a replacement fuse with the proper rating for the circuit, install one with a lower rating.

NOTICE

Replacing a fuse with one that has a higher rating greatly increases the chance of damage to the electrical system.

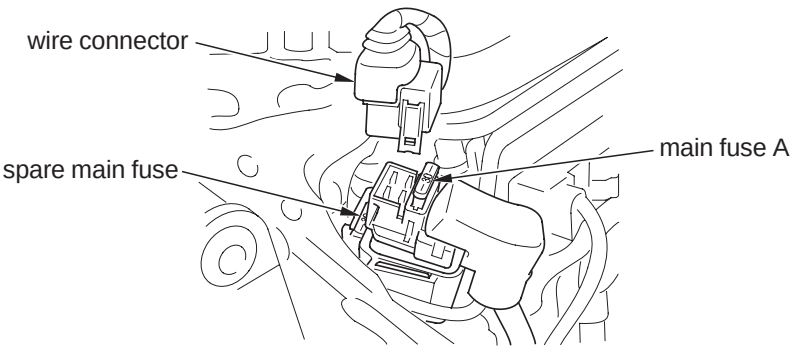
5. Close the fuse box covers and install the left side cover (page 88).

Main Fuse Access:

Main Fuse A

1. Remove the right side cover (page 88).
2. Disconnect the wire connector of the starter magnetic switch.
3. Pull out the old fuse and install a new fuse.
   The spare fuse is located behind the starter magnetic switch.
4. Reconnect the connector.

RIGHT SIDE



Main Fuse B

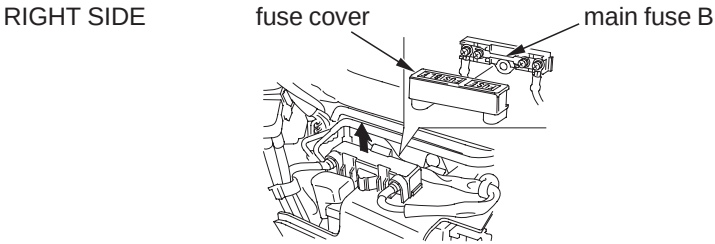
5. Remove the fuse cover.
6. Loosen the screws then replace the fuse.

If you do not have a replacement fuse with the proper rating for the circuit, install one with a lower rating.

NOTICE

Replacing a fuse with one that has a higher rating greatly increases the chance of damage to the electrical system.

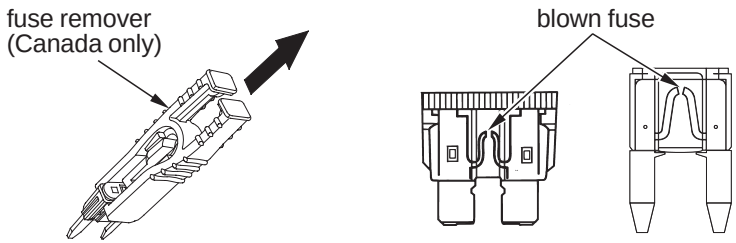
7. After replacing the fuse, tighten the screws.
8. Install the fuse cover and right side cover (page 88).



If you do not have a spare fuse and you cannot ride the motorcycle without fixing the problem, take a fuse of the same rating or a lower rating from one of the other circuits that you can do without temporarily.

If you replace a blown fuse with a spare fuse that has a lower rating, replace the fuse with the correct rating as soon as you can. Also remember to replace any spare fuses that were installed.

If the replacement fuse of the same rating burns out in a short time, there is probably a serious electrical problem on your motorcycle. Leave the blown fuse in that circuit and have your motorcycle checked by your Honda dealer.



If You Crash

Personal safety is your first priority after a crash. If you or anyone else has been injured, take time to assess the severity of the injuries and whether it is safe to continue riding. Call for emergency assistance if needed. Also follow applicable laws and regulations if another person or vehicle is involved in the crash.

If you decide that you are capable of riding safely, first evaluate the condition of your motorcycle. If the engine is still running, turn it off and look it over carefully; inspect it for fluid leaks, check the tightness of critical nuts and bolts, and secure such parts as the handlebar, control levers, brakes, and wheels.

If there is minor damage, or you are unsure about possible damage, ride slowly and cautiously. Sometimes, crash damage is hidden or not immediately apparent, so you should have your motorcycle thoroughly checked at a qualified service facility as soon as possible. Also, be sure to have your Honda dealer check the frame and suspension after any serious crash.

If your motorcycle cannot be ridden, see *Transporting Your Motorcycle*, page 146.

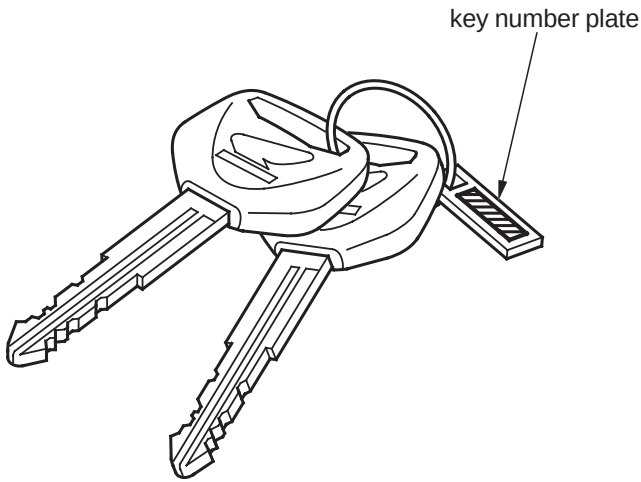
If You Lose Your Key

You should receive a key number plate with your keys. Store this plate in a safe place.

Be sure to record your key number in the Quick Reference section at the rear of the manual. You'll need this number to have a duplicate key made.

A lost key won't be a problem if you take preventative action. Store one duplicate key in a safe place at home and carry a second duplicate in your wallet.

If you lose your key and aren't carrying a duplicate, either get your spare or have one made. If you don't know your key number, call the dealer where you purchased your Honda. They may have it listed in their records. If they don't, transport your motorcycle to them or the nearest Honda dealer. The dealer will probably have to remove the ignition switch assembly to find the key number so they can make a key for you.



If Your Battery Is Low (or Dead)

Jump starting is not recommended, especially if you use an automobile battery. The greater amperage of an automobile battery when the car engine is running can damage your motorcycle's electrical system.

Bump starting is also not recommended.

If you can't charge the battery or it appears unable to hold a charge, contact your Honda dealer.

Technical Information

This section contains dimensions, capacities, and other technical data, plus information on government requirements and how to break-in your motorcycle.

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Vehicle Identification

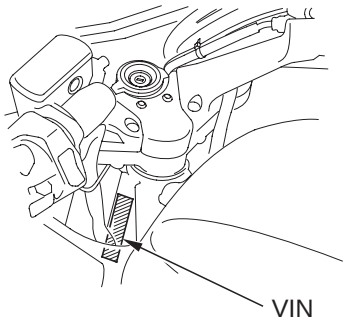
Serial Numbers

The VIN and engine serial number are required when you register your motorcycle. They may also be required when ordering replacement parts. You may record these numbers in the Quick Reference section at the rear of this manual.

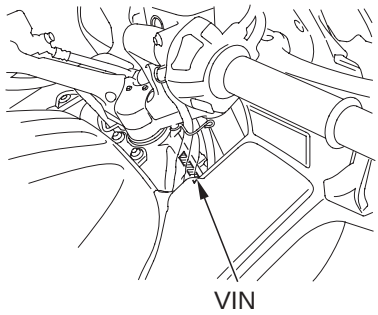
The VIN (vehicle identification number) is stamped on the right side of the steering head and also appears on the Safety Certification Label attached to the left side of the steering head.

The engine number is stamped on the right side of the crankcase.

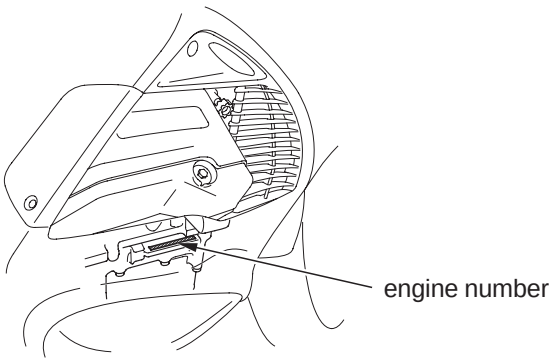
LEFT SIDE



RIGHT SIDE



RIGHT SIDE

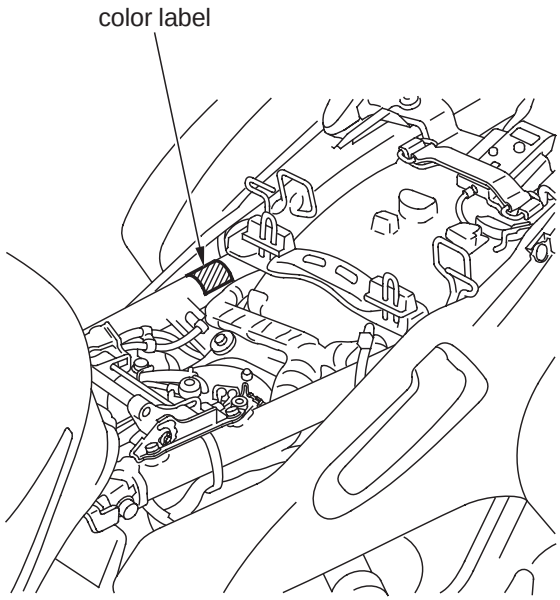


Color Label & Code

The color label is attached to the frame under the front seat.

The color code is helpful when ordering replacement parts. You may record the color and code in the Quick Reference section at the rear of this manual.

UNDER FRONT SEAT



Specifications

Dimensions		
overall length	89.4 in (2,270 mm)	
overall width	33.9 in (860 mm)	
overall height	54.7 in (1,390 mm)	(lowest windscreen height)
	62.0 in (1,575 mm)	(highest windscreen height-electric)
	64.2 in (1,630 mm)	(highest windscreen height-manual & electric)
wheelbase	58.7 in (1,490 mm)	
ground clearance	5.3 in (135 mm)	

Fuel & Lubricants	
fuel recommendation	premium unleaded gasoline, pump octane number of 91 or higher
fuel tank capacity	7.66 US gal (29.0 ℓ)
engine oil capacity	after disassembly: 5.0 US qt (4.7 ℓ) after draining: 3.8 US qt (3.6 ℓ) after draining & oil filter change: 4.1 US qt (3.9 ℓ)
engine oil recommendation	API Service Classification SG or higher except oils labeled as energy conserving on the circular API service label, SAE 10W-30, JASO T 903 standard MA, Pro Honda GN4 4-stroke oil (USA & Canada) or Honda 4-stroke oil (Canada only), or an equivalent motorcycle oil

Fuel & Lubricants (Cont'd)	
final drive oil capacity	after draining: 5.2 US oz (155 cm^3)
cooling system, recommendation	Pro Honda HP Coolant or an equivalent high quality ethylene glycol antifreeze containing corrosion protection inhibitors specifically recommended for use in aluminum engines
cooling system, capacity	3.7 US qt (3.5 ℓ)

Capacities	
passenger capacity	Operator and one passenger
maximum weight capacity	401 lbs (182 kg) 410 lbs (186 kg) (Canada only) rider, passenger, all cargo and accessories
cargo capacity	maximum cargo weight: 58 lbs (26.5 kg) rear carrier: 10.0 lbs (4.5 kg) each saddlebag: 20.0 lbs (9.0 kg) each fairing pocket: 4.5 lbs (2.0 kg)

Specifications

Engine Specifications	
displacement	76.9 cu-in (1,261 cm^3)
bore & stroke	3.07 × 2.60 in (78.0 mm × 66.0 mm)
compression ratio	10.8 : 1
spark plug (standard)	CR7EH-9 (NGK) or U22FER9 (DENSO)
spark plug (high speed riding)	CR8EH-9 (NGK) or U24FER9 (DENSO)
valve clearance (cold)	intake 0.006 in (0.16 mm) exhaust 0.010 in (0.25 mm)
spark plug gap	0.031－0.035 in (0.80－0.90 mm)
idle speed	1,000 ± 100 rpm

Power Transmission	
primary reduction	1.785
secondary reduction	0.925
final reduction	2.833
gear ratio, 1st	2.571
2nd	1.722
3rd	1.285
4th	1.041
5th	0.862
final drive	shaft

Chassis & Suspension	
caster	26°00′
trail	3.9 in (98 mm)
tire size, front	120/70ZR18M/C (59W) BRIDGESTONE BT020F F DUNLOP D220FST L
tire size, rear	170/60ZR17M/C (72W) BRIDGESTONE BT020R F DUNLOP D220ST L
tire type	radial, tubeless
tire pressure, front (cold)	42 psi (290 kPa , 2.90 kgf/cm^2)
tire pressure, rear (cold)	42 psi (290 kPa , 2.90 kgf/cm^2)

Electrical	
battery	12 V－11.2 Ah
generator	0.675 kW/5,000 rpm

Specifications

Lights	
headlight	12 V－45 W × 2 (high) 12 V－45 W × 2 (low)
brake/tail light	12 V－21/5 W × 2
turn signal lights	12 V－21/5 W × 2 (front) 12 V－21 W × 2 (rear)
position light	12 V－5 W × 2
instrument light	LED
neutral indicator	LED
turn signal indicator	LED
high beam indicator	LED
low oil pressure indicator	LED
PGM-FI malfunction indicator lamp (MIL)	LED
ABS indicator (Models equipped with ABS)	LED

Fuses	
main A	30 A
main B	65 A
other fuses	30 A, 20 A, 15 A, 10 A

Torque Specifications	
engine oil drain bolt	22 lbf·ft (29 N·m , 3.0 kgf·m)
engine oil filter	20 lbf·ft (26 N·m , 2.7 kgf·m)
front wheel axle bolt	58 lbf·ft (79 N·m , 8.1 kgf·m)
front wheel caliper fixing bolts	23 lbf·ft (31 N·m , 3.2 kgf·m)
front wheel caliper socket bolts	23 lbf·ft (31 N·m , 3.2 kgf·m)
front wheel axle pinch bolts	16 lbf·ft (22 N·m , 2.2 kgf·m)
rear wheel nuts	80 lbf·ft (108 N·m , 11.0 kgf·m)
rear wheel caliper stopper bolt	51 lbf·ft (69 N·m , 7.0 kgf·m)
final drive oil drain bolt	15 lbf·ft (20 N·m , 2.0 kgf·m)

Break-in Guidelines

Help assure your motorcycle's future reliability and performance by paying extra attention to how you ride during the first 300 miles (500 km).

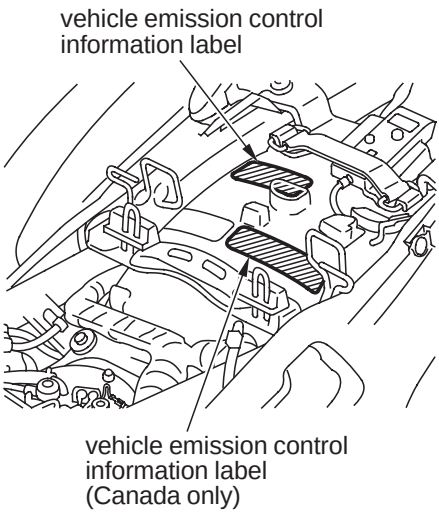
During this period, avoid full-throttle starts and rapid acceleration.

Exhaust Emission Requirements
The U.S. Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and Environment Canada (EC) require that your motorcycle comply with applicable exhaust emissions standards during its useful life, when operated and maintained according to the instructions provided.

Noise Emission Requirements
The EPA also requires that motorcycles built after January 1, 1983 comply with applicable noise emission standards for one year or 3,730 miles (6,000 km) after the time of sale to the ultimate purchaser, when operated and maintained according to the instructions provided.

Warranty Compliance
Compliance with the terms of the Distributor's Warranties for Honda Motorcycle Emission Control Systems is necessary in order to keep the emissions system warranty in effect. (USA only)

UNDER REAR SEAT



The Vehicle Emission Control Information label is attached on the rear fender under the rear seat.

Emission Control Systems

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

Honda Motor Co., Ltd. utilizes various systems to reduce carbon monoxide, oxides of nitrogen and hydrocarbons.

Exhaust Emission Control System
The exhaust emission control system includes a secondary air injection system, PGM-FI system, two warm-up oxidation catalytic converters, two three-way catalytic converters, and two heated oxygen sensors.

No adjustment to these systems should be made although periodic inspection of the components is recommended.

PGM-FI System
The PGM-FI system uses sequential multiport fuel injection. It has four subsystems: Air Intake, Engine Control, Fuel Control, and Exhaust Control. The Engine Control Module (ECM) uses various sensors to determine how much air is going into the engine. It then controls how much fuel to inject under all operating conditions.

Ignition Timing Control System
The system constantly adjusts the ignition timing, reducing the amount of HC, CO and NOx produced.

Secondary Air Injection System
The secondary air injection system introduces filtered air into the exhaust gases in the exhaust port. The secondary air injection system helps improve emission control performance.

Three-Way Catalytic Converters
The two three-way catalytic converters are in the exhaust system. Through chemical reactions, they convert HC, CO, and NOx in the engine's exhaust to carbon dioxide (CO_2), nitrogen (N), and water vapor.

Oxidation Catalytic Converters

The oxidation catalytic converters are in the exhaust system. Through chemical reactions, they convert HC and CO in the engine's exhaust to carbon dioxide (CO_2) and water vapor.

Evaporative Emission Control System

This motorcycle complies with the requirements of the California Air Resources Board (CARB) evaporative emission regulations. Fuel vapor from the fuel tank is directed into the charcoal canister and air cleaner where it is adsorbed and stored while the engine is stopped. When the engine is running and the purge control solenoid valve is open, fuel vapor in the charcoal canister and air cleaner is drawn into the engine through the throttle body.

Crankcase Emission Control System

The engine is equipped with a closed crankcase system to prevent discharging crankcase emissions into the atmosphere. Blow-by gas is returned to the combustion chamber through the air cleaner and the intake manifold.

Emission Control Systems

Problems That May Affect Motorcycle Exhaust Emissions
If you are aware of any of the following symptoms, have the vehicle inspected and repaired by your authorized Honda motorcycle dealer.

Symptoms:
1. Hard starting or stalling after starting
2. Rough idle
3. Misfiring or backfiring during acceleration
4. After-burning (backfiring)
5. Poor performance (driveability) and poor fuel economy

Noise Emission Control System
TAMPERING WITH THE NOISE CONTROL SYSTEM IS PROHIBITED:
U. S. federal law prohibits, or Canadian provincial laws may prohibit the following acts or the causing thereof: (1) The removal or rendering inoperative by any person, other than for purposes of maintenance, repair or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

AMONG THOSE ACTS PRESUMED TO CONSTITUTE TAMPERING ARE THE FOLLOWING ACTS:
1. Removal of, or puncturing the muffler, baffles, header pipes or any other component which conducts exhaust gases.
2. Removal of, or puncturing of any part of the intake system.
3. Lack of proper maintenance.
4. Replacing any moving parts of the vehicle, or parts of the exhaust or intake system, with parts other than those specified by the manufacturer.

Fuel Permeation Emission Control System
This vehicle complies with the Fuel Permeation Emission Control regulations of the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and Environment Canada (EC). The fuel tank, fuel hoses, and fuel vapor charge hoses used on this vehicle incorporate fuel permeation control technologies. Tampering with the fuel tank, fuel hoses, or fuel vapor charge hoses to reduce or defeat the effectiveness of the fuel permeation technologies is prohibited by federal regulations.

Catalytic Converters

This motorcycle is equipped with two three-way catalytic converters. Each catalytic converter contains precious metals that serve as catalysts, promoting chemical reactions to convert the exhaust gasses without affecting the metals.

The catalytic converters act on HC, CO, and NOx. Replacement parts must be original Honda parts or equivalents.

The catalytic converters must operate at high temperature for the chemical reactions to take place. They can set fire to any combustible materials that come near them. Park your motorcycle away from high grasses, dry leaves, or other flammables.

Defective catalytic converters contribute to air pollution, and can impair your engine's performance. Follow these guidelines to protect your motorcycle's catalytic converters.

- Always use unleaded gasoline. Even a small amount of leaded gasoline can contaminate the catalyst metals, making the catalytic converters ineffective.

- Keep the engine in good running condition.
  A poorly running engine can cause the catalytic converter to overheat causing damage to the converter or the motorcycle.

- If your engine is misfiring, backfiring, stalling, or otherwise not running properly, stop riding and turn off the engine. Have your motorcycle serviced as soon as possible.

Oxygenated Fuels

Some conventional gasolines are being blended with alcohol or an ether compound. These gasolines are collectively referred to as oxygenated fuels. To meet clean air standards, some areas of the United States and Canada use oxygenated fuels to help reduce emissions.
If you use an oxygenated fuel, be sure it is unleaded and meets the minimum octane rating requirement.
Before using an oxygenated fuel, try to confirm the fuel's contents. Some states/provinces require this information to be posted on the pump.

The following are the EPA-approved percentages of oxygenates:

ETHANOL (ethyl or grain alcohol) 10% by Volume
You may use gasoline containing up to 10% ethanol by volume. Gasoline containing ethanol may be marketed under the name ''Gasohol''.

MTBE (Methyl Tertiary Butyl Ether) 15% by Volume
You may use gasoline containing up to 15% MTBE by volume.

METHANOL (methyl or wood alcohol) 5% by Volume
You may use gasoline containing methanol containing up to 5% methanol by volume as long as it also contains cosolvents and corrosion inhibitors to protect the fuel system. Gasoline containing more than 5% methanol by volume may cause starting and/or performance problems. It may also damage metal, rubber, and plastic parts of your fuel system.

Oxygenated Fuels

If you notice any undesirable operating symptoms, try another service station or switch to another brand of gasoline.

Fuel system damage or performance problems resulting from the use of an oxygenated fuel containing more than the percentages of oxygenates mentioned above are not covered under warranty.

Oxygenated fuels can damage paint and plastic. Be careful not to spill fuel when filling the fuel tank. Wipe up any spills immediately.

NOTICE

Oxygenated fuels can damage paint and plastic. Damage caused by spilled fuel is not covered by warranty.

Consumer Information

This section contains information on your warranty and how to get an official Honda Service Manual.

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Warranty Service 195
Contacting Honda 196
Your Honda Dealer 197
The Honda Rider's Club (USA only) 198
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Authorized Manuals

The Service Manual used by your authorized Honda dealer is available from Helm, Inc. (USA only, Canada: See your Honda dealer to order authorized manuals.)

Also available but not necessary to service your model is the Honda Common Service Manual which explains theory of operation and basic service information for various systems common to all Honda motorcycles, motor scooters and ATVs.

These Honda manuals are written for the professional technician, but most mechanically capable owners should find them easy to use if they have the proper tools and observe proper safety standards. Special Honda tools are necessary for some procedures.

Publication Item No.	Description	Price Each*
61MCS06	2009 ST1300/A Service Manual	$60.00
61CM002	Common Service Manual	$48.00
31MCS660	2009 ST1300/A Owner's Manual	$16.00
*Prices are subject to change without notice and without incurring obligation.		

Order On-Line: www.helminc.com

Order Toll Free: 1-888-CYCLE93 (1-888-292-5393)

(NOTE: For Credit Card Orders Only)

Monday – Friday 8:00 AM – 6:00 PM EST

OR

By completing this form you can order the materials desired. You can pay by check or money order, or charge to your credit card. Mail to Helm, Inc. at the address shown on the back of this order form (USA only).

Canada: See your Honda dealer to order authorized manuals.

Publication Item No.	Item Description	Qty.	Price Each*	Total Price
*Prices are subject to change without notice and without incurring obligation. Orders are mailed within 10 days. Please allow adequate time for delivery.		Sub Total		
		Purchaser's Sales Tax Mich. add 6 % Calif. add 7.25 %		
		Handling Charge		$3.75
		Grand Total		

SHIP TO

NOTE: Dealers and Companies please provide dealer or company name, and also the name of the person to whose attention the shipment should be sent.

Customer Name _____

Attention _____

Street address/P. O. BOX _____ Apartment Number _____

City _____ State _____ Zip Code _____

Daytime Telephone Number ( ) _____

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☐ Check or money order enclosed payable to Helm Inc. U.S. funds only. Do not send cash.

☐ Check here if your billing address is different from the shipping address shown above.

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Account Number ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ Expiration: Mo. Yr. ☐☐ – ☐☐

Security Code ☐☐☐

Customer Signature _____ Date _____

These Publications cannot be returned for credit without receiving advance authorization within 14 days of delivery. For returns, a restocking fee may be applied against the original order.

HELM P.O. BOX 07280, DETROIT, MICHIGAN 48207

Warranty Coverage

Your new Honda is covered by these warranties:
- Motorcycle Limited Warranty
- Emission Control System Warranty
- Noise Control Warranty

There are responsibilities, restrictions, and exclusions which apply to these warranties. Please read the Warranties Booklet given to you by your Honda dealer at the time of purchase. Be sure to keep your Honda owner's card with your Warranties Booklet (USA only).

It is important to realize that your warranty applies to defects in material or workmanship of your Honda. Your warranty coverage does not apply to normal wear or deterioration associated with using the motorcycle.

Your warranty coverage will not be voided if you choose to perform your own maintenance. However, you should have the proper tools and service information and be mechanically qualified. Failures that occur due directly to improper maintenance are not covered.

Almost all of your warranty coverage can be extended through the Honda Protection Plan (USA only). For more information, see your Honda dealer.

Warranty Service

Please remember that recommended maintenance interval servicing is not included in your warranty coverage. Additionally, your warranty does not apply to the normal wear of items (such as brakes, tires, etc.).

If you believe you have a problem with your motorcycle, call the service department of your Honda dealer. Make an appointment for an inspection and diagnosis. Remember, as the owner of the motorcycle, you will be asked to authorize that inspection. Your dealer will give you the results of the inspection. If the problem is covered under warranty, your dealer will perform the warranty repairs for you.

If you have questions about warranty coverage or the nature of the repair, it is best to talk to the Service Manager of your Honda dealer.

Sometimes, in spite of the best intentions of all concerned, a misunderstanding may occur. If you aren't satisfied with your dealer's handling of the situation, we suggest you discuss your problem with the appropriate member of the dealership's management team. If the problem has already been reviewed with the Service Manager, Parts Manager, Sales Manager, etc., contact the Owner of the dealership or their designated representative.

Contacting Honda

Your owner's manual was written to cover most of the questions you might ask about your Honda. Any questions not answered in the owner's manual can be answered by your Honda dealer. If your dealer doesn't have the answer right away, they will get it for you.

If you have a difference of opinion with your dealer, please remember that each dealership is independently owned and operated. That's why it's important to work to resolve any differences at the dealership level.

If you wish to comment on your experiences with your Honda or with your dealer, please send your comments to the following address (USA only):

Motorcycle Division, American Honda Motor Co., Inc., P.O. Box 2200, Torrance, CA 90509-2200, mailstop: 100-4C-7B, telephone: (866) 784-1870.

Canada: Refer to the Warranties Booklet that was supplied with your vehicle.

Please include the following information in your letter:
- name, address, and telephone number
- product model, year, and VIN
- date of purchase
- dealer name and address

We will likely ask your Honda dealer to respond, or possibly acknowledge your comments directly.

Your Honda Dealer

Once you purchase your new Honda, get familiar with the organization of your Honda dealer so you can utilize the full range of services available.

The service department is there to perform regular maintenance and unexpected repairs. It has the latest available service information from Honda. The service department will also handle warranty inspections and repairs.

The parts department offers Honda Genuine Parts, Pro Honda products, Honda Genuine Accessories (USA only), and Honda accessories and products (Canada only). The same quality that went into your Honda can be found in Honda Genuine replacement parts. You'll also find comparable quality in the accessories and products available from the parts department.

The sales department offers the Honda Protection Plan to extend almost all of your warranty coverage (USA only).
Your Honda dealer can inform you about competition and other riding events in your area. You'll also find that your dealer is a source of information about safety training available in your local area and the Honda Rider's Club of America (USA only).

We're sure you'll be as pleased with the service your Honda dealer continues to provide after the sale as you are with the quality and dependability of your Honda.

The Honda Rider's Club (USA only)

You may be eligible for a Honda Rider's Club of America (HRCA) membership with the purchase of your new Honda. You can log on to the HRCA Clubhouse website for details at *www.hrca.honda.com.*

Reporting Safety Defects (USA only)

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying American Honda Motor Co., Inc.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or American Honda Motor Co., Inc.

To contact NHTSA, you may call the Vehicle Safety Hotline toll-free at 1-888-327-4236
(TTY: 1-800-424-9153); go to *http://www.safercar.gov*; or write to: Administrator, NHTSA, 1200 New Jersey Avenue, SE., Washington, DC 20590.
You can also obtain other information about motor vehicle safety from *http://www.safercar.gov.*

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Quick Reference

The following is a brief, but important collection of information you need to know about your Honda. You'll also find space to record important notes.

The engine of your Honda can be the most expensive component to repair. Proper maintenance, especially the use of the recommended fluids and filters, prevents premature wear and damage.

Frequent causes of costly repairs are:
- Engine oil — insufficient quantity, improper oil.
- Air cleaner — dirty, leaking because of improper installation (poor seal).

Record important information on the following page:

VIN	
Engine No.	
Ignition Key No.	
Color Label	
Owner's Name	
Address	
City/State	
Phone	
Dealer's Name	
Address	
City/State	
Phone	
Service Mgr.	

Scheduled Maintenance	Initial: 600 miles (1,000 km) Regular: every 4,000 miles (6,400 km)
Pre-ride Inspection	Check the following items each time before you ride (page 41): tires & wheels, leaks, loose parts, lights, throttle, brakes, indicators, gauges.
Periodic Checks	Check the following items monthly (page 73): tires & wheels, fluids, lights, freeplay, fuses, nuts & bolts.
Fuel/Capacity	premium unleaded gasoline, pump octane number 91 or higher 7.66 US gal (29.0 ℓ)
Engine Oil	API Service Classification SG or higher except oils labeled as energy conserving on the circular API service label, SAE 10W-30, JASO T 903 standard MA, Pro Honda GN4 4-stroke oil or equivalent
Maximum Weight Capacity	401 lbs (182 kg) 410 lbs (186 kg) (Canada only) rider and all accessories maximum cargo weight: 58 lbs (26.5 kg)
Tires	front: 120/70ZR18M/C (59W) BRIDGESTONE BT020F F DUNLOP D220FST L rear: 170/60ZR17M/C (72W) BRIDGESTONE BT020R F DUNLOP D220ST L type: radial, tubeless
Tire Pressure (cold)	front: 42 psi (290 kPa , 2.90 kgf/cm²) rear: 42 psi (290 kPa , 2.90 kgf/cm²)
Spark Plugs	standard: CR7EH-9 (NGK) or U22FER9 (DENSO) high speed riding: CR8EH-9 (NGK) or U24FER9 (DENSO)
Coolant	ethylene glycol antifreeze (silicate-free) for aluminum engines in 50/50 solution with Pro Honda HP Coolant or an equivalent distilled water
Fuses	main A: 30 A main B: 65 A other: 30 A, 20 A, 15 A, 10 A
Final Drive Oil	Hypoid Gear Oil SAE 80

Quick Reference

These symbols are used in Controls & Features section:

SYMBOL	COMPONENT	SEE PAGE
	START button	31
	RUN — engine stop switch	32
	OFF — engine stop switch	32
	HI — headlight dimmer switch	33
	LO — headlight dimmer switch	33
	turn signal switch	33
	horn button	34
	windscreen height adjustment switch	34
	hazard switch	34