Contents

MOTORCYCLE SAFETY 1
Important Safety Information 2
Important Safety Precautions 2
Loading 3
Accessories & Modifications 4
Safety Labels 5

OPERATING CONTROLS 7
Operation Component Locations 8

BEFORE RIDING 9
Are You Ready to Ride? 10
Is Your Motorcycle Ready to Ride? 11
Pre-ride Inspection 11

BASIC OPERATING INSTRUCTIONS 13
Safe Riding Precautions 14
Starting & Stopping the Engine 15
Preparation 15
Fuel Valve 15
Starting Procedure 15
Flooded Engine 16
How to Stop the Engine 16
Shifting Gears 17
Braking 18
Parking 19
Post-ride Inspection 20
Break-in Guidelines 21

SERVICING YOUR HONDA 23
Before You Service Your Honda
The Importance of Maintenance 24
Maintenance Safety 25
Important Safety Precautions 25
Maintenance Schedule 26
General Competition Maintenance 29
Before & After Competition Maintenance 33
Between Motos & Practice Maintenance ... 33
After Competition Maintenance 33

Service Preparations
Maintenance Component Locations 35
Seat 36
Fuel Tank 37
Subframe Upright Position 39

Service Procedures
Fluids & Filters
Fuel System 41
Engine Oil 43
Transmission Oil 46
Coolant 48
Air Cleaner 51
Crankcase Breather 53

Engine
Throttle 54
Clutch System 56
Hot Start Lever 60
Spark Plug 61
Exhaust Pipe/Muffler 62
Spark Arrester 65
Valve Clearance 66
Piston/Piston Rings/Piston Pin 76

Chassis
Suspension 84
Brakes 88
Wheels 92
Tires & Tubes 93
Side Stand 95
Drive Chain 96
Steering Damper 99
Additional Maintenance Procedures 102

Electrical
Battery 104
Headlight & Taillight 106
Appearance Care 108

ADJUSTMENTS FOR COMPETITION ... 111
Front Suspension Adjustments 112
Rear Suspension Adjustments 126
Suspension Adjustments for Track Conditions 130
Suspension Adjustment Guidelines 131
Carburetor Adjustment & Tuning Tips 134
Steering Damper Adjustment 141
Steering Damper Adjustment Guidelines 142
Chassis Adjustments 143
Gearing 144
Tire Selection for Track Conditions 145
Personal Fit Adjustments 146

TIPS 147
Transporting Your Motorcycle 148
Storing Your Honda 149
You & the Environment 151
Troubleshooting 152

TAKING CARE OF THE UNEXPECTED ... 153
If a Fuse Blows 154
If Your Battery Is Low (or Dead) 155

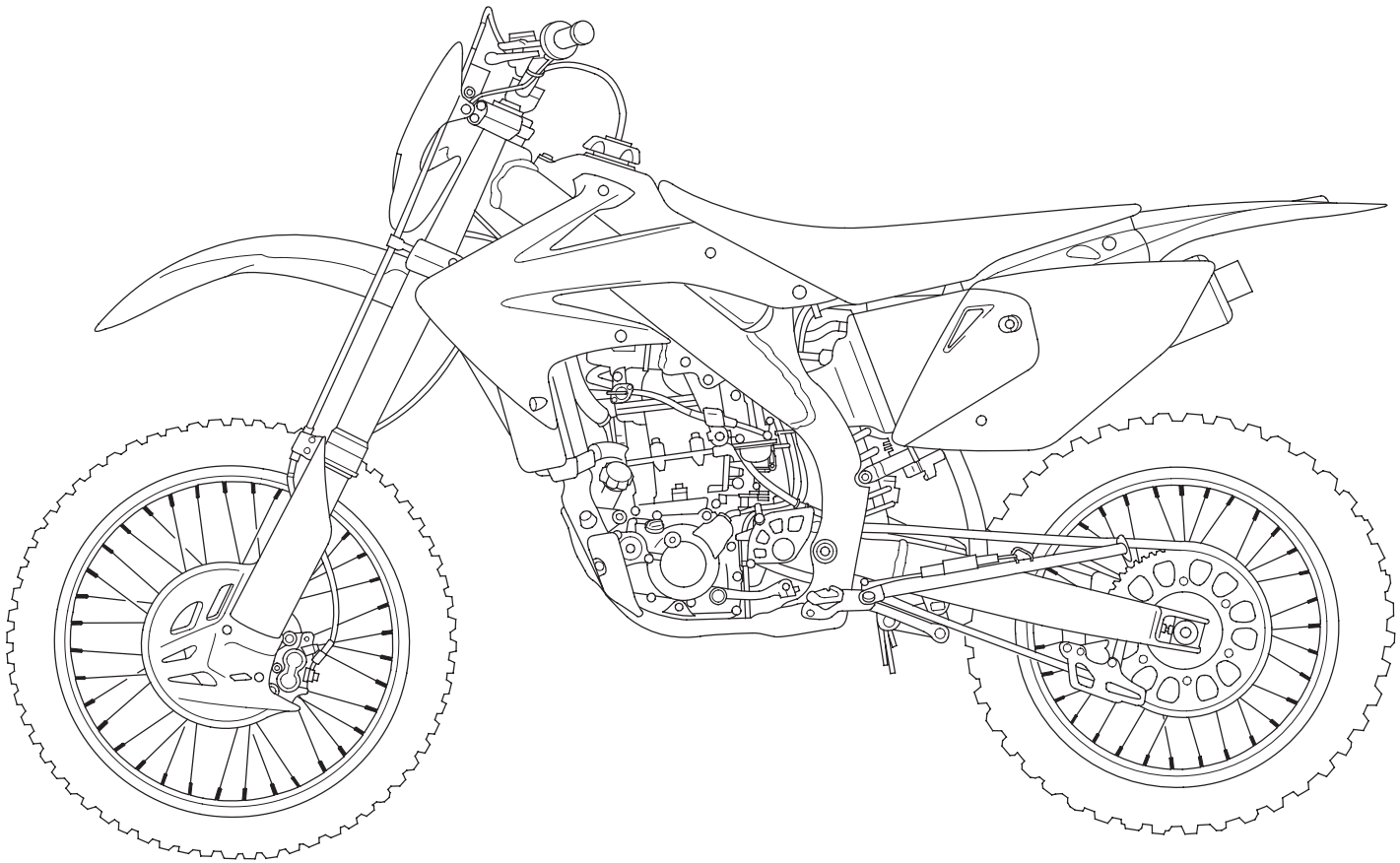
TECHNICAL INFORMATION 157
Vehicle Identification 158
Specifications 159
Torque Specifications 160
Emission Control Systems 164
Oxygenated Fuels 166
Competition Logbook 167
Optional Parts List 169
Spare Parts & Equipment 170
Wiring Diagram 171

CONSUMER INFORMATION 173
Authorized Manuals 174
Warranty Coverage 175
Warranty Service 176
Contacting Honda 177
Your Honda Dealer 178
The Honda Rider's Club (USA only) 179

INDEX 180

QUICK REFERENCE

2012
Honda CRF450X
OWNER'S MANUAL & COMPETITION HANDBOOK



FOR OFF-ROAD USE ONLY
This vehicle is designed and manufactured for off-road use only.

USA only:
It conforms to US EPA Noise Emission regulations, but does not conform to Federal Motor Vehicle Safety Standards or US EPA On Highway Exhaust Emission regulations, and operation on public streets, roads, or highways is illegal. The vehicle is equipped with a USDA qualified spark arrester. Obey local laws and regulations.

It conforms to US EPA, California, and Environment Canada emission regulations for off-road motorcycles.

Introduction

Congratulations on choosing your Honda CRF off-road 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.

Your Honda was designed as a recreational motorcycle for off-road use by one rider only.

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

You should also read the 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 table of contents, a detailed list of topics at the beginning of each section, 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.

Unless you are mechanically qualified and have the proper tools, you should see your dealer for the service and adjustment procedures discussed in this manual.

The official Honda Service Manual for your CRF is available (page 174). It is the same manual your dealer uses. If you plan to do any service on your CRF beyond the standard maintenance procedures in this manual, you will find the Service Manual a valuable reference.

Read the Warranties Booklet (page 175) thoroughly so you understand the coverages that protect your new Honda and are aware of your rights and responsibilities.

This motorcycle has no cooling fan. For this reason, engine overheating and coolant loss will occur if the engine is kept idling too long when hot. Additionally, when riding in mud or sand, or any condition that causes high engine load at low vehicle speed, the time it takes for the engine to overheat will be shortened, especially when the ambient temperature is high. Continuing to operate the unit in these conditions will result in engine damage.

Whenever you ride, tread lightly. By staying on established trails and riding only in approved areas, you help protect the environment and keep off-road riding areas open for the future.

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

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

You may also want to visit our website at
USA: www.powersports.honda.com
Canada: www.honda.ca.

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 safety.

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

Motorcycle Safety

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

Important Safety Information 2
    Important Safety Precautions 2
Loading 3
Accessories & Modifications 4
Safety Labels 5

Important Safety Information

Important Safety Precautions

Your CRF can provide many years of pleasure, if you take responsibility for your own safety and understand the challenges you can meet in competitive racing.

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. We also recommended that you wear eye protection, sturdy boots, gloves, and other protective gear.

Never Carry a Passenger. Your CRF is designed for one person only. There are no handholds, footrests, or seat for a second person–so never carry a passenger. A passenger could interfere with your ability to move around to maintain your balance and control of the motorcycle.

Ride Off-road Only. Your CRF is designed and manufactured for off-road use only. The tires are not made for pavement, and the CRF does not have turn signals and other features required for use on public roads. If you need to cross a paved or public road, get off and walk your CRF across.

Always Wear Protective Gear. We recommend that you wear sturdy boots, gloves, and other protective gear. The exhaust system becomes very hot during operation, and it remains hot after operation. Never touch any part of the hot exhaust system. Wear clothing that fully covers your legs.

Do not wear loose clothing which could catch on the control levers, kickstarter, footpegs, drive chain, or wheels.

Take Time to Learn and Practice. Developing off-road riding skills is a gradual, step-by-step process. Start by practicing at low speeds in a safe area and slowly build your skills. Personal instruction from an experienced rider can also be valuable.

If you need assistance, ask your dealer about riding groups in your area.

Also be sure to read the *Tips & Practice Guide for the Off-Highway Motorcyclist* booklet that came with your CRF (USA only).

Be Alert for Off-road Hazards. The terrain can present a variety of challenges when you ride off-road. Continually ‘‘read’’ the terrain for unexpected turns, drop-offs, rocks, ruts, and other hazards. Always keep your speed low enough to allow time to see and react to hazards.

Ride within Your Limits. Pushing limits is another major cause of motorcycle crashes. 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 CRF properly maintained and in safe riding condition. Having a breakdown can be difficult, especially if you are stranded off-road far from your base. To help avoid problems, inspect your CRF before every ride and perform all recommended maintenance.

Your CRF was designed as a rider-only motorcycle. It was not designed to carry a passenger or cargo. A passenger or cargo could interfere with your ability to move around to maintain your balance and control of the CRF.

In addition, exceeding the weight limits or carrying an unbalanced load can seriously affect your CRF's handling, braking, and stability. Adding accessories or making modifications that change this CRF's design and performance can also make it unsafe. Also, the weight of any accessories will reduce the maximum load the motorcycle can carry.

More specific information on load limits, accessories, and modifications follows.

Loading

How much weight you put on your CRF, and how you load it, are important to your safety. If you decide to carry cargo, you should be aware of the following information.

⚠ WARNING

Overloading or carrying a passenger can cause a crash and you can be seriously hurt or killed.

Follow all loading guidelines in this manual.

Loading Guidelines

As discussed on this page, we recommended that you do not carry any cargo on this motorcycle. However, if you decide to carry cargo, ride at reduced speeds and follow these commonsense guidelines:

- Keep cargo small and light. Make sure it cannot easily be caught on brush or other objects, and that it does not interfere with your ability to shift position to maintain balance and stability.
- Place weight as close to the center of the motorcycle as possible.
- Do not attach large or heavy items (such as a sleeping bag or tent) to the handlebar, fork, or front fender.
- Check that both tires are inflated properly.

Accessories & Modifications

Modifying your CRF or using non-Honda accessories can make your CRF 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 modifications and accessories.

Accessories

We strongly recommend that you use only Honda Genuine Accessories that have been specifically designed and tested for your CRF. 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 dealer for assistance and always follow this guideline:

- Make sure the accessory does not reduce ground clearance and lean angle, limit suspension travel or steering travel, alter your riding position, or interfere with operating any controls.

Modifications

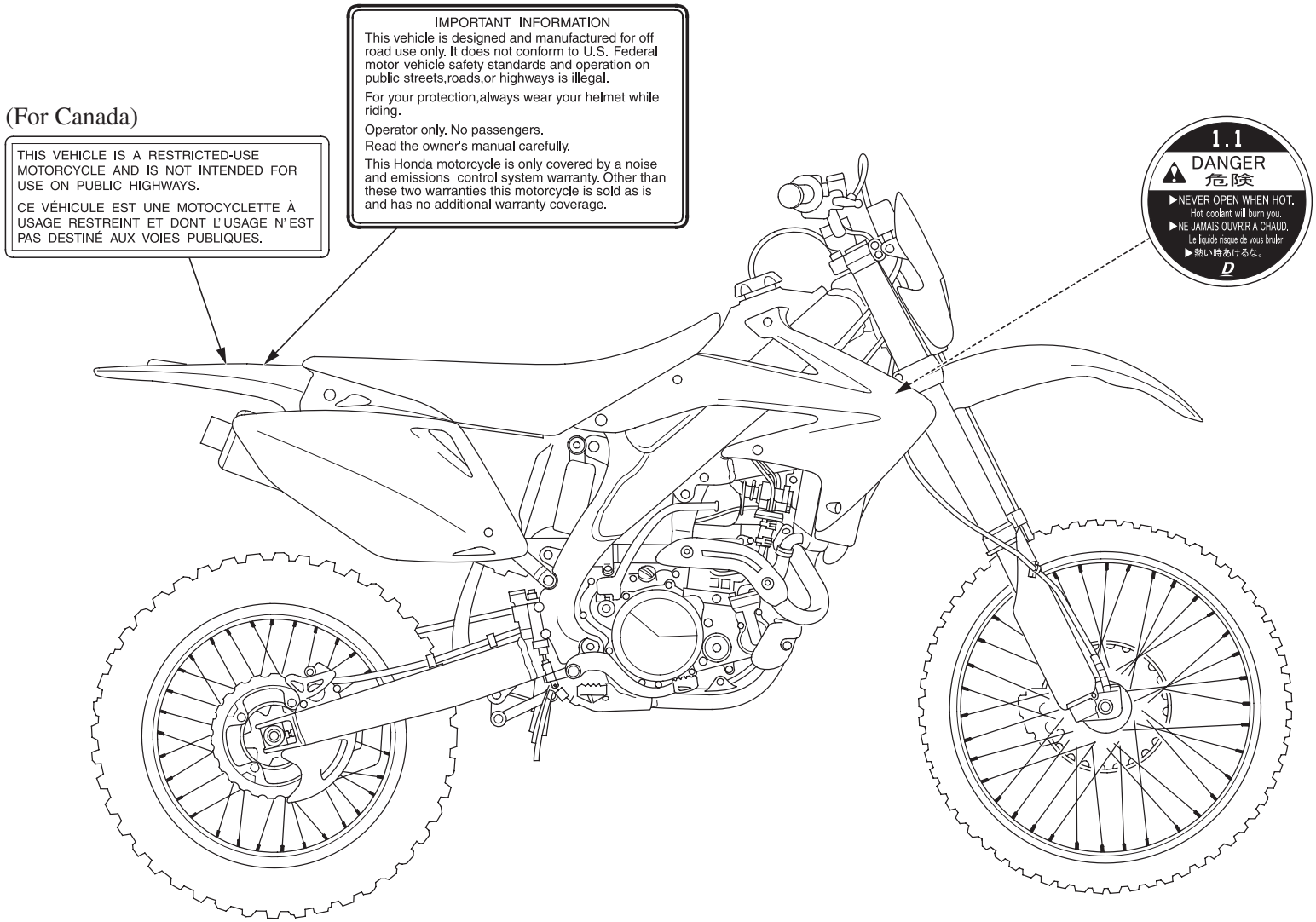
We strongly advise you not to remove any original equipment or modify your CRF in any way that would change its design or operation. Such changes could seriously impair your CRF's handling, stability, and braking, making it unsafe to ride.

We also advice you not to make any modifications or remove any equipment (such as the USDA qualified spark arrester or emission control system components) that would make the motorcycle illegal in your area.

Safety Labels

This page shows the locations of safety labels on your CRF. Some labels warn you of potential hazards that could cause serious injury. Others provide important safety information. Read these labels carefully and don't remove them.

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

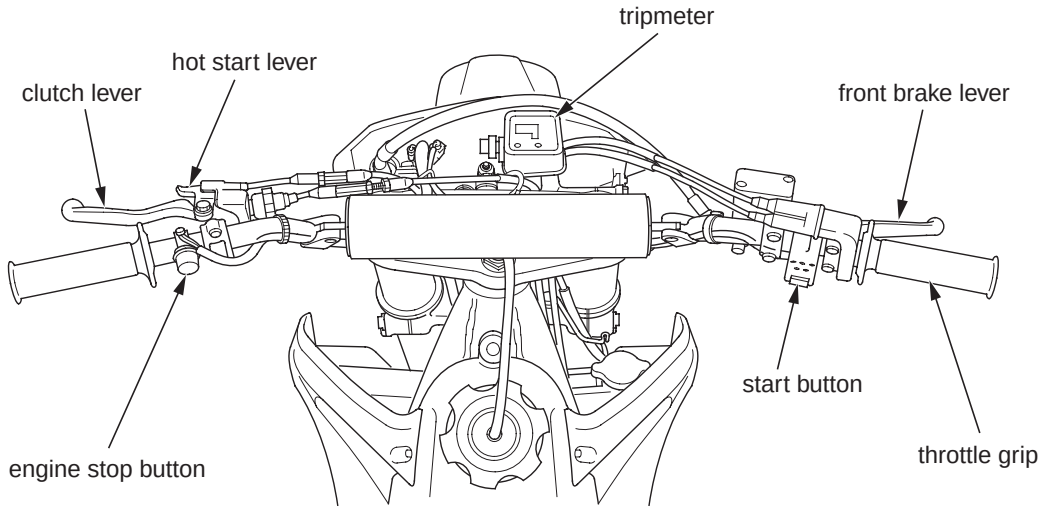


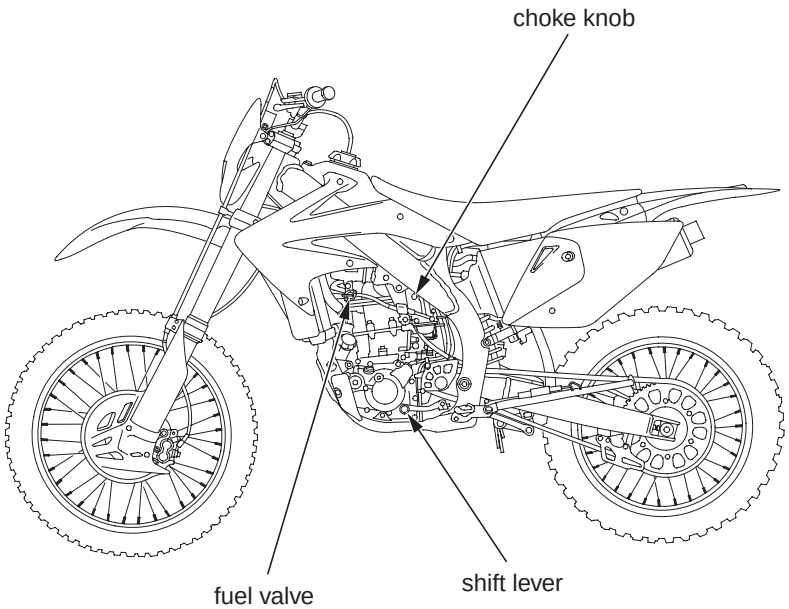
Operating Controls

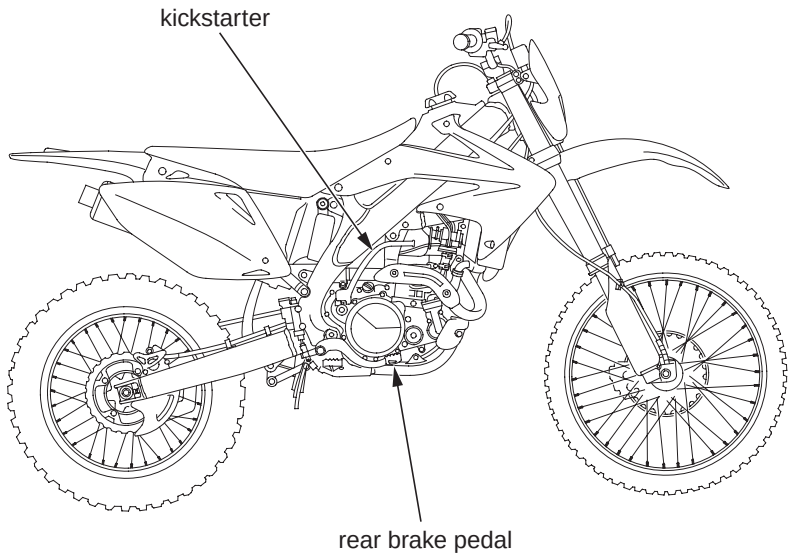
Read this section carefully before you ride. It presents the location of the basic controls on your CRF.

Operation Component Locations 8

Operation Component Locations







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, and what items you should check on your CRF.

For information about suspension, carburetor, and other adjustments see page 111.

Are You Ready to Ride? 10
Is Your Motorcycle Ready to Ride? 11
Pre-ride Inspection 11

Are You Ready to Ride?

Before riding your CRF for the first time, we recommend that you read this owner's manual, make sure you understand the safety messages, and know how to operate the controls.

Before each ride, it's also important to make sure you and your CRF are both ready to ride.

For information about suspension, carburetor, and other adjustments, see page 111.

Whether you're preparing for competition or for practice, always make sure you are:

- In good physical and mental condition
- Free of alcohol and drugs
- Wearing an approved helmet, eye protection, and other appropriate riding gear

Although complete protection is not possible, wearing the proper gear can reduce the chance or severity of injury when you ride.

⚠ WARNING

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

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

Competitive riding can be tough on a motorcycle, so it's important to inspect your CRF and correct any problems you find before each ride. Check the following items (page numbers are at the right):

⚠ 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 before each ride:

- Engine oil level....44
- Transmission oil level....47
- Coolant for proper level....48
- Cooling system and hoses for condition....49
- Spark plug for proper heat range, carbon fouling and spark plug wire terminal for looseness....61
- Air cleaner for condition and contamination....51
- Clutch operation and freeplay....56
- Hot start lever freeplay....60
- Breather drain for cleaning....53
- Steering head bearings and related parts for condition....102
- Carburetor throttle operation....55
- Engine idle speed for stable and proper rpm....140
- Tires for damage or improper inflation pressure....93
- Spokes for looseness....92
- Rim locks for looseness....92
- Front and rear suspension for proper operation....84, 85
- Front and rear brakes, check operation....88
- Drive chain for correct slack and adequate lubrication....96, 98
- Drive chain sliders and drive chain rollers for damage or wear....98
- Exhaust pipe/Muffler inspection....62
- Steering damper operation inspection....99
- Every possible part for looseness (such as cylinder head nuts, engine mounting bolts/nuts, axle nuts, handlebar holder bolts, fork bridge pinch bolts, drive chain adjuster, drive chain guide, wire harness connectors, kickstarter mounting bolt, etc.)....160 – 163

Basic Operating Instructions

This section gives basic information on how to start and stop your engine as well as break-in guidelines.

Safe Riding Precautions 14
Side Stand 14
Tripmeter 14
Starting & Stopping the Engine 15
Preparation 15
Fuel Valve 15
Starting Procedure 15
Flooded Engine 16
How to Stop the Engine 16
Shifting Gears 17
Braking 18
Parking 19
Post-ride Inspection 20
Break-in Guidelines 21

Basic Operating Instructions

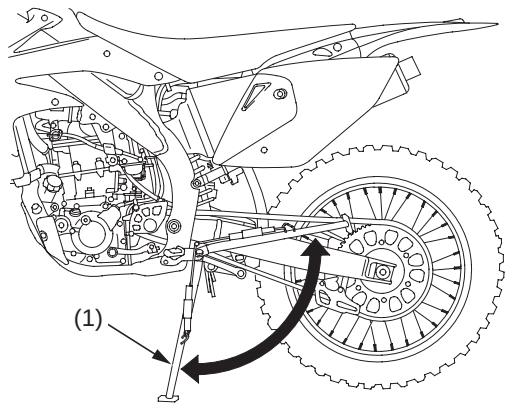
Safe Riding Precautions

Before riding your CRF for the first time, please review the *Important Safety Precautions* beginning on page 2 and the previous section, titled *Before Riding*.

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

Side Stand

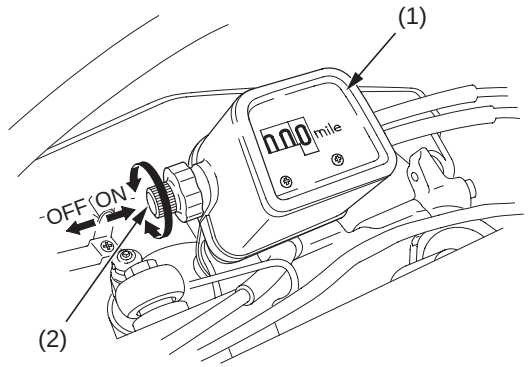
The side stand (1) is used to support your CRF while parked (page 19). To operate, use your foot to lower the side stand until it is fully extended. Before riding, raise the side stand.



(1) side stand

Tripmeter

The tripmeter (1) is used to record the distance traveled (USA: miles, Canada: kilometers) per trip or section of route.
To operate, pull the tripmeter reset knob (2) out (OFF) and turn it until the meter shows all zeros (0), then push the knob in (ON).



(1) tripmeter
(2) tripmeter reset knob

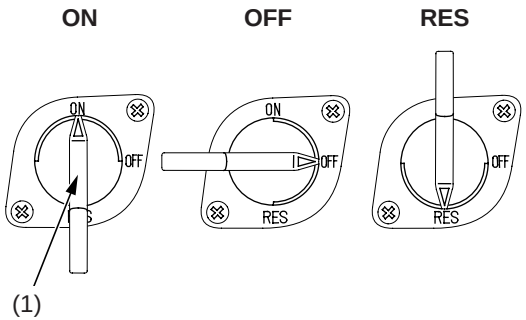
Always follow the proper starting procedure described below.

Your CRF can be started with the transmission in gear by pulling in the clutch lever before operating the kickstarter or start button.

Preparation

Make sure that the transmission is in neutral.

Fuel Valve



(1) fuel valve

The three-way fuel valve is used to control the flow of fuel from the fuel tank to the carburetor.

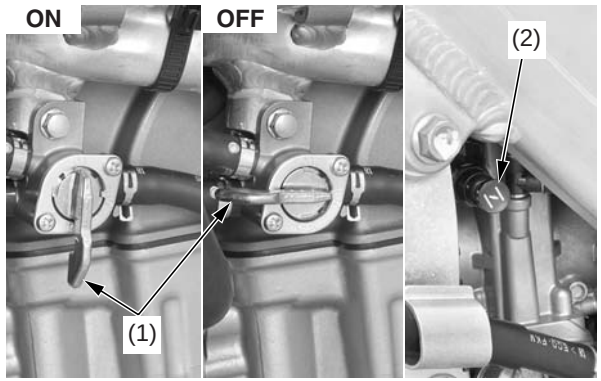
ON–Turning the fuel valve ON before attempting to start the engine allows fuel to flow from the fuel tank to the carburetor.

OFF–Turning the fuel valve OFF prevents the flow of fuel from the fuel tank to the carburetor.

RES–Turning the fuel valve to RES allows fuel to flow from the reserve fuel supply to the carburetor.

Starting Procedure

Always follow the proper starting procedure described as follow.



(1) fuel valve (2) choke knob

Check the engine oil, transmission oil and coolant levels before starting the engine (pages 44, 47, 48).

To restart a warm engine, follow the procedure for "High Air Temperature."

Normal Air Temperature 10°C – 35°C (50°F – 95°F)

1. Turn the fuel valve (1) ON.
2. Pull the choke knob (2) fully ON, if the engine is cold.
3. Keep the throttle fully closed.
4. Pull the clutch lever all the way in, and depress the start button. Or operate the kickstarter to start the engine. Starting from the top of the stroke, kick through to the bottom with a rapid, continuous motion. Do not operate the throttle.

NOTICE

Allowing the kickstarter to snap back freely against the pedal stop can damage the engine case.

5. Warm up the engine; don't operate the throttle.
6. About 15 seconds after the engine starts, push the choke knob back all the way to fully OFF. If idling is unstable, open the throttle slightly.

NOTICE

Extended use of the choke may impair piston and cylinder wall lubrication and damage the engine.

High Air Temperature 35°C (95°F) or above

1. Turn the fuel valve ON.
2. Do not use the choke.
3. Keep the throttle fully closed.
4. Start the engine following step 4 under "Normal Air Temperature."

Low Air Temperature 10°C (50°F) or below

1. If the temperature is below 0°C (32°F), open the throttle two or three times. (The engine requires a richer mixture for starting in cold weather. When the throttle is so opened, the accelerator pump will feed extra fuel to the cylinder, thereby facilitating starting in cold weather.)
2. Follow steps 1 – 4 under "Normal Air Temperature."
3. Continue warming up the engine until it runs smoothly and responds to the throttle when the choke knob is pushed back all the way to fully OFF.

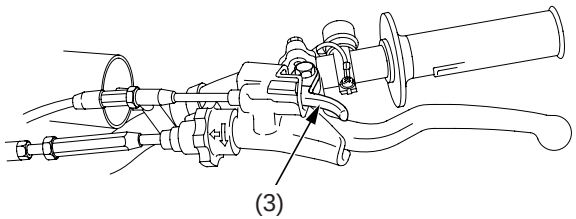
NOTICE

Extended use of the choke may impair piston and cylinder wall lubrication and damage the engine.

Starting & Stopping the Engine

Hot Engine Starting

1. Pull the hot start lever (3) all the way in and start the engine following step 4 under "Normal Air Temperature."
2. As soon as the engine starts, release the hot start lever.



(3) hot start lever

Snapping the throttle or fast idling for more than 5 minutes may cause exhaust pipe discoloration.

Flooded Engine

Starting the engine after a stall during riding or after a fall:

1. Shift the transmission into neutral.
2. Pull the hot start lever all the way in and start the engine. (Do not open the throttle.)
3. As soon as the engine starts, release the hot start lever.

Starting a flooded engine:

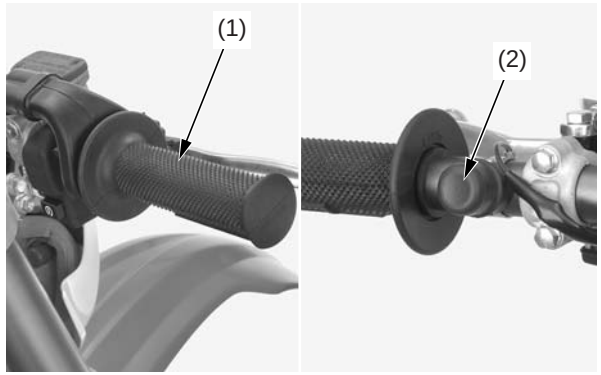
(Using the start button)

1. Do not use the choke.
2. Shift the transmission into neutral with the throttle fully opened.
3. Pull the clutch and hot start levers all the way in and depress the start button for 5 seconds. If the engine starts, quickly close the throttle, then open it slightly if idling is unstable. If the engine does not start, wait 10 seconds, and then follow the regular starting procedure.
4. As soon as the engine starts, release the hot start lever.

(Using the kickstarter)

1. Do not use the choke.
2. Shift the transmission into neutral with the throttle fully opened, repeat kickstarter operation approximately ten times very slowly to discharge excessive fuel from the engine. Close the throttle.
3. Pull the hot start lever all the way in and start the engine. (Do not open the throttle.)
4. As soon as the engine starts, release the hot start lever.

How to Stop the Engine



(1) throttle
(2) engine stop button

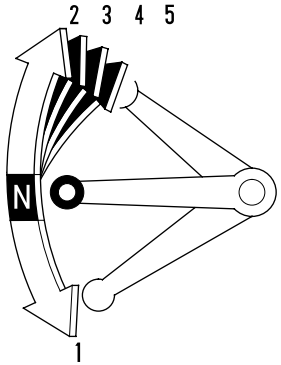
Normal Engine Stop

1. Shift the transmission into neutral.
2. Turn the fuel valve OFF.
3. Lightly open the throttle (1) two or three times, and then close it.
4. Push the engine stop button (2) until the engine stops completely.

Failure to close the fuel valve may cause the carburetor to overflow, result in hard starting.

Emergency Engine Stop

To stop the engine in an emergency, push the engine stop button.



Your CRF has five forward gears in a one-down, four-up shift pattern.
To start riding, after the engine has been warmed and the side stand raised.

1. Close the throttle and pull the brake lever in.
2. Pull the clutch lever all the way in.
3. Depress the shift lever from neutral down to first gear.
4. Release the brake lever. Gradually open the throttle while you slowly release the clutch lever. If the engine rpm (speed) is too low when you release the clutch lever, the engine will stall.
   If the engine rpm (speed) is too high or you release the clutch lever too quickly, your CRF may lurch forward.
5. When you attain a moderate speed, close the throttle, pull the clutch lever in, and raise the shift lever. After shifting, release the clutch lever and apply the throttle.
6. To continue shifting up to each higher gear, repeat step 5.
7. To shift down to a lower gear, close the throttle, pull the clutch lever in, and depress the shift lever. After shifting, release the clutch lever and apply the throttle.

Remember to close the throttle and pull the clutch lever in completely before shifting.

NOTICE

Improper shifting may damage the engine, transmission, and drive train.

Learning when to shift gears comes with experience. Upshift to a higher gear or reduce throttle before engine rpm (speed) gets too high. Downshift to a lower gear before you feel the engine laboring (lugging) at low rpm.

NOTICE

Downshifting can help slow your motorcycle, especially on downhills. However, downshifting when engine rpm is too high can cause engine damage.

NOTICE

To prevent transmission damage, do not coast or tow the motorcycle for long distances with the engine off.

Braking

To slow or stop, apply the front brake lever and rear brake pedal smoothly, while downshifting to match your speed. Gradually increase braking as you feel the brakes slowing your speed. 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 are through using the rear brake pedal.

For maximum braking, close the throttle and firmly apply the front brake lever and rear brake pedal controls.

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

Generally, reduce your speed or complete braking before beginning a turn. Avoid braking or closing the throttle quickly while turning. Either action may cause one or both wheels to slip. Any wheel slip will reduce your control of your CRF.

When riding in wet or raining 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.

When you brake to a stop, pull the clutch lever in before stopping completely to prevent stalling the engine. For support, put your left foot on the ground first, then your right foot when you have finished braking.

Lower the side stand to support your CRF.
If you're through riding for the day, turn the fuel valve OFF. Always choose a level surface to park.

Post-ride Inspection

When you return home after riding, thoroughly clean your CRF and remove any dirt, mud, brush, rocks or other objects you may have picked up along the way.

After cleaning, carefully inspect your CRF for leaks or damage.

Be sure to lubricate the drive chain (page 98) to prevent rusting.

Help assure your CRF's future reliability and performance by paying extra attention to how you ride during the first operating day or 15 miles (25 km).
During this period, avoid full-throttle starts and rapid acceleration.

This same procedure should be followed each time when:

- piston is replaced
- piston rings are replaced
- cylinder is replaced
- crankshaft or crank bearings are replaced

Keeping your CRF 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.

To help keep your CRF in good shape, this section includes a Maintenance Schedule for required servicing and step-by-step instructions for specific maintenance tasks. You'll also find important safety precautions, information on oils, and tips for keeping your Honda looking good.

An ICM (Ignition Control Module) system is used on this motorcycle; consequently, routine ignition timing adjustment is unnecessary. If you want to check the ignition timing, refer to the Honda Service Manual (page 174).

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 164.

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.

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

Before You Service Your Honda
The Importance of Maintenance 24
Maintenance Safety 25
Important Safety Precautions 25
Maintenance Schedule 26
General Competition Maintenance 29
Before & After Competition Maintenance 33
Between Motos & Practice Maintenance 33
After Competition Maintenance 33

Service Preparations
Maintenance Component Locations 35
Seat 36
Fuel Tank 37
Subframe Upright Position 39

Service Procedures
Fluids & Filters
Fuel System 41
Engine Oil 43
Transmission Oil 46
Coolant 48
Air Cleaner 51
Crankcase Breather 53

Engine
Throttle 54
Clutch System 56
Hot Start Lever 60
Spark Plug 61
Exhaust Pipe/Muffler 62
Spark Arrester 65
Valve Clearance 66
Piston/Piston Rings/Piston Pin 76

Chassis
Suspension 84
Front Suspension Inspection 84
Rear Suspension Inspection 85
Recommended Fork Oil 86
Fork Oil Change 86
Brakes 88
Wheels 92
Tires & Tubes 93
Side Stand 95
Drive Chain 96
Steering Damper 99
Additional Maintenance Procedures 102

Electrical
Battery 104
Headlight & Taillight 106

Appearance Care 108

The Importance of Maintenance

A well-maintained motorcycle is essential for safe, economical, and trouble-free riding. It will also help reduce air pollution. Careful pre-ride inspections and good maintenance are especially important because your CRF is designed to be ridden over rough off-road terrain.

To help you properly care for your CRF, this section of the manual provides a Maintenance Schedule. The service intervals in this schedule are based on average riding conditions.

More frequent service is needed if you subject your CRF to severe use or ride in unusually wet or dusty areas.

Frequent servicing of the air cleaner is especially important to help you avoid a possible costly engine repair.

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

Remember, proper maintenance is your responsibility. Be sure to inspect your CRF before each ride 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.

This section includes instructions on how to perform some important maintenance tasks. 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.

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 side stand or an optional workstand to provide support.

- To reduce the possibility of a fire or explosion, be careful when working around gasoline. Use only a non-flammable (high flash point) solvent such as kerosene —not gasoline— to clean parts. Keep cigarettes, sparks, and flames away from all fuel-related parts.

Maintenance Schedule

To maintain the safety and reliability of your CRF, regular inspection and service is required as shown in the Maintenance Schedules – Regular OFF ROAD Use (non-competition) and Competition Use – that follow.

The Maintenance Schedule list items that can be performed with basic mechanical skills and hand tools. Procedures for these items are provided in this manual.

The Maintenance Schedule also includes items that involve more extensive procedures and may require special training, tools, and equipment. Therefore, we recommend that you have your dealer perform these tasks unless you have advanced mechanical skills and the required tools. Procedures for items in these schedules are provided in a service manual available for purchase from your dealer (page 174).

Because your CRF does not have an odometer, service intervals in the maintenance schedules are expressed in terms of riding days as well as miles. To avoid overlooking required service, we urge you to develop a convenient way to record the number of days and/or distance traveled (USA: miles, Canada: kilometers) you ride.

If you do not feel capable of performing a given task or need assistance, remember that your Honda dealer knows your CRF 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 11) 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 dealer.

* Should be serviced by your dealer, unless the owner has the proper tools and service data and are mechanically qualified.
Refer to the official Honda Service Manual (page 174).

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

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

MAINTENANCE SCHEDULE – REGULAR OFF-ROAD USE (NON-COMPETITION)

	ITEMS	NOTE	Whichever Comes First ⇨	Initial Maint	Regular Maintenance Interval				Refer to Page:
			miles	100	600	1,200	1,800	2,400	
			km	150	1,000	2,000	3,000	4,000	
			Month	1	6	12	18	24	
*	FUEL LINE					I		I	41
**	FUEL STRAINER SCREEN					C		C	42
*	THROTTLE OPERATION					I		I	55
	AIR CLEANER	(NOTE 1)			C	C	C	C	51
	CRANKCASE BREATHER				I	I	I	I	53
	SPARK PLUG				I	I	I	I	61
*	VALVE CLEARANCE			I	I	I	I	I	66
	ENGINE OIL			R	R	R	R	R	43
	ENGINE OIL FILTER			R	R	R	R	R	44
*	DECOMPRESSOR SYSTEM			I	I	I	I	I	–
**	ENGINE IDLE SPEED			I	I	I	I	I	140
	RADIATOR COOLANT	(NOTE 3)				I		R	48
*	COOLING SYSTEM			I	I	I	I	I	49
*	SECONDARY AIR SUPPLY SYSTEM	(NOTE 2)				I		I	–
	TRANSMISSION OIL			R	R	R	R	R	46
	DRIVE CHAIN	(NOTE 1)		I, L	I, L: every 300 miles (500 km) or 3 months				96 – 98
	DRIVE CHAIN SLIDER				I	I	I	I	98
	BRAKE FLUID	(NOTE 3)			I	I	I	I	89
	BRAKE PADS WEAR				I	I	I	I	91
	BRAKE SYSTEM			I	I	I	I	I	88
*	HEADLIGHT AIM					I		I	107
	CLUTCH SYSTEM			I	I	I	I	I	56
	SIDE STAND					I		I	95
*	SUSPENSION					I		I	84, 85
*	SPARK ARRESTER			C: every 1,000 miles (1,600 km) or every 100 operating hours					65
*	NUTS, BOLTS, FASTENERS			I		I		I	103, 160 – 163
**	WHEELS/TIRES			I	I	I	I	I	92, 93
**	STEERING HEAD BEARINGS			I		I		I	102

* Should be serviced by your dealer, unless the owner has the proper tools and service data and is mechanically qualified. Refer to the official Honda Service Manual (page 174).

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

Summary of Maintenance Schedule Notes and Procedures;

NOTES:

1. Service more frequently when ridden in wet or dusty conditions.
2. USA and Canada type only.
3. Replace every 2 years. Replacement requires mechanical skill.

Maintenance Schedule

MAINTENANCE SCHEDULE – COMPETITION USE

All items should be checked before each competition event. See your dealer unless you are mechanically qualified and have the proper tools.

Damage from competition use is not covered by the Distributor's Limited Warranty on your Honda.

Perform the Pre-ride Inspection (page 11) at each scheduled maintenance period.

I: Inspect and Clean, Adjust, Lubricate or Replace if necessary. C: Clean. A: Adjust. L: Lubricate. R: Replace.

FREQUENCY / ITEMS	NOTE	About 2.5 hours	About 7.5 hours	About 15.0 hours	About 22.5 hours	About 30.0 hours	Ref. Page
THROTTLE OPERATION		I					55
HOT STARTER		I					60
AIR FILTER	(NOTE 1)	C					51
CRANKCASE BREATHER		I					53
SPARK PLUG		I					61
RADIATOR COOLANT	(NOTE 2)	I					48
VALVE CLEARANCE / DECOMPRESSOR SYSTEM	(NOTE 4)			I			66
ENGINE OIL	(NOTE 3)	I		R			43
ENGINE OIL FILTER	(NOTE 3)			R			44
ENGINE IDLE SPEED		I					140
PISTON AND PISTON RINGS				R			79
PISTON PIN						R	79
TRANSMISSION OIL	(NOTE 5)	I		R			46
COOLING SYSTEM		I					49
DRIVE CHAIN		I, L	R				96
DRIVE CHAIN SLIDER		I					98
DRIVE CHAIN ROLLER		I					98
DRIVE SPROCKET		I					97
DRIVEN SPROCKET		I					97
BRAKE FLUID	(NOTE 2)	I					89
BRAKE PADS WEAR		I					91
BRAKE SYSTEM		I					88
CLUTCH SYSTEM	(NOTE 5)	I					56
CONTROL CABLES		I, L					102
EXHAUST PIPE/MUFFLER		I					62
SUSPENSION		I					84, 85
SWINGARM/SHOCK LINKAGE			L				32
FORK OIL – FORK TUBE/SLIDER	(NOTE 3)		R				86
FORK OIL – DAMPER					R		117
NUTS, BOLTS, FASTENERS		I					103, 160 – 163
WHEELS/TIRES		I					92, 93
STEERING HEAD BEARINGS					I		102

* We recommended these items be serviced by referring to the Honda service manual.

This maintenance schedule is based upon average riding condition. Machine subjected to severe use require more frequent servicing.

NOTE: 1. Clean after every moto for dusty riding conditions.
2. Replace every 2 years. Replacement requires mechanical skill.
3. Replace after the first break-in ride.
4. Inspect after the first break-in ride.
5. Replace the transmission oil, if the clutch discs and plates are replaced.

Perform maintenance on firm, level ground using the side stand, a workstand, or equivalent support.

When tightening bolts, nuts or screws, start with the larger diameter or inner fasteners, and tighten them to the specified torque using a crisscross pattern.

Use Honda Genuine Parts or their equivalent when servicing your CRF.

Clean parts in non-flammable (high flash point) cleaning solvent (such as kerosene) when disassembling. Lubricate any sliding surface, O-rings, and seals before reassembling. Grease parts by coating or filling where specified.

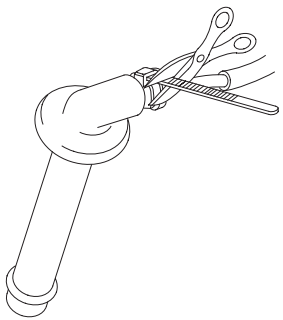
After any engine disassembly, always install new gaskets, O-rings, cotter pins, piston pin clips, snap rings, etc. when reassembling. After reassembly, check all parts for proper installation and operation.

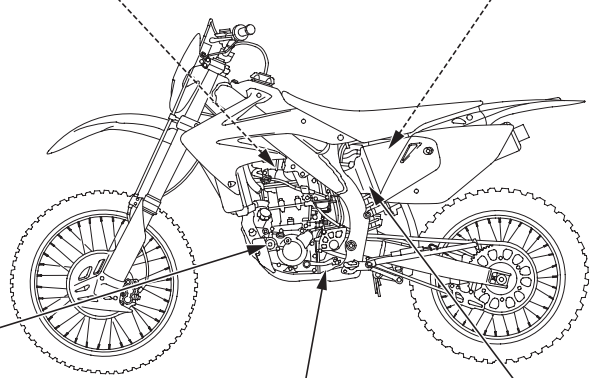
All Pre-ride Inspection Item
Refer to *Pre-ride Inspection* page 11.

General Competition Maintenance

Spark Plug
Some non-resistor plugs may cause ignition problems. Refer to the recommendations elsewhere in this manual for specific types so you will be sure to use the proper reach and heat range. Replace periodically as specified in the Maintenance Schedule (pages 27, 28).

Spark Plug Cap
Install a small plastic tie-wrap around the spark plug cap to reduce any possibility of it loosening or of water penetration.





Engine Oil and Filter
Drain and replace engine oil often to ensure the greatest service life of the piston, cylinder and crankshaft.
Also replace engine oil filter often to ensure the greatest service life. Frequent changes will also assure consistent performance of power and response (page 44).

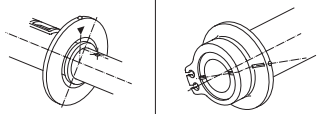
Transmission Oil
Drain and replace transmission oil often to ensure the greatest service life of the transmission and clutch. Frequent changes will also assure consistent performance of both shifting and clutch action (page 47).

Air Cleaner
Clean and oil your air cleaner regularly because the volume of air able to pass through it has a great effect on performance. Both engine performance and long term durability may be affected by an air cleaner that has deteriorated and allows dirt to pass. Inspect the air cleaner closely each time it's serviced for evidence of small tears or seam separation. Keep a spare air cleaner oiled and ready to install, sealed in a plastic bag. Riding in dusty conditions may require servicing the air cleaner or replacing it with a pre-serviced air cleaner between motos. Be careful not to over oil the air cleaner. While it is important to oil the air cleaner thoroughly, over oiling will cause an overall rich running condition, probably more noticeable off idle and in low rpm performance. Follow the servicing instructions in the Maintenance section. Use Pro Honda Foam Filter Oil or an equivalent. Be sure to grease the air cleaner flange where it contacts the air cleaner housing. Pro Honda White Lithium Grease, or an equivalent, is handy for this because any dirt that penetrates this sealing area will show up clearly (page 51).
Use the Honda Genuine air cleaner or an equivalent air cleaner specified for your model.
Using the wrong Honda air cleaner or a non-Honda air cleaner which is not of equivalent quality may cause premature engine wear or performance problems.

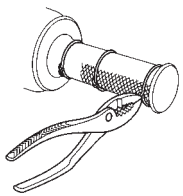
Air Cleaner Housing Sealing
Remove and reseal the air cleaner connecting boot where it connects to the air cleaner housing with Pro Honda Handgrip Cement or equivalent if there is any doubt to its sealing integrity. Inspect the air cleaner and air intake tract regularly for signs of deterioration or dirt penetration.

Handgrips
Always use Pro Honda Handgrip Cement or equivalent when replacing handgrips.

Throttle Grip
Align the index mark on the throttle grip with the edge of the throttle cable guide. Left handlebar grip: Align the "Δ" mark on the left handlebar grip with the paint mark on the handlebar.
Refer to the Honda Service Manual (page 174) for installation instructions.



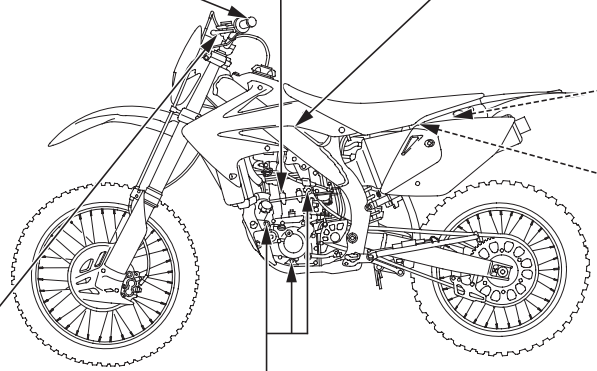
For added security, you may choose to bind the handgrips to the handlebar and throttle pipe with safety wire to prevent the possibility of them loosening. Position the twisted wire ends away from your palms and be sure to bend the wire ends well into the handgrips rubber so they will not snag your glove.



Throttle Control
Remove the throttle control every few rides, clean the inside of the throttle pipe and handlebar thoroughly.
Inspect the cable carefully for kinks or other damage that may restrict throttle control in any way. Move the handlebar from lock to lock to be sure there is no cable interference. Make certain the throttle operation is perfect after servicing and inspecting.

Gaskets
Always use new gaskets when reassembling components.

Cylinder
Put a little grease on the cylinder mounting dowels to prevent corrosion from dissimilar metals. The tolerances are quite tight, so it's important to keep these dowels absolutely clean (page 78).



Engine Mounting Bolts and Nuts
Make sure the engine mounting bolts and nuts are tightened to the proper torque specification. For added peace of mind, remove the nuts, clean the threads, and apply Pro Honda Hondalock or an equivalent prior to torquing the nuts.

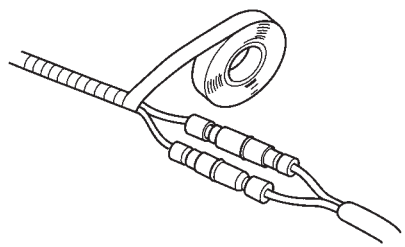
Fuel Filter
Periodically drain the fuel from the fuel tank, remove and clean the fuel valve/filter. Replace the fuel valve O-ring if there are any signs of damage or deterioration (page 42).

Fuel Contamination
Refer to *Fuel System* in your Owner's Manual (page 41).
Check the fuel lines for deterioration, damage, or leakage. Replace the fuel lines, if necessary.
Periodically drain the fuel from the fuel tank, remove and clean the fuel valve/filter. Replace the fuel valve O-ring if there are any signs of damage or deterioration (page 42).
Loosen the carburetor drain screw and examine the fuel that flows out of the float bowl. If you notice anything in the fuel, such as water or dirt, remove the float bowl and inspect its contents (page 137).
For maximum efficiency, drain and replace fuel that has remained in your fuel tank for more than a month.

Fuse
Check the fuse before looking elsewhere for the cause of an electrical problem.

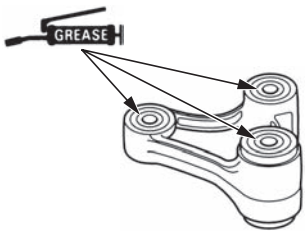
Battery
Electrical accessories use current from the battery – even when the engine is off.
Limited operation also allows the battery to discharge. If you have electrical accessories on your CRF – or do not ride frequently, we recommend that you charge the battery frequently (see *Battery Charging*, page 105).
If you do not expect to ride your CRF for at least 2 weeks, we recommend you remove the battery – or at least disconnect the battery cables (negative cable first).

Electrical Connectors
Clean electrical connectors and wrap them with electrical tape to reduce the possibility of unwanted disconnections, water shorts or corrosion. Additional corrosion protection is offered by using Pro Honda Dielectric Grease on all electrical connections.

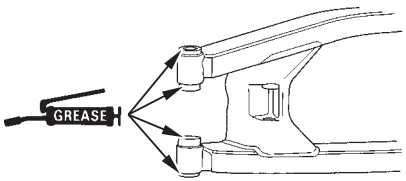


General Competition Maintenance

Suspension Linkage Lubrication
Disassemble, clean, inspect and lubricate all suspension linkage pivot bearings with grease after each 7.5 hours of running time in order to maintain proper suspension performance and minimize component wear.

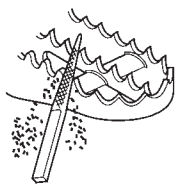


Swingarm Pivot Lubrication
Clean, inspect and lubricate the swingarm and suspension linkage pivots with grease. Be sure all of the dust seals are in good condition.

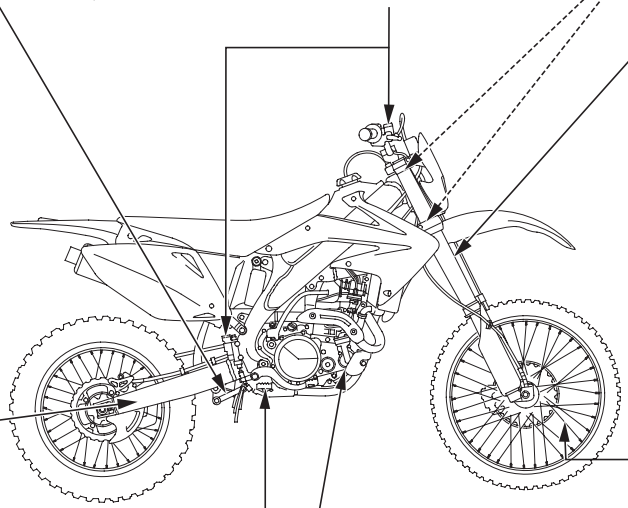


Swingarm
Do not attempt to weld or otherwise repair a damaged swingarm. Welding will weaken the swingarm.

Footpegs
Worn footpeg teeth can be repaired by filing the grooves between the teeth with a triangular shaped file.
Be aware that filing them too sharp will reduce boot sole lifespan. Sharpen only the points of the teeth. Filing the grooves deeper will weaken the footpegs. Be sure the footpegs are free to pivot freely and that the pivot pin retaining cotter pins are in good condition.

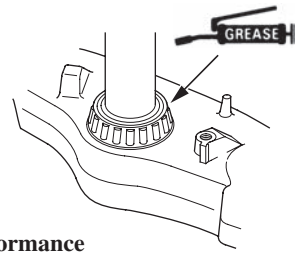


Brake Fluid Replacement
Refer to *Brake Pad Wear* in your Owner's Manual (page 91).
Brake Caliper Inspection: Be sure both the front and rear calipers are able to move freely on the caliper pins and caliper bracket pins.
Check pad thickness periodically and replace the pads when minimum thickness is reached. If the brakes fade when they are hot, inspect the pads for glazing or damage, and replace if necessary.
Brake Fluid Replacement: Refer to the Honda Service Manual (Page 174) for brake fluid replacement instructions. Replace the hydraulic fluid in the brake system every 2 years. Replace the fluid more frequently if you subject your brakes to severe use. Heavy braking heats the brake fluid and it may deteriorate sooner than expected. Any type of riding, that requires frequent use of the brakes, such as in tight woods, can shorten the service life of brake fluid.



Bleed Hole
After every race, check the bleed hole, located just below the water pump cover on the right crankcase cover. Clean away any clogged dirt or sand, if necessary. Check for signs of seal leakage. A small amount of "weeping" from the bleed hole is normal.

Steering Head Bearings
Periodically clean, inspect and regrease the steering head bearings — especially if wet, muddy or extremely dusty courses are encountered often.
Use urea based multi-purpose grease designed for high temperature, high pressure performance (example: EXCELITE EP2 manufactured by KYODO YUSHI, Japan or Shell Stamina EP2 or equivalent)



Fork Oil/Performance
Disassemble, clean and inspect the front fork and replace oil regularly. Contamination due to the tiny metal particles produced from the normal action of the fork, as well as normal oil breakdown, will deteriorate the performance of the suspension. Refer to the Honda Service Manual (page 174). Use only Pro Honda HP Fork Oil 5W or equivalent which contains special additives to assure maximum performance of your CRF's front suspension.

Frame
Because your CRF is a high-performance machine, the frame should not be overlooked as part of your overall competition maintenance program. Periodically inspect the frame closely for possible cracking or other damage. It makes good racing sense.

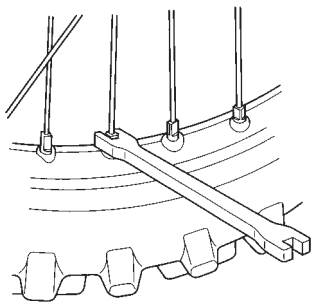
Spokes
Check spoke tension frequently between the first few rides. As the spokes, spoke nuts and rim contact points seat-in, the spokes may need to be retightened. Once past this initial seating-in period, the spokes should hold their tension. Still, be sure your race maintenance program includes checking spoke tension and overall wheel condition on a regular basis (page 92).

Nuts, Bolts, Etc.
Application of a thread locking agent to essential fasteners offers added assurance and security. Remove the nuts, clean the threads of both the nuts and bolts, apply Pro Honda Hondalock or an equivalent and tighten to the specified torque.

Between Motos & Practice Maintenance

After practice or between motos you have a chance to make additional checks and adjustments.

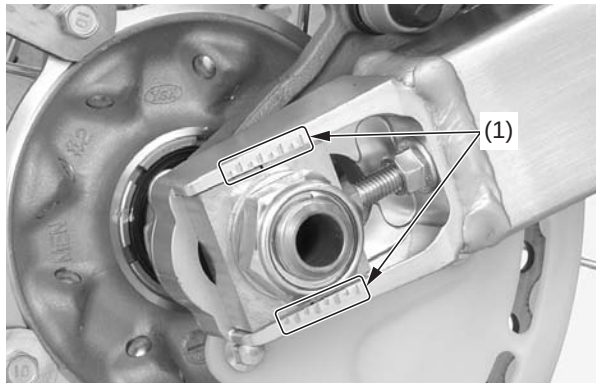
- Clean accumulated dirt from under the fenders and off the wheels, suspension components, handgrips, controls, and footpegs. A stiff, nylon parts cleaning brush works well.
- Check tire air pressure.
- Check spoke tension and rim lock security.



- Check to make sure the sprocket bolts and nuts are secure.
- Clean the sides of the drive chain with a stiff, nylon parts-cleaning brush. Lubricate and adjust the chain as necessary.

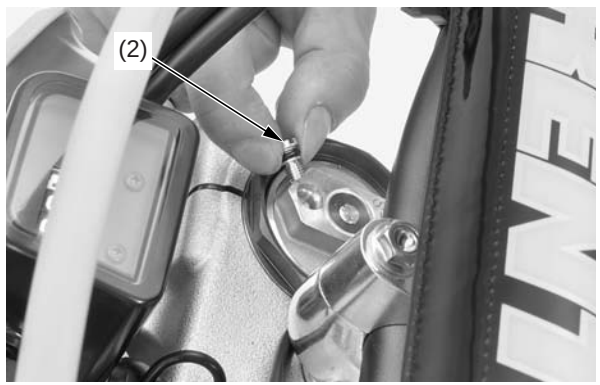
Do not perform maintenance while engine is running. Injury to your fingers or hands may result.

- After adjustment, check that the chain adjuster index marks (1) are in the same position on each side. This will ensure that the rear wheel is in proper alignment and allow maximum performance from the rear disc brake. Maintaining proper wheel alignment will also extend brake pad wear.



(1) chain adjuster index marks

- Suspend the front wheel above the ground and use the fork air pressure release screws (2) to release the built-up pressure (in excess of normal atmospheric pressure: 0 psi (0 kPa, 0 kgf/cm^2)) in the fork tubes. This pressure is caused by normal fork action while riding. (If you are riding at altitude, remember that fork pressure of 0 at sea level will increase as elevation increases.)



(2) fork air pressure release screw

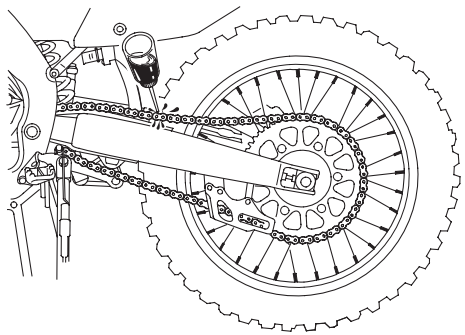
After Competition Maintenance

It is important to the long term performance of your CRF to practice a consistent maintenance program. Right after the event is a good time to begin your next maintenance cycle.

<u>After Race Lubrication</u>
Apply a light coating of rust-inhibiting oil to the drive sprocket and any steel portions of the chassis or engine where the paint has worn away. This will prevent rusting of the exposed metal. Apply rust-inhibiting oil more heavily if the event was particularly wet or muddy. Take care to avoid spraying any oil near the brake pads or the brake disc.

Clean and lubricate the drive chain (page 98). Be sure the chain is wiped clean and is dry before lubricating the chain.

Take care to prevent catching your fingers between the chain and sprocket.



Routine Cleaning

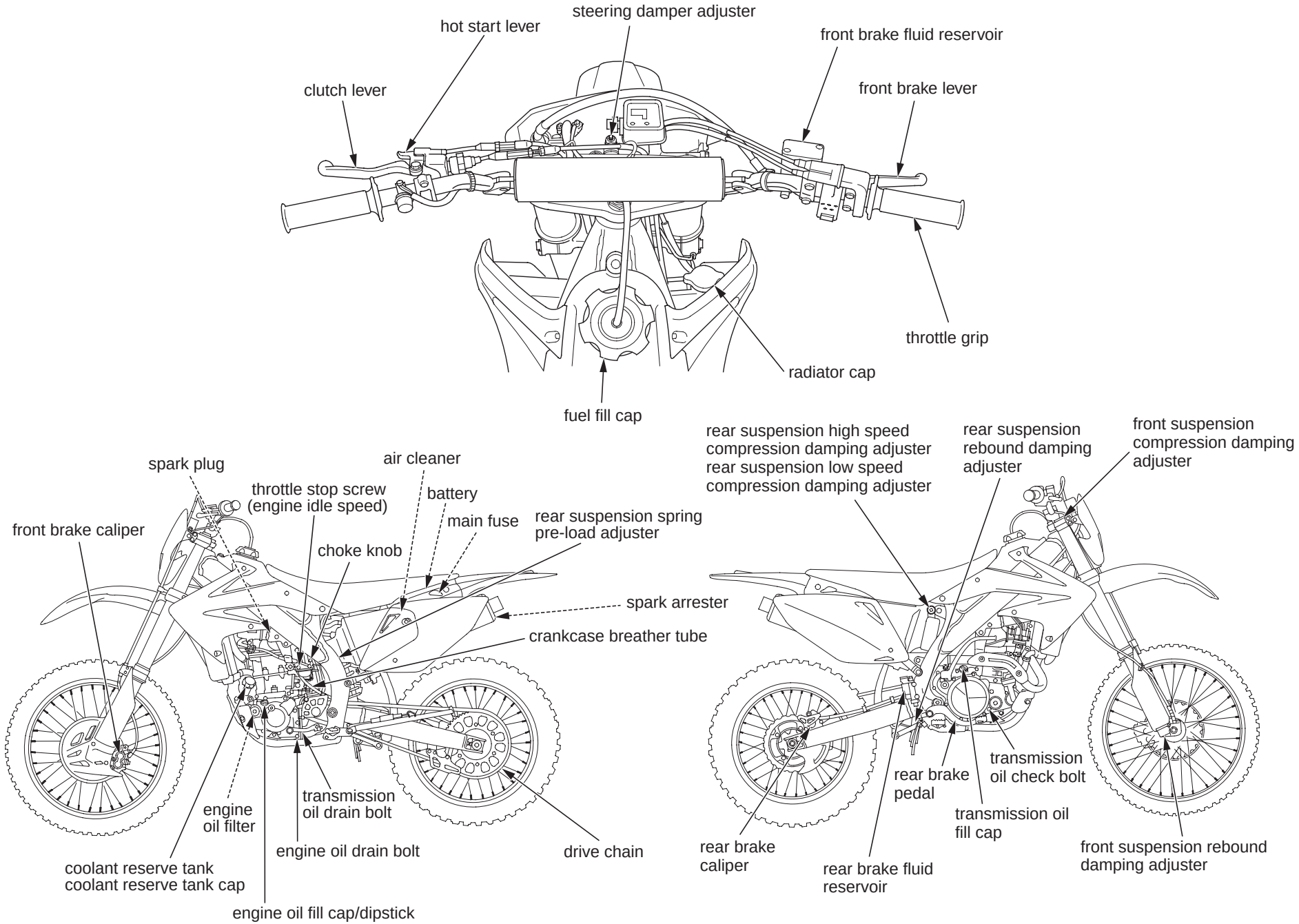
If your CRF is only slightly dirty, it is best to clean it by hand with the aid of a stiff bristled nylon brush and some clean rags.

Take care to prevent catching your fingers between the chain and sprocket.

A variety of reasonably priced cleaning brushes are available from variety, drug, food, and hardware stores. Some of these brushes are extremely useful in removing dirt from the many tight contours of the metal pieces of your CRF. Avoid using stiff, abrasive brushes on the plastic or rubber parts.

If your CRF was exposed to sea air or salt water, rinse it as soon as possible after the event, dry it, and apply a spray lubricant to all metal parts.

If you decide to wash your CRF or use cleaners, refer to *Appearance Care* (page 108).

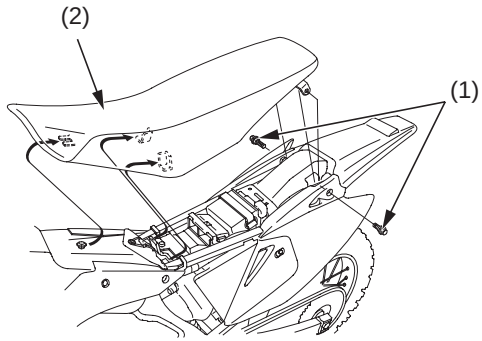

steering damper adjuster
hot start lever
front brake fluid reservoir
clutch lever
front brake lever
throttle grip
radiator cap
fuel fill cap
rear suspension high speed compression damping adjuster
rear suspension low speed compression damping adjuster
rear suspension rebound damping adjuster
front suspension compression damping adjuster
spark plug
air cleaner
throttle stop screw (engine idle speed)
battery
main fuse
front brake caliper
rear suspension spring pre-load adjuster
choke knob
spark arester
crankcase breather tube
transmission oil check bolt
rear brake pedal
transmission oil fill cap
engine oil filter
transmission oil drain bolt
rear brake caliper
front suspension rebound damping adjuster
engine oil drain bolt
drive chain
rear brake fluid reservoir
coolant reserve tank
coolant reserve tank cap
engine oil fill cap/dipstick

Seat

Refer to *Safety Precautions* on page 25.

Removal

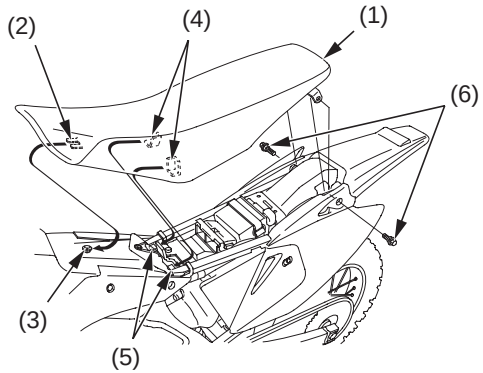
1. Remove the seat mounting bolts (1).
2. Remove the seat (2) by sliding it backward.



(1) seat mounting bolts
(2) seat

Installation

1. Install the seat (1) while aligning the seat front prong (2) with the seat bracket (3) and seat rear prongs (4) with the tabs (5) of the frame.
2. Install and tighten the seat mounting bolts (6) to the specified torque.
   19 lbf·ft (26 N·m, 2.7 kgf·m)

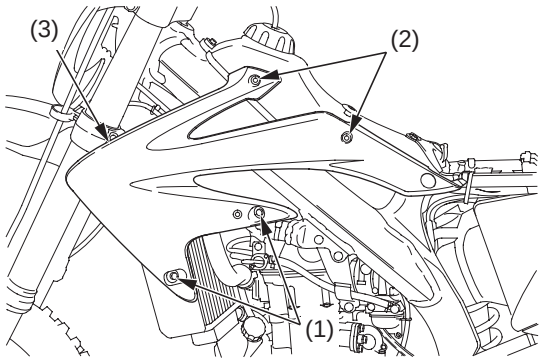


(1) seat
(2) seat front prong
(3) seat bracket
(4) seat rear prongs
(5) tabs
(6) seat mounting bolts

Refer to *Safety Precautions* on page 25.

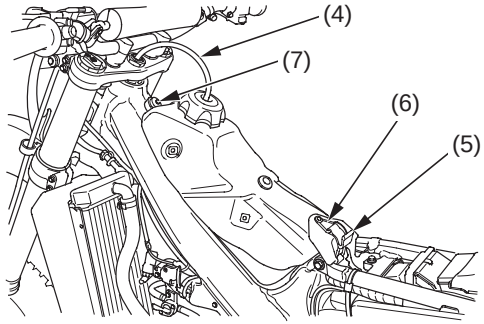
Removal

1. Turn the fuel valve OFF.
2. Remove the seat (page 36).
3. Remove the shroud A bolts/collars (1).
4. Remove the shroud B bolts (2) and shrouds (3).



(1) shroud A bolts/collars
(2) shroud B bolts
(3) shroud

5. Pull the breather tube (4) out of steering stem nut.
6. Unhook and remove the fuel tank band (5).
7. Unhook the air cleaner cover rubber (6).
8. Remove the fuel tank bolt (7).



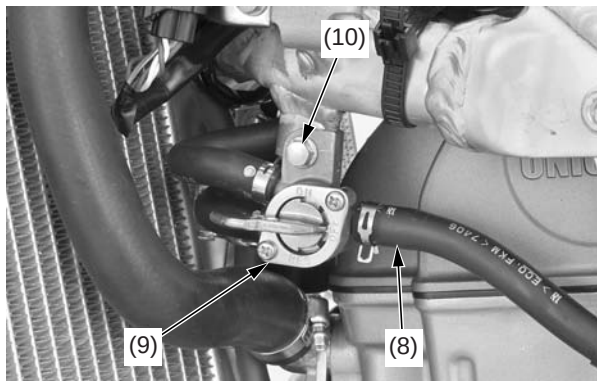
(4) breather tube
(5) fuel tank band
(6) air cleaner cover rubber
(7) fuel tank bolt

9. Disconnect the fuel line (8) from the fuel valve (9). The fuel line leading to the carburetor must be disconnected, not the fuel line leading to the fuel tank.
10. Remove the fuel valve bolt (10) and fuel valve.
11. Remove the fuel tank.

⚠ 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.

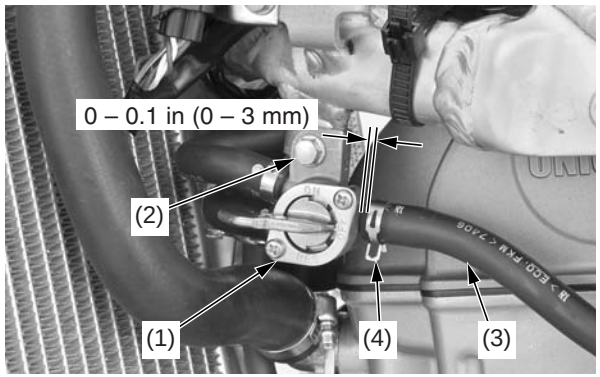


(8) fuel line
(9) fuel valve
(10) fuel valve bolt

Fuel Tank

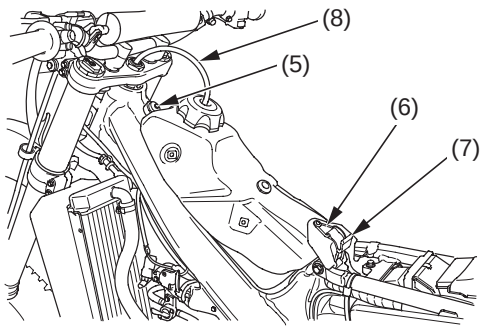
Installation

1. Install the fuel tank on the frame.
2. Install the fuel valve (1) and tighten the fuel valve bolt (2).
3. Connect the fuel line (3) to the fuel valve. Clamp the fuel line clamp (4) as shown.



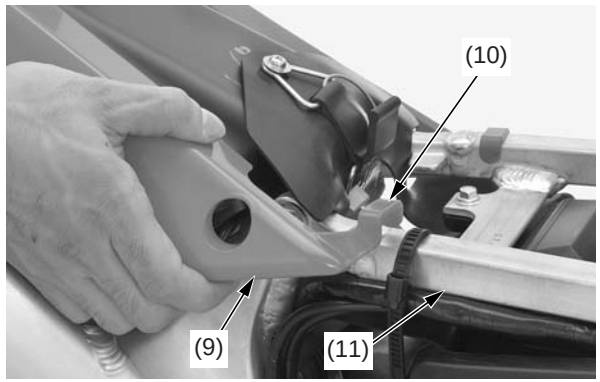
(1) fuel valve
(2) fuel valve bolt
(3) fuel line
(4) fuel line clamp

4. Install and tighten the fuel tank bolt (5).
5. Hook the air cleaner cover rubber (6).
6. Install and hook the fuel tank band (7).
7. Put the breather tube (8) in the steering stem nut.



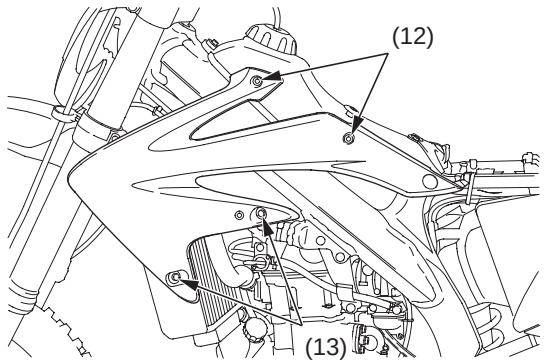
(5) fuel tank bolt
(6) air cleaner cover rubber
(7) fuel tank band
(8) breather tube

8. Install the shrouds (9) by aligning its tab (10) with subframe (11).



(9) shroud
(10) tab
(11) subframe

9. Install the shroud B bolts (12) and shroud A bolts/collars (13).
10. Tighten the shroud B bolts to the specified torque:
    3.7 lbf·ft (5 N·m, 0.5 kgf·m)



(12) shroud B bolts
(13) shroud A bolts/collars

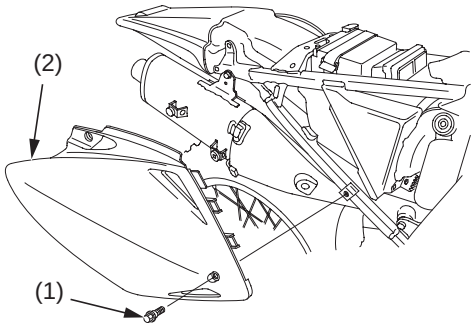
11. Install the seat (page 36).

Refer to *Safety Precautions* on page 25.

The subframe may be adjusted to an upright position to permit servicing of the rear suspension and carburetor.

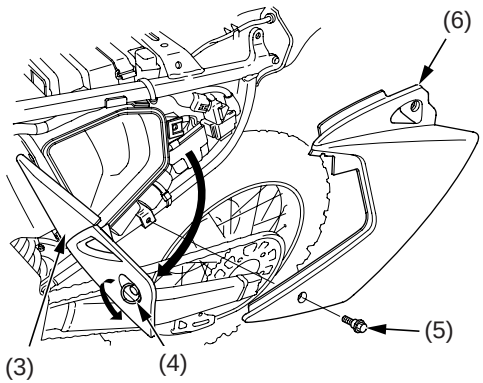
Upright Position

1. Remove the seat (page 36).
2. Remove the right side cover bolt (1) and right side cover (2).



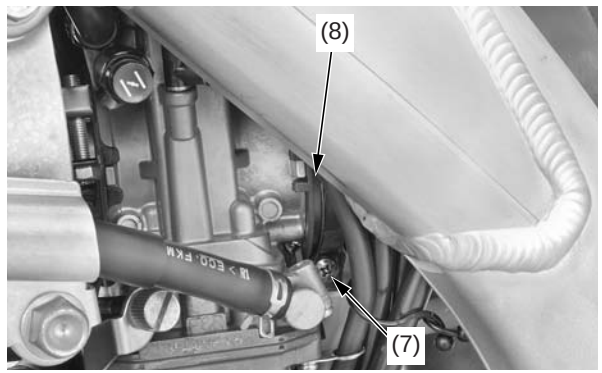
(1) right side cover bolt
(2) right side cover

3. Open the air cleaner housing cover (3) by turning the quick fastener (4) counterclockwise and remove the left side cover bolt (5) and left side cover (6).



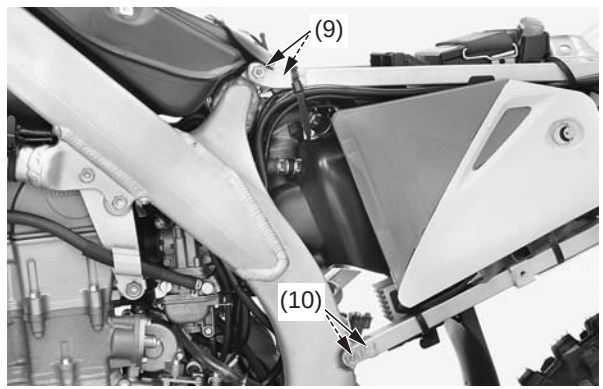
(3) air cleaner housing cover
(4) quick fastener
(5) left side cover bolt
(6) left side cover

4. Remove the muffler (page 62).
5. Loosen the screw (7) on the air cleaner connecting boot clamp (8).



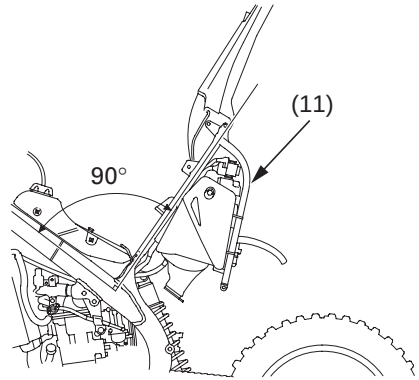
(7) screw
(8) air cleaner connecting boot clamp

6. Loosen the subframe upper mounting bolts (9) and remove the subframe lower mounting bolts (10).



(9) subframe upper mounting bolts
(10) subframe lower mounting bolts

7. Lift the subframe (11) as shown.
   Tighten the subframe upper mounting bolts to the specified torque:
   36 lbf·ft (49 N·m, 5.0 kgf·m)

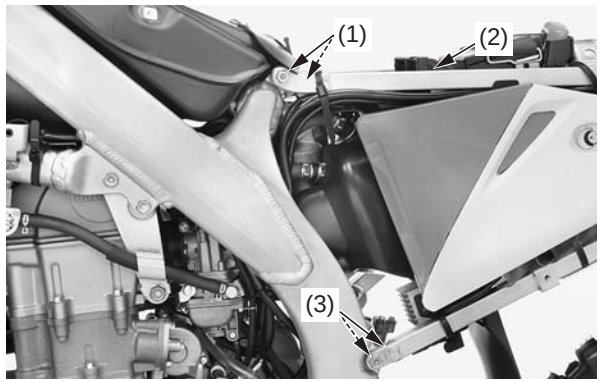


(11) subframe

Subframe Upright Position

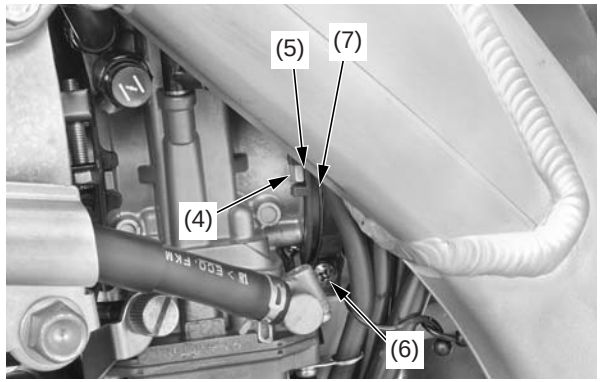
Installation

1. Loosen the subframe upper mounting bolts (1).
2. Loosely attach the lower ends of the subframe (2) to the mainframe while connecting the air cleaner connecting boot to the carburetor. Be careful not to bend the subframe. Install the subframe lower mounting bolts (3).
   Tighten the subframe upper mounting bolts first, then tighten the subframe lower mounting bolts to the specified torque:
   36 lbf·ft (49 N·m, 5.0 kgf·m)



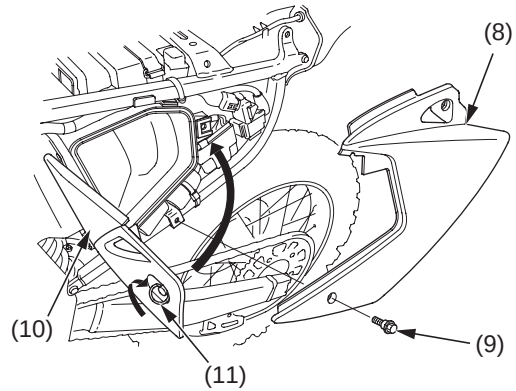
(1) subframe upper mounting bolts
(2) subframe
(3) subframe lower mounting bolts

3. Make sure the carburetor lug (4) aligns with the air cleaner connecting tube slot (5).
4. Tighten the screw (6) on the air cleaner connecting boot clamp (7).



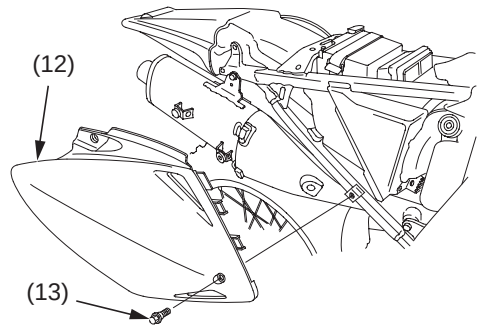
(4) carburetor lug
(5) air cleaner connecting tube slot
(6) screw
(7) air cleaner connecting boot clamp

5. Install the muffler (page 63).
6. Install the left side cover (8) and left side cover bolt (9). Close the air cleaner housing cover (10) and turn the quick fastener (11) clockwise.



(8) left side cover
(9) left side cover bolt
(10) air cleaner housing cover
(11) quick fastener

7. Install the right side cover (12) and right side cover bolt (13).



(12) right side cover
(13) right side cover bolt

8. Install the seat (page 36).

Refer to *Safety Precautions* on page 25.

Fuel Recommendation

Type	Unleaded
Pump Octane Number	91 (or higher)

Use only unleaded fuel in your Honda. If you ride your Honda in a country where leaded fuel might be available, take precautions to use only unleaded fuel.

Your engine is designed to use any unleaded 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 166.

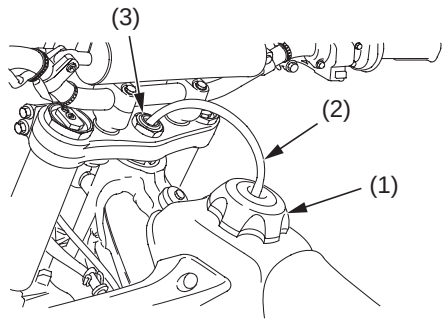
Use of lower octane gasoline can cause persistent "pinging" or "spark knock" (a louder rapping noise) which, if severe, can lead to engine damage. (Light pinging experienced while operating under a heavy load, such as climbing a hill, is no cause for concern.)

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 dealer.

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

Refueling Procedure

Fuel Tank Capacity: 1.90 US gal (7.2 ℓ)



(1) fuel fill cap
(2) breather tube
(3) steering stem nut

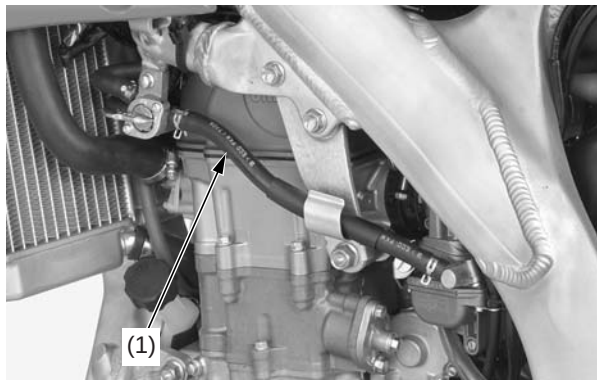
1. To open the fuel fill cap (1), pull the breather tube (2) out of the steering stem nut (3). Turn the fuel fill cap counterclockwise and remove it.
2. Add fuel until the level reaches the bottom of the filler neck. Avoid overfilling the tank. There should be no fuel in the filler neck.
3. Close the fuel fill cap by turning the cap clockwise and insert the breather tube in the steering stem nut.

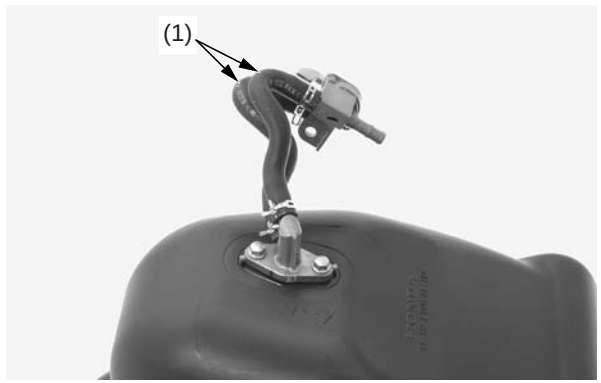
⚠ WARNING

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.

Fuel Line





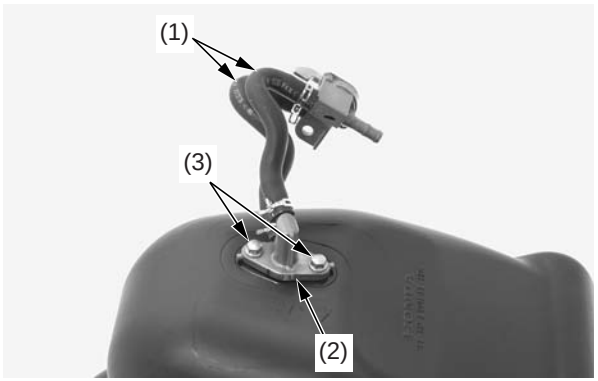
(1) fuel line

1. Check for leaks.
2. Check the fuel line (1) for cracks, deterioration, damage, or leakage. Replace the fuel line, if necessary.
3. Check for interference between the frame and tank and adjust if necessary.

Fuel Filter

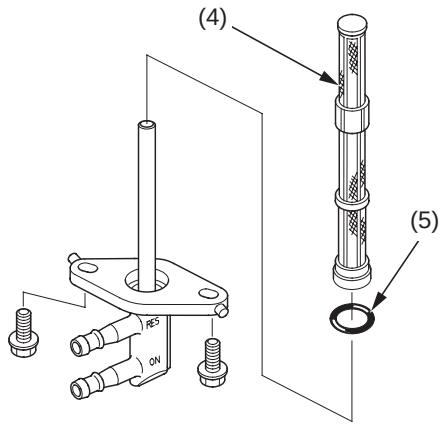
The fuel filter is mounted on the bottom left side of the fuel tank. Dirt accumulated in the filter will restrict the flow of the fuel to the carburetor. Therefore, the fuel filter should be serviced frequently.

To service the fuel filter:
1. Remove the fuel tank (page 37).
2. Drain the fuel from the fuel tank into an approved gasoline container. Disconnect the fuel valve and fuel lines (1).
3. Remove the fuel joint (2) from the fuel tank by removing the bolts (3).



(1) fuel valve and fuel lines
(2) fuel joint
(3) bolts

4. Wash the fuel filter (4) in high flash-point cleaning solvent.
5. Check that the O-ring (5) is in good condition.
6. Install the fuel joint in the fuel tank by tightening the bolts to the specified torque:
   7 lbf·ft (10 N·m, 1.0 kgf·m)
   Attach the fuel valve and fuel lines.
7. Install the fuel tank (page 38). Refill the fuel tank and turn the fuel valve to ON or RES; check for fuel leaks.



(4) fuel filter
(5) O-ring

Refer to *Safety Precautions* on page 25.

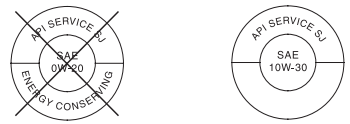
Using the proper oil, and regularly checking, adding, and changing oil will help extend the service life of the engine. Even the best oil wears out. Changing oil helps get rid of dirt and deposits. Operating the engine with old or dirty oil can damage your engine. Running the engine with insufficient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

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, or an equivalent motorcycle oil*

* Suggested 4-stroke engine oils are equal performance to SJ oils that are not labeled as energy conserving on the circular API service label.

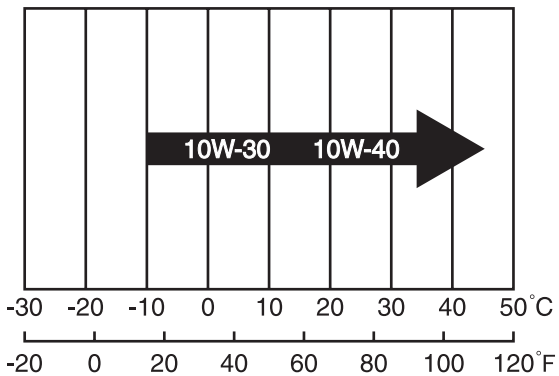
- Your CRF does not need oil additives. Use the recommended oil.
- Do not use API SH or higher 4-stroke engine oils displaying a circular API “energy conserving” service label on the container. They may affect lubrication.



NOT RECOMMENDED OK

- Oil is a major factor affecting the performance and service life of the engine.

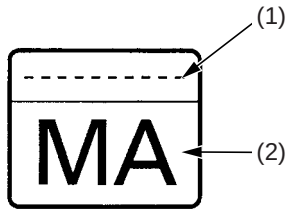
Other viscosities shown in the following chart may be used when the average temperature in your riding area is within the indicated range.



Engine Oil

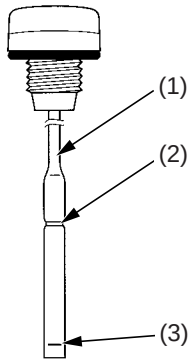
JASO T 903 standard

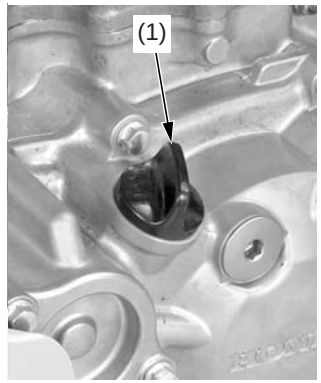
The JASO T 903 standard is an index for engine oils for 4-stroke motorcycle engines.
There are two classes: MA and MB.
Oil conforming to the standard is labeled on the oil container.
For example, the following label shows the MA classification.



(1) oil code
(2) oil classification

Checking & Adding Oil





(1) engine oil fill cap/dipstick
(2) upper level mark
(3) lower level mark

1. Run the engine at idle for 3 minutes, then shut it off.
2. Wait 3 minutes after shutting off the engine to allow the oil to properly distribute itself in the engine.
3. Support the CRF in an upright position on a level surface.
4. Remove the engine oil fill cap/dipstick (1), wipe it clean, and insert the engine oil fill cap/dipstick without screwing it in. Remove the engine oil fill cap/dipstick.
5. Check that the oil level is between the upper (2) and lower (3) level marks on the engine oil fill cap/dipstick.
   - 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, add the recommended oil until the upper level mark. (Do not overfill) Reinstall the engine oil fill cap/dipstick. Repeat steps 1 – 5.
6. Install the engine oil fill cap/dipstick securely.
7. Check for oil leaks.

Changing Engine Oil & Filter

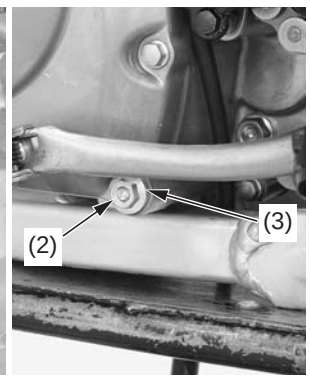
1. Run the engine at idle for 3 minutes, then shut it off.
2. Support the CRF in an upright position on a level surface.
3. Remove the engine oil fill cap/dipstick (1) from the left crankcase cover.
4. Place an oil drain pan under the engine to catch the oil. Then remove the engine oil drain bolt (2) and sealing washer (3).
5. After the oil has drained, apply engine oil to the drain bolt threads and tighten it with a new sealing washer to the specified torque:
   12 lbf·ft (16 N·m, 1.6 kgf·m)

Pour the drained oil into a suitable container and dispose of it in an approved manner (page 151).

NOTICE

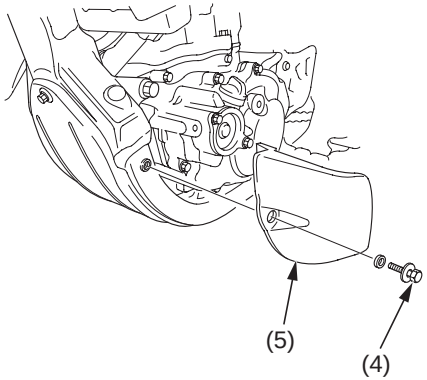
Improper disposal of drained fluids is harmful to the environment.





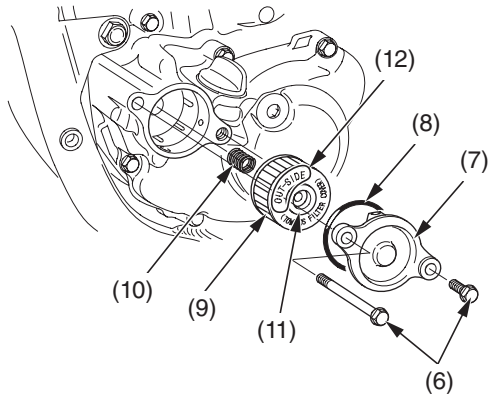
(1) engine oil fill cap/dipstick
(2) engine oil drain bolt
(3) sealing washer

6. It is recommended to replace the oil and filter every 15.0 hours. However, if you replace only the oil before the recommended interval, see pages 27, 28.
7. Remove the left engine guard bolt (4) and left engine guard (5).



(4) left engine guard bolt
(5) left engine guard

8. Remove the oil filter cover bolts (6), oil filter cover (7) and O-ring (8).
9. Remove the oil filter (9) and spring (10) from the filter cover.
10. Apply grease to the filter side of the spring end, then install the spring into a new oil filter.



(6) oil filter cover bolts
(7) oil filter cover
(8) oil filter cover O-ring
(9) oil filter
(10) spring
(11) rubber seal
(12) "OUT-SIDE" mark

NOTICE

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

11. Position the spring against the engine crankcase and install a new oil filter with the rubber seal (11) facing out, away from the engine. You should see the "OUT-SIDE" mark (12) on the filter body, near the seal. Use a new Honda Genuine oil filter or a filter of equal quality specified for your model.

NOTICE

If the oil filter is not installed properly, it will cause serious engine damage.

12. Apply engine oil to a new O-ring and install it to the oil filter cover.
13. Install the oil filter cover being careful not to damage the O-ring, then tighten the oil filter cover bolts to the specified torque:
    7 lbf·ft (10 N·m, 1.0 kgf·m)
14. Install the left engine guard and tighten the left engine guard bolt.
15. Fill the crankcase with the recommended oil.
    Capacity: 0.74 US qt (0.70 ℓ)
    after draining and filter change
    0.71 US qt (0.67 ℓ)
    after draining
16. Install the engine oil fill cap/dipstick.
17. Check the engine oil level by following the steps in *Checking & Adding Oil* (page 44).

Pour the drained oil into a suitable container and dispose of it in an approved manner (page 151).

NOTICE

Improper disposal of drained fluids is harmful to the environment.

Transmission Oil

Refer to *Safety Precautions* on page 25.

Using the proper oil, and regularly checking, adding, and changing oil will help extend the service life of the transmission and clutch. Even the best oil wears out. Changing oil helps get rid of dirt and deposits. 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.

Oil Recommendation

API classification (4-stroke engine oil only)	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
others	without friction modifiers such as molybdenum additives
suggested oil*	Pro Honda GN4 4-stroke oil (USA & Canada), or Honda 4-stroke oil, or an equivalent motorcycle oil*

* Suggested 4-stroke engine oils are equal performance to SJ oils that are not labeled as energy conserving on the circular API service label.

- Your CRF 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 4-stroke engine oils displaying a circular API “energy conserving” service label on the container. They may affect lubrication and clutch performance.



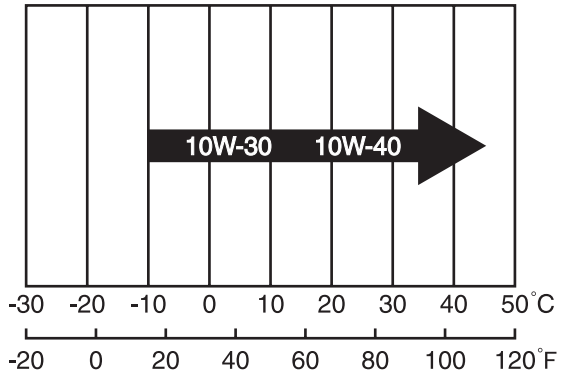
NOT RECOMMENDED



OK

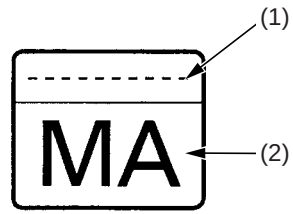
- Oil is a major factor affecting the performance and service life of the transmission and clutch.

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



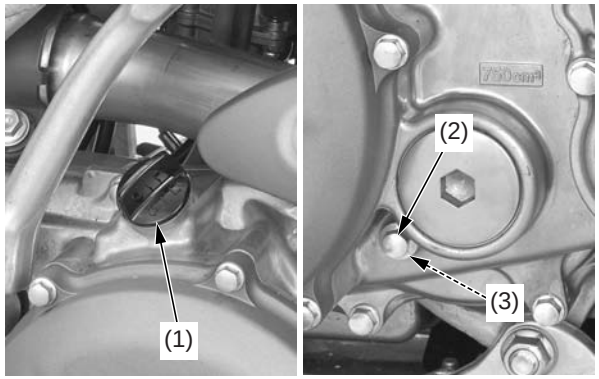
JASO T 903 standard

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.



(1) oil code
(2) oil classification

Checking & Adding Oil

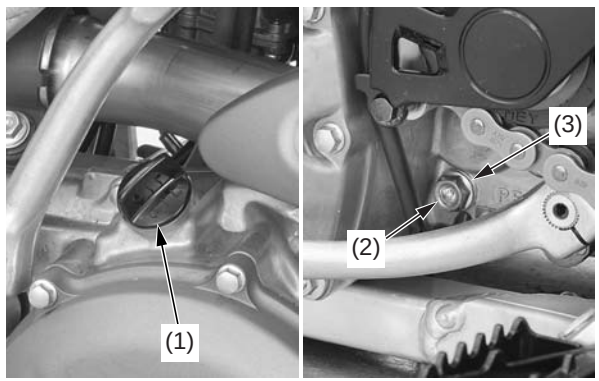


(1) transmission oil fill cap
(2) oil check bolt
(3) sealing washer

1. Run the engine at idle for 3 minutes, then shut it off.
2. Wait 3 minutes after shutting off the engine to allow the oil to properly distribute itself in the clutch and transmission.
3. Support the CRF in an upright position on a level surface.
4. Remove the transmission oil fill cap (1), oil check bolt (2) and sealing washer (3) from the right crankcase cover. A small amount of oil should flow out of the oil check bolt hole. Allow any excess oil to flow out of the oil check bolt hole. If no oil flows out of the oil check bolt hole, add oil slowly through the transmission oil fill hole until oil start to flow out of the oil check bolt hole.
   Install the oil check bolt with a new sealing washer and transmission oil fill cap. Repeat step 1 – 4.
5. After checking the oil level or adding oil, install the oil check bolt with a new sealing washer. Tighten the oil check bolt to the specified torque:
   7 lbf·ft (10 N·m, 1.0 kgf·m)
6. Install the transmission oil fill cap securely.

Replacing Transmission Oil

1. Run the engine at idle for 3 minutes, then shut it off.
2. Support the CRF in an upright position on a level surface.
3. Remove the transmission oil fill cap (1) from the right crankcase cover.
4. Place an oil drain pan under the engine to catch the oil. Then remove the transmission oil drain bolt (2) and sealing washer (3).
5. After the oil has drained, apply engine oil to the drain bolt threads and tighten it with a new sealing washer to the specified torque:
   12 lbf·ft (16 N·m, 1.6 kgf·m)



(1) transmission oil fill cap
(2) transmission oil drain bolt
(3) sealing washer

6. Fill the crankcase with recommended oil. Capacity: 0.69 US qt (0.65 ℓ) after draining.
7. Check the transmission oil level by following the steps in *Checking & Adding Oil* (this page).

Pour the drained oil into a suitable container and dispose of it in an approved manner (page 151).

NOTICE

Improper disposal of drained fluids is harmful to the environment.

Coolant

Your CRF'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 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.

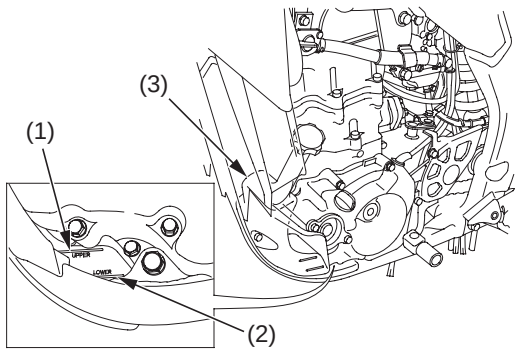
Decreasing the concentration of antifreeze to less than 40% will not provide proper corrosion protection.

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.

Checking & Adding Coolant

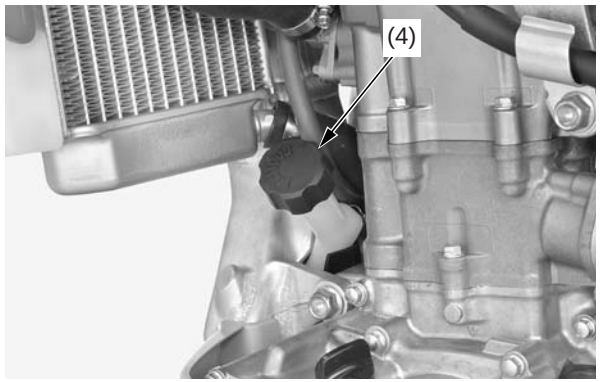
Refer to *Safety Precautions* on page 25.

1. With the engine at normal operating temperature, check the coolant level in the reserve tank. It should be between the UPPER (1) and LOWER (2) level marks. If the reserve tank (3) is empty, or if coolant loss is excessive, check for leaks and see your dealer for repair.



(1) UPPER level mark
(2) LOWER level mark
(3) reserve tank

2. Remove the reserve tank cap (4). Always add coolant to the reserve tank. Do not attempt to add coolant by removing the radiator cap.

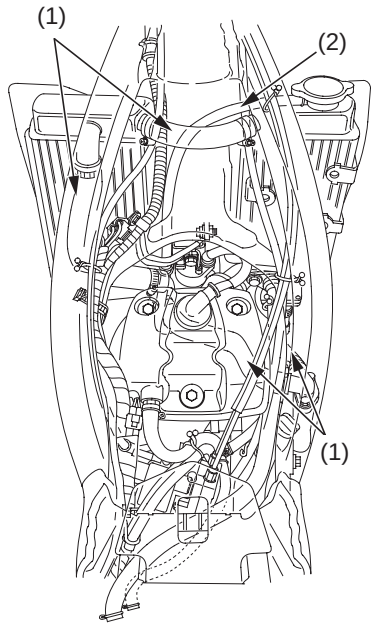


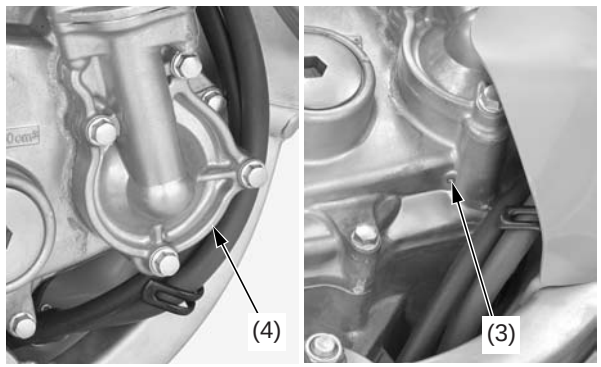
(4) reserve tank cap

3. Add coolant to the reserve tank as require to bring the coolant level to the UPPER level mark.
4. Install the reserve tank cap.

Cooling System Inspection

1. Check the cooling system for leaks (see the Honda Service Manual for troubleshooting of leaks).
2. Check the water hoses (1) for cracks, deterioration, and radiator hose clamp for looseness.
3. Check the radiator mount for looseness.
4. Make sure the siphon hose (2) is connected and not clogged.
5. Check the radiator fins for clogging.
6. Check the bleed hole (3) below the water pump cover (4) for leakage. Check for signs of seal leakage. A small amount of "weeping" from the bleed hole is normal. See the Honda Service Manual or consult your dealer for replacing the water seal or the oil seal. Both seals should be replaced at the same time.





(1) water hoses
(2) siphon hose
(3) bleed hole
(4) water pump cover

Coolant Replacement

Refer to *Safety Precautions* on page 25.

Coolant should be replaced by your dealer, unless you have the proper tools and service data and are mechanically qualified. Refer to the Honda Service Manual (page 174).

⚠ 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.

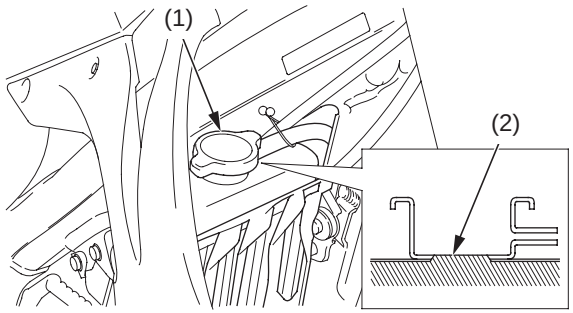
To properly dispose of drained coolant, refer to *You & the Environment, page* 151.

NOTICE

Improper disposal of drained fluids is harmful to the environment.

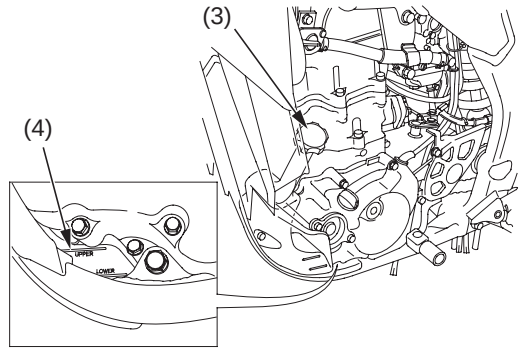
Cooling System Bleed Air

1. Remove the radiator cap (1).
2. Fill the system with the recommended coolant through the filler opening up to filler neck (2). Use a fresh recommended coolant mixture (page 48).
   Capacity: 1.28 US qt (1.21 ℓ)



(1) radiator cap
(2) filler neck

3. Remove the reserve tank cap (3) and fill the reserve tank to the UPPER level line (4).



(3) reserve tank cap
(4) UPPER level line

4. Bleed air from the system as follows:
   - Shift the transmission into neutral. Start the engine and let it idle 2 – 3 minutes.
   - Snap the throttle three – four times to bleed air from the system.
   - Stop the engine and, if necessary, add coolant up to the proper level. Reinstall the radiator cap.
   - Check the level of coolant in the reserve tank and fill to the UPPER level if it is low.

NOTICE

If the radiator cap is not installed properly, it will cause excessive coolant loss and may result in overheating and engine damage.

5. Install the reserve tank cap.

Refer to *Safety Precautions* on page 25.

The air cleaner uses polyurethane inner and outer pieces which can't be separated.
A dirty air cleaner will reduce engine power.

Proper air cleaner maintenance is very important for off-road vehicles. A dirty, water-soaked, worn-out, or defective air cleaner will allow dirt, dust, mud, and other impurities to pass into the engine.

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

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

NOTICE

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

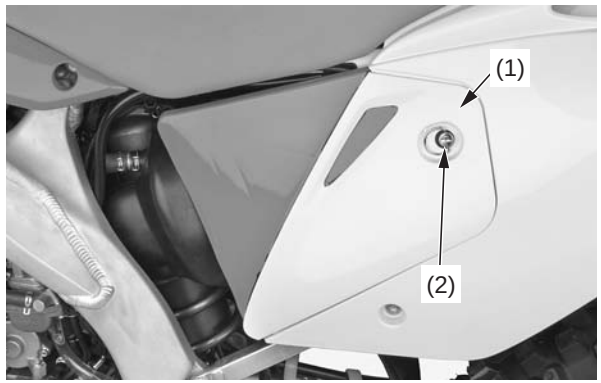
Proper air cleaner maintenance can prevent premature engine wear or damage, expensive repairs, low engine power, poor gas mileage, and spark plug fouling.

NOTICE

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

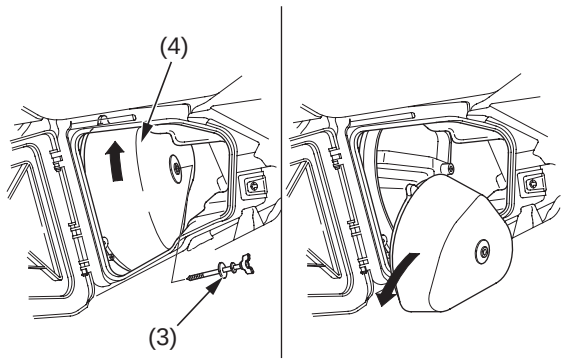
Cleaning

1. Open the air cleaner housing cover (1) by turning the quick fastener (2) counterclockwise.



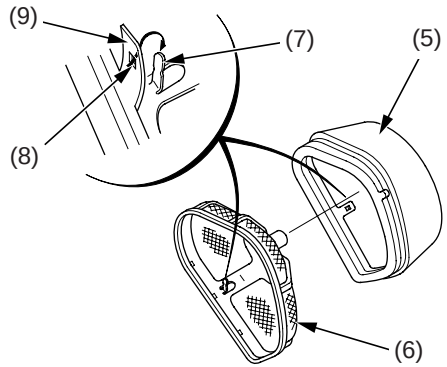
(1) air cleaner housing cover
(2) quick fastener

2. Remove the air cleaner element retaining bolt (3).
3. Remove the air cleaner element assembly (4) while turning it as shown.



(3) air cleaner element retaining bolt
(4) air cleaner element assembly

4. Remove the air cleaner element (5) from the air cleaner holder (6).

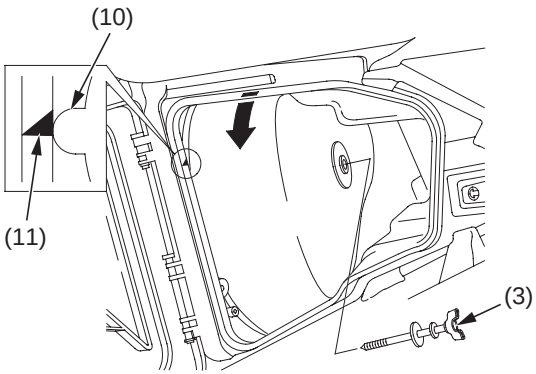


(5) air cleaner element
(6) air cleaner holder
(7) tab
(8) hole
(9) air cleaner element tab

5. Wash the air cleaner element in clean non-flammable cleaning solvent. Then wash in hot, soapy water, rinse well, and allow to dry thoroughly.
   The air cleaner element is made in two pieces: inner and outer, which cannot be separated.
6. Clean the inside of the air cleaner housing.
7. Allow the air cleaner element to dry thoroughly. After drying, soak the air cleaner element in clean Pro Honda Foam Filter Oil or an equivalent air cleaner oil.
   Apply air cleaner oil to the entire surface of the air cleaner element and rub it with both hands to saturate the air cleaner element with oil. Squeeze out excess oil.

(cont'd)

8. Assemble the air cleaner element and holder. Install the tab (7) of the holder in the hole (8) of the air cleaner element tab (9).
9. Apply 0.05 – 0.19 oz (1.5 – 5.5 g) of Pro Honda White Lithium Grease or equivalent to the air cleaner housing contact area of the air cleaner element.
10. Install the air cleaner element assembly into the air cleaner housing.
11. Carefully position the sealing flange of the element to prevent dirt intrusion.
    Align the access tab (10) of the air cleaner element holder with the "Δ" mark (11) of the air cleaner housing by rotating the air cleaner element assembly counterclockwise. Install and tighten the air cleaner element retaining bolt (3) securely.



(3) air cleaner element retaining bolt
(10) access tab
(11) "Δ" mark

NOTICE

Improper installation of the air cleaner element assembly may allow dirt and dust to enter the engine and cause rapid wear of the piston rings and cylinder.

12. Close the air cleaner housing cover (1) and turn the quick fastener (2) clockwise.



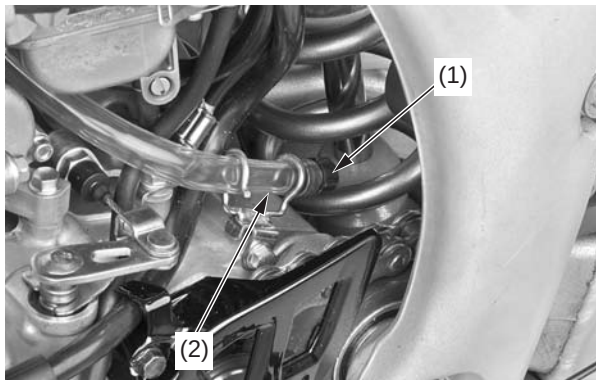
(1) air cleaner housing cover
(2) quick fastener

Refer to *Safety Precautions* on page 25.

Service more frequently if your CRF is ridden in the rain or often at full throttle.
Service the breather if you can see deposits in the transparent section of the drain tube.

Draining

1. Remove the crankcase breather tube plug (1) from the tube (2) and drain the deposits into a suitable container.
2. Reinstall the crankcase breather tube plug.

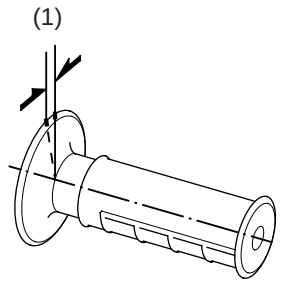


(1) crankcase breather tube plug
(2) tube

Throttle

Refer to *Safety Precautions* on page 25.

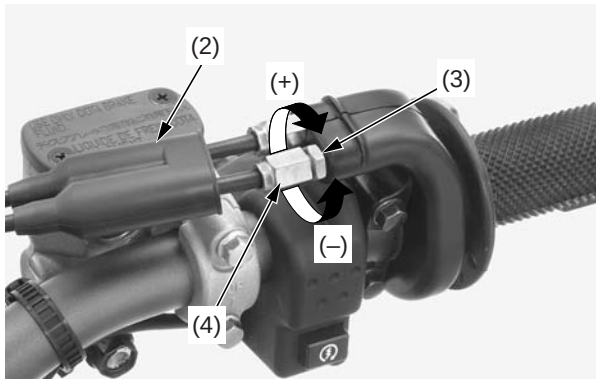
Throttle Freeplay



(1) freeplay

Inspection
Check freeplay (1).
Freeplay: 1/8 – 3/16 in (3 – 5 mm)
If necessary, adjust to the specified range.

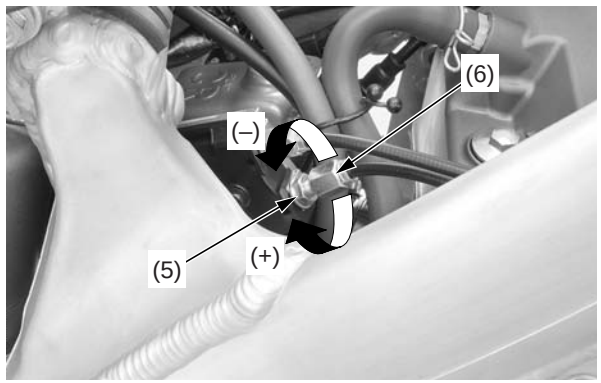
Upper Adjustment
Minor adjustments are generally made with the upper adjuster.



(2) dust cover
(3) upper lock nut
(4) upper adjuster
(+) increase
(–) decrease

1. Pull the dust cover (2) back.
2. Loosen the upper lock nut (3).
3. Turn the upper adjuster (4).
   Turning the adjuster in direction (–) will decrease freeplay and turning it in direction (+) will increase freeplay.
4. Tighten the lock nut to the specified torque:
   3.0 lbf·ft (4 N·m, 0.4 kgf·m)
   Return the dust cover to its normal position.
5. After adjustment, check for smooth rotation of the throttle grip from fully closed to fully open in all steering positions.
   If the adjuster is threaded out near its limit or the correct freeplay cannot be reached, turn the adjuster all the way in and back out one turn.
   Tighten the lock nut to the specified torque:
   3.0 lbf·ft (4 N·m, 0.4 kgf·m)
   Return the dust cover and make the adjustment with the lower adjuster.

Lower Adjustment
The lower adjuster is used for major freeplay adjustment, such as after replacing the throttle cables or removing the carburetor. It is also used if you can not get the proper adjustment with the upper adjuster.

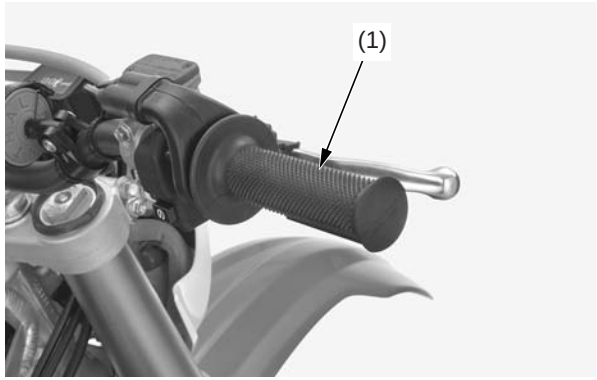


(5) lower lock nut
(6) lower adjuster
(+) increase
(–) decrease

1. Remove the seat and fuel tank (pages 36, 37).
2. Loosen the lower lock nut (5).
3. Turn the lower adjuster (6) in direction (–) to decrease freeplay, and in direction (+) to increase freeplay.
4. Tighten the lock nut to the specified torque:
   3.0 lbf·ft (4 N·m, 0.4 kgf·m)
   Operate the throttle grip to ensure that it functions smoothly and returns completely.
5. Install the fuel tank and seat (pages 36, 38).

If you can't get the freeplay within the specified range, see your dealer.

Throttle Inspection



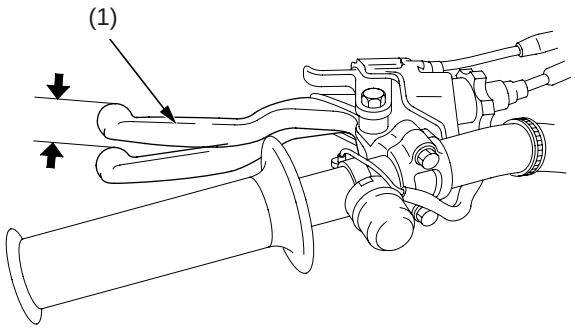
(1) throttle

1. Check that the throttle assembly is positioned properly and the securing bolts are tight.
2. Check for smooth rotation of the throttle (1) from fully open to fully closed in all steering positions. If there is a problem, see your dealer.
3. Inspect the condition of the throttle cables from the throttle grip down to the carburetor. If the cable is kinked or chafed, have it replaced.
4. Check the cables for tension or stress in all steering positions.
5. Lubricate the cables with a commercially available cable lubricant to prevent premature rust and corrosion.

Clutch System

Refer to *Safety Precautions* on page 25.

Clutch Lever Freeplay



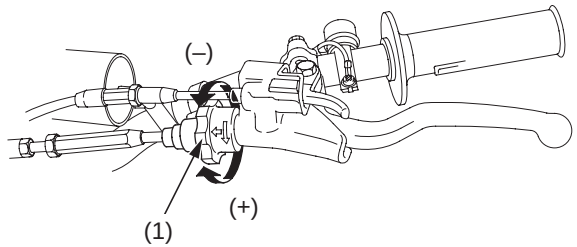
(1) clutch lever

Inspection
Check freeplay.
Freeplay: 3/8 – 13/16 in (10 – 20 mm)

If necessary, adjust to the specified range. Improper freeplay adjustment can cause premature clutch wear.

Make sure to adjust the clutch lever (1) freeplay after the clutch cable is disconnected.

Cable End Adjustment
Minor adjustments are generally made with the clutch cable end adjuster.

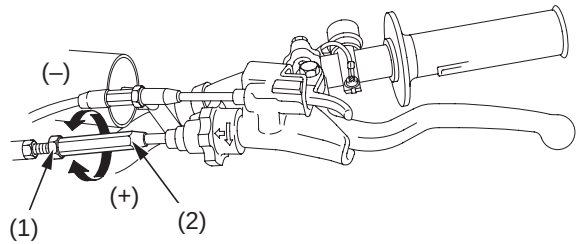


(1) cable end adjuster
(+) increase freeplay
(–) decrease freeplay

Turning the cable end adjuster (1) in direction (+) will increase freeplay and turning it in direction (–) will decrease freeplay.

If the adjuster is threaded out near its limit or the correct freeplay cannot be reached, turn the adjuster all the way in and back out one turn and make the adjustment with the integral cable adjuster.

Integral Cable Adjustment
The integral cable adjuster is used if the cable end adjuster is threaded out near its limit or the correct freeplay cannot be obtained.



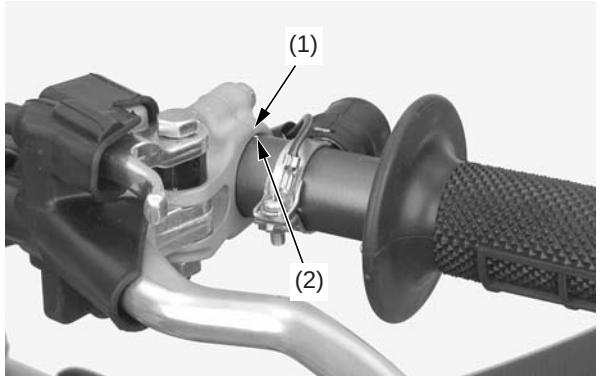
(1) lock nut
(2) integral cable adjuster
(+) increase
(–) decrease

1. Turn the cable end adjuster in direction (+) until it seats lightly and then turn it out five turns.
2. Loosen the lock nut (1).
3. Turn the integral cable adjuster (2) to obtain the specified freeplay.
4. Tighten the lock nut. Check the freeplay.
5. Start the engine, pull the clutch lever in, and shift into gear. Make sure the engine does not stall and the motorcycle does not creep. Gradually release the clutch lever and open the throttle. Your CRF should move smoothly and accelerate gradually.

If you can't get proper adjustment, or the clutch does not work properly, the cable may be kinked or worn, or the clutch discs may be worn. Inspect the clutch discs and plates (page 58).

Other Inspections & Lubrication

- Check that the clutch lever assembly is positioned properly (the end of the holder (1) is aligned with the paint mark (2) on the handlebar) and the securing bolts are tight.



(1) holder
(2) paint mark

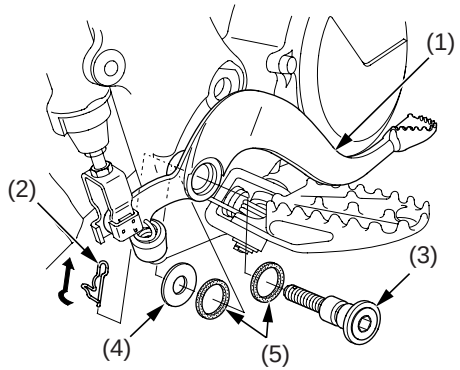
- Check the clutch cable for kinks or signs of wear. If necessary, have it replaced.
- Lubricate the clutch cable with a commercially-available cable lubricant to prevent premature wear and corrosion.

Clutch Operation

1. Check for smooth clutch lever operation. If necessary, lubricate the clutch lever pivot or clutch cable.
2. Check the clutch cable for deterioration, kinks, or damage.

Clutch Cover/Disc/Plate Removal

1. Drain the transmission oil (page 47).
2. Remove the rear brake pedal (1) by removing the pin (2), pivot bolt (3), washer (4) and dust seals (5).



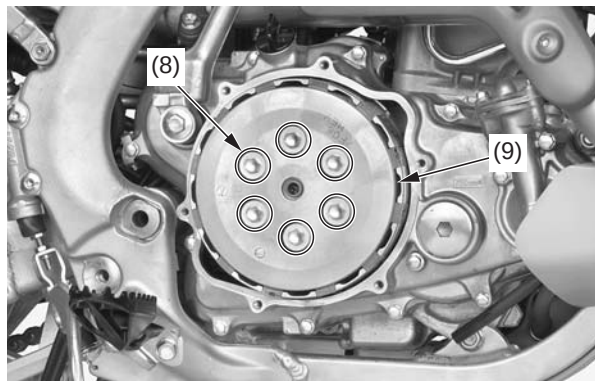
(1) rear brake pedal
(2) pin
(3) pivot bolt
(4) washer
(5) dust seals

3. Remove the six clutch cover bolts (6) and clutch cover (7).



(6) clutch cover bolts
(7) clutch cover

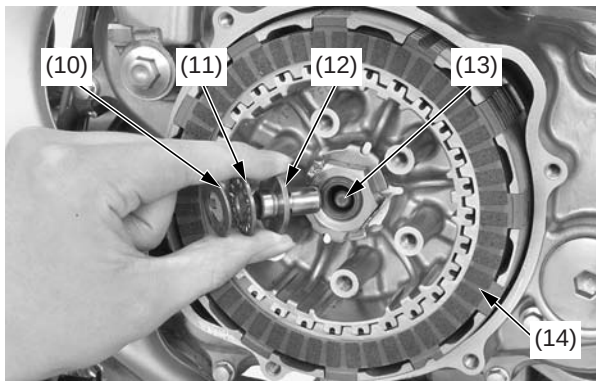
4. Remove the six clutch spring bolts and clutch springs (8).
   Loosen the clutch spring bolts in a crisscross pattern in two or three progressive steps.
5. Remove the clutch pressure plate (9).



(8) clutch spring bolts/clutch springs
(9) clutch pressure plate

(cont'd)

6. Remove the washer (10), needle bearing (11), clutch lifter (12) and clutch lifter rod (13).
7. Remove the eight clutch discs and seven clutch plates (14).
   Assemble the clutch lifter, needle bearing and washer. Turn the needle bearing with your finger. The needle bearing should turn smoothly and quietly. Replace the needle bearing and washer if the needle bearing does not turn smoothly.

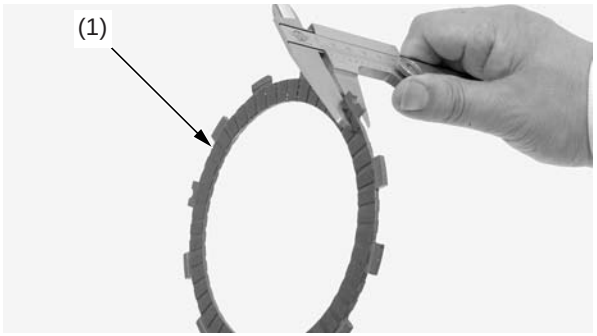


(10) washer
(11) needle bearing
(12) clutch lifter
(13) clutch lifter rod
(14) clutch discs/clutch plates

Clutch Disc/Plate Inspection

Replace the clutch discs (1) if they show signs of scoring or discoloration.
Measure the thickness of each clutch disc.
Service Limit: 0.112 in (2.85 mm)

Replace the clutch discs and clutch plates as a set.



(1) clutch disc

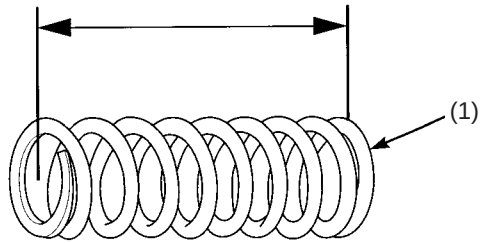
Check the clutch plates (2) for excessive warpage or discoloration.
Check the plate warpage on a surface plate using a feeler gauge.
Service Limit: 0.006 in (0.15 mm)

Replace the clutch discs and clutch plates as a set.



(2) clutch plate

Clutch Spring Inspection



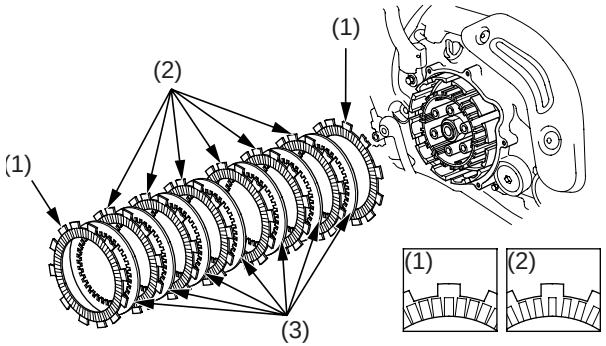
(1) clutch spring

Measure the free length of each spring.
Service Limit: 1.72 in (43.7 mm)

Replace the clutch springs as a set if any one of them is below the service limit or if the clutch plates have been burnt/heat discolored.

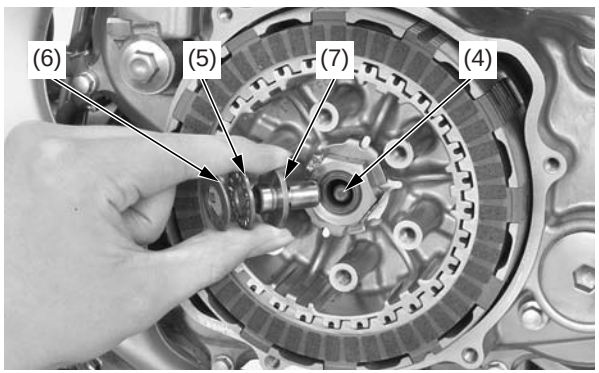
Clutch Disc/Plate Installation

1. Coat the clutch disc A (1), B (2) and plates (3) with engine oil.
2. Starting and ending with the two clutch disc A, alternately install the six clutch disc B and seven clutch plates.



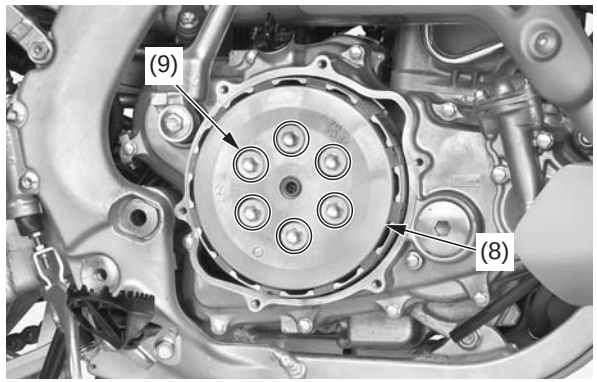
(1) clutch disc A
(2) clutch disc B
(3) clutch plates

3. Apply grease to the clutch lifter rod (4).
4. Insert the clutch lifter rod into the mainshaft.
5. Apply engine oil to the needle bearing (5) and washer (6) and install them to the clutch lifter (7).
6. Install the clutch lifter onto the rod.



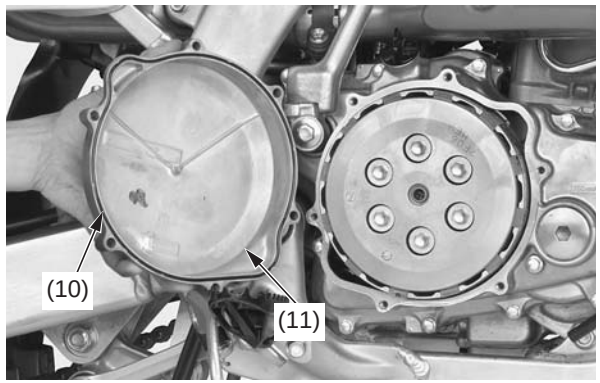
(4) clutch lifter rod
(5) needle bearing
(6) washer
(7) clutch lifter

7. Install the clutch pressure plate (8).
8. Install the six clutch springs and bolts (9).
9. Tighten the bolts in a crisscross pattern in two or three steps, to the specified torque:
   9 lbf·ft (12 N·m, 1.2 kgf·m)



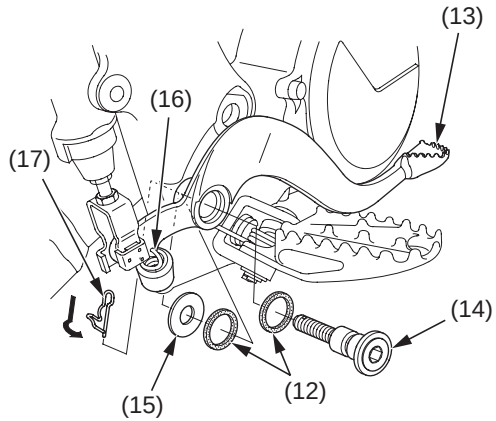
(8) clutch pressure plate
(9) clutch spring bolts/springs

10. Apply oil to a new O-ring (10) and install it in the groove of the clutch cover (11).
11. Install the clutch cover by tightening the six clutch cover bolts in a crisscross pattern in two or three steps to the specified torque:
    7 lbf·ft (10 N·m, 1.0 kgf·m)



(10) O-ring
(11) clutch cover

12. Lubricate the dust seals (12), rear brake pedal (13) pivot and pivot bolt (14) with Pro Honda White Lithium Grease or equivalent.
13. Install the dust seals into the rear brake pedal.
14. Install the pivot bolt with the washer (15) and tighten the pivot bolt to the specified torque:
    27 lbf·ft (36 N·m, 3.7 kgf·m)
    Connect the brake pedal return spring (16) if it is removed.
15. Insert the pin (17).



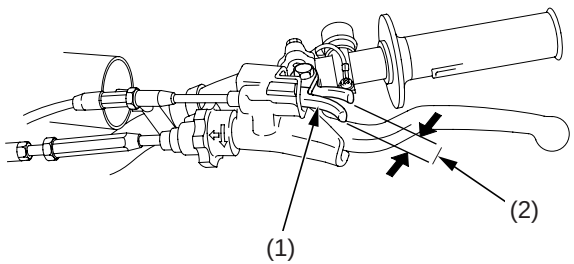
(12) dust seals
(13) rear brake pedal
(14) pivot bolt
(15) washer
(16) brake pedal return spring
(17) pin

16. Fill the crankcase with transmission oil (page 47).

Hot Start Lever

Refer to *Safety Precautions* on page 25.

Hot Start Lever Freeplay

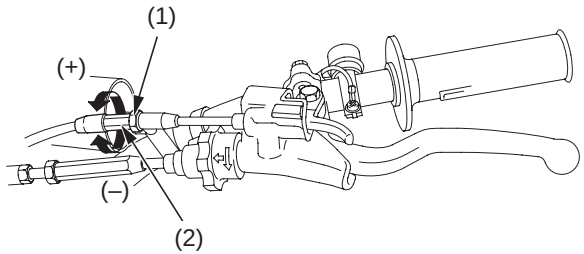


(1) hot start lever
(2) freeplay

Inspection
Check freeplay (2).
Freeplay: 1/16 – 1/8 in (2 – 3 mm)
If necessary, adjust to the specified range.

Adjustment
Adjustments can be made with the cable end adjuster.

Loosen the lock nut (1) and turn the adjuster (2). Turning the adjuster clockwise (+) will increase freeplay and turning it counterclockwise (–) will decrease freeplay. After adjustment, tighten the lock nut.



(1) lock nut
(2) adjuster
(+) increase
(–) decrease

Refer to *Safety Precautions* on page 25.

Spark Plug Recommendation

The recommended standard spark plug is satisfactory for most racing conditions.

Standard	IFR8H11 VK24PRZ11	(NGK) or (DENSO)
Optional	IFR9H11 VK27PRZ11	(NGK) or (DENSO)

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

NOTICE

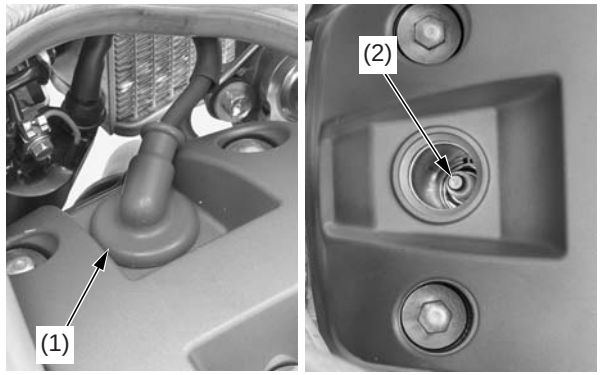
Using a spark plug with an improper heat range or incorrect reach can cause engine damage. Using a non-resistor spark plug may cause ignition problems.

This motorcycle uses a spark plug that has an iridium tip in the center electrode and a platinum tip in the side electrode.
Be sure to observe the following when servicing the spark plug.

- Do not clean the spark plug. If an electrode is contaminated with accumulated objects or dirt, replace the spark plug with a new one.
- To check the spark plug gap, use only a "wire-type feeler gauge." To prevent damaging the iridium tip of the center electrode and platinum tip of the side electrode, never use a "leaf-type feeler gauge."
- Do not adjust the spark plug gap. If the gap is out of specification, replace the spark plug with a new one.

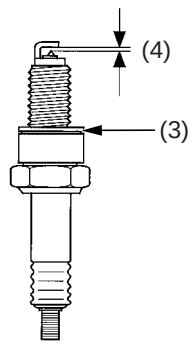
Spark Plug Inspection & Replacement

1. Remove the seat and fuel tank (pages 36, 37).
2. Disconnect the spark plug cap (1).
3. Clean any dirt from around the spark plug base.
4. Remove the spark plug (2).



(1) spark plug cap
(2) spark plug

5. Check the electrodes for wear or deposits, the sealing gasket (3) for damage, and the insulator for cracks. Replace if you detect them.
6. Check the spark plug gap (4), using a wire-type feeler gauge. If the gap is out of specifications, replace the plug with a new one.
   The recommended spark plug gap is:
   0.039 – 0.043 in (1.0 – 1.1 mm)



(3) sealing gasket
(4) spark plug gap

7. To obtain accurate spark plug readings, accelerate up to speed on a straightaway. Push the engine stop button and disengage the clutch by pulling the lever in.
   Coast to a stop, then remove and inspect the spark plug. The porcelain insulator around the center electrode should appear tan or medium gray.

If you're using a new plug, ride for at least 10 minutes before taking a plug reading; a brand-new plug will not color initially.

If the electrodes appear burnt, or the insulator is white or light gray (lean) or the electrodes and insulator are black or fouled (rich), there is a problem elsewhere.
Check the carburetor, fuel system and ignition timing.

8. With the sealing gasket attached, thread the spark plug in by hand to prevent cross-threading.
9. Tighten the 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: 3/4 turn after it seats.
        DENSO: 1/2 turn after it seats.
     b) Then loosen the plug.
     c) Next, tighten the plug again:
        1/8 turn after it seats.

NOTICE

An improperly tightened spark plug 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. Connect the spark plug cap. Take care to avoid pinching any cables or wires.
11. Install the fuel tank and seat (pages 36, 38).

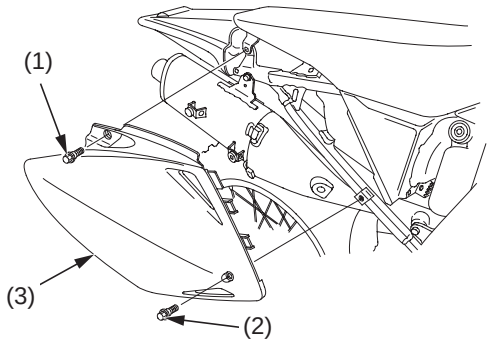
Exhaust Pipe/Muffler

Exhaust Pipe/Muffler Inspection

Check the mounting bolts and exhaust pipe joint nuts for tightness.
Check the exhaust pipe and muffler for cracks or deformation.
A damaged exhaust pipe and muffler may reduce engine performance.

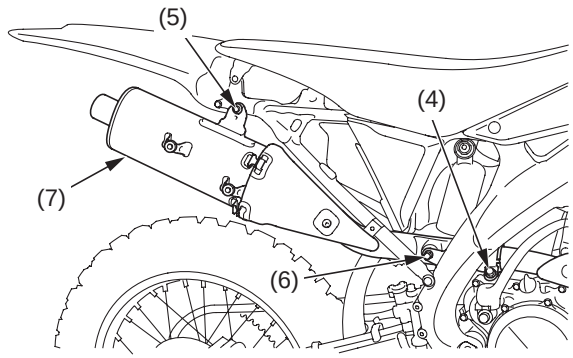
Muffler Removal

1. Remove the seat mounting bolt (1), side cover bolt (2) and right side cover (3).



(1) seat mounting bolt
(2) side cover bolt
(3) right side cover

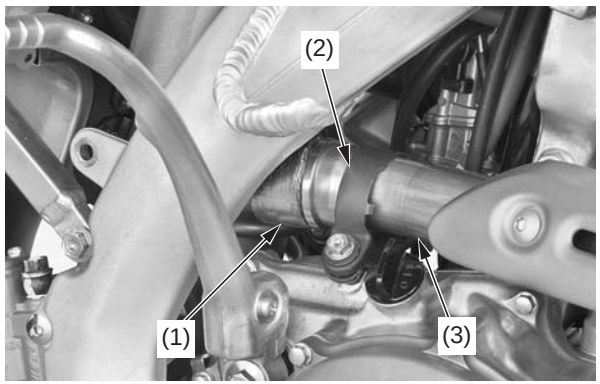
2. Loosen the muffler clamp bolt (4).
3. Remove the rear muffler mounting bolt/ washer (5), front muffler mounting bolt (6) and muffler (7).



(4) muffler clamp bolt
(5) rear muffler mounting bolt/washer
(6) front muffler mounting bolt
(7) muffler

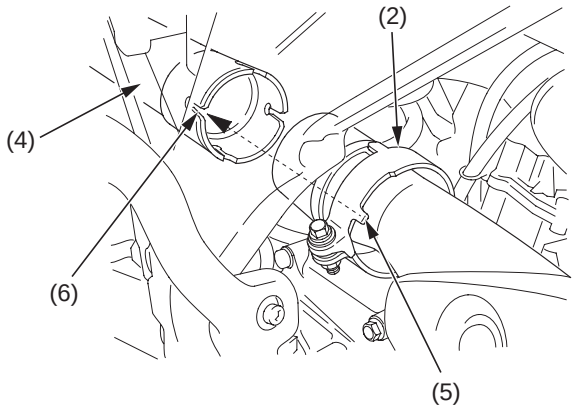
Muffler Installation

1. Remove the gasket (1).
2. Install the muffler clamp (2) and a new gasket onto the exhaust pipe (3).



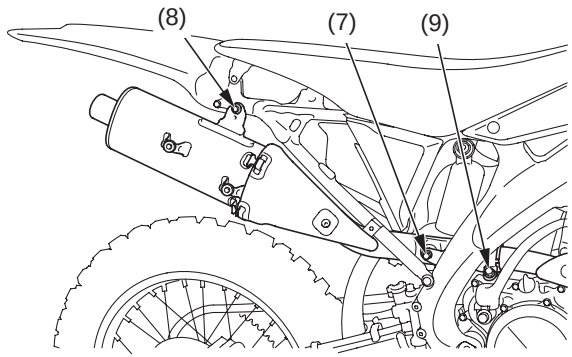
(1) gasket
(2) muffler clamp
(3) exhaust pipe

3. Install the muffler (4).
4. Install the muffler clamp (2) by aligning the tab (5) of the muffler clamp with the cut-out (6) of the muffler.



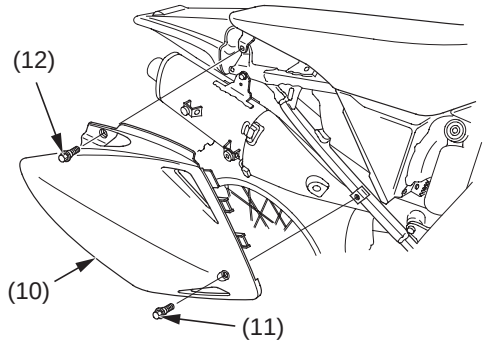
(2) muffler clamp
(4) muffler
(5) tab
(6) cut-out

5. Install the front muffler mounting bolt (7), rear muffler mounting bolt/washer (8) and loosely tighten them.
   Tighten the front muffler mounting bolt and rear muffler mounting bolt to the specified torque:
   19 lbf·ft (26 N·m, 2.7 kgf·m)
6. Tighten the muffler clamp bolt (9) to the specified torque:
   15 lbf·ft (21 N·m, 2.1 kgf·m)



(7) front muffler mounting bolt
(8) rear muffler mounting bolt/washer
(9) muffler clamp bolt

7. Install the right side cover (10) and side cover bolt (11).
8. Install the seat mounting bolt (12) and tighten it to the specified torque:
   19 lbf·ft (26 N·m, 2.7 kgf·m)

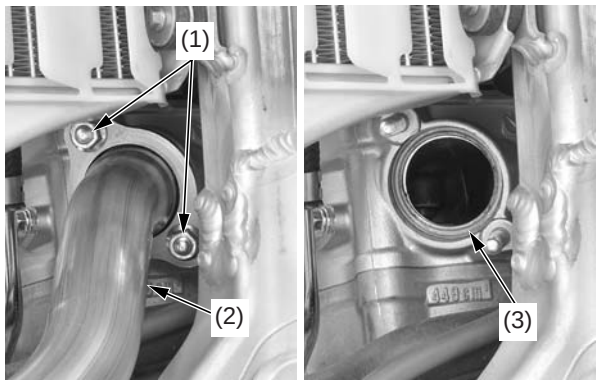


(10) right side cover
(11) side cover bolt
(12) seat mounting bolt

Exhaust Pipe/Muffler

Exhaust Pipe Removal

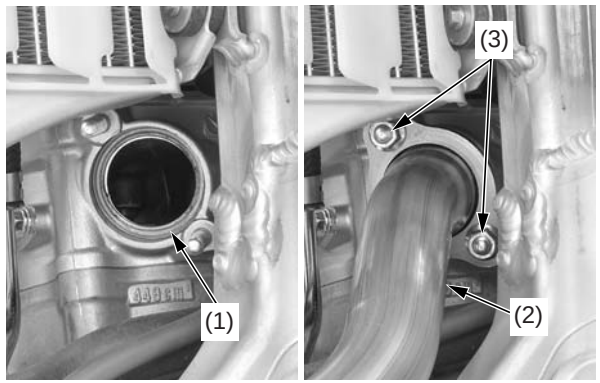
1. Remove the muffler (page 62).
2. Remove the exhaust pipe joint nuts (1), exhaust pipe (2) and old exhaust pipe gasket (3).



(1) exhaust pipe joint nuts
(2) exhaust pipe
(3) old exhaust pipe gasket

Exhaust Pipe Installation

1. Install a new exhaust pipe gasket (1) as shown.
2. Install the exhaust pipe (2) and exhaust pipe joint nuts (3).



(1) new exhaust pipe gasket
(2) exhaust pipe
(3) exhaust pipe joint nuts

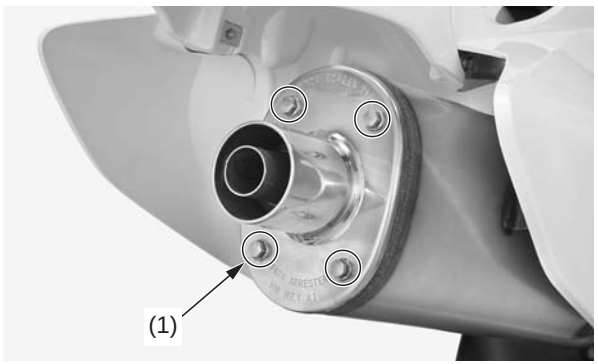
3. Install the muffler (page 63) but do not tighten the bolts yet.
4. Tighten the exhaust pipe joint nuts to the specified torque:
   15 lbf·ft (21 N·m, 2.1 kgf·m)
5. Tighten the muffler clamp bolt, front muffler mounting bolt and rear muffler mounting bolt (page 63).
6. Installation can be done in the reverse order of removal.

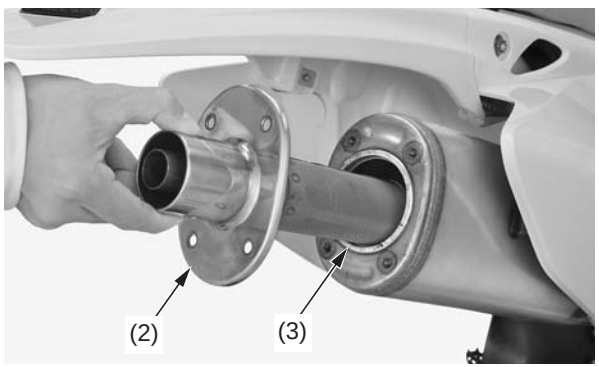
Spark Arrester Inspection

The spark arrester must be serviced every 1,000 miles (1,600 km) of running or 100 operating hours to maintain its efficiency.

Regular servicing prevents carbon buildup (which can diminish engine performance) and also complies with USDA regulations for regular maintenance to assure proper function.
The spark arrester prevents random sparks from the combustion process in your engine from reaching the environment.

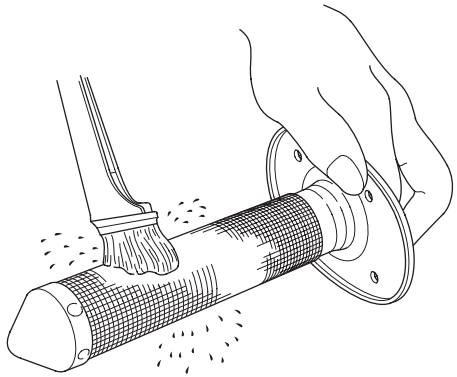
1. Allow the engine and muffler to cool.
2. Remove the bolts (1), spark arrester (2), and gasket (3) from the muffler.



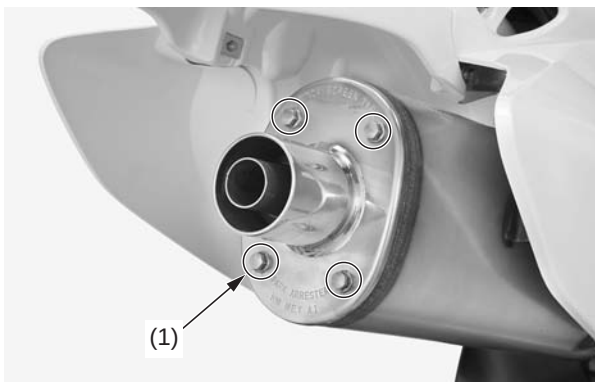


(1) bolts
(2) spark arrester
(3) gasket

3. Use a brush to remove carbon deposits from the spark arrester screen. Be careful to avoid damaging the spark arrester screen. The spark arrester must be free of breaks and holes. Replace, if necessary.



4. Apply a seizure inhibitor (Three Bond 1901 or equivalent) to the bolts threads.
5. Install a new gasket and the spark arrester in the muffler and tighten the bolts (1) to the specified torque:
   4.4 lbf·ft (6 N·m, 0.6 kgf·m)



(1) bolts

Valve Clearance

Refer to *Safety Precautions* on page 25.

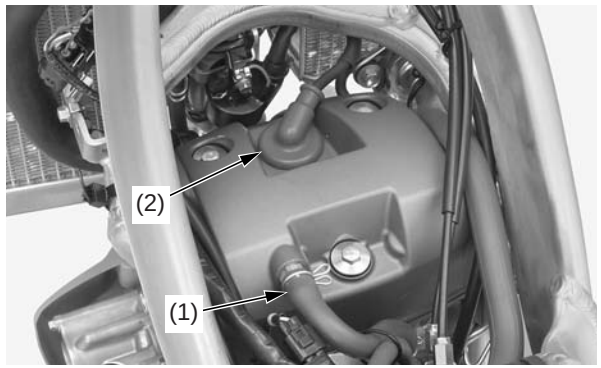
Excessive valve clearance will cause noise and eventual engine damage. Little or no clearance will prevent the valve from closing and cause valve damage and power loss. Check the valve clearance when the engine is cold at the intervals specified in the Maintenance Schedule (pages 27, 28).

The checking or adjusting of the valve clearance should be performed while the engine is cold. The valve clearance will change as engine temperature rises.

Cylinder Head Cover Removal

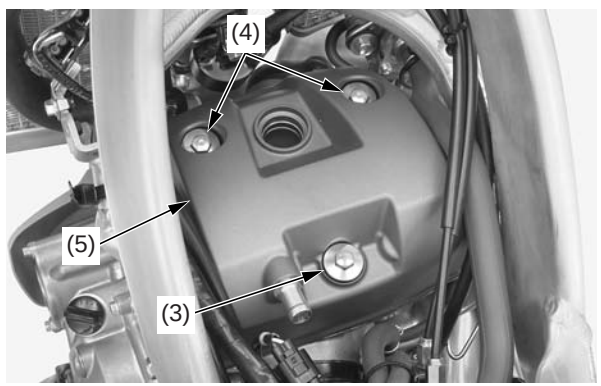
Before inspection, clean the engine thoroughly to keep dirt from entering the engine.

1. Remove the seat and fuel tank (pages 36, 37).
2. Disconnect the breather tube (1) and spark plug cap (2).



(1) breather tube
(2) spark plug cap

3. Remove the spark plug (page 61).
4. Remove the cylinder head cover A bolt/rubber seal (3), cylinder head cover B bolts/rubber seals (4) and cylinder head cover (5).

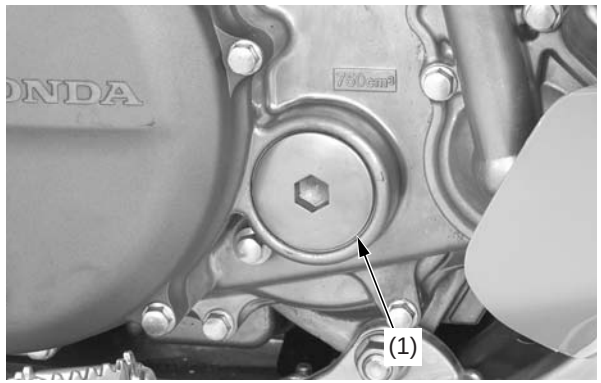


(3) cylinder head cover A bolt/rubber seal
(4) cylinder head cover B bolts/rubber seals
(5) cylinder head cover

5. Remove the plug hole packing and cylinder head cover packing.

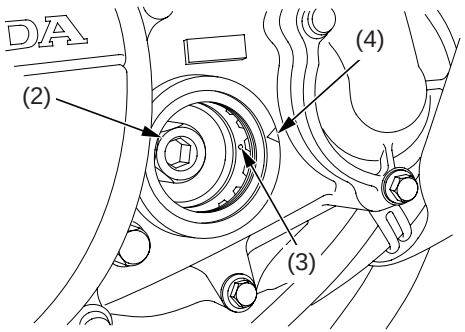
Positioning At Top Dead Center On The Compression Stroke

1. Remove the crankshaft hole cap (1).

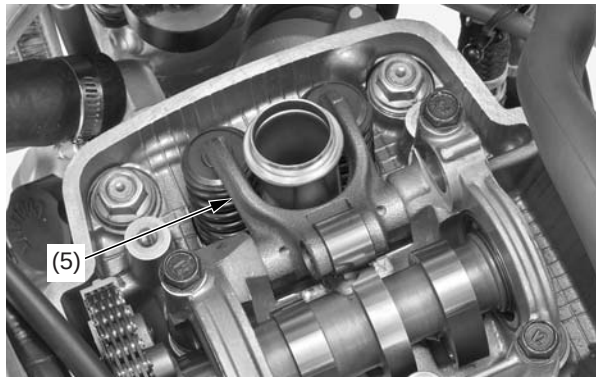


(1) crankshaft hole cap

2. Rotate the crankshaft by turning the primary drive gear bolt (2) clockwise until the punch mark (3) on the primary drive gear aligns with the index mark (4) on the right crankcase cover. In this position, the piston may either be on the compression or exhaust stroke. If the crankshaft passed the punch mark, rotate the primary drive gear bolt clockwise again and align the punch mark with the index mark.
   The inspection must be made when the piston is at the top of the compression stroke when both the intake and exhaust valves are closed. This condition can be determined by moving the exhaust rocker arm (5). If it is free, it is an indication that the valves are closed and that the piston is on the compression stroke. If it is tight and the valves are open, rotate the primary drive gear bolt 360° and realign the punch mark with the index mark.



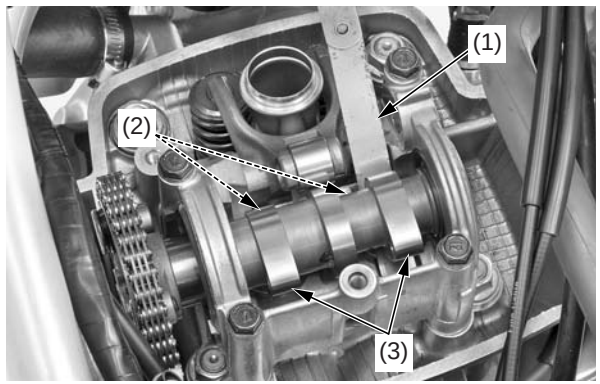
(2) primary drive gear bolt
(3) punch mark
(4) index mark



(5) exhaust rocker arm

Valve Clearance Inspection

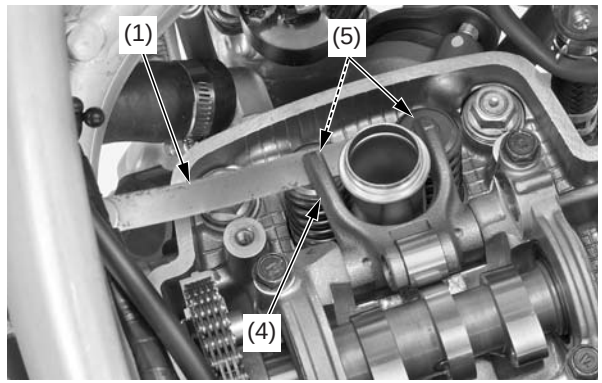
1. Measure the intake valve clearance by inserting a feeler gauge (1) between the valve lifters (2) and intake cam lobes (3).



(1) feeler gauge
(2) valve lifters
(3) intake cam lobes

Valve Clearance:
IN: 0.006 ± 0.001 in (0.16 ± 0.03 mm)

2. Measure the exhaust valve clearance by inserting a feeler gauge (1) between the exhaust rocker arm (4) and shims (5).



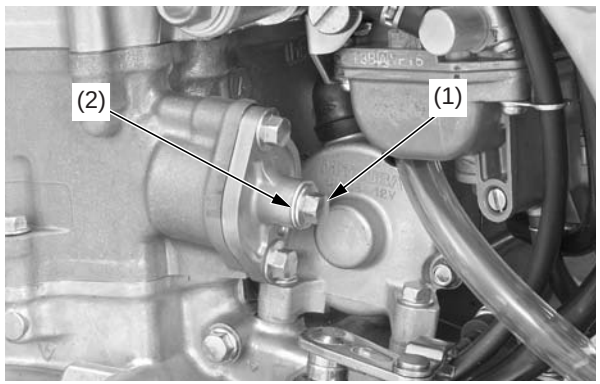
(1) feeler gauge
(4) exhaust rocker arm
(5) exhaust valve shims

Valve Clearance:
EX: 0.011 ± 0.001 in (0.28 ± 0.03 mm)

If intake valve clearance and exhaust valve clearance need adjustment, see *Camshaft Holder Assembly Removal* (page 68) and select the correct shim for each valve.

Camshaft Holder Assembly Removal

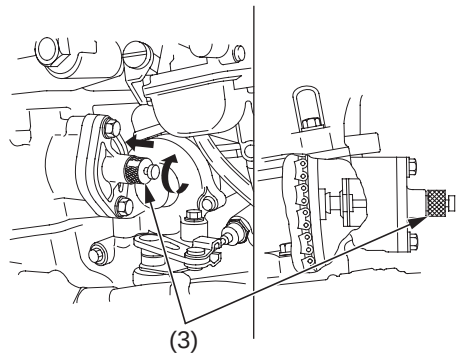
1. Record the intake valve and exhaust valve clearances.
   Make sure the piston is at TDC (Top Dead Center) on the compression stroke (page 66).
2. Remove the cam chain tensioner lifter cover bolt (1) and sealing washer (2).



(1) cam chain tensioner lifter cover bolt
(2) sealing washer

Use the tensioner stopper tool.
- Tensioner stopper 07AMG-001A100

3. Turn the tensioner shaft clockwise with the tensioner stopper (3) until it stops, in order to retract the tensioner fully.
   Then insert the tensioner stopper fully to hold the stopper in the fully retracted position.

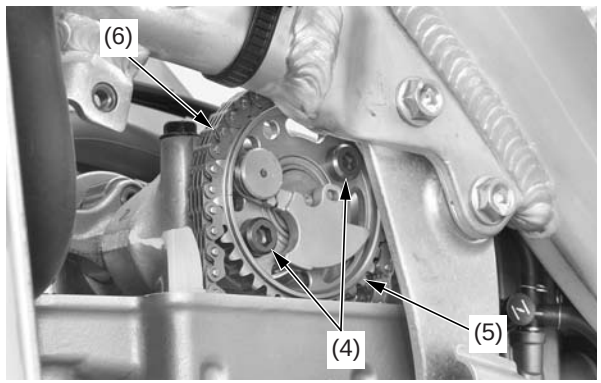


(3) tensioner stopper

4. Loosen the cam sprocket bolt (4).
   Rotate the primary drive gear bolt (crankshaft) clockwise one turn and remove the other sprocket bolt. Rotate the primary drive gear bolt (crankshaft) clockwise one turn again and remove the remaining sprocket bolt.
5. Remove the cam sprocket (5) and then attach a piece of wire to the cam chain (6) to prevent it from falling into the crankcase.

NOTICE

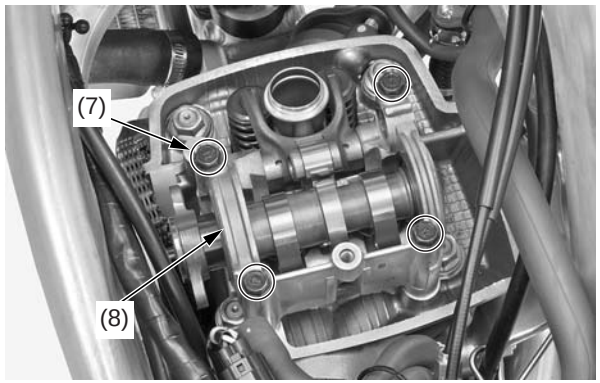
Do not let the bolts, sprocket and cam chain fall into the crankcase.



(4) cam sprocket bolts
(5) cam sprocket
(6) cam chain

6. Make sure the piston is at TDC (Top Dead Center) on the compression stroke.
   Loosen the camshaft holder assembly bolts (7) in a crisscross pattern in two or three steps.
   Remove the camshaft holder assembly bolts, camshaft holder assembly (8), intake valve lifters and shims.

- As you remove the camshaft holder assembly, the intake valve lifters and intake valve shims may be sticking in the camshaft holder assembly.
- Keep the intake valve lifters and the shims separate so you can easily identify the originally installed location such as intake or exhaust, right or left.

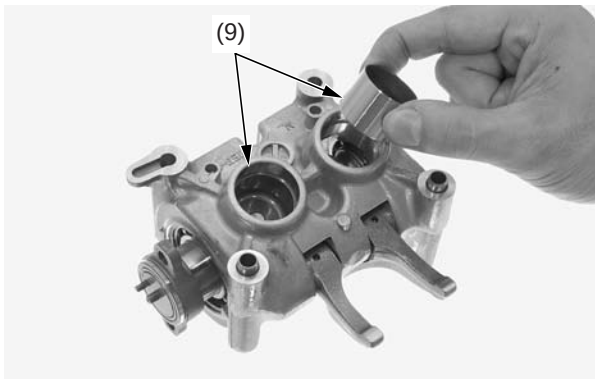


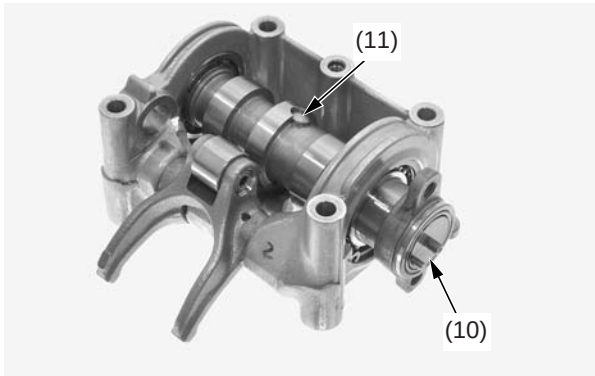
(7) camshaft holder assembly bolts
(8) camshaft holder assembly

NOTICE

Do not let the valve lifters, shims, decompressor shaft and plunger fall into the crankcase.

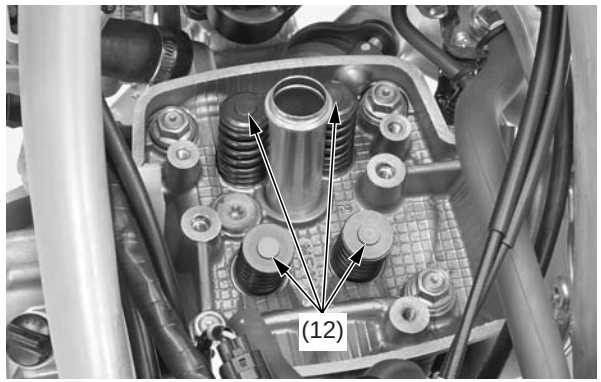
7. Remove the intake valve lifters (9), decompressor shaft (10) and plunger (11).





(9) intake valve lifters
(10) decompressor shaft
(11) plunger

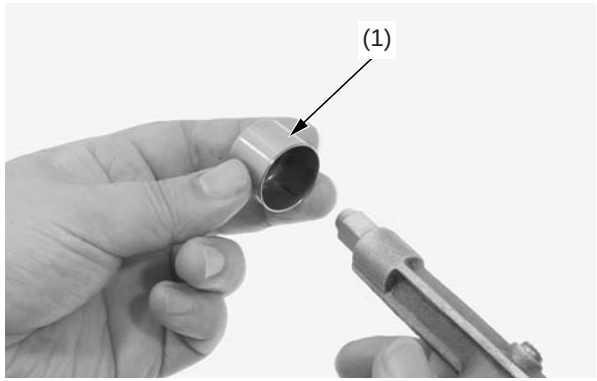
8. Remove the valve shims (12).



(12) valve shims

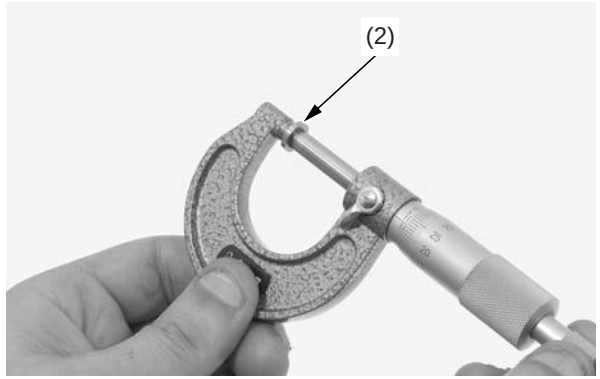
Shim Selection

1. Clean the shim contact area in the valve lifter (1) with compressed air.



(1) valve lifter

2. Measure the shim thickness with a micrometer and record it.
   Seventy-three different thickness shims (2) are available from the thinnest (1.200 mm thickness) shim to the thickest (3.000 mm thickness) in intervals of 0.025 mm.



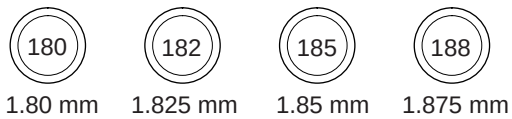
(2) shim

3. Calculate the new shim thickness using the equation below.

A = (B – C) + D

A: New shim thickness
B: Recorded valve clearance
C: Specified valve clearance
D: Old shim thickness

- Make sure of the correct shim thickness by measuring the shim with a micrometer.
- Reface the intake valve seat if carbon deposits result in a calculated dimension of over 2.450 mm.
  Reface the exhaust valve seat if carbon deposits result in a calculated dimension of over 3.000 mm.

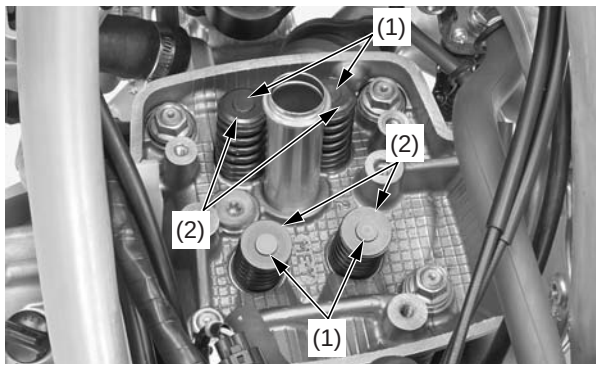


Camshaft Holder Assembly Installation

1. Install the newly selected shims (1) on the valve spring retainers (2).

NOTICE

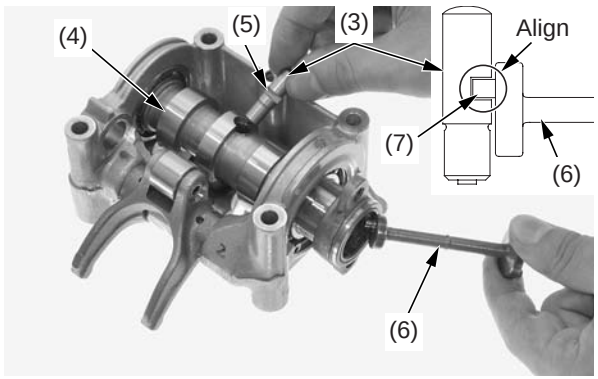
Do not let the shims fall into the crankcase.



(1) shims
(2) valve spring retainers

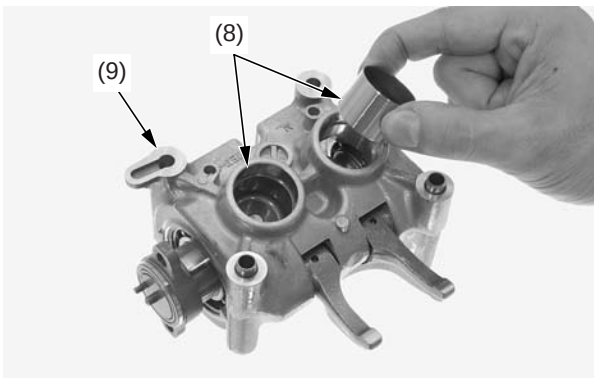
2. Apply molybdenum disulfide oil (a mixture of 1/2 engine oil and 1/2 molybdenum disulfide grease containing more than 3% molybdenum disulfide additive) to the following parts.
   – camshaft cam lobes
   – each valve lifter outer surface
   – plunger whole surface
   – decompressor shaft sliding area

3. Install the plunger (3) into the camshaft (4) with its rounded surface facing up and groove (5) side toward the decompressor shaft (6). Install the decompressor shaft while aligning its tab (7) with the groove of the plunger shown.
   Check the operation of the plunger by turning the decompressor shaft with your finger, then pushing down and pull up the plunger smoothly.



(3) plunger
(4) camshaft
(5) groove
(6) decompressor shaft
(7) tab

4. Install the each valve lifter (8) in their original location into the camshaft holder assembly (9).



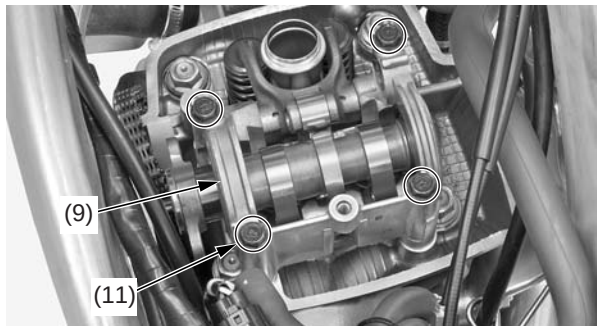
(8) valve lifters
(9) camshaft holder assembly

5. Install the camshaft holder assembly (9) onto the cylinder head with the intake cam lobes (10) facing up as illustrated below.
   Apply engine oil to the camshaft holder assembly bolt threads and seating surface.
   Tighten the camshaft holder assembly bolts (11) to the specified torque:
   10 lbf·ft (14 N·m, 1.4 kgf·m)

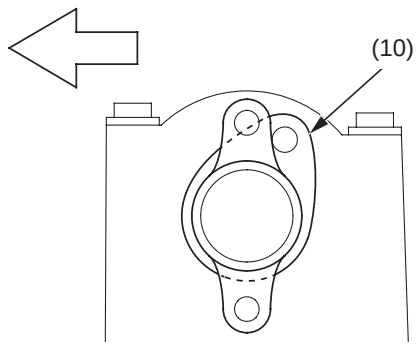
NOTICE

Do not let the decompressor shaft and plunger fall into the crankcase.

Tighten the camshaft holder assembly bolts in a crisscross pattern in two or three steps.



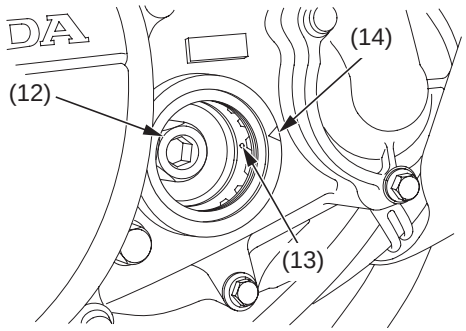
Exhaust side



(9) camshaft holder assembly
(10) intake cam lobes
(11) camshaft holder assembly bolts

(cont'd)

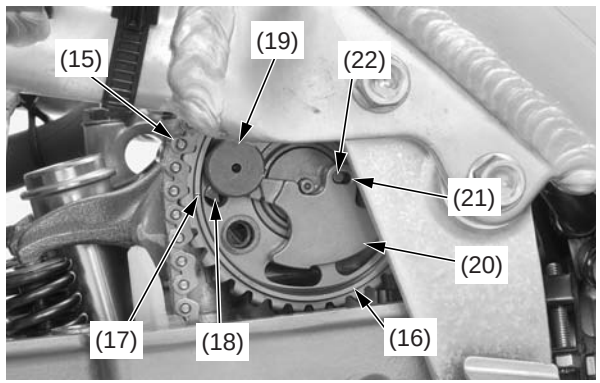
6. While holding the cam chain, rotate the primary drive gear bolt (12) (crankshaft) clockwise and align the punch mark (13) with the index mark (14).
   Make sure the piston is at TDC (Top Dead Center) on the compression stroke.



(12) primary drive gear bolt
(13) punch mark
(14) index mark

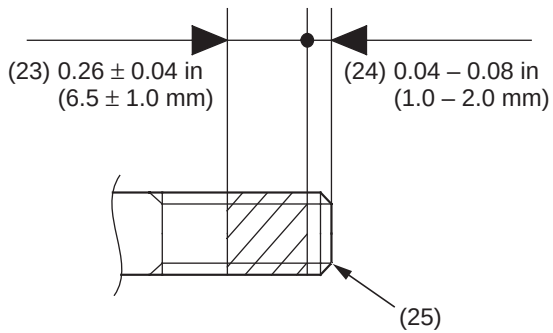
7. Install the cam chain (15) over the sprocket without rotating the sprocket.
   Place the cam sprocket (16) and align the timing mark (17) on the cam sprocket with the "Δ" mark (18) on the camshaft holder assembly.
   When installing the cam sprocket, position the decompressor weight pin (19) toward the front side.

8. Set the decompressor weight (20) by aligning its hole (21) with out side weight pin (22) as shown.



(15) cam chain
(16) cam sprocket
(17) timing mark
(18) "Δ" mark
(19) decompressor weight pin
(20) decompressor weight
(21) hole
(22) out side weight pin

9. Clean and apply a locking agent to the cam sprocket bolt (25) threads (coating width as shown).



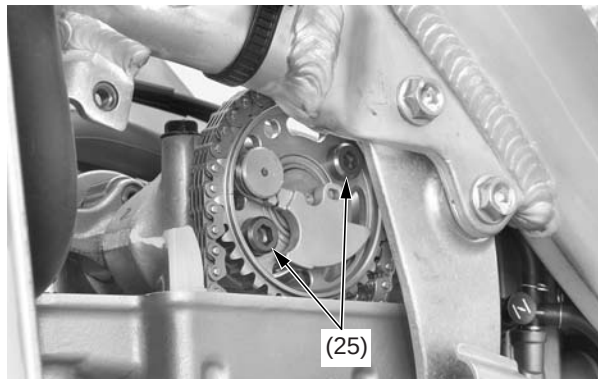
(23) coating width
(24) no coating width
(25) cam sprocket bolt

10. Temporarily install the cam sprocket bolt (25) by aligning the bolt holes of the cam sprocket and camshaft.
    Rotate the primary drive gear bolt (crankshaft) clockwise one turn and tighten the sprocket bolt to the specified torque:
    15 lbf·ft (20 N·m, 2.0 kgf·m)

    Rotate the primary drive gear bolt (crankshaft) clockwise one turn again and tighten the other sprocket bolt to the specified torque (see above).

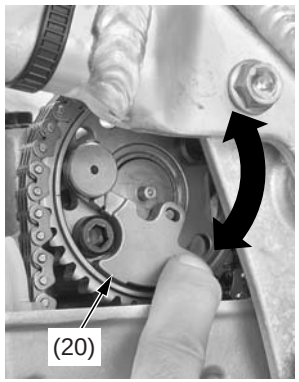
NOTICE

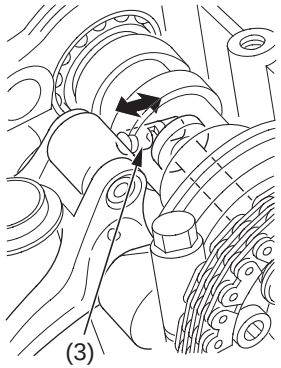
Do not let the bolts fall into the crankcase.



(25) cam sprocket bolts

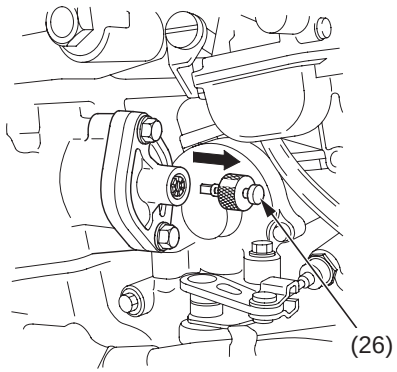
11. Check the operation of the plunger (3) by pushing the decompressor weight (20) with your finger and then pushing the plunger down. Release the decompressor weight and pull up the plunger.





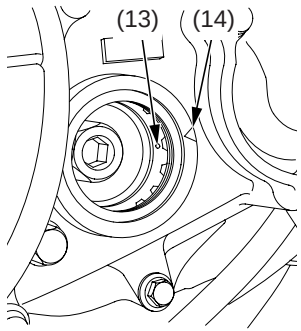
(3) plunger
(20) decompressor weight

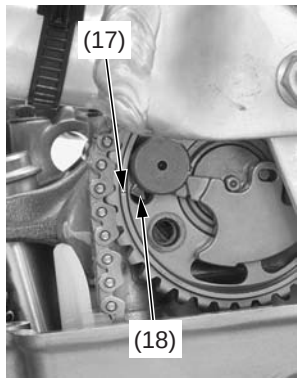
12. Remove the tensioner stopper (26) from the cam chain tensioner lifter.



(26) tensioner stopper

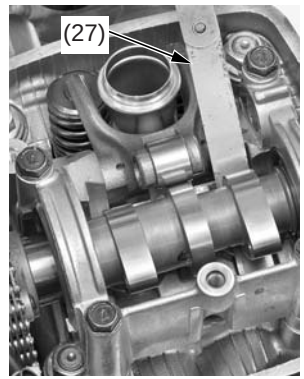
13. Rotate the primary drive gear bolt (crankshaft) clockwise two turns and align the punch mark (13) with the index mark (14). Make sure that the timing mark (17) on the sprocket align with the "Δ" mark (18) on the camshaft holder assembly. If the timing mark doesn't align with the "Δ" mark, remove the cam sprocket.
Then realign the valve timing.





(13) punch mark
(14) index mark
(17) timing mark
(18) "Δ" mark

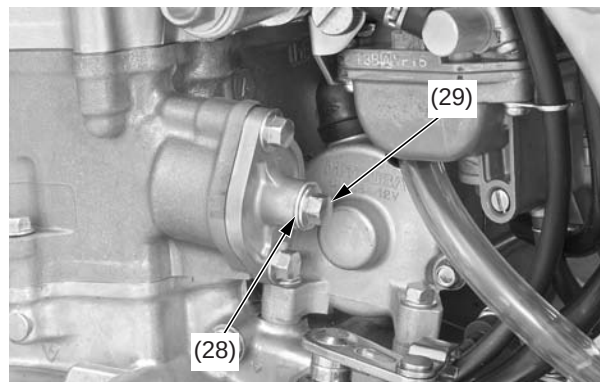
14. Measure the intake valve and exhaust valve clearances by inserting a feeler gauge (27).
Valve Clearance:
IN: 0.006 ± 0.001 in (0.16 ± 0.03 mm)
EX: 0.011 ± 0.001 in (0.28 ± 0.03 mm)





(27) feeler gauge

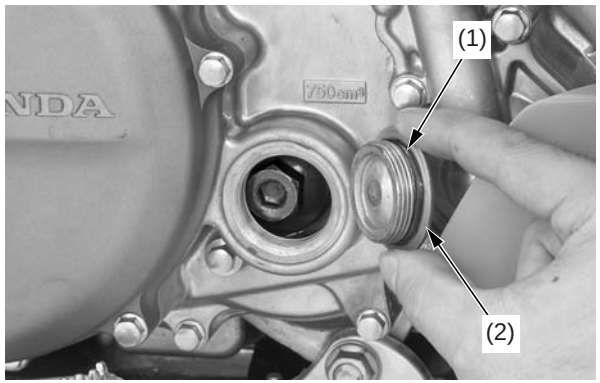
15. Install a new sealing washer (28) and tighten the cam chain tensioner lifter cover bolt (29).



(28) sealing washer
(29) cam chain tensioner lifter cover bolt

Crankshaft Hole Cap Installation

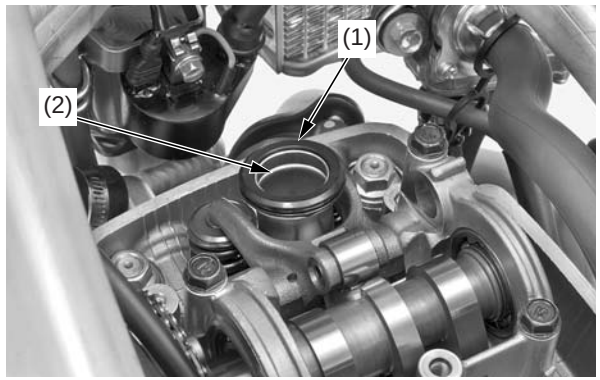
Coat a new O-ring (1) with engine oil and install it onto the crankshaft hole cap (2).
Apply grease to the crankshaft hole cap threads.
Install and tighten the crankshaft hole cap to the specified torque:
11 lbf·ft (15 N·m, 1.5 kgf·m)



(1) O-ring
(2) crankshaft hole cap

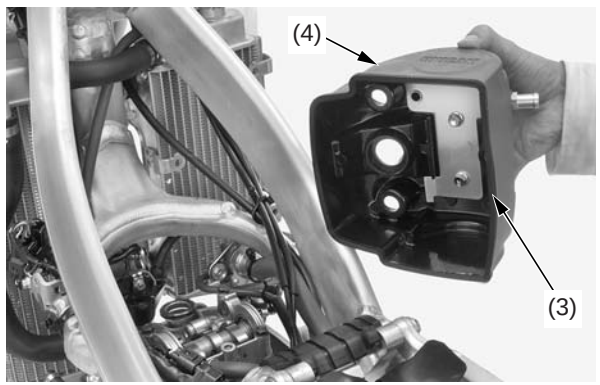
Cylinder Head Cover Installation

1. Check the spark plug hole packing (1) is in good condition, replace it if necessary.
   Apply engine oil to the spark plug hole packing and install it to the spark plug hole (2).



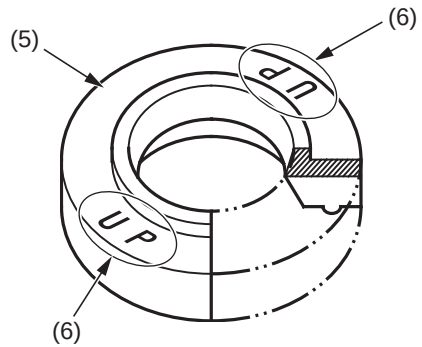
(1) spark plug hole packing
(2) spark plug hole

2. Inspect the cylinder head cover packing (3) for damage or deterioration, replace it if necessary.
   Install the cylinder head cover packing into the groove of the cylinder head cover (4).



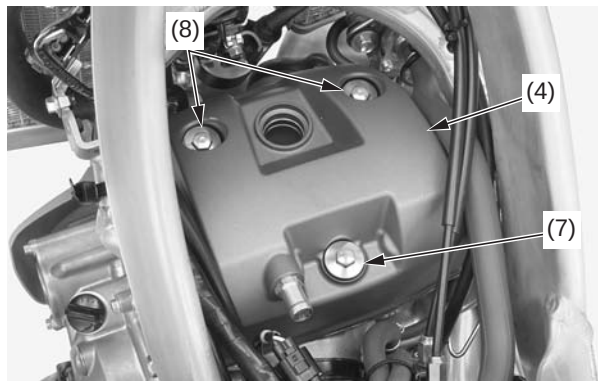
(3) cylinder head cover packing
(4) cylinder head cover

3. Check the rubber seals (5) are in good condition, replace them if necessary.
   Install the rubber seals onto the cylinder head cover with the “UP” marks (6) facing up.



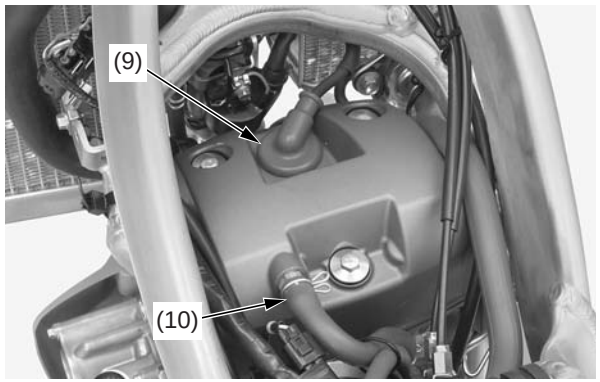
(5) rubber seal
(6) “UP” marks

4. Install the cylinder head cover (4).
5. Tighten the cylinder head cover A bolt/rubber seal (7) and cylinder head cover B bolts/rubber seals (8) to the specified torque:
   7 lbf·ft (10 N·m, 1.0 kgf·m)



(4) cylinder head cover
(7) cylinder head cover A bolt/rubber seal
(8) cylinder head cover B bolts/rubber seals

6. Install the spark plug (page 61)
7. Connect the spark plug cap (9) and breather tube (10).

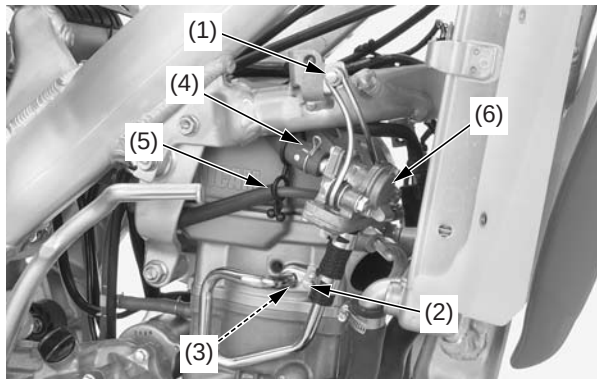


(9) spark plug cap
(10) breather tube

8. Install the fuel tank and seat (pages 36, 38).

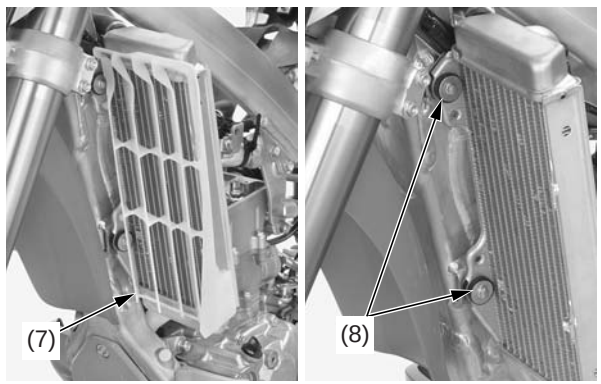
Cylinder Head Removal

1. Clean the area above the engine before disassembly to prevent dirt falling into the engine.
2. Drain the engine oil (page 44).
3. Drain the radiator coolant after cooling the motorcycle (page 149).
4. Remove the seat and fuel tank (pages 36, 37).
5. Remove the muffler (page 62).
6. Lift the subframe to the upright position (page 39).
7. Remove the carburetor (page 136).
8. Remove the exhaust pipe (page 64).
9. Remove the spark plug (page 61).
10. Remove the bolt A (1), bolt B (2) and O-ring (3).
11. Disconnect the air suction hose (4) and vacuum hose (5).
    Remove the PAIR control valve (6).



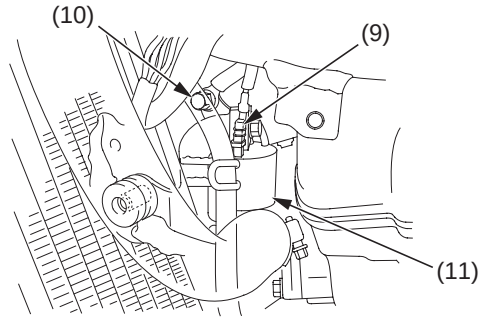
(1) bolt A
(2) bolt B
(3) O-ring
(4) air suction hose
(5) vacuum hose
(6) PAIR control valve

12. Remove the cylinder head cover (page 66).
13. Position the piston at top dead center on the compression stroke (page 66).
14. Remove the camshaft holder assembly, lifters and shims (page 68).
15. Remove the left radiator grill (7) and left radiator mounting bolts/washers (8).



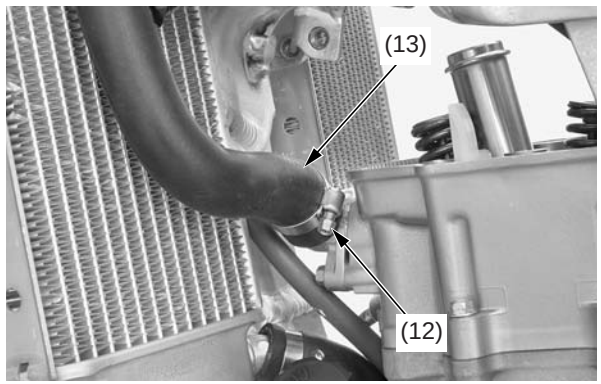
(7) left radiator grill
(8) left radiator mounting bolts/washers

16. Disconnect the primary wire connector (9). Remove the bolt (10) and ignition coil (11).



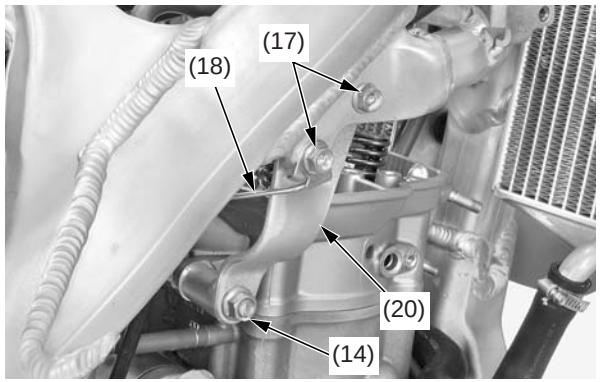
(9) primary wire connector
(10) bolt
(11) ignition coil

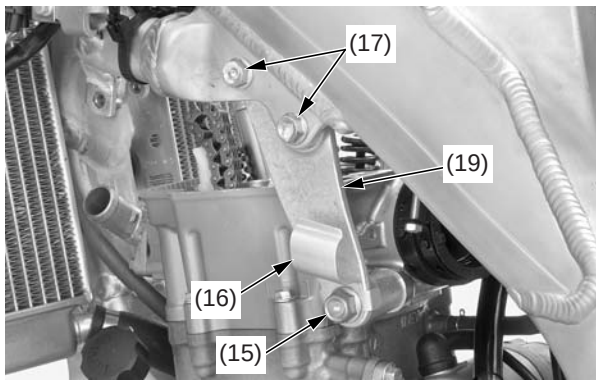
17. Loosen the radiator hose clamp (12) and disconnect the radiator hose (13).



(12) radiator hose clamp
(13) radiator hose

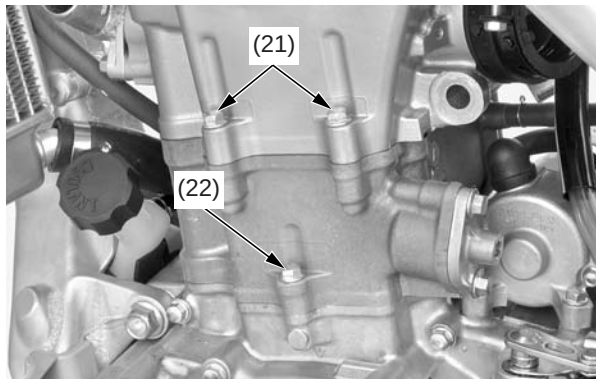
18. Remove the engine hanger nut (14), engine hanger bolt (15) and fuel hose guide (16). Remove the engine hanger plate bolts (17), clutch cable stay (18), left engine hanger plate (19) and right engine hanger plate (20).





(14) engine hanger nut
(15) engine hanger bolt
(16) fuel hose guide
(17) engine hanger plate bolts
(18) clutch cable stay
(19) left engine hanger plate
(20) right engine hanger plate

19. Remove the cylinder head bolts (21).
20. Loosen the cylinder bolt (22).



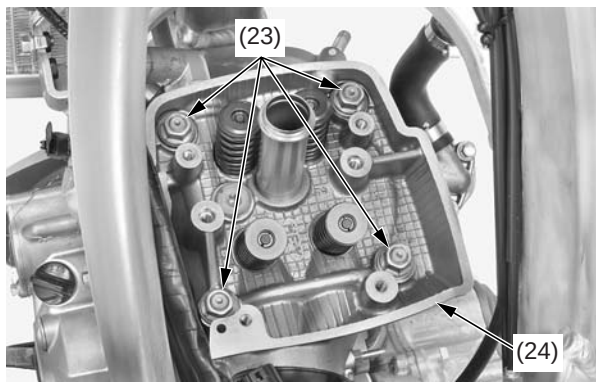
(21) cylinder head bolts
(22) cylinder bolt

21. Remove the cylinder head nuts/washers (23) and cylinder head (24).

Loosen the nuts in a criss-cross pattern in two or three steps.

NOTICE

Do not let the nuts, washers and cam chain fall into the crankcase.

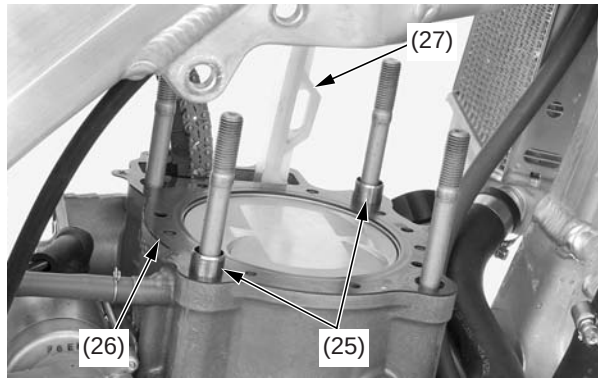


(23) cylinder head nuts/washers
(24) cylinder head

22. Remove the dowel pins (25), cylinder head gasket (26) and cam chain guide (27).

NOTICE

Do not let the dowel pins and cam chain fall into the crankcase.



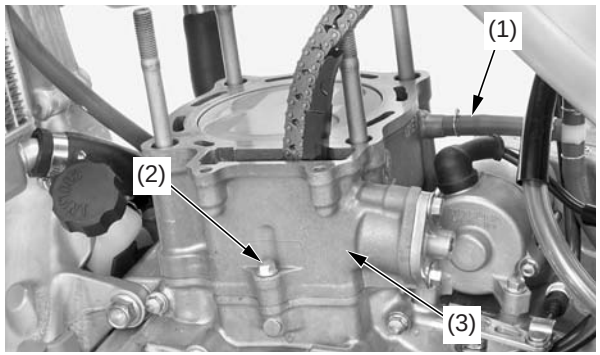
(25) dowel pins
(26) cylinder head gasket
(27) cam chain guide

Cylinder Removal

1. Disconnect the breather hose (1) from the cylinder.
2. Remove the cylinder bolt (2) and cylinder (3).

NOTICE

Do not let the cam chain fall into the crankcase. Do not pry on or strike the cylinder.

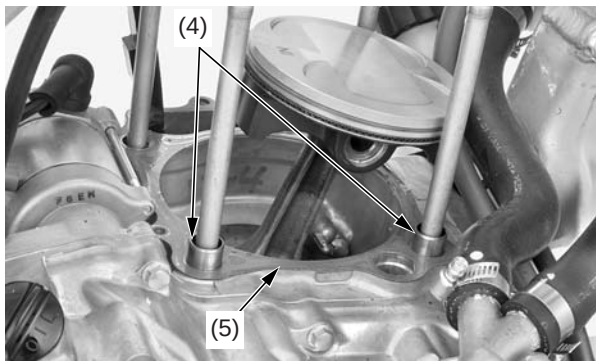


(1) breather hose
(2) cylinder bolt
(3) cylinder

3. Remove the dowel pins (4) and cylinder gasket (5).

NOTICE

Do not let the dowel pins fall into the crankcase.

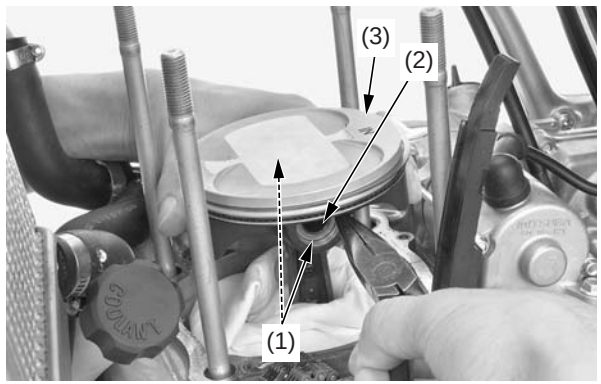


(4) dowel pins
(5) cylinder gasket

Piston Removal

1. Place clean shop towels in the crankcase to keep the piston pin clips, or other parts, from falling into the crankcase.
2. Remove the piston pin clips (1) using a pair of needle-nose pliers.
3. Press the piston pin (2) out of the piston (3), and remove the piston.

Under racing conditions, the piston and rings should be replaced after 15.0 hours of running. Replace the piston pin after 30.0 hours of running.



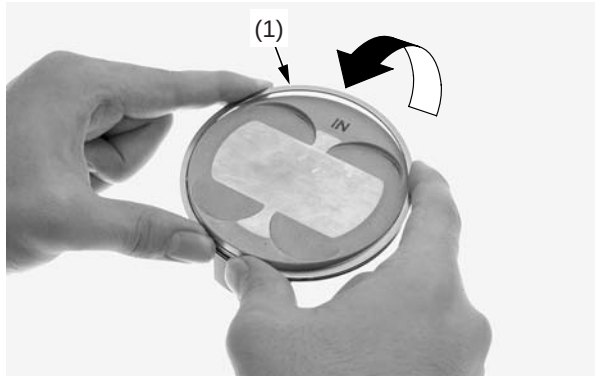
(1) piston pin clips
(2) piston pin
(3) piston

Piston Ring Removal

Spread each piston ring (1) and remove by lifting it up at a point just opposite the gap.

NOTICE

Do not damage the piston ring by spreading the ends too far.



(1) piston ring

Piston/Piston Pin/Piston Ring Inspection

We recommend you consult the Service Manual or your dealer for correct Service Limit measurements.

Piston Ring Installation

1. Remove the carbon deposits from the piston head and piston ring grooves with the removed ring (1).



(1) removed ring

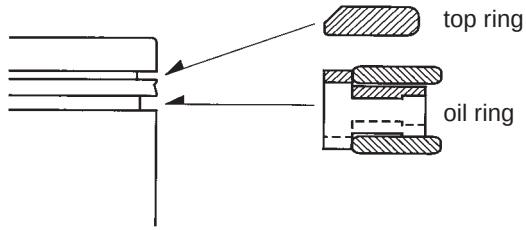
2. Apply engine oil to each piston ring whole surface and install them to the piston.

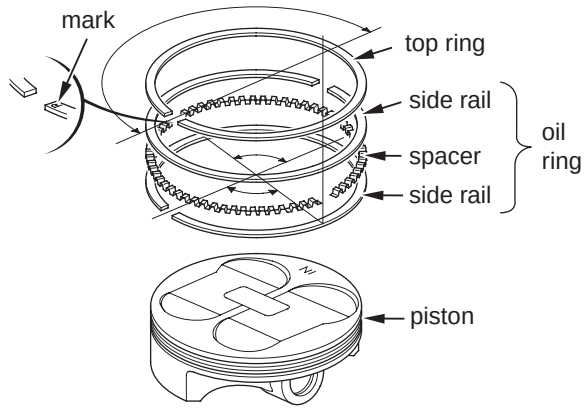
NOTICE

Do not damage the piston ring by spreading the ends too far.
Do not damage the piston during piston ring installation.

- To install the oil ring, install the spacer first, then install the side rails.
- Install the top ring on the piston with the marking side facing up.

3. After installing the rings they should rotate freely, without sticking.
   Space the ring end gaps 180 degrees apart between top ring and upper side rail.
   Space the ring end gaps 90 degrees apart between upper side rail, spacer and lower side rail.



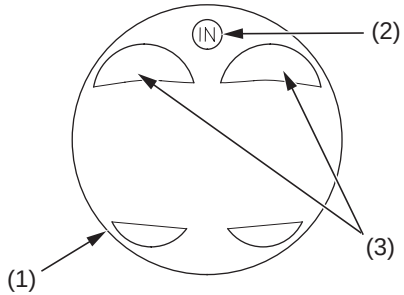


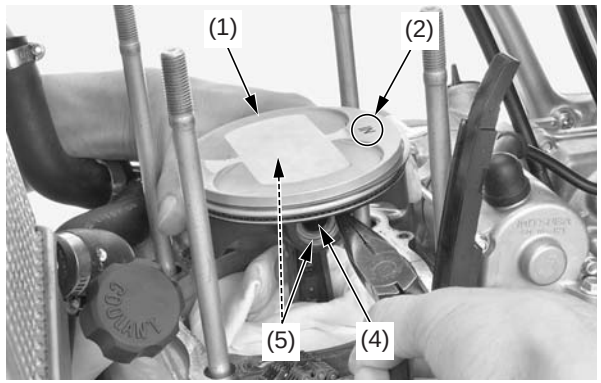
Piston Installation

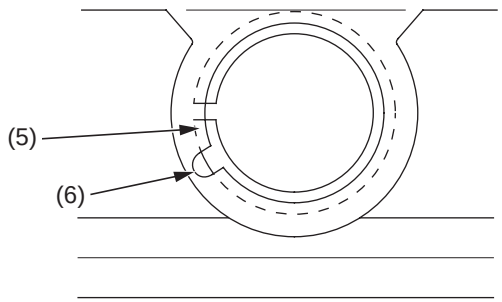
1. Place clean shop towels over the crankcase opening to keep the piston pin clips from falling into the crankcase.
2. Apply molybdenum disulfide oil (a mixture of 1/2 engine oil and 1/2 molybdenum disulfide grease containing more than 3% molybdenum disulfide additive) to the connecting rod small end inner surface.
3. Install the piston (1) with the “IN” mark (2) and/or the large valve recesses (3) facing the intake side of the engine.
4. Apply engine oil to the piston pin (4) outer surface.
5. Apply engine oil to the piston outer surface and piston pin hole inner surface.
   Install the piston pin and new piston pin clips (5).

NOTICE

Use new piston pin clips. Never reuse old piston pin clips.
Do not let the piston pin clips fall into the crankcase.
Do not align the piston pin clip end gap with the piston cut-out (6).







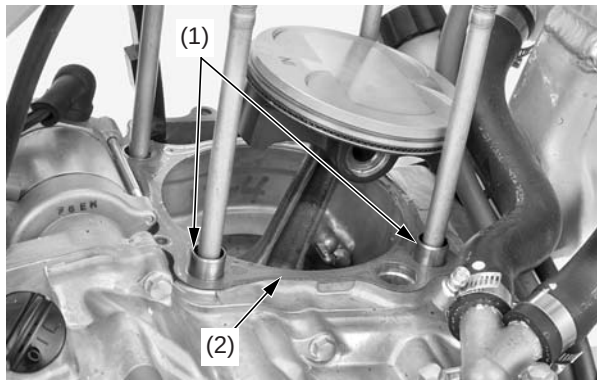
(1) piston
(2) “IN” mark
(3) large valve recesses
(4) piston pin
(5) piston pin clips
(6) piston cut-out

Cylinder Installation

1. Clean off any gasket material from the gasket surface of the crankcase, being careful not to let any material fall into the crankcase. Be careful not to remove any metal from the gasket surface.
2. Remove the shop towel. Do not let any gasket debris fall into the crankcase.
3. Install the dowel pins (1) and new cylinder gasket (2).

NOTICE

Do not let the dowel pins fall into the crankcase.



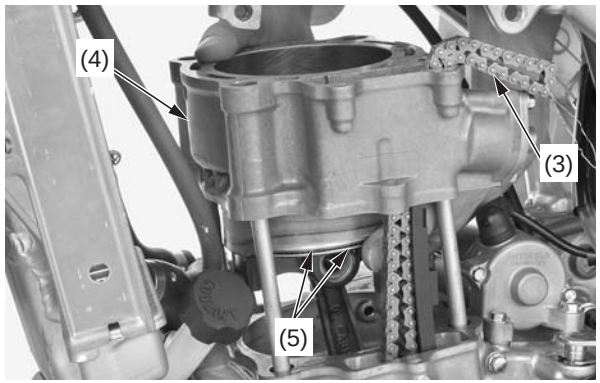
(1) dowel pins
(2) cylinder gasket

4. Clean any gasket material off the cylinder.

5. Apply engine oil to the cylinder wall, piston outer surface and piston rings.
   Route the cam chain (3) through the cylinder (4). Install the cylinder over the piston rings by hand while compressing the piston rings (5).

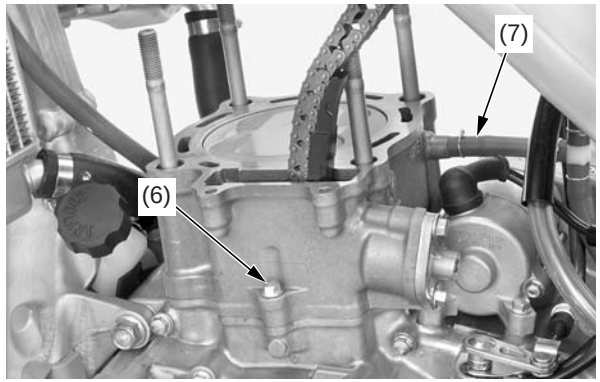
NOTICE

Do not damage the piston rings and cylinder wall.



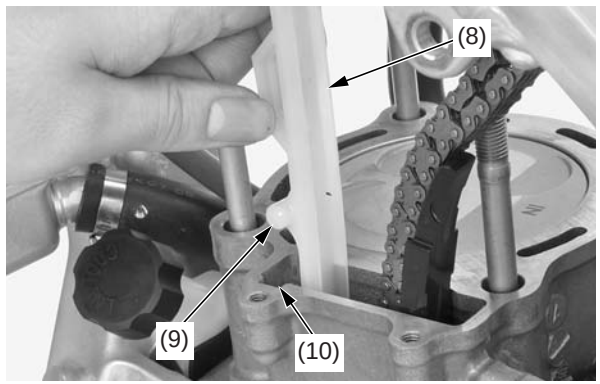
(3) cam chain
(4) cylinder
(5) piston rings

6. Temporarily install the cylinder bolt (6) and connect the breather tube (7) to the cylinder.



(6) cylinder bolt
(7) breather tube

7. Install the cam chain guide (8) and fit the cam chain guide tabs (9) in the cylinder cut-outs (10). Push the cam chain guide until it bottoms in the crankcase guide hole.



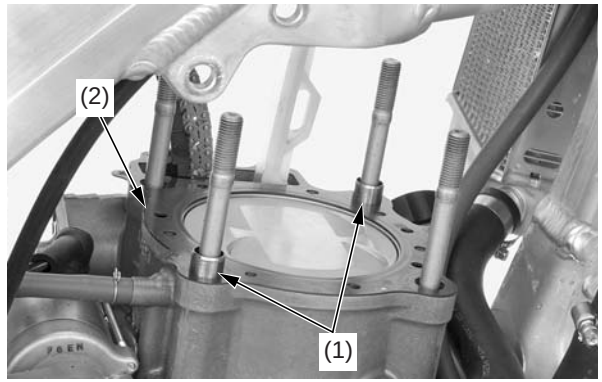
(8) cam chain guide
(9) cam chain guide tabs
(10) cylinder cut-outs

Cylinder Head Installation

1. Install the dowel pins (1) and new cylinder head gasket (2).

NOTICE

Do not let the dowel pins fall into the crankcase.



(1) dowel pins
(2) cylinder head gasket

(cont'd)

2. Route the cam chain through the cylinder head (3).
   Install the cylinder head.

NOTICE

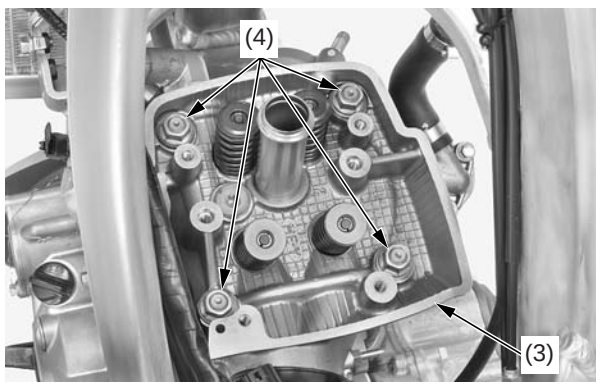
Do not damage mating surfaces when installing the cylinder head.

3. Apply engine oil to all cylinder head nut threads and seating surface.
   Install the cylinder head nuts/washers (4) and tighten them to the specified torque:
   49 lbf·ft (66 N·m, 6.7 kgf·m)

NOTICE

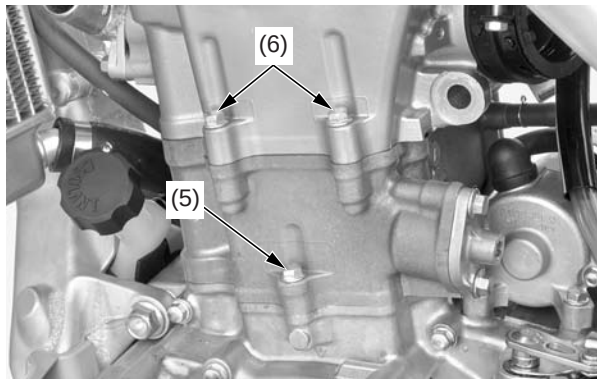
Do not let the washers and nuts fall into the crankcase.

Tighten the cylinder head nuts in a criss-cross pattern in two or three steps.



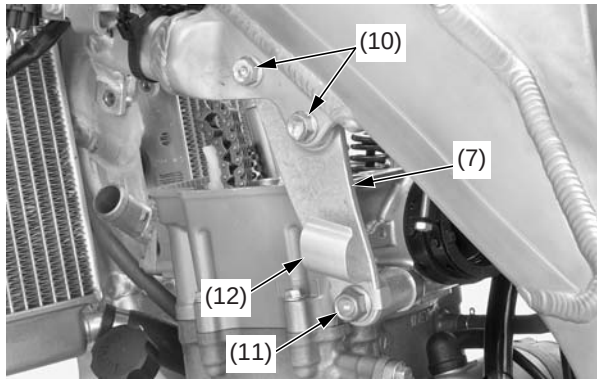
(3) cylinder head
(4) cylinder head nuts/washers

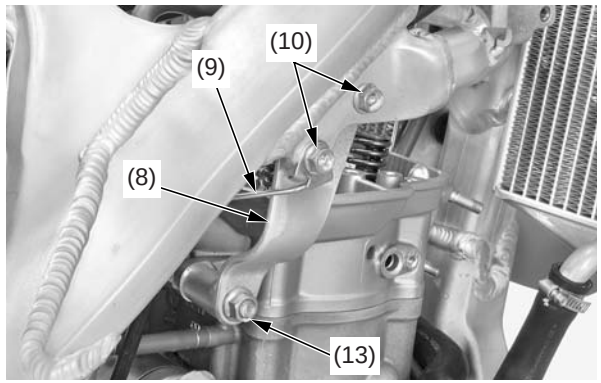
4. Install and tighten the cylinder bolt (5) and cylinder head bolts (6) to the specified torque:
   7 lbf·ft (10 N·m, 1.0 kgf·m)



(5) cylinder bolt
(6) cylinder head bolts

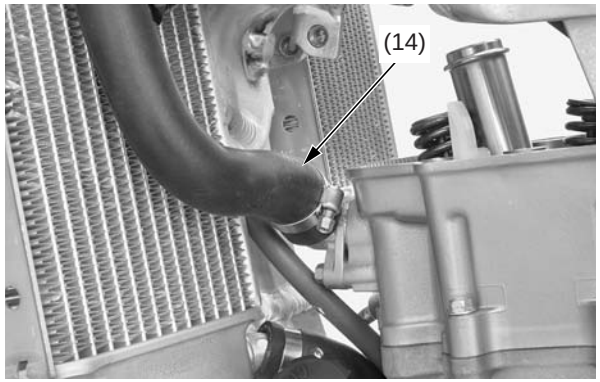
5. Install the left engine hanger plate (7), right engine hanger plate (8), clutch cable stay (9) and engine hanger plate bolts (10) and tighten the engine hanger plate bolts until the engine hanger plates lightly contact the frame.
6. Install the engine hanger bolt (11), fuel hose guide (12) and engine hanger nut (13) and tighten the engine hanger nut until it lightly contacts the engine hanger plates.
7. Tighten the engine hanger plate bolts to the specified torque:
   19 lbf·ft (26 N·m, 2.7 kgf·m)
   Tighten the engine hanger nut to the specified torque:
   40 lbf·ft (54 N·m, 5.5 kgf·m)





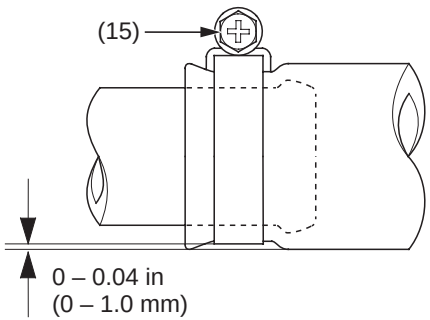
(7) left engine hanger plate
(8) right engine hanger plate
(9) clutch cable stay
(10) engine hanger plate bolts
(11) engine hanger bolt
(12) fuel hose guide
(13) engine hanger nut

8. Connect the radiator hose (14) to the cylinder head.



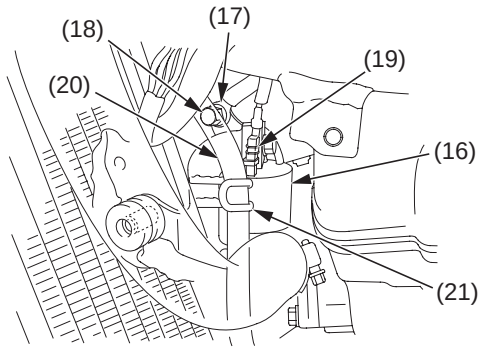
(14) radiator hose

9. Tighten the radiator hose clamp screw (15) as illustrated below.



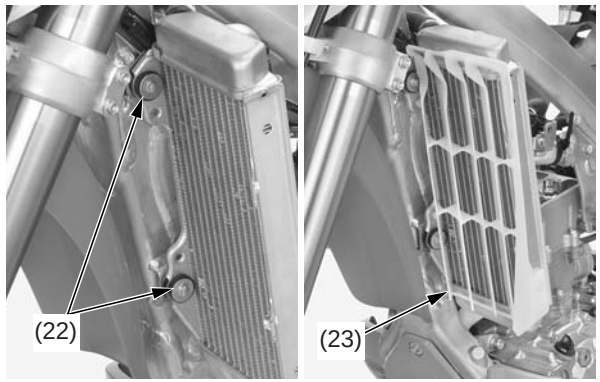
(15) radiator hose clamp screw

10. Install the ignition coil (16), ground wire (17) and bolt (18), then tighten the bolt.
    Connect the primary wire connector (19).
    Clamp the siphon hose (20) to the clamp (21).



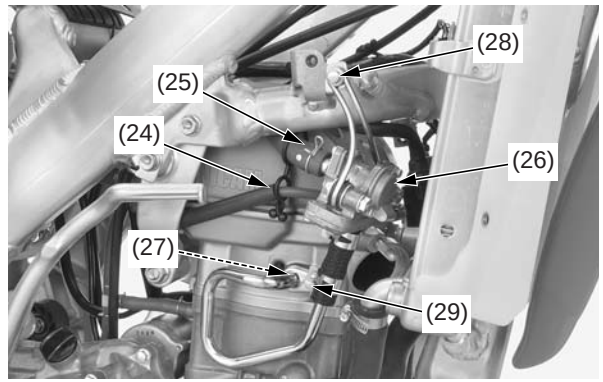
(16) ignition coil
(17) ground wire
(18) bolt
(19) primary wire connector
(20) siphon hose
(21) clamp

11. Install and tighten the left radiator mounting bolts/washers (22).
    Install the left radiator grill (23).



(22) left radiator mounting bolts/washers
(23) left radiator grill

12. Install the camshaft holder assembly (page 71).
13. Install the crankshaft hole cap (page 74).
14. Install the cylinder head cover (page 74).
15. Install the spark plug and plug cap (page 61).
16. Connect the vacuum hose (24) and air suction hose (25).
17. Install the PAIR control valve (26), new O-ring (27) and tighten the bolt A (28), bolt B (29).



(24) vacuum hose
(25) air suction hose
(26) PAIR control valve
(27) O-ring
(28) bolt A
(29) bolt B

18. Install the exhaust pipe (page 64).
19. Install the carburetor (page 139).
20. Install the subframe and muffler (pages 40, 63).
21. Install the fuel tank and seat (pages 36, 38).
22. Fill and bleed the cooling system (page 50).
23. Add engine oil (page 44).
    Check for the following:
    – compression leaks
    – abnormal engine noise
    – secondary air leaks
    – coolant leaks

Suspension

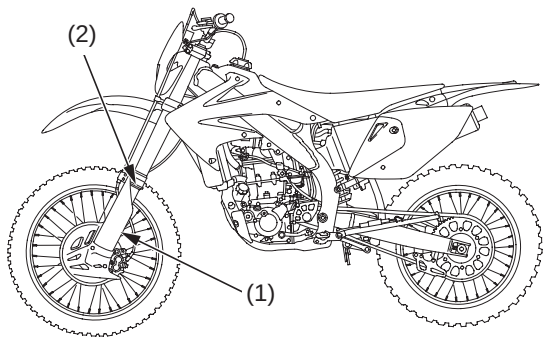
Refer to *Safety Precautions* on page 25.

Loose, worn, or damaged suspension components may adversely affect the handling and stability of your CRF. If any suspension components appear worn or damaged, see your dealer for further inspection. Your dealer is qualified to determine whether or not replacement parts or repairs are needed.

Front Suspension Inspection

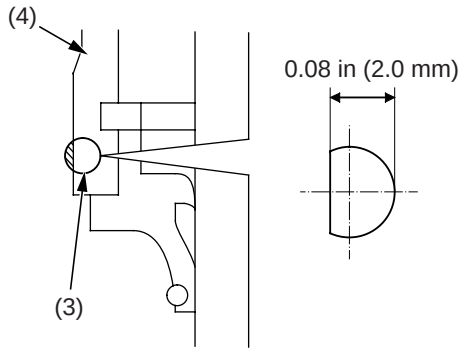
- When your CRF is new, break it in for approximately 1 hour to ensure that the suspension has worked in (page 21).
- After break-in, test run your CRF with the front suspension at the standard setting before attempting any adjustments.
- For optimum fork performance, we recommend that you disassemble and clean the fork after riding your CRF for 3 hours. See page 113 for fork disassembly.
- Replace the fork oil every 7.5 hours of running. See page 87 for oil capacity adjustment after changing the fork oil.
- Replace the damper oil every 22.5 hours of running. See page 117 for damper fork oil replacement.
- Use Pro Honda HP Fork Oil 5W or an equivalent which contains special additives to assure maximum performance of your CRF's front suspension.
- Periodically check and clean all front suspension parts to assure top performance. Check the dust seals for dust, dirt, and foreign materials. Check the oil for any contamination.
- Refer to *Suspension Adjustment Guidelines* (page 131). Make all rebound and compression damping adjustments in one-click increments. (Adjusting two or more clicks at a time may cause you to pass over the best adjustment.) Test ride after each adjustment.
- If you become confused about adjustment settings, return to the standard position and start over.
- If the fork is still too stiff/soft after adjusting compression damping, determine which portion of the travel is still too stiff/soft. This is an important step that will help you solve suspension problems.

1. Make sure that the fork protectors (1) and dust seals (2) are clean and not packed with mud and dirt.
2. Check for signs of oil leakage. Damaged or leaking fork seals should be replaced before your CRF is ridden.

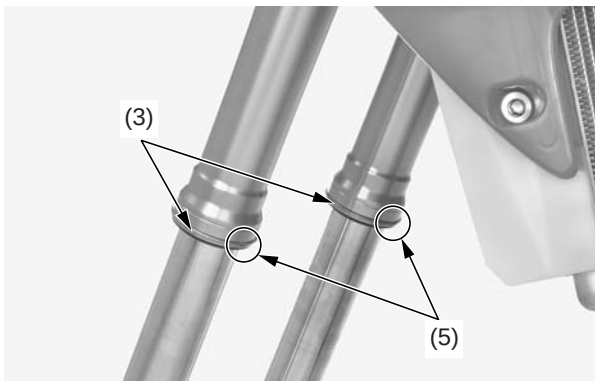


(1) fork protector (2) dust seal

3. Inspect the wear rings (3) for wear or damage. Replace the wear ring if it is 0.08 in (2.0 mm) or flat with the outer tube (4). When replacing the wear ring, remove the fork leg (page 113). Install the wear ring with its end gap (5) facing rearward.

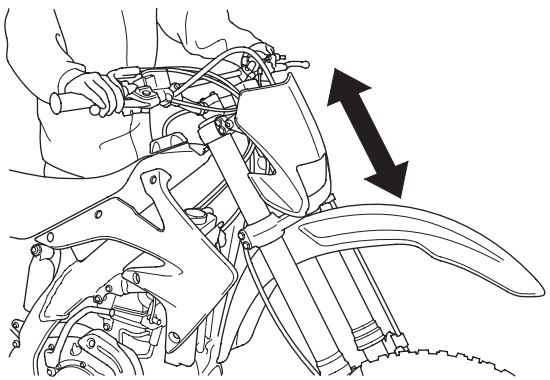


(3) wear ring (4) outer tube



(3) wear rings (5) end gap

4. Make a quick check of fork operation by locking the front brake and pushing down on the handlebar several times.



Rear Suspension Inspection

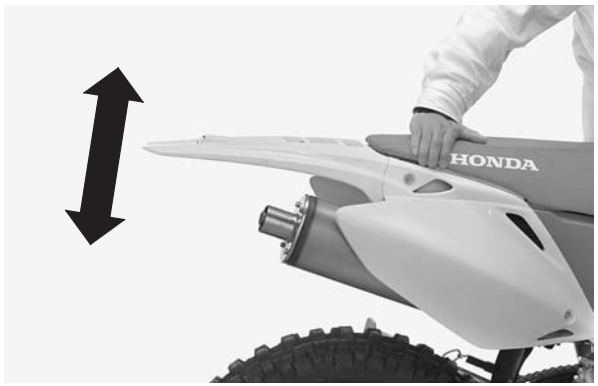
The swingarm is controlled by one hydraulic shock absorber with an aluminum reservoir for oil and nitrogen gas pressure. The gas pressure in the reservoir is contained within a rubber bladder.

The shock absorber's spring pre-load and damping adjustments (compression and rebound) should be adjusted for the rider's weight and track conditions (pages 130 – 133).

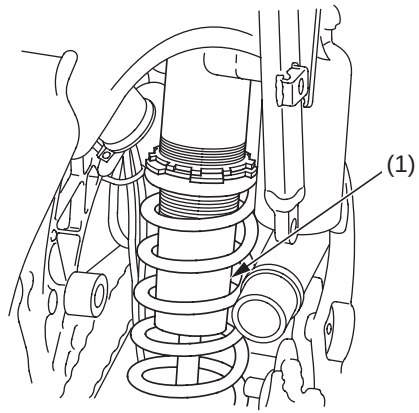
Do not attempt to disassemble, service, or dispose of the damper; see your dealer. The instructions found in this owner's manual are limited to adjustments of the shock assembly only.

- When your CRF is new, break it in for approximately 1 hour with the standard suspension settings before attempting to adjust the rear suspension.
- Refer to *Suspension Adjustment Guidelines* (page 133). Make all rebound and compression damping adjustments in one click or 1/12 turn increments. (Adjusting two or more increments or turns at a time may cause you to pass over the best adjustment.) Test ride after each adjustment.
- If the rear suspension is too stiff/soft, adjust it by turning all the compression and rebound adjusters according to the procedures described in page 127. After adjusting the adjusters simultaneously, suspension may be fine-tuned by turning one of the compression and rebound damping adjusters in one click or in 1/12 turn increments.
- If you have a problem finding an acceptable adjustment, return to the standard position and begin again.

1. Bounce the rear of the motorcycle up and down and check for smooth suspension action.



2. Lift the subframe to the upright position (page 39).
3. Check for a broken or collapsed spring.
4. Check the shock absorber (1) for a bent rod or oil leaks.



(1) shock absorber

5. Push the rear wheel sideways to check for worn or loose swingarm bearings. There should be no movement. If there is, have the bearings replaced by your dealer.

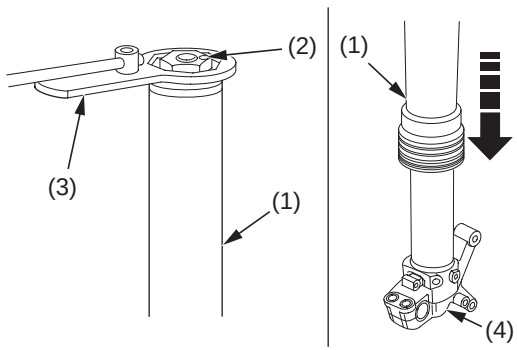
Recommended Fork Oil

viscosity (weight)	5 W
suggested oil	Pro Honda HP Fork Oil or equivalent

Fork Oil Change

Refer to *Front Suspension Disassembly* on page 113.

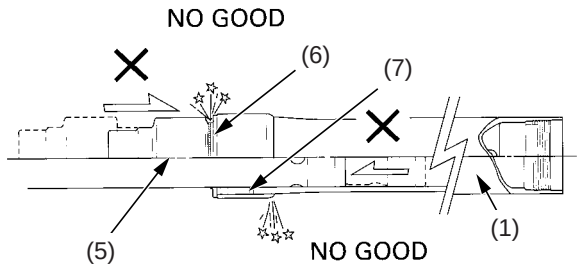
1. Clean the fork assembly, especially the sliding surface of the slider and dust seal.
2. Record the rebound damping adjuster position and turn the adjuster counterclockwise until it stops.
3. Hold the outer tube (1), then remove the fork damper (2) from the outer tube using the lock nut wrench (3). Gently slide the outer tube down onto the lower end of the slider (4).



(1) outer tube (3) lock nut wrench
(2) fork damper (4) slider, lower end

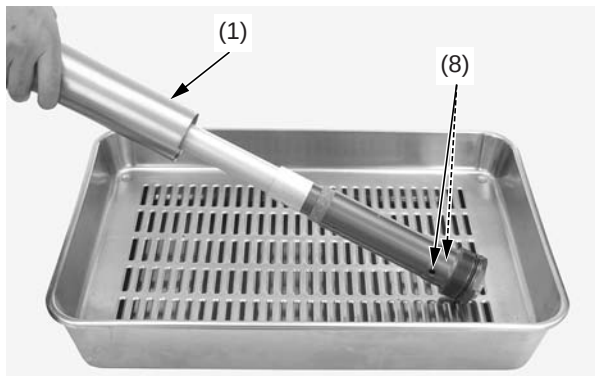
NOTICE

The outer tube (1) can drop on the slider (5) and damage the fork dust seal (6) and guide bushing (7) when the fork damper is removed. To avoid damage hold both the outer tube and slider when removing the fork damper.



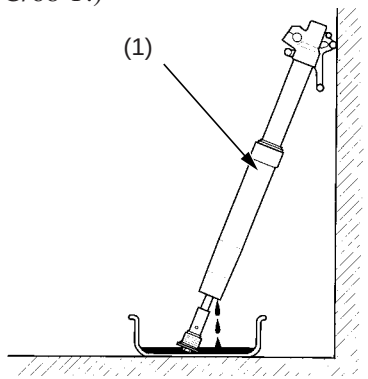
(1) outer tube (6) fork dust seal
(5) slider (7) guide bushing

4. Drain the fork oil from the outer tube (1). Drain the fork oil from the oil holes (8) of the fork damper.



(1) outer tube (8) oil holes

5. Drain the fork oil by turning the outer tube (1) upside down. (About 0.4 US oz (12 cm³) of fork oil will be left in the outer tube when it is left inverted for about 20 minutes at 20 °C/68°F.)



(1) outer tube

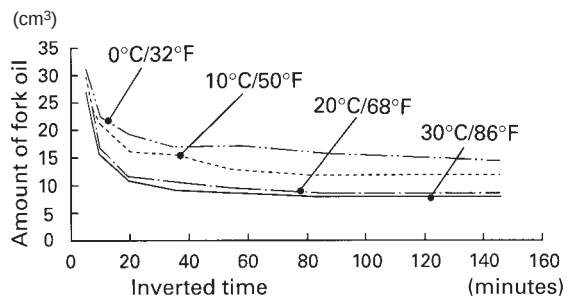
Pour the drained oil into a suitable container and dispose of it in an approved manner (page 151).

NOTICE

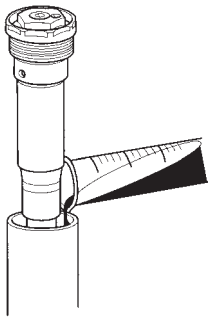
Improper disposal of drained oil is harmful to the environment.

Amount of fork oil left in the fork (within damper and spring) unit: cm³

°C/°F \ minute	5	10	20	35	55	85	145
30/86	27	15.3	10.6	9.4	8.3	7.9	7.9
20/68	29.4	16.5	11.8	10.6	9.4	8.2	8.2
10/50	28.2	21.2	16.5	15.3	12.9	11.8	11.8
0/32	30.6	22.4	18.8	16.5	16.5	15.3	14.1

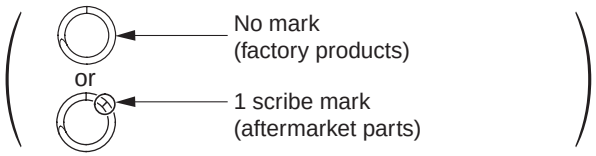


6. Pour the recommended fork oil (page 86) into the outer tube.



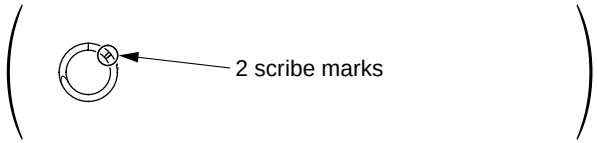
Fork Oil Capacity:

Standard 26.32 lbf/in (4.61 N/mm) Fork Spring



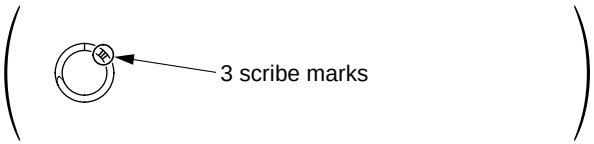
Standard oil capacity	11.0 US oz (324 cm^3)	
Maximum oil capacity	13.6 US oz (402 cm^3)	Slightly stiffer as it nears full compression.
Minimum oil capacity	10.3 US oz (306 cm^3)	Slightly softer as it nears full compression.

Optional Softer 25.18 lbf/in (4.41 N/mm) Fork Spring



Standard oil capacity	11.2 US oz (330 cm^3)	
Maximum oil capacity	13.8 US oz (407 cm^3)	Slightly stiffer as it nears full compression.
Minimum oil capacity	10.5 US oz (311 cm^3)	Slightly softer as it nears full compression.

Optional Stiffer 27.47 lbf/in (4.81 N/mm) Fork Spring

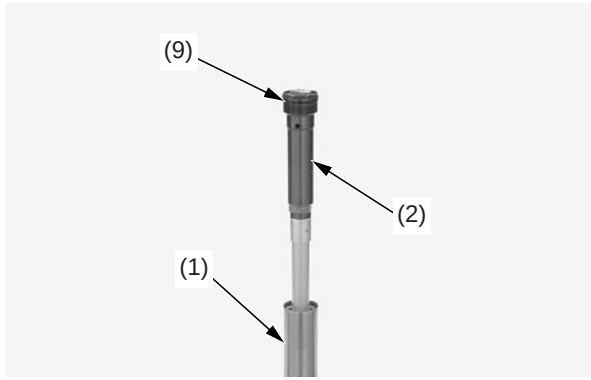


Standard oil capacity	11.1 US oz (327 cm^3)	
Maximum oil capacity	13.7 US oz (405 cm^3)	Slightly stiffer as it nears full compression.
Minimum oil capacity	10.5 US oz (309 cm^3)	Slightly softer as it nears full compression.

Be sure the oil capacity is the same in both fork legs.

7. Check that the O-ring (9) on the fork damper (2) is in good condition. Apply the recommended fork oil to the O-ring. Temporarily install the fork damper to the outer tube (1).
   After installing the fork leg (page 123), tighten the fork damper to the specified torque:
   Actual:
   25 lbf·ft (34 N·m, 3.5 kgf·m)
   Torque wrench scale reading:
   23 lbf·ft (31 N·m, 3.2 kgf·m), using a 20 in (50 cm) long torque wrench.

When using the lock nut wrench, use a 20 in (50 cm) long deflecting beam type torque wrench. The lock nut wrench increases the torque wrench's leverage, so the torque wrench reading will be less than the torque actually applied to the fork damper.



(1) outer tube
(2) fork damper
(9) O-ring

Brakes

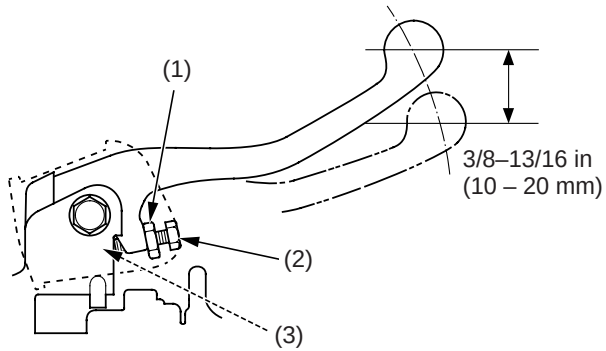
Refer to *Safety Precautions* on page 25.

Both the front and rear brakes are the hydraulic disc type. 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 brake pads for wear.

If the front brake lever or rear brake pedal freeplay does not feel within the normal range while riding, check the brake pads. If they are not worn beyond the recommended limit (page 91), there is probably air in the brake system. Refer to the Honda Service Manual or see your dealer to have the air bled from the system.

Front Brake Lever Adjustment



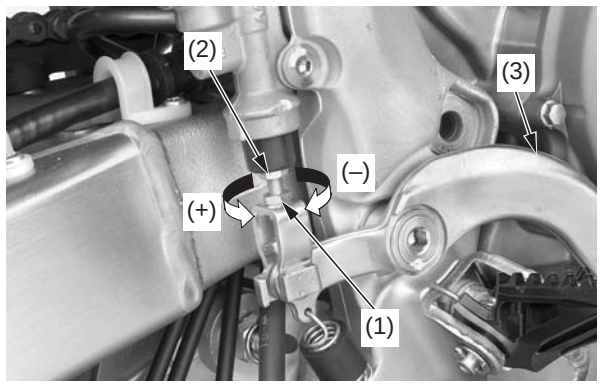
(1) lock nut
(2) adjuster
(3) piston

1. Loosen the lock nut (1).
2. To position the brake lever farther away from the handgrip, turn the adjuster (2) clockwise. To position the brake lever closer to the handgrip, turn the adjuster counterclockwise.
3. While holding the adjuster, tighten the lock nut to the specified torque:
   4.4 lbf·ft (5.9 N·m, 0.6 kgf·m)
4. Apply the brake, release it, then spin the wheel and check that it rotates freely. Repeat this procedure several times.
5. Check freeplay by pulling in slowly on the brake lever until the brake starts to engage.
   Freeplay: 3/8 – 13/16 in (10 – 20 mm)
6. Apply silicone grease to the contacting faces of the adjuster and piston (3).

Rear Brake Pedal Height

The brake pedal height should be approximately level with the right footpeg.

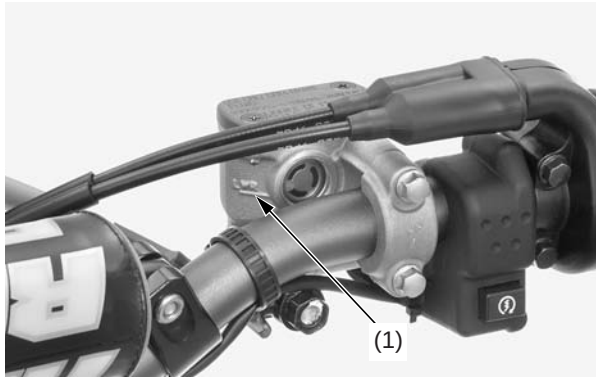
1. Loosen the lock nut (1) and turn the adjusting bolt (2) in direction (+) to raise the brake pedal (3) or in direction (–) to lower it.
2. Tighten the lock nut to the specified torque at the desired pedal height.
   4.4 lbf·ft (5.9 N·m, 0.6 kgf·m)



(1) lock nut
(2) adjusting bolt
(3) brake pedal
(+) raise the pedal height
(–) lower the pedal height

Fluid Level Inspection

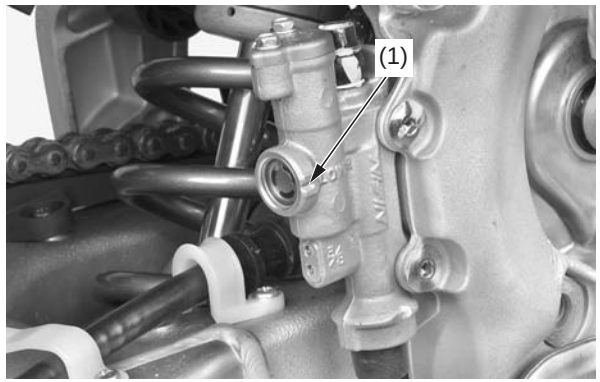
Front Brake Fluid Level Check



(1) LWR mark

With the motorcycle in an upright position, check the fluid level.
It should be above the LWR mark (1). If the level is at or below the LWR mark, check the brake pads for wear (page 91).
Worn brake pads should be replaced. If the pads are not worn, have your brake system inspected for leaks.
If the brake lever freeplay exceeds 13/16 in (20 mm), there is probably air in the brake system and it must be bled. Refer to the Honda Service Manual or see your dealer for brake bleeding.

Rear Brake Fluid Level Check



(1) LOWER mark

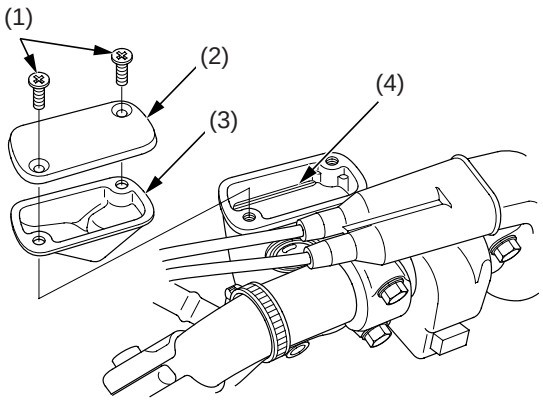
With the motorcycle in an upright position, check the fluid level.
It should be above the LOWER mark (1). If the level is at or below the LOWER mark, check the brake pads for wear (page 91).
Worn brake pads should be replaced. If the pads are not worn, have your brake system inspected for leaks.
If the brake pedal freeplay exceeds 13/16 in (20 mm), there is probably air in the brake system and it must be bled. Refer to the Honda Service Manual or see your dealer for brake bleeding.

Adding Front Brake Fluid

NOTICE

Spilled brake fluid will severely damage instrument lenses and painted surfaces. It is also harmful to some rubber parts. Be careful whenever you remove the reservoir cap: make sure the reservoir is horizontal first.

- Always use fresh DOT4 brake fluid from a sealed container when servicing the system. Do not mix different types of fluid, they may not be compatible.
- The recommended brake fluid is Pro Honda DOT4 brake fluid or an equivalent.



(1) front brake reservoir cap screws
(2) reservoir cap
(3) diaphragm
(4) upper level mark

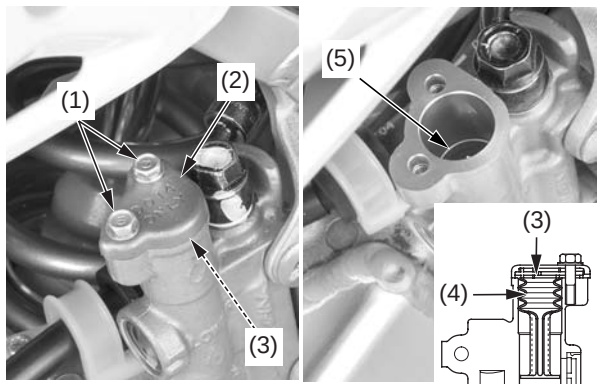
1. Remove the front brake reservoir cap screws (1), reservoir cap (2) and diaphragm (3).
2. Fill the reservoir with DOT4 brake fluid to the upper level mark (4). Do not overfill.
3. Install the diaphragm and reservoir cap.
4. Tighten the front brake reservoir cap screws to the specified torque:
   0.7 lbf·ft (1 N·m, 0.1 kgf·m)

Adding Rear Brake Fluid

NOTICE

Spilled brake fluid will severely damage instrument lenses and painted surfaces. It is also harmful to some rubber parts. Be careful whenever you remove the reservoir cap: make sure the reservoir is horizontal first.

- Always use fresh DOT4 brake fluid from a sealed container when servicing the system. Do not mix different types of fluid, they may not be compatible.
- The recommended brake fluid is Pro Honda DOT4 brake fluid or an equivalent.



(1) rear brake reservoir cap bolts
(2) reservoir cap
(3) set plate
(4) diaphragm
(5) upper level mark

1. Remove the rear brake reservoir cap bolts (1), reservoir cap (2), set plate (3) and diaphragm (4).
2. Fill the reservoir with DOT4 brake fluid to the upper level mark (5). Do not overfill.
3. Install the diaphragm, set plate and reservoir cap. Do not bend to the diaphragm during installation.
4. Install and tighten the rear brake reservoir cap bolts to the specified torque:
   0.7 lbf·ft (1 N·m, 0.1 kgf·m)

Other Inspection

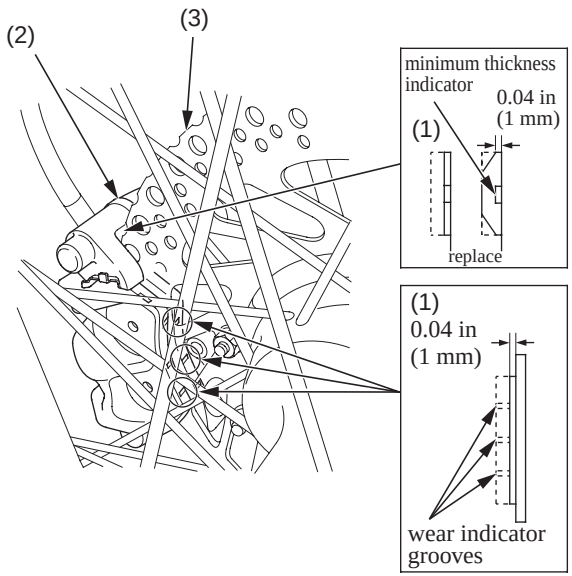
- Make sure there are no fluid leaks.
- Check for deterioration or cracks in the hoses and fittings.

Brake Pad Wear

Brake pad wear depends on the severity of usage and track conditions. (Generally, the pads will wear faster on wet and dirty tracks) Inspect the pads at each regular maintenance interval (pages 27 and 28).

Front Brake Pads

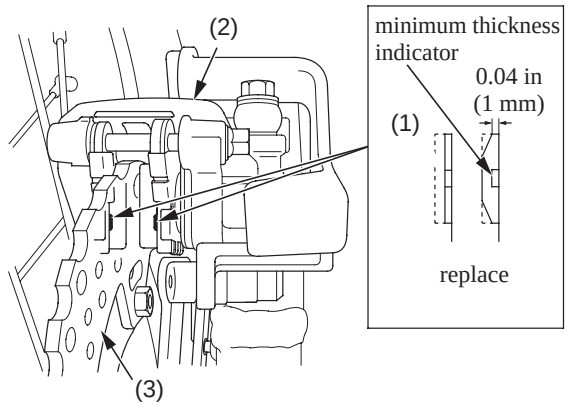
Inspect the brake pads (1) through the front wheel to determine the pad wear. If either pad is worn anywhere to a thickness of 0.04 in (1 mm), both pads must be replaced.



(1) brake pads
(2) front brake caliper
(3) brake disc

Rear Brake Pads

Inspect the brake pads (1) from the rear side of the caliper to determine the pad wear. If either pad is worn anywhere to a thickness of 0.04 in (1 mm), both pads must be replaced.



(1) brake pads
(2) rear brake caliper
(3) brake disc

Other Inspections

Check that the brake lever and pedal assemblies are positioned properly and the securing bolts are tight.

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

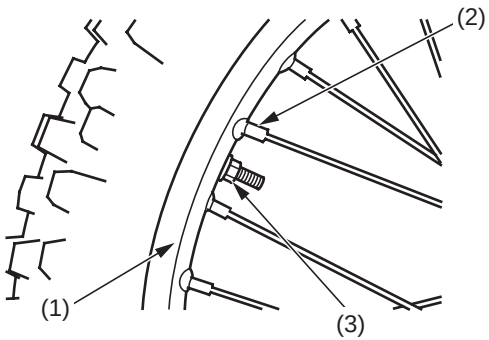
Wheels

Refer to *Safety Precautions* on page 25.

Keeping the wheels true (round) and maintaining correct spoke tension is critical to safe motorcycle operation. During the first few rides, spokes will loosen more rapidly due to the initial seating of the parts. Excessively loose spokes may result in instability at high speeds and the possible loss of control. It's also important that the rim locks are secure to prevent tire slippage.

It is not necessary to remove the wheels to perform the recommended service in the Maintenance Schedule (pages 27 and 28). However, information for wheel removal is provided for emergency situations.

Wheel Rims & Spokes



(1) wheel rim
(2) spoke
(3) rim lock

1. Inspect the wheel rims (1) and spokes (2) for damage.
2. Tighten, any loose spokes and rim locks (3) to the specified torque:
   Spokes :
   (front) 2.7 lbf·ft (3.68 N·m, 0.4 kgf·m)
   (rear) 2.7 lbf·ft (3.7 N·m, 0.4 kgf·m)
   Rim Locks : 9 lbf·ft (12 N·m, 1.2 kgf·m)
3. Check wheel rim runout. If runout is noticeable, see the Honda Service Manual for inspection instructions.

Axles & Wheel Bearings

See the Honda Service Manual for inspection information:

1. Check the axle shaft for runout.
2. Check the condition of the wheel bearings.

Refer to *Safety Precautions* on page 25.

To safely operate your CRF, the tires must be the proper type (off-road) and size, in good condition with adequate tread, and correctly inflated.

⚠ 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 on tire replacement.

Air Pressure

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. Underinflated tires can also cause wheel damage on hard terrain. Overinflated tires make your CRF ride harshly, are more prone to damage from surface hazards, and wear unevenly.

Make sure the valve stem caps are secure. If necessary, install new caps.

Always check air pressure when your tires are "cold." If you check air pressure when your tires are "warm" — even if your CRF 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 correct "cold" tire pressures are:

Front	15 psi (100 kPa, 1.0 kgf/cm^2)
Rear	15 psi (100 kPa, 1.0 kgf/cm^2)

If you decide to adjust tire pressures for a particular riding condition, make changes a little at a time.

Inspection

Take time to inspect your tires and wheels before you ride.

- Inspect carefully for bumps or bulges in the side of the tire or the tread. Replace any tire that has a bump or bulge.
- Look closely for cuts, slits, or cracks in the tires. Replace a tire if you can see fabric or cord.
- Check for rocks or other objects embedded in the tire or tread. Remove any objects.
- Check the position of both valve stems. A tilted valve stem indicates the tube is slipping inside the tire or the tire is slipping on the rim.

Tube Replacement

If a tube is punctured or damaged, you should replace it as soon as possible. A repaired tube may not have the same reliability as a new one, and it may fail while you are riding.

Use a replacement tube equivalent to the original.

Tire Replacement

The tires that came on your CRF were designed to provide a good combination of handling, braking, durability, and comfort across a broad range of riding conditions.

⚠ 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.

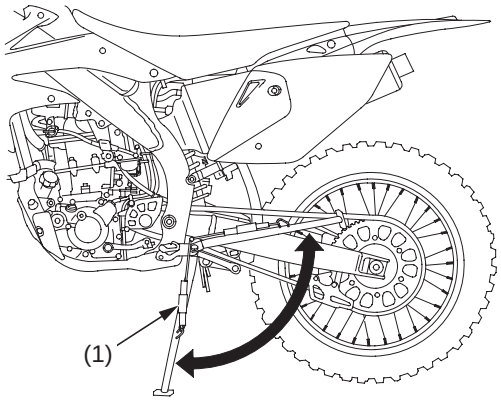
Always use the size and type of tires recommended in this owner's manual.

Front	80/100-21 51M	
	DUNLOP	D742FA
Rear	110/100-18 64M	
	DUNLOP	D756
Type	bias-ply, tube type	

- When replacing, use the original equipment tires or equivalent tires of the same size, construction, speed rating, and load range as the originals.
- Replace the tube any time you replace a tire. The old tube will probably be stretched and, if installed in a new tire, could fail.

Refer to *Safety Precautions* on page 25.

1. Check the side stand spring (1) for damage and loss of tension.
2. Check the side stand assembly for freedom of movement.



(1) side stand spring

If the side stand is stiff or squeaky, clean the pivot area and lubricate the pivot bolt with grease.

Drive Chain

Refer to *Safety Precautions* on page 25.

An endless (riveted master link) chain connects the drive and driven sprockets. The O-ring chain uses rubber between the side plates of the pin and roller links to seal in the manufacturer-installed lubricating grease and keep out moisture and dirt.

The service life of the chain depends on proper lubrication and adjustment. Poor maintenance can cause premature wear or damage to the drive chain or sprockets.

Under severe usage, or when the motorcycle is ridden in unusually dusty or muddy areas, more frequent maintenance will be necessary.

Before servicing your drive chain, turn the engine OFF, raise the rear wheel off the ground by placing an optional workstand or equivalent support under the engine and check that your transmission is in neutral.

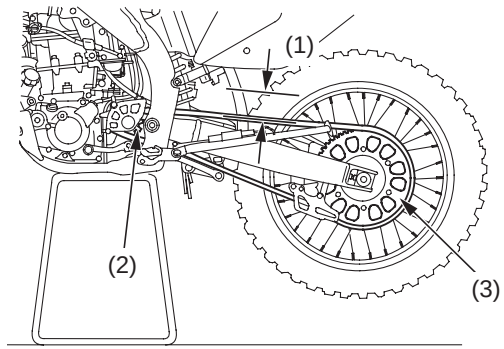
It is not necessary to remove or replace the drive chain to perform the recommended service in the Regular off-road Use Maintenance Schedule (page 27).

Inspection

1. Stop the engine and raise the rear wheel off the ground by placing an optional workstand or equivalent support under the engine and shift the transmission into neutral.
2. Check the drive chain slack (1) in the upper drive chain run midway between the drive (2) and driven sprockets (3). Drive chain slack should allow the following vertical movement by hand:
   1 – 1 3/8 in (25 – 35 mm)

NOTICE

Excessive chain slack may allow the drive chain to damage the engine cases.

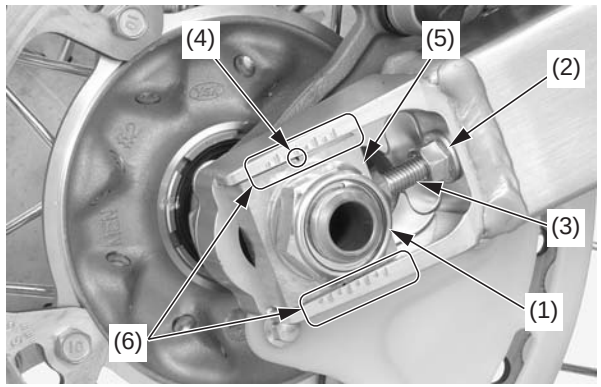


(1) drive chain slack
(2) drive sprocket
(3) driven sprocket

If the chain is found to be slack in one segment of its length and taut in another, this indicates that some of the links are either worn, kinked or binding. Kinking and binding can frequently be eliminated by thorough cleaning and lubrication. If the drive chain requires adjustment, procedure is as follows:

Adjustment

1. Loosen the rear axle nut (1).
2. Loosen the chain adjuster lock nuts (2) and turn the adjusting bolts (3) counterclockwise to decrease slack or clockwise to increase slack.
   Align the index marks (4) of the axle plates (5) with the same reference marks (6) on both sides of the swingarm.



(1) rear axle nut
(2) chain adjuster lock nut
(3) adjusting bolt
(4) index mark
(5) axle plate
(6) reference marks

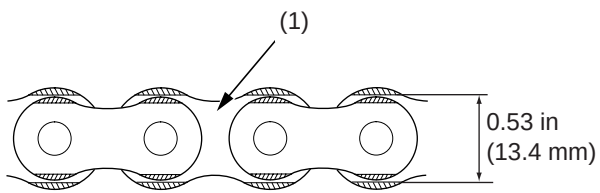
3. Tighten the rear axle nut to the specified torque:
   94 lbf·ft (128 N·m, 13.1 kgf·m)
4. Recheck chain slack and adjust if necessary.
5. Turn the adjusting bolts counterclockwise until they touch the axle plates lightly. Then tighten the chain adjuster lock nuts to the specified torque while holding the adjusting bolts with a wrench.
   20 lbf·ft (27 N·m, 2.8 kgf·m)

Removal, Cleaning & Replacement

For maximum service life, the drive chain should be cleaned, lubricated, and adjusted before each outing. Your CRF has an endless (riveted master link) type chain. It should only be removed or replaced by your dealer.

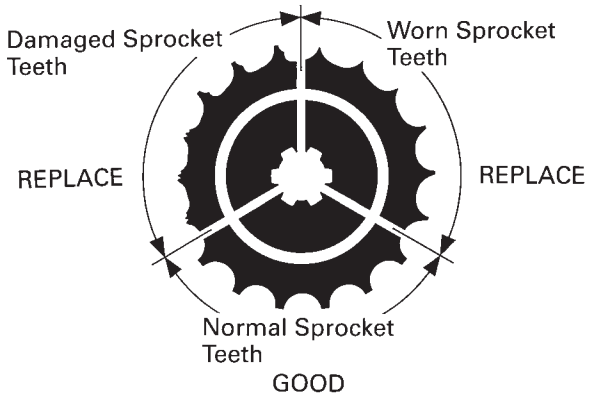
The O-rings can be damaged by steam cleaning, high pressure washers, and certain solvents.

1. Clean the side surfaces of the chain with a dry cloth. Use a high flash point solvent such as kerosene – not gasoline.
   Do not brush the rubber O-rings. Brushing will damage them. Use of a solvent may also damage the O-rings.
2. Replace the drive chain if it has damaged rollers, loose fitting links, damaged O-rings, or otherwise appears unserviceable.
3. Measure the drive chain plate (1). If the drive chain plate is worn anywhere to a thickness of 0.53 in (13.4 mm), the drive chain must be replaced.
   Replacement chain:
   Size/link: DID520MXV/114



(1) drive chain plate (inner)

4. Inspect the sprocket teeth for possible wear or damage. Replace them if necessary.
   Never install a new drive chain on badly worn sprockets, or use new sprockets with a badly worn drive chain. Both chain and sprockets must be in good condition, or the new replacement chain or sprocket(s) will wear rapidly.
   Excessively worn sprocket teeth have a hooked, worn appearance. Replace any sprocket, which is damaged or excessively worn.



NOTICE

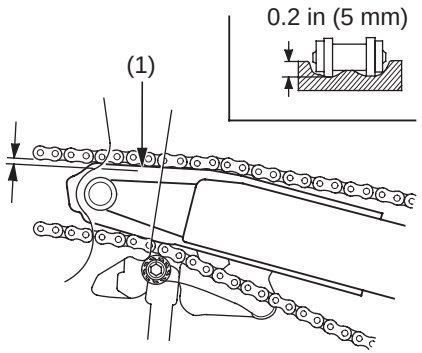
Use of a new chain with worn sprockets will cause rapid chain wear.

5. Lubricate the drive chain.
6. Recheck chain slack and adjust if necessary.

Drive Chain

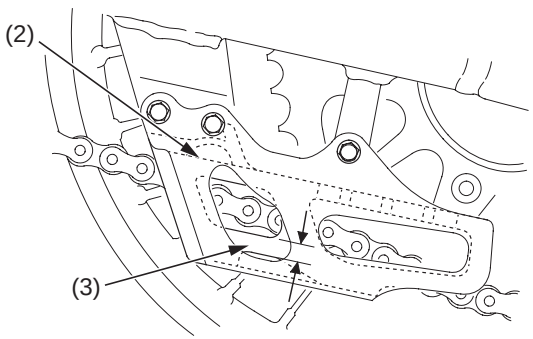
Drive Chain Sliders

1. Check the chain slider (1) for wear.
   If the wear is 0.2 in (5 mm) or more, replace it.



(1) chain slider

2. Check the chain guide slider (2) for wear.
   Replace the chain guide slider if it is worn to the bottom of the wear limit (3).

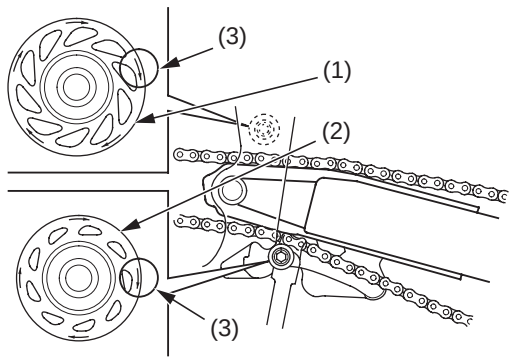


(2) chain guide slider
(3) wear limit

Drive Chain Rollers

1. Measure the diameter of the upper (1) and lower drive chain rollers (2). Replace them if below the service limit.
   Service Limit:
   UPPER ROLLER: 1.5 in (39 mm)
   LOWER ROLLER: 1.4 in (35 mm)

2. Replace the roller if necessary as follows:
   Install the upper drive chain roller (Green) with the "→" mark (3) facing toward the frame and lower drive chain roller (Black) with the "→" mark (3) side facing out.
   Tighten the drive chain roller bolt and nut to the specified torque:
   Upper roller bolt:
   9 lbf·ft (12 N·m, 1.2 kgf·m)
   Lower roller nut:
   9 lbf·ft (12 N·m, 1.2 kgf·m)

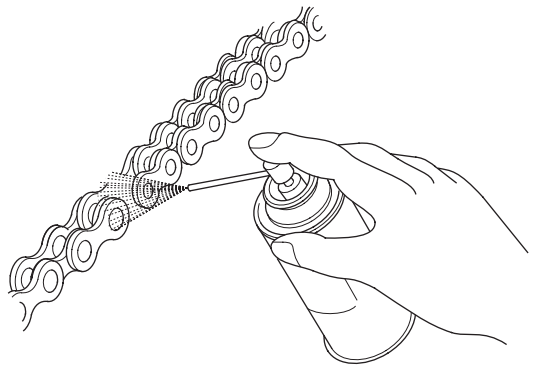


(1) upper drive chain roller (Green)
(2) lower drive chain roller (Black)
(3) "→" mark

Lubrication

Lubricate the drive chain with Pro Honda HP Chain Lube or an equivalent chain lubricant designed specifically for use on O-ring chains. Wipe off the excess chain lubricant.

Commercial chain lubricants not designed for motorcycle drive chains may contain solvents which could damage the O-rings.



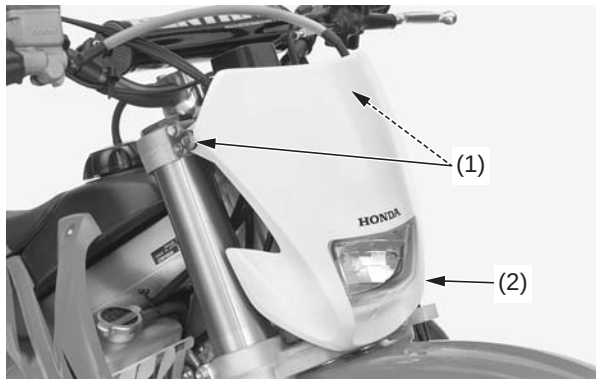
Refer to *Safety Precaution* on page 25.

Loose, worn or damaged steering damper components may adversely affect the handling and stability of your CRF. If any steering damper components appear worn or damaged, see your dealer for further inspection. Your dealer is qualified to determine whether or not replacement parts are needed.
Do not attempt to disassemble the steering damper; see your dealer.
The instructions found in this owner's manual are limited to adjustment and service of the steering damper assembly only.

Steering Damper Operation Inspection

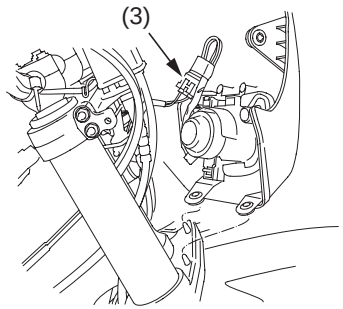
- When your CRF is new, break it in for approximately 1 hour to ensure that the steering damper has worked in (page 21).
- After break-in, test run your CRF with the steering damper at the standard setting before making any adjustments.
- Check the spherical bearings and dust seal for dust, dirt, and foreign materials.
- Make all damping adjustments in one-click increments. (Adjusting two or more clicks at a time may cause you to pass over the best adjustment.) Test ride after each adjustment.
- If you have a problem finding an acceptable adjustment, return to the standard position and begin again.

1. Remove the front visor bolts (1) and pull out the front visor (2).



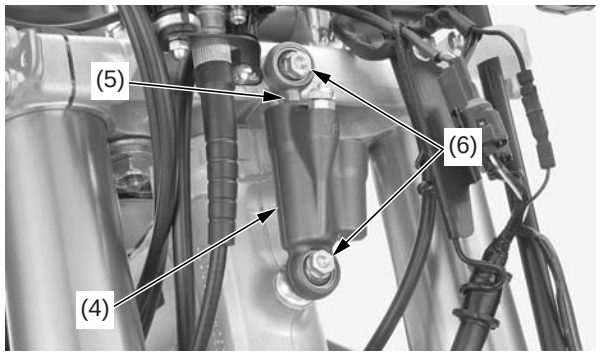
(1) front visor bolts
(2) front visor

2. Disconnect the headlight connector (3).



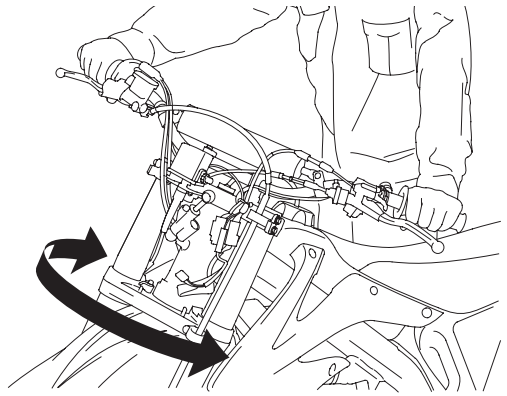
(3) headlight connector

3. Check the steering damper (4) for deformation or oil leaks. Check the damper rod (5) for bending or damage. Replace the damper case or damper rod if there is any abnormality. Refer to Honda Service Manual or see your dealer for steering damper disassembly. Check the torque of the steering damper mounting bolts (6):
15 lbf·ft (20 N·m, 2.0 kgf·m)



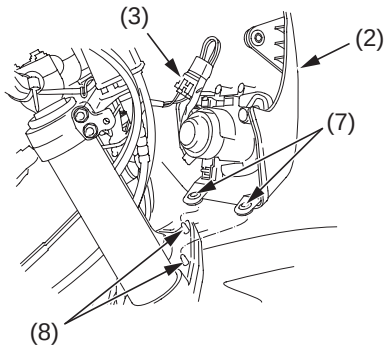
(4) steering damper
(5) damper rod
(6) steering damper mounting bolts

4. With your CRF on a box or an optional workstand (front wheel elevated), check that the steering moves smoothly from side-to-side.

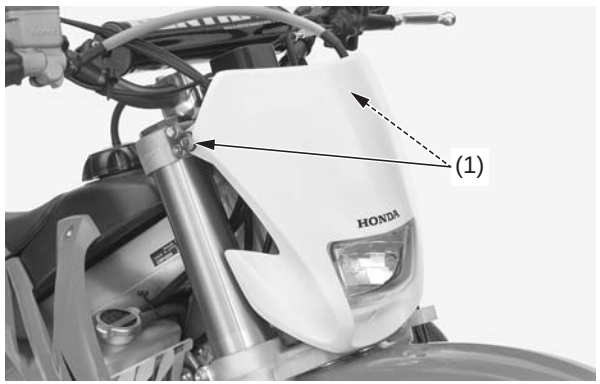


(cont'd)

5. Connect the headlight connector (3). Install the front visor (2) by aligning its grommets (7) with the tabs (8) on the steering stem. Install and tighten the front visor bolts (1).



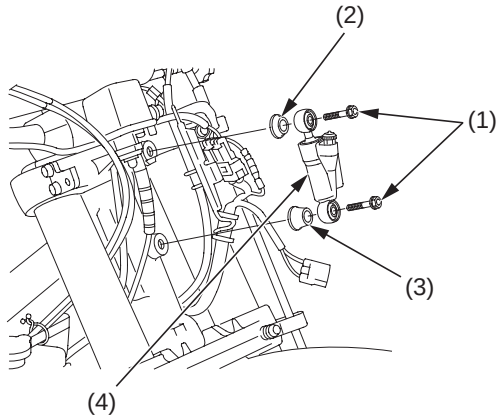
(2) front visor
(3) headlight connector
(7) grommets
(8) tabs



(1) front visor bolts

Removal

1. Remove the front visor (page 99).
2. Remove the steering damper mounting bolts (1), collar A (2), collar B (3) and steering damper (4).

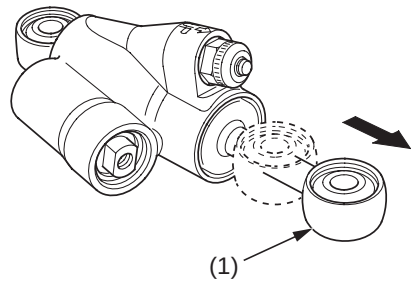


(1) steering damper mounting bolts
(2) collar A
(3) collar B
(4) steering damper

Inspection

1. Check the damper rod (1) operation.
   The damper rod is fully extended and compressed by hand. Release the damper rod, then check that it extends to its maximum length.

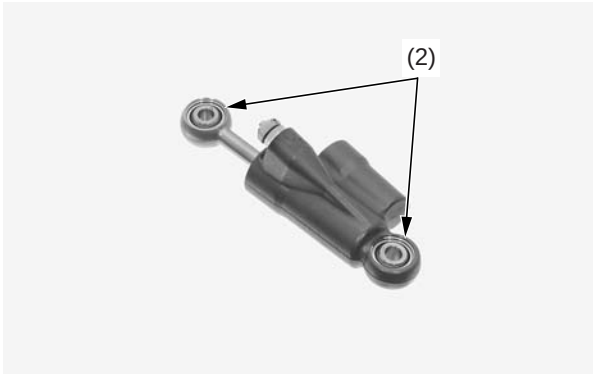
   If the damper rod does not extend to its maximum length, disassemble and inspection for steering damper.
   Refer to the Honda Service Manual or see your dealer.



(1) damper rod

2. Check the condition of the spherical bearings (2). Move the spherical bearing with your finger. The spherical bearing should move smoothly and quietly.

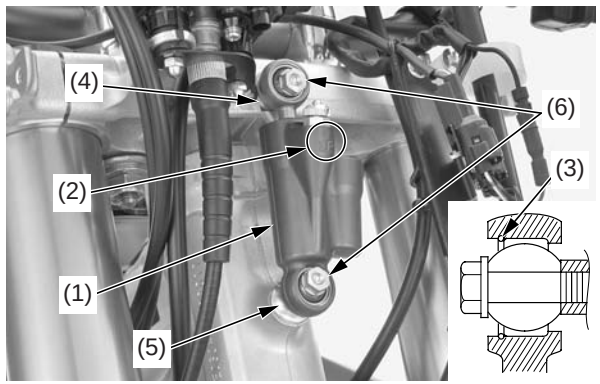
   Replace the spherical bearing if it does not move smoothly and quietly.
   Refer to the Honda Service Manual or see your dealer.



(2) spherical bearings

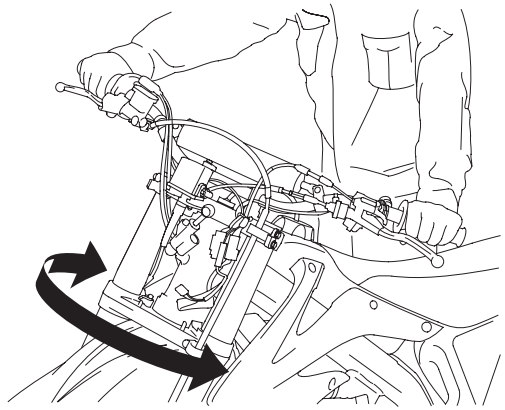
Installation

1. Clean and apply a locking agent to the steering damper mounting bolt threads.
2. Install the steering damper (1) with its "UP" mark (2) facing up and forward. Turn the damper rod and its stopper ring (3) facing toward the front side.
3. Install the collar A (4), collar B (5) and steering damper mounting bolts (6).
   Be sure to install the collar A and collar B with its wide flange side facing toward the steering head pipe side.
4. Tighten the steering damper mounting bolts to the specified torque:
   15 lbf·ft (20 N·m, 2.0 kgf·m)



(1) steering damper
(2) "UP" mark
(3) stopper ring
(4) collar A
(5) collar B
(6) steering damper mounting bolts

5. With your CRF on a box or an optional workstand (front wheel elevated), check that the steering moves smoothly from side-to-side.



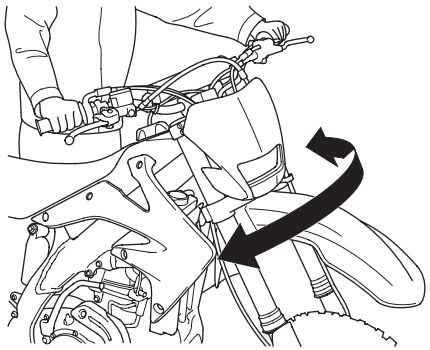
6. Install the front visor (page 100).

Additional Maintenance Procedures

Refer to *Safety Precautions* on page 25.

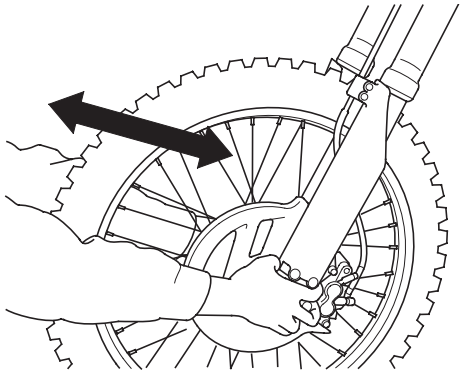
Steering Head Bearing Inspection

1. With your CRF on a box or optional workstand (front wheel elevated), turn the handlebar to the right and left to check for roughness in the steering head bearings.



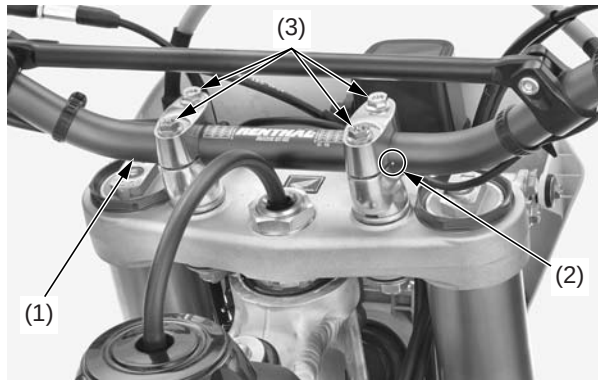
2. Stand in front of your CRF, grab the fork (at the axle), look at the steering head, and push the fork in and out (toward the engine) to check for play in the steering head bearings.

If any roughness or play is felt, but you do not see any movement in the steering head, the fork bushings may be worn. Refer to the Honda Service Manual for replacement or adjustment procedures, or see your dealer.



Handlebar Inspection

1. Remove the handlebar pad.
2. Check the handlebar (1) for bends or cracks.
3. Check that the handlebar has not moved from its proper position (by inspecting the paint mark (2)).
4. Check the torque of the handlebar upper holder bolts (3):
   16 lbf·ft (22 N·m, 2.2 kgf·m)
   Tighten the front bolts first.



(1) handlebar
(2) paint mark
(3) handlebar upper holder bolts

Control Cables

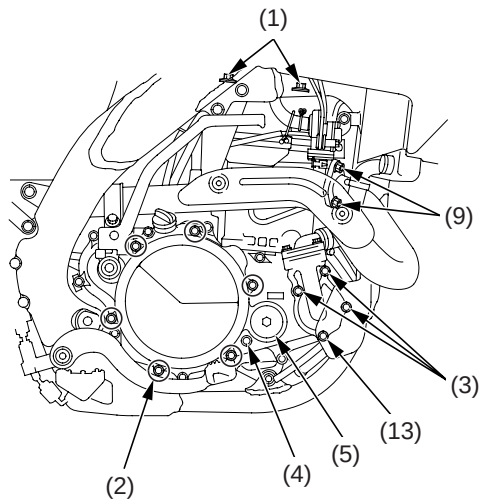
Periodically, disconnect the throttle, clutch and hot start cables at their upper ends. Thoroughly lubricate the cable pivot points with a commercially available cable lubricant. If the clutch lever, hot start lever and throttle operation is not smooth, replace the cable.
Be sure the throttle returns freely from fully open to fully closed automatically, in all steering positions.

Nuts, Bolts, Fasteners

Check and tighten nuts, bolts, and fasteners before every outing.

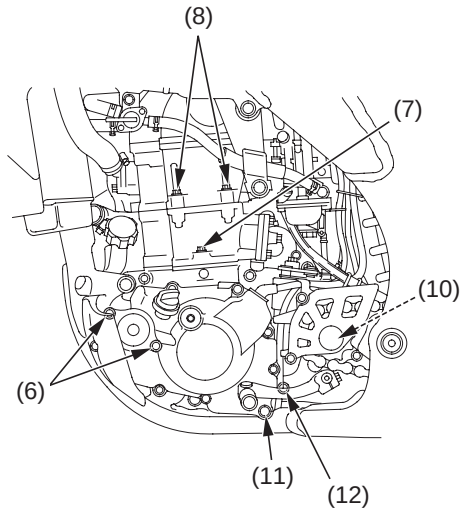
	Item	Torque		
		lbf•ft	N•m	kgf•m
ENGINE				
1	Cylinder head cover bolts	7	10	1.0
2	Clutch cover bolts	7	10	1.0
3	Water pump cover bolts	7	10	1.0
4	Transmission oil check bolt	7	10	1.0
5	Crankshaft hole cap	11	15	1.5
6	Oil filter cover bolts	7	10	1.0
7	Cylinder bolt	7	10	1.0
8	Cylinder head bolts	7	10	1.0
9	Exhaust pipe joint nuts	15	21	2.1
10	Drive sprocket bolt	23	31	3.2
11	Engine oil drain bolt	12	16	1.6
12	Transmission oil drain bolt	12	16	1.6
13	Coolant drain bolt	7	10	1.0

RIGHT SIDE



(1) cylinder head cover bolts
(2) clutch cover bolts
(3) water pump cover bolts
(4) transmission oil check bolt
(5) crankshaft hole cap
(9) exhaust pipe joint nuts
(13) coolant drain bolt

LEFT SIDE



(6) oil filter cover bolts
(7) cylinder bolt
(8) cylinder head bolts
(10) drive sprocket bolt
(11) engine oil drain bolt
(12) transmission oil drain bolt

Battery

Refer to *Safety Precautions* on page 25.

Your CRF 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 engine is stopping. Limited operation also allows the battery to discharge. If you have electrical accessories on your CRF or do not ride frequently, we recommended that you charge the battery frequently (see *Battery Charging* on page 105).

If you do not expect to ride your CRF for at least 2 weeks, we recommended you remove the battery, or at least disconnect the battery cables (negative cable first).

If you plan to store your CRF, see *Battery Storage* (this page).

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

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

Battery Storage

If you plan to store your CRF, 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 charging it every 30 days (see *Battery Charging* on page 105).

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.

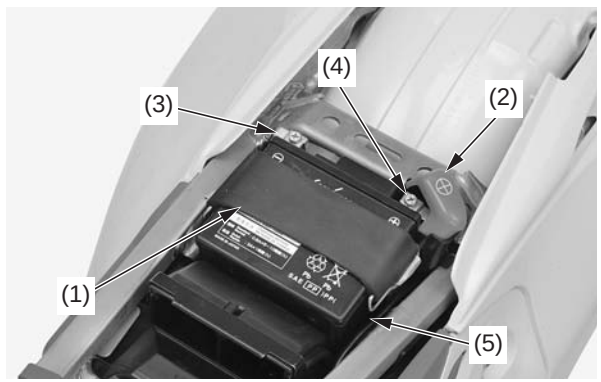
A spark or flame can cause the battery to explode with enough force to kill or seriously hurt you.

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

The battery is located under the seat.

Removal

1. Remove the seat (page 36).
2. Remove the battery band (1).
3. Remove the positive terminal cover (2).
4. Disconnect the negative (–) terminal (3) first, then the positive (+) terminal (4) and remove the battery (5).

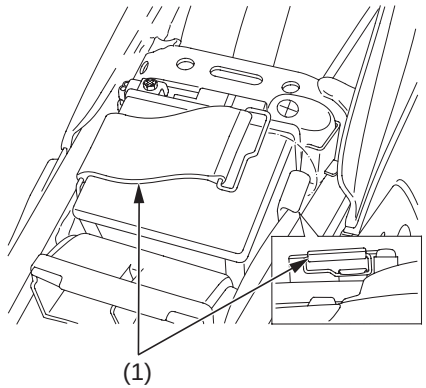


(1) battery band
(2) positive terminal cover
(3) negative (–) terminal
(4) positive (+) terminal
(5) battery

5. Unless you have been riding regularly, charge the battery (see page 105).
6. Store your battery in an easy-to-reach location off the floor, in an area protected from freezing temperatures and direct sunlight.
7. Clean the battery box after removing the battery for storage. Dry the battery box.
8. Slow charge the battery (see page 105) once every 30 days.

Installation

1. Reinstall the battery in the reverse order of removal. Be sure to connect the positive (+) terminal first, then the negative (–) terminal.
2. Check all the bolts and other fasteners are secure.
3. Install the battery band (1) as shown.



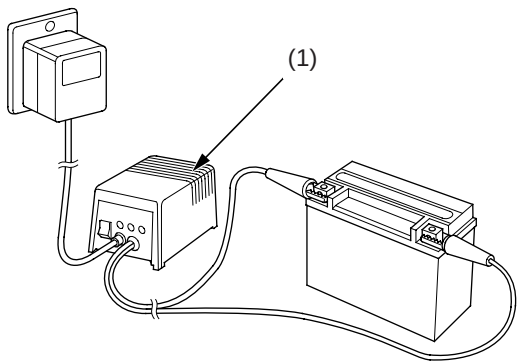
(1) battery band

Battery Charging

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 recommended using a charger (1) designed specifically for your Honda, which can be purchased from your dealer. 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.



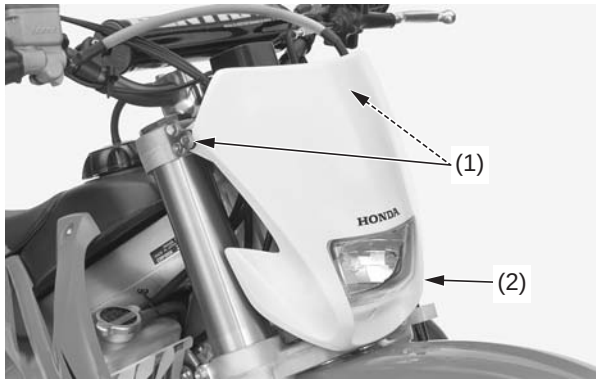
(1) charger

Headlight & Taillight

Refer to *Safety Precaution* on page 25.

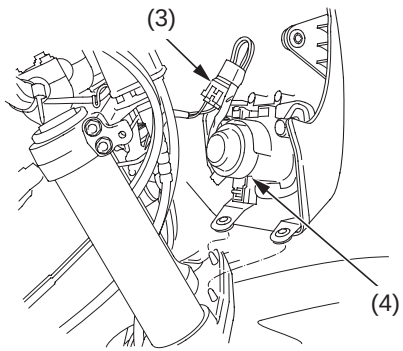
Headlight Bulb

1. Remove the front visor bolts (1) and pull out the front visor (2).



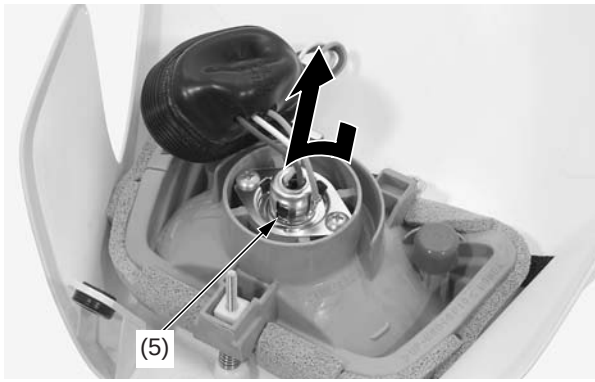
(1) front visor bolts
(2) front visor

2. Disconnect the headlight connector (3). Remove the dust cover (4).



(3) headlight connector
(4) dust cover

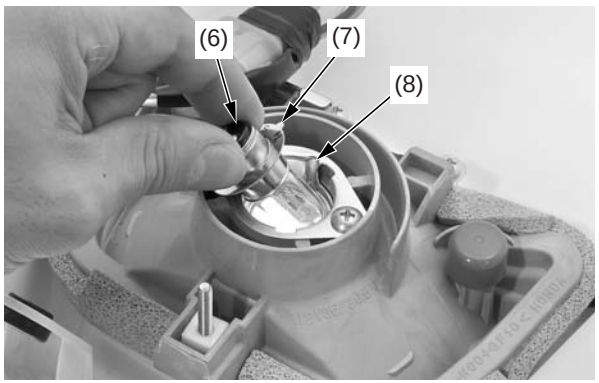
3. To pull the headlight bulb out, push and turn the headlight bulb socket (5) counterclockwise.



(5) headlight bulb socket

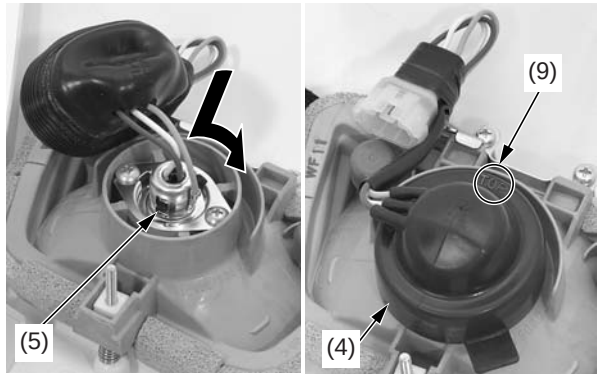
4. Install a new headlight bulb (6) into the headlight unit while aligning the tab (7) with the groove (8) of the headlight unit.

If you touch the bulb with your bare hands, clean it with a cloth moistened with denatured alcohol to prevent early bulb failure.



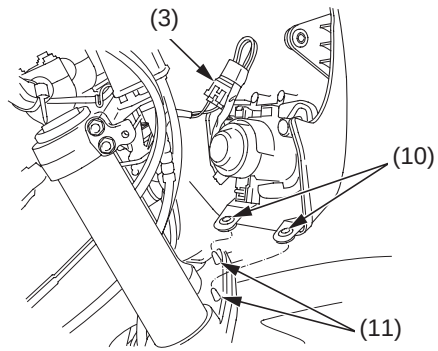
(6) headlight bulb
(7) tab
(8) groove

5. To install the headlight bulb socket (5), push and turn it clockwise.
6. Install the dust cover (4) tightly against the headlight unit with its “TOP” mark (9) facing up.



(4) dust cover
(5) headlight bulb socket
(9) “TOP” mark

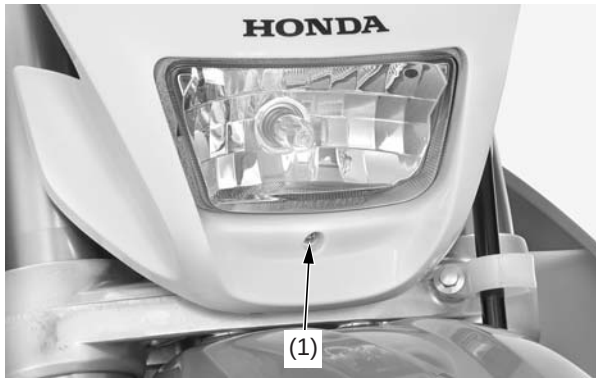
7. Connect the headlight connector (3). Install the front visor by aligning its grommets (10) with the tabs (11) on the steering stem.
Install and tighten the front visor bolts.



(3) headlight connector
(10) grommets
(11) tabs

Headlight Aim

The headlight aim can be raised or lowered.
Turn the adjusting screw (1) clockwise to move the headlight up or turn the adjusting screw counterclockwise to move the headlight down to proper adjustment.



(1) adjusting screw

Taillight

The taillight uses LED illumination.
If the taillight does not function properly, see your dealer for service.

This model is equipped with an electric starter and battery for easy engine starting.
There is a possibility of damage to the lighting system if the battery is carelessly removed.
Never kick-start the engine without the battery connected.
If it becomes necessary to kick-start the engine with the battery removed, remove the relays to the battery to prevent damage to the lighting.

Appearance Care

Refer to *Safety Precautions* on page 25.

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

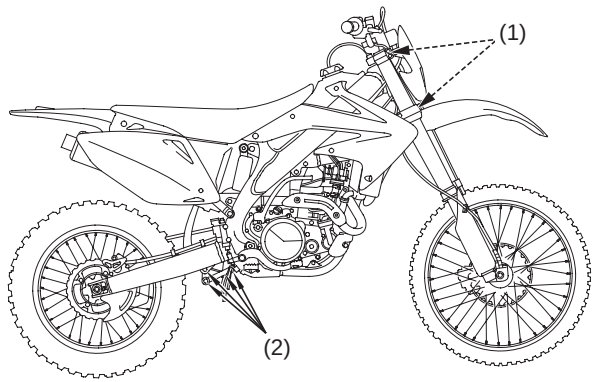
While you're cleaning, be sure to look for damage, wear, and gasoline or oil leaks.

General Recommendations

- To clean your CRF 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 CRF or discolor the seat and decals.
- If your CRF is still warm from recent operation, give the engine and exhaust system time to cool off.
- We recommend the use of a garden hose to wash your CRF. High pressure washers (like those at coin-operated car washes) can damage certain parts of your CRF. The force of water under extreme pressure can penetrate the dust seals of the suspension pivot points and steering head bearings-driving dirt inside and needed lubrication out.

If you use a high pressure washer, avoid spraying the following areas:

wheel hubs
muffler outlet
area under seat
engine stop button
brake master cylinders
under fuel tank
drive chain
carburetor
steering head bearings
suspension pivot points



(1) steering head bearings
(2) suspension pivot points

NOTICE

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

You may use Pro Honda Hondabrite, a multi-surface cleaner/degreaser, to remove both dirt and petroleum-based grime from paint, alloy, plastic, and rubber surfaces. Wet any heavy deposits with water first. Then spray on the Pro Honda Hondabrite and rinse with a garden hose at full pressure. Stubborn deposits may require a quick wipe with a sponge.

Washing Your Motorcycle with a Mild Detergent

1. Rinse your CRF 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 CRF 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.

NOTICE

Do not use steel wool to clean the frame as it could damage or discolor the frame surface. Muffler stain remover (Scotch Brite Hand Pad #7447-maroon) is for removing stains on the non-coated aluminum frame only.

4. After washing, rinse your CRF thoroughly with plenty of clean water to remove any residue.
   Detergent residue can corrode alloy parts.
5. Dry your CRF 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. Lubricate the drive chain to prevent rusting.
7. Start the engine and let it idle for several minutes. The engine heat will help dry moist areas.
8. As a precaution, ride 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.

Condensation Control

Some condensation can form within the transmission cavity as well. This is natural and just one more reason you should change the engine and transmission oil often.

After Cleaning Lubrication

There are some things you should do just after washing your CRF to help prevent rust and corrosion.

Once your CRF is clean and dry, you should protect any bare steel from rusting by applying a light coating of a rust-inhibitor. Lubricate the drive chain and drive sprocket after removing and thoroughly cleaning in solvent. Be sure the chain is wiped clean and is dry before applying the chain lube.

Follow the suggestions given in the pages of this manual for lubricating items such as the brake and clutch lever pivot points and footpeg pivot pins.

Aluminum Frame Maintenance

Aluminum corrodes when it comes in contact with dust, mud and road salt.

To remove stains, use Scotch-Brite Hand Pad #7447 (maroon) or an equivalent.
Wet the pad and polish the surface using strokes parallel to the length of the frame.

Clean the frame using a wet sponge and a mild detergent, then rinse well with clean water. Dry the frame with a soft clean cloth, using strokes parallel to the length of the frame.

NOTICE

Do not use steel wool to clean the frame as it could damage or discolor the frame surface. Muffler stain remover (Scotch-Brite Hand Pad #7447-maroon) is for removing stains on the non-coated aluminum frame only.

Exhaust Pipe And Muffler Maintenance

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.

When the exhaust pipe and muffler are painted, do not use a commercially available abrasive kitchen cleaning compound. Use a neutral detergent to clean the painted surface on the exhaust pipe and muffler.
If you are not sure if your exhaust pipe and muffler are painted, contact your dealer.

This section tells you how to fine tune your CRF for maximum competition performance.

Initial suspension adjustments should be performed after a minimum of 2 hours of easy break-in time.

Optional front and rear suspension springs are available in both stiffer and softer than standard rates, in order to tailor your CRF specifically for your weight, riding style and course conditions.

Follow the instructions given in the rear suspension sag setting section of *Rear Suspension Adjustments* to determine if your combined rider and sprung machine weight (rider fully dressed for competition and machine coolant, oil and fuel levels ready for competition) requires an optional stiffer or softer rear spring. The need for either optional rear spring may need to be balanced by installing the optional fork springs of a similar rate.

Front Suspension Adjustments 112
- Front Suspension Air Pressure 112
- Front Suspension Damping 112
- Fork Springs 113
- Front Suspension Disassembly 113
- Damper Oil Change 117
- Fork Assembly 120

Rear Suspension Adjustments 126
- Rear Suspension Spring Pre-Load 126
- Rear Suspension Damping 127
- Rear Suspension Race Sag 128

Suspension Adjustments for Track Conditions 130

Suspension Adjustment Guidelines 131

Carburetor Adjustments & Tuning Tips 134
- Carburetor Components 134
- Carburetor Removal 136
- Carburetor Disassembly 137
- Carburetor Assembly 139
- Idle Speed Adjustment 140

Steering Damper Adjustment 141
- Steering Damper Adjustment 141

Steering Damper Adjustment Guidelines 142

Chassis Adjustments 143
- Rear End 143
- Fork Height/Angle 143
- Wheelbase 143

Gearing 144

Tire Selection for Track Conditions 145

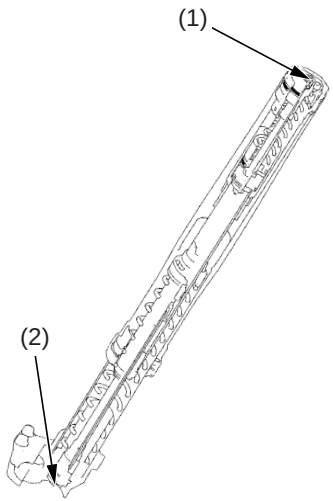
Personal Fit Adjustments 146
- Control Positioning 146
- Handlebar Position, Width & Shape 146

Front Suspension Adjustments

The front suspension can be adjusted for the rider's weight and riding conditions by using one or more of the following methods:

- **Oil volume** — The effects of higher or lower fork oil capacity are only felt during the final 3.9 in (100 mm) of fork travel.
- **Compression damping** — Turning the compression damping adjuster adjusts how quickly the fork compresses.
- **Rebound damping** — Turning the rebound damping adjuster adjusts how quickly the fork extends.
- **Fork springs** — Optional springs are available in softer and stiffer types than the standard rate. (page 169)

The inverted fork on your CRF features sealed damper cartridges with dual (separate air and oil) chambers to prevent aeration. The design also isolates the oil in each fork tube/slider, which may contain air bubbles and/or metal particles, from the sealed cartridge to provide more consistent damping.



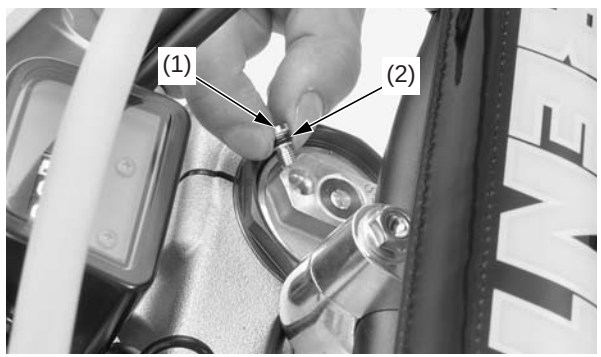
(1) compression damping adjuster
(2) rebound damping adjuster

Front Suspension Air Pressure

Air is an unstable gas which builds up pressure as it is worked (such as in a fork). Air pressure acts as a progressive spring and affects the entire range of fork travel. This means the fork action on your CRF will get stiffer during a race. For this reason, release built-up air pressure in the fork legs between motos. Be sure the fork is fully extended with the front tire off the ground when you release the pressure.

The standard air pressure is 0 psi (0 kPa, 0 kgf/cm^2). You may relieve accumulated air pressure in the fork legs by using the fork air pressure release screws. The front wheel should be off the ground before you release the pressure. The air pressure should be adjusted according to the altitude and outside temperature.

1. Place an optional workstand under the engine, so that the front wheel is off the ground. Do not adjust air pressure with the front wheel on the ground as this will give false pressure readings.
2. Remove the fork air pressure release screw (1).
3. Check that the O-ring (2) is in good condition.
4. Install and tighten the fork air pressure release screw to the specified torque:
   0.9 lbf·ft (1.2 N·m, 0.1 kgf·m)



(1) fork air pressure release screw (2) O-ring

Front Suspension Damping

Rebound Damping Adjustment

The fork rebound damping adjuster (1) has 16 positions or more. Turning the adjuster screw one full turn clockwise advances the adjuster four positions. To adjust the rebound damping to the standard setting, proceed as follows:
Turn the adjuster clockwise until it will no longer turn (lightly seats). This is the full hard position. The adjuster is set in the standard position when the adjuster is turned counterclockwise 6 clicks. Make sure that both fork legs are adjusted to the same position.

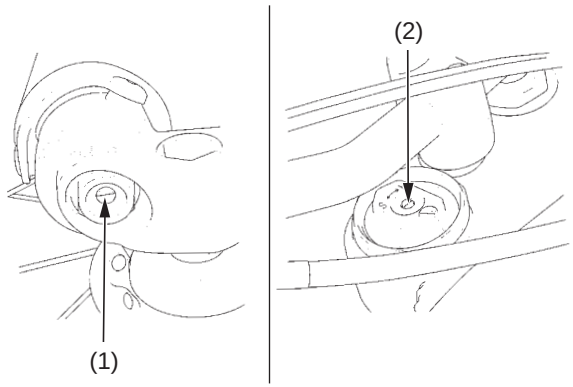
Compression Damping Adjustment

This adjustment affects how quickly the fork compresses. The fork compression damping adjuster (2) has 16 positions or more. Turning the adjuster screw one full turn changes the adjuster four positions. To adjust the compression damping adjuster to the standard position, proceed as follows:
Turn the adjuster clockwise until it will no longer turn (lightly seats). This is the full hard position. The adjuster is set in the standard position when the adjuster is turned counterclockwise 11 clicks. Make sure that both fork legs are adjusted to the same position.

Both compression and rebound damping can be increased by turning the adjuster clockwise.

NOTICE

Always start with full hard when adjusting damping.
Do not turn the adjuster screw more than the given positions or the adjuster may be damaged. Be sure that the rebound and compression adjusters are firmly located in a detent, and not between positions.



(1) rebound damping adjuster
(2) compression damping adjuster

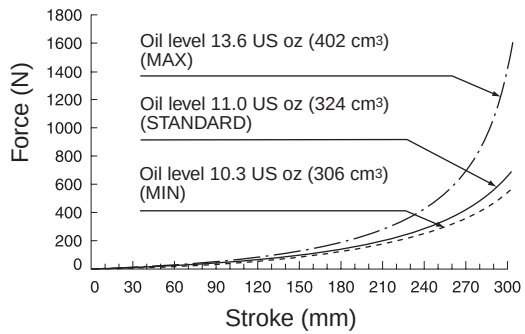
Fork Springs

The fork springs in CRF's are about right for riders weighing between 150 lb (68 kg) and 160 lb (73 kg) (less riding gear). So if you're a heavier rider, you have to go up on the oil capacity or get a stiffer spring. Do not use less oil than the minimum specified for each spring or there will be a loss of rebound damping control near full extension. If the fork is too hard on big bumps, turn the damping adjuster counterclockwise 1-turn and lower the oil capacity in increments of 0.2 oz (5 cm^3) in both fork legs until the desired performance is obtained. Do not, however, lower the oil capacity below the minimum oil capacity.

Minimum oil level:

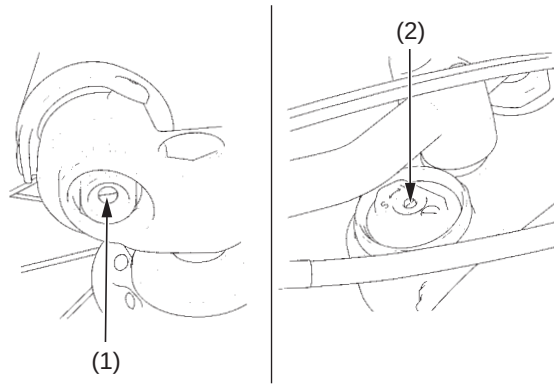
Standard spring:	10.3 US oz (306 cm^3)
Softer spring:	10.5 US oz (311 cm^3)
Stiffer spring:	10.5 US oz (309 cm^3)

When adjusting oil capacity, bear in mind that the air in the fork will increase in pressure while riding; therefore, the higher the oil capacity, the higher the eventual pressure of any air in the fork.



Front Suspension Disassembly

- If your CRF is brand-new, put enough part-throttle break-in time (about 1 hour) on it to ensure that the suspension has worked in.
- For optimum performance, and extended fork life, the fork should be completely disassembled and cleaned after the first 3 hours of riding. See the Service Manual or your dealer for this service.
- When disassembling the fork, turn the rebound (1) and compression (2) damping adjusters counterclockwise to the softest position to prevent damaging the adjustment needle (be sure to record the number of turns from the starting position).



(1) rebound damping adjuster
(2) compression damping adjuster

Front Suspension Adjustments

1. Place your CRF on an optional workstand or equivalent support with the front wheel off the ground.
2. Remove the steering damper (page 100) and handlebar pad. Remove the handlebar lower holder nuts, washers, mounting rubbers (3) and handlebar (4).

NOTICE

Keep the master cylinder upright to prevent air from entering system.



(3) handlebar lower holder nuts/washers/mounting rubbers
(4) handlebar

3. Loosen the fork bridge upper pinch bolts (5).
4. Loosen the fork damper (6) using a lock nut wrench (7), but do not remove it yet.

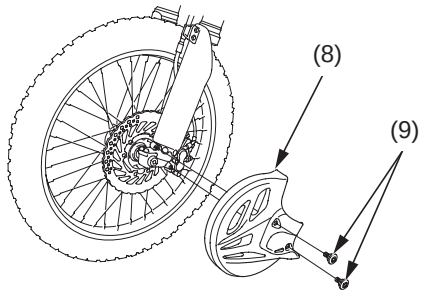
NOTICE

Do not use an adjustable wrench to loosen the fork damper: it may damage them.



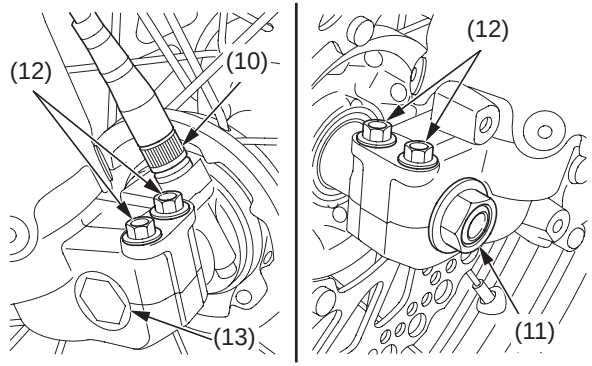
(5) fork bridge upper pinch bolts
(6) fork damper
(7) lock nut wrench

5. Remove the disc cover (8) by removing the disc cover bolts (9).



(8) disc cover
(9) disc cover bolts

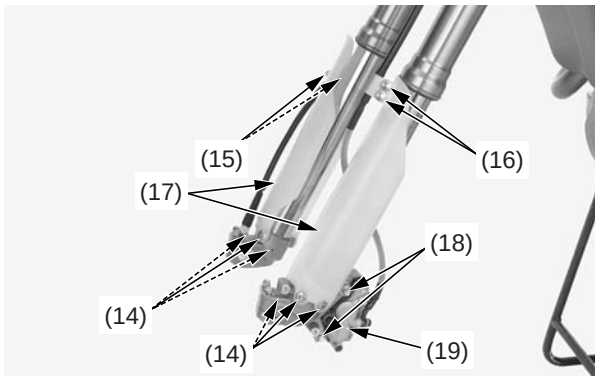
6. Remove the tripmeter cable (10) and front axle nut (11) and loosen the axle pinch bolts (12) on both fork legs.
7. Pull the front axle shaft (13) out of the wheel hub and remove the front wheel.



(10) tripmeter cable
(11) front axle nut
(12) axle pinch bolts
(13) front axle shaft

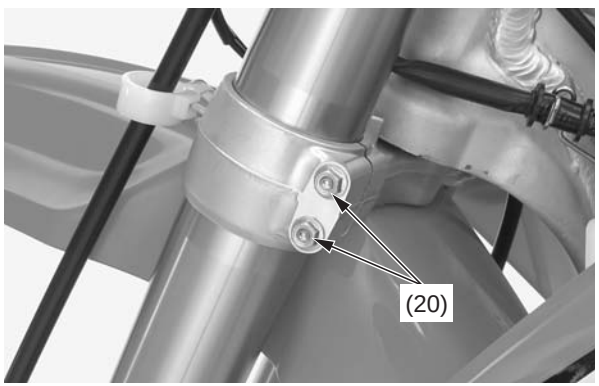
8. Remove the fork protector bolts (14), tripmeter cable clamp screws (15), brake hose clamp bolts (16) and fork protectors (17). Remove the brake caliper mounting bolts (18) and brake caliper (19).
   The fork protector bolts and caliper mounting bolts have a locking agent applied.

Do not support the brake caliper by the brake hose. Do not operate the brake lever after the front wheel is removed. To do so will cause difficulty in fitting the brake disc between the brake pads.



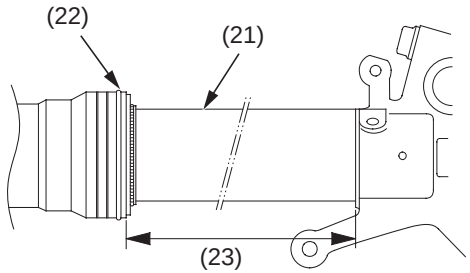
(14) fork protector bolts
(15) tripmeter cable clamp screws
(16) brake hose clamp bolts
(17) fork protectors
(18) brake caliper mounting bolts
(19) brake caliper

9. Loosen the fork bridge lower pinch bolts (20), then pull the fork legs down and out.



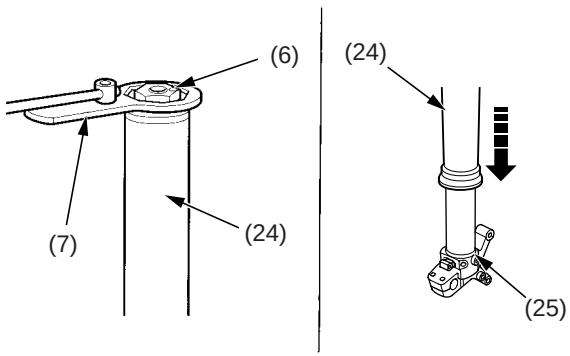
(20) fork bridge lower pinch bolts

10. Clean the fork assembly, especially the sliding surface (21) of the slider and fork dust seal (22).
11. Measure the length (23) between the axle holder and outer tube and record it before disassembling the fork.



(21) sliding surface
(22) fork dust seal
(23) length

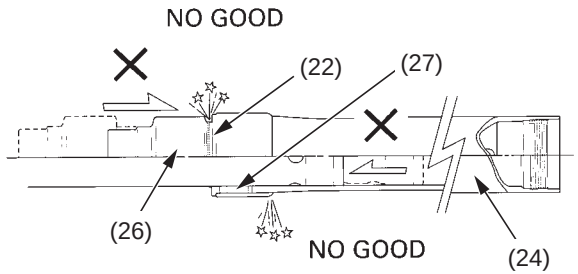
12. Hold the outer tube (24), then remove the fork damper (6) from the outer tube using a lock nut wrench (7). Gently slide the outer tube down onto the lower end (axle holder) (25).



(6) fork damper
(7) lock nut wrench
(24) outer tube
(25) axle holder

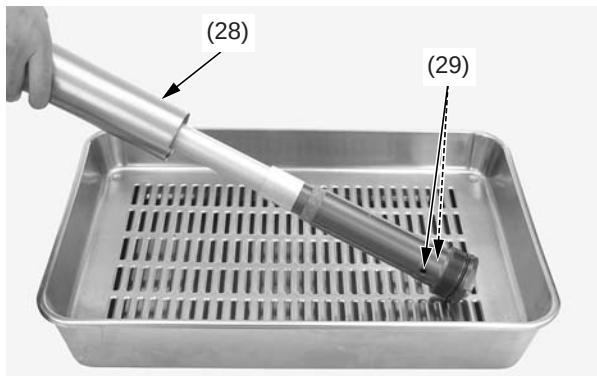
NOTICE

The outer tube (24) can drop on the slider (26) and damage the fork dust seal (22) and guide bushing (27) when the fork damper is removed. To avoid damage hold both the outer tube and slider when removing the fork damper.



(22) fork dust seal
(24) outer tube
(26) slider
(27) guide bushing

13. Drain the fork oil from the outer tube/slider (28).
    Drain the fork oil from the oil holes (29) of the fork damper.



(28) outer tube/slider
(29) oil holes

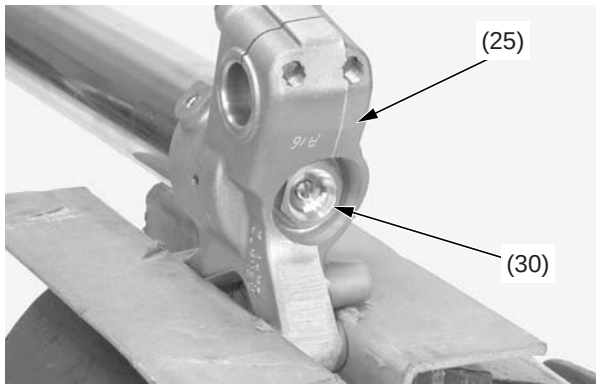
(cont'd)

14. Temporarily install the fork damper to the outer tube.
15. Place the lower end (axle holder) (25) of the slider in a vise with a piece of wood or soft jaws to avoid damage.

NOTICE

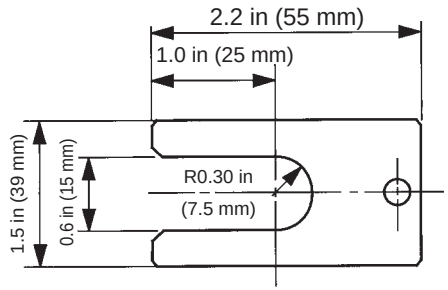
Over-tightening the vise can damage the axle holder.

16. Loosen the fork center bolt (30).



(25) axle holder
(30) fork center bolt

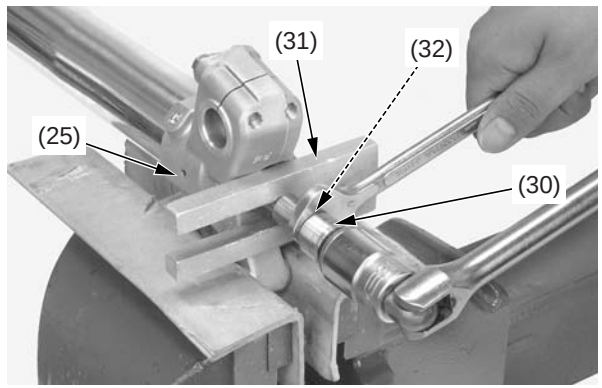
17. Make the mechanic's stopper tool out of a thin piece of steel (0.08 in (2.0 mm) thick) as shown if you do not have the special tool.



18. Push out the fork center bolt (30) from the axle holder (25) of the slider by pushing the fork damper. While the fork center bolt is pushed out, install the piston base (31) or a mechanic's stopper tool between the axle holder and fork center bolt lock nut (32).
19. Hold the fork center bolt lock nut and remove the fork center bolt from the fork damper.

NOTICE

Do not remove the lock nut from the fork damper piston rod. If the lock nut is removed, the piston rod will fall in the fork damper and you cannot reassemble the fork damper.

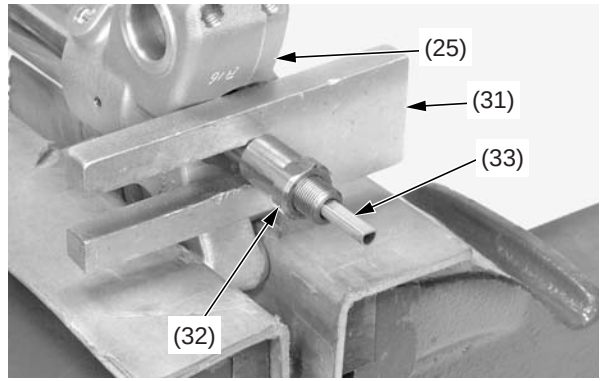


(25) axle holder
(30) fork center bolt
(31) piston base
(32) fork center bolt lock nut

20. Remove the push rod (33) from the fork damper.
21. Remove the piston base (31) or mechanic's stopper tool between the axle holder (25) and fork center bolt lock nut (32) while pushing the fork damper.

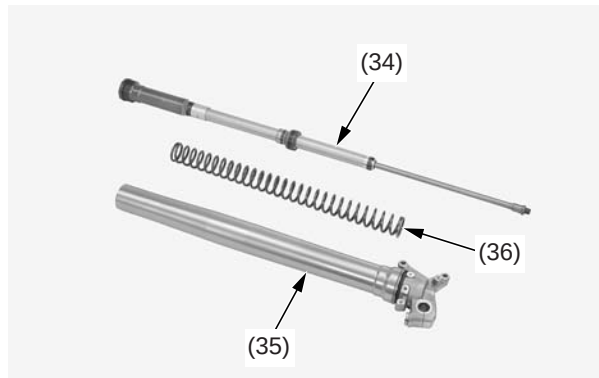
NOTICE

Be careful not to damage the lock nut and fork center bolt hole.



(25) axle holder
(31) piston base
(32) fork center bolt lock nut
(33) push rod

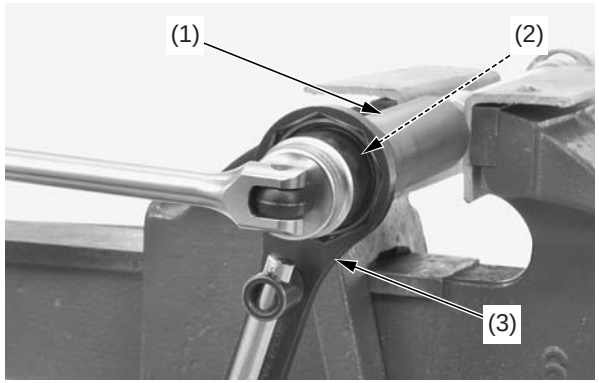
22. Remove the fork damper assembly (34) from the fork assembly (35). Remove the fork from the vise. Remove the fork spring (36) from the fork assembly.



(34) fork damper assembly
(35) fork assembly
(36) fork spring

Damper Oil Change

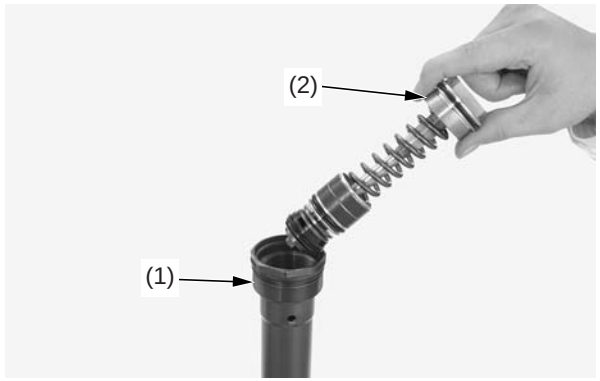
1. Place the fork damper (1) in a vise with a piece of wood or soft jaws to avoid damage.
2. Loosen the fork cap assembly (2) while holding the fork damper using a lock nut wrench (3).



(1) fork damper
(2) fork cap assembly
(3) lock nut wrench

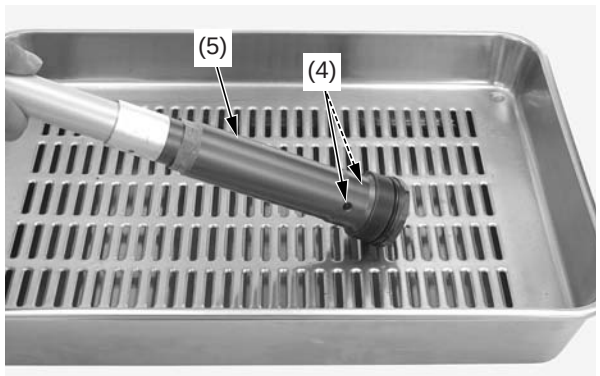
3. Remove the fork cap assembly (2) from the fork damper (1).

Be careful not to damage the fork cap bushing. Do not disassemble the fork cap assembly. Replace the fork cap as an assembly if it is damaged.



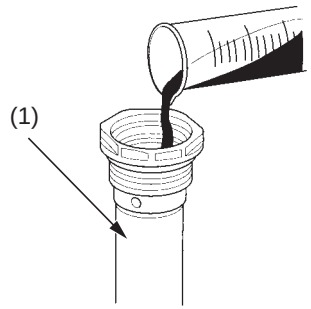
(1) fork damper
(2) fork cap assembly

4. Empty the fork oil from the oil holes (4) of the fork damper spring chamber (5) by pumping the damper rod several times.



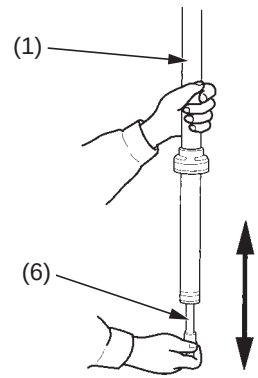
(4) oil holes
(5) fork damper spring chamber

5. Clean the fork cap and fork damper threads.
6. Extend the fork damper piston rod to maximum. Pour the recommended fork oil into the fork damper (1).
   Recommended Oil:
   Pro Honda HP Fork Oil 5 W or equivalent
   Recommended Amount:
   6.5 US oz (192 cm^3, 6.8 Imp oz)



(1) fork damper

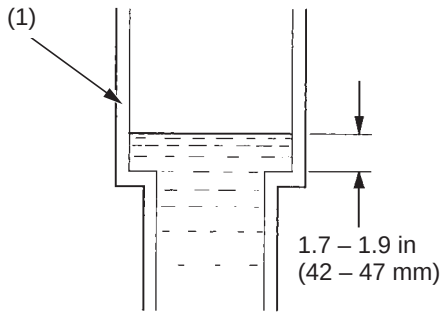
7. Pump the fork damper piston rod (6) slowly several times to bleed the air from the fork damper (1).



(1) fork damper
(6) fork damper piston rod

(cont'd)

8. Extend the fork damper piston rod to maximum. Adjust the oil level of the fork damper (1) as shown.
   Oil Level: 1.7 – 1.9 in (42 – 47 mm)

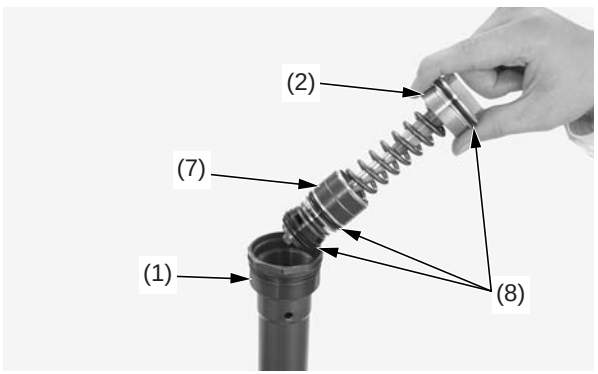


(1) fork damper

9. Apply fork oil to the bushing (7) and new O-rings (8) on the fork cap assembly (2). Extend the fork damper piston rod to maximum, holding it, install the fork cap assembly to the fork damper (1).

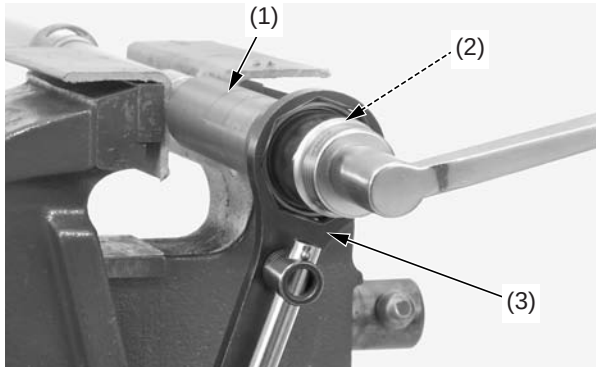
Be careful not to damage the fork cap bushing.

If it is difficult to install the fork cap assembly, the fork damper oil level might be higher than standard oil level. Inspect the fork damper oil level again.



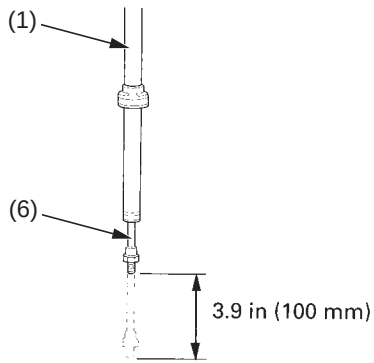
(1) fork damper
(2) fork cap assembly
(7) bushing
(8) O-rings

10. Place the fork damper (1) in a vise with a piece of wood or soft jaws to avoid damage.
11. Tighten the fork cap assembly (2) while holding the cut out of the fork damper using a lock nut wrench (3) to the specified torque:
    22 lbf·ft (30 N·m, 3.1 kgf·m)



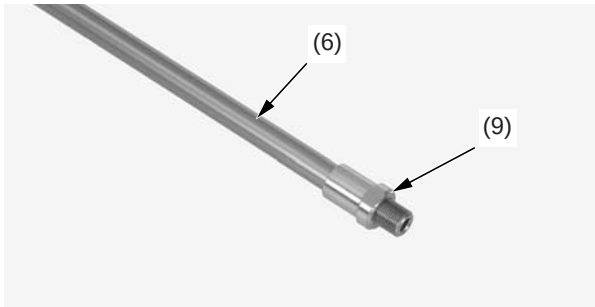
(1) fork damper
(2) fork cap assembly
(3) lock nut wrench

12. Hold the fork damper (1) in an upright position and pump the fork damper piston rod (6) to 3.9 in (100 mm) slowly several times.



(1) fork damper
(6) fork damper piston rod

13. Screw in the fork center bolt lock nut (9) to the fork damper piston rod (6) fully.



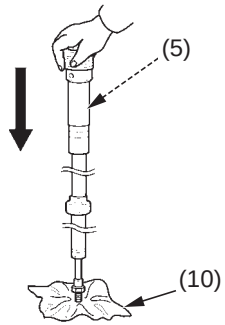
(6) fork damper piston rod
(9) fork center bolt lock nut

Turn the rebound adjuster and compression adjuster counterclockwise to the softest position.
Check the fork damper piston rod sliding surface for damage.
Apply fork oil to the fork damper piston rod sliding surface.
Cover the fork damper piston rod end with soft jaws (10) to prevent fork damage.

NOTICE

Be careful not to bend or damage the fork damper piston rod when the piston rod is stroked.

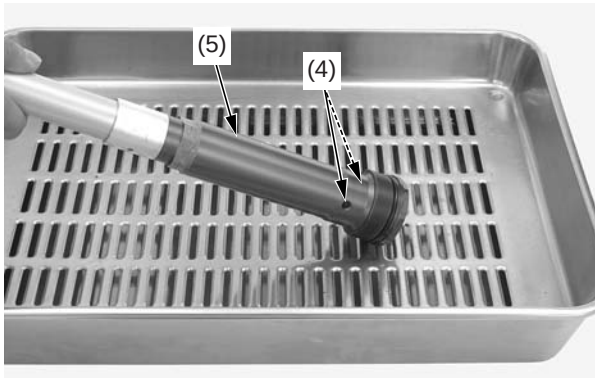
14. Blow the extra oil off to the fork damper spring chamber (5) by pumping the fork damper piston rod to full stroke.



(5) fork damper spring chamber
(10) soft jaws

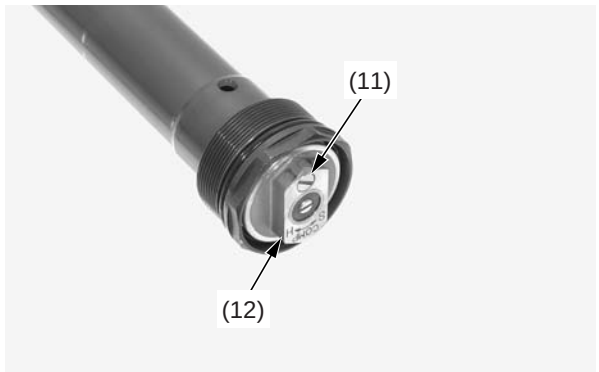
15. Drain the extra oil from the oil holes (4) of the fork damper spring chamber (5).

By doing this procedure, about 0.6 US oz (17 cm^3) of fork fluid will be drained from the damper spring chamber through the oil hole and cause 5.9 US oz (175 cm^3) of fork fluid to be left in the chamber.



(4) oil holes
(5) fork damper spring chamber

16. Blow out the oil from the fork damper spring chamber using compressed air to the oil hole. Wipe the oil completely off the fork damper.
17. If you can not use compressed air, remove the fork air pressure release screw (11) on the fork cap (12).
    Hold the fork damper upside down for 10 minutes and drain the oil from the fork damper spring chamber.



(11) fork air pressure release screw
(12) fork cap

Pour the drained oil into a suitable container and dispose of it in an approved manner (page 151).

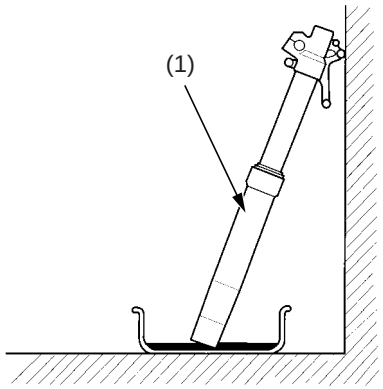
NOTICE

Improper disposal of drained fluids is harmful to the environment.

Front Suspension Adjustments

Fork Assembly

1. Drain the fork oil from the fork assembly (1) by placing it upside down. (About 0.2 US oz (7cm^3) of fork oil will be left in the fork assembly when it is left inverted for about 20 minutes at 20°C (68°F).)



(1) fork assembly

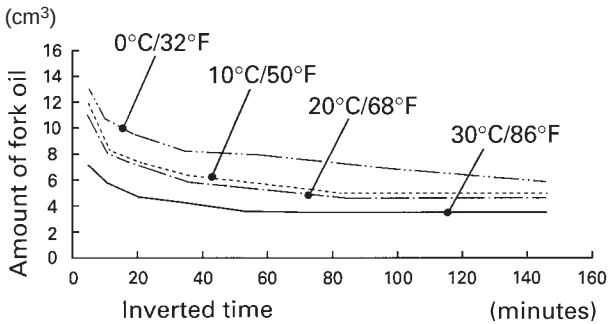
To properly dispose of drained fluids, refer to *You & the Environment* (page 151).

NOTICE

Improper disposal of drained fluids is harmful to the environment.

Amount of fork oil left in the fork (without damper and spring) unit: cm^3

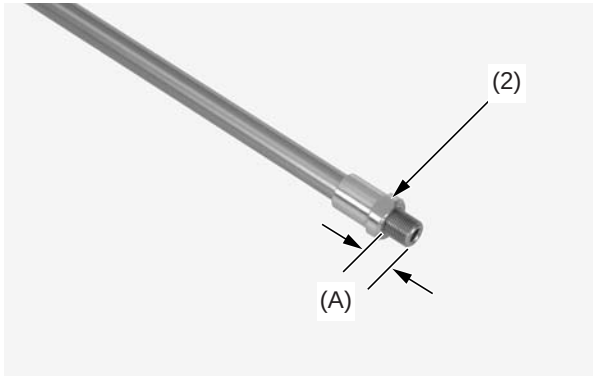
minute / °C/°F	5	10	20	35	55	85	145
30/86	7.1	5.9	4.7	4.2	3.5	3.5	3.5
20/68	10.6	8.2	7.1	5.9	5.6	4.7	4.7
10/50	11.8	8.3	7.2	6.2	5.8	4.9	4.8
0/32	12.9	10.6	9.4	8.2	7.9	7.1	5.9



2. Tighten the fork center bolt lock nut (2) fully and measure the thread length (A) as shown.

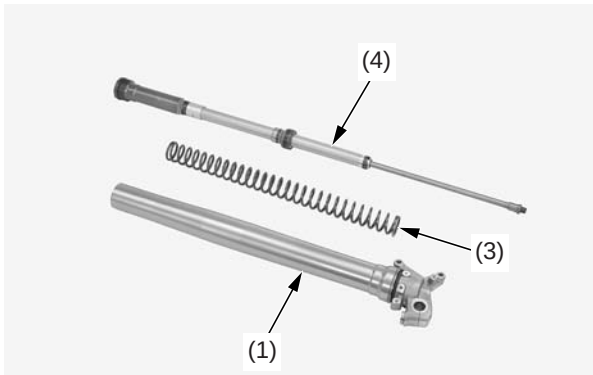
   Standard: 0.4 – 0.5 in (11 – 13 mm)

   Wipe the oil completely off the fork damper.



(2) fork center bolt lock nut
(A) thread length

3. Blow out the oil completely off the fork spring (3) using the compressed air. Install the fork spring. Install the fork damper assembly (4) to the fork assembly (1).



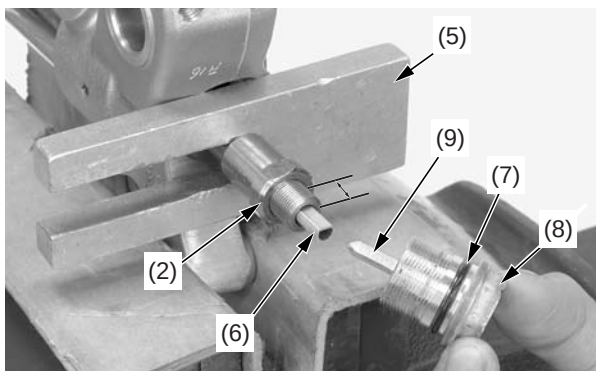
(1) fork assembly
(3) fork spring
(4) fork damper assembly

4. Place the lower end (axle holder) of the slider in a vise with a piece of wood or soft jaws to avoid to damage.

NOTICE

Over-tightening the vise can damage the axle holder.

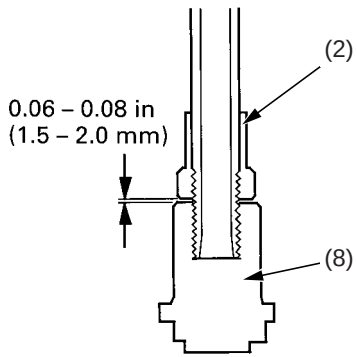
5. Push out the fork damper piston rod from the axle holder of the slider by pushing the fork damper.
   Apply pressure to the fork damper and insert the piston base (5) or mechanic's stopper tool between the axle holder and fork center bolt lock nut (2).
   Measure the thread length again.
   Standard: 0.4 – 0.5 in (11 – 13 mm)
6. Install the push rod (6) into the fork damper piston rod until it stops.
   Check the push rod installation by turning the push rod right and left.
7. Apply fork oil to a new O-ring (7) and install it to the fork center bolt (8). Install the fork center bolt to the fork damper piston rod aligning the adjusting rod (9) with the push rod. Tighten the fork center bolt fully by hand.



(2) fork center bolt lock nut
(5) piston base
(6) push rod
(7) O-ring
(8) fork center bolt
(9) adjusting rod

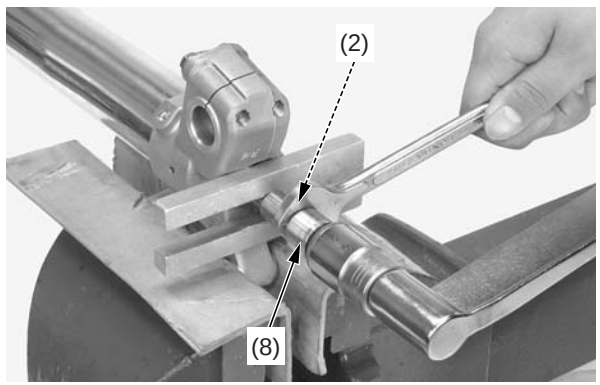
8. Measure the length of the fork center bolt lock nut (2) and fork center bolt (8) clearance.
   Standard: 0.06 – 0.08 in (1.5 – 2.0 mm)

If the clearance is out of specification, check the fork center bolt lock nut and fork center bolt installation.



(2) fork center bolt lock nut
(8) fork center bolt

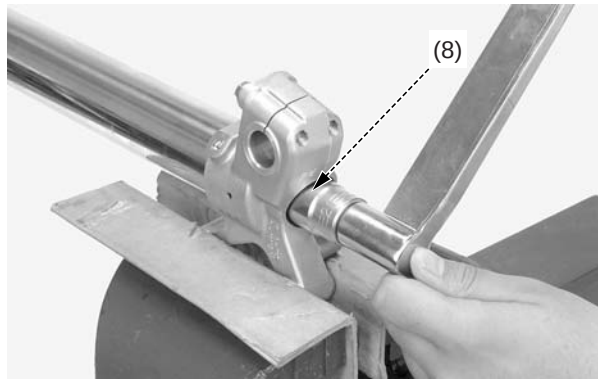
9. Tighten the fork center bolt lock nut (2) to the fork center bolt (8) closely by hand. Tighten the fork center bolt lock nut to the specified torque:
   16 lbf·ft (22 N·m, 2.2 kgf·m)



(2) fork center bolt lock nut
(8) fork center bolt

10. Remove the piston base or mechanic's stopper tool while pushing to the fork damper. Apply locking agent to the fork center bolt threads.

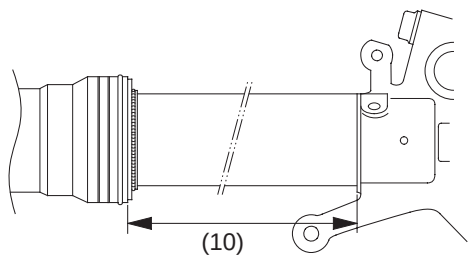
    Install the fork center bolt (8) to the axle holder and tighten it to the specified torque:
    51 lbf·ft (69 N·m, 7.0 kgf·m)



(8) fork center bolt

11. Measure the length (10) between the axle holder and outer tube.
    Standard: 12.5 ± 0.1 in (317 ± 2 mm)
12. Compare the length at assembly and at disassembly. They should be the same length.

If the length at assembly is longer than at disassembly, check the fork center bolt and lock nut installation.

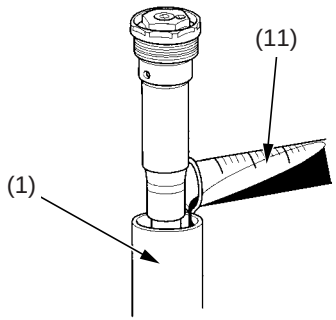


(10) length

(cont'd)

13. Pour the recommended fork oil (11) into the fork assembly (1).

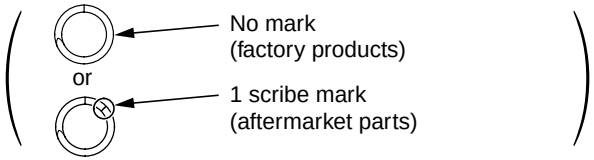
Recommended Oil:
Pro Honda HP Fork Oil 5 W or equivalent.



(1) fork assembly
(11) fork oil

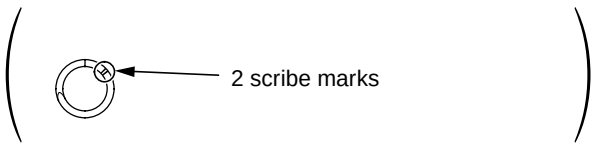
Fork Oil Capacity:

Standard 26.32 lbf/in (4.61 N/mm) Fork Spring



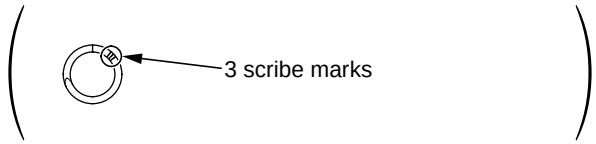
Standard oil capacity	11.0 US oz (324 cm^3)	
Maximum oil capacity	13.6 US oz (402 cm^3)	Slightly stiffer as it nears full compression.
Minimum oil capacity	10.3 US oz (306 cm^3)	Slightly softer as it nears full compression.

Optional Softer 25.18 lbf/in (4.41 N/mm) Fork Spring



Standard oil capacity	11.2 US oz (330 cm^3)	
Maximum oil capacity	13.8 US oz (407 cm^3)	Slightly stiffer as it nears full compression.
Minimum oil capacity	10.5 US oz (311 cm^3)	Slightly softer as it nears full compression.

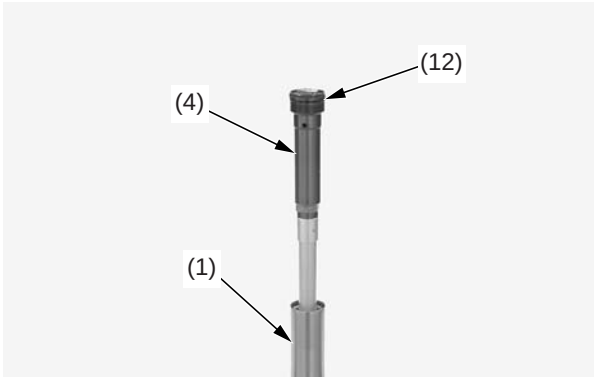
Optional Stiffer 27.47 lbf/in (4.81 N/mm) Fork Spring



Standard oil capacity	11.1 US oz (327 cm^3)	
Maximum oil capacity	13.7 US oz (405 cm^3)	Slightly stiffer as it nears full compression.
Minimum oil capacity	10.5 US oz (309 cm^3)	Slightly softer as it nears full compression.

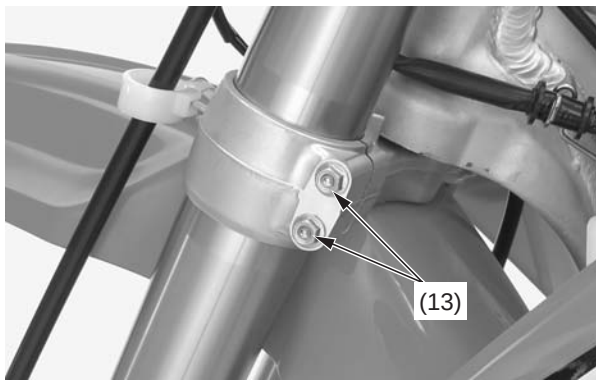
Be sure the oil capacity is the same in both fork legs.

14. Check that the O-ring (12) on the fork damper assembly (4) is in good condition. Apply the recommended fork oil to the O-ring.
15. Pull up the fork assembly (1) slowly and install the fork damper assembly into the outer tube.



(1) fork assembly
(4) fork damper assembly
(12) O-ring

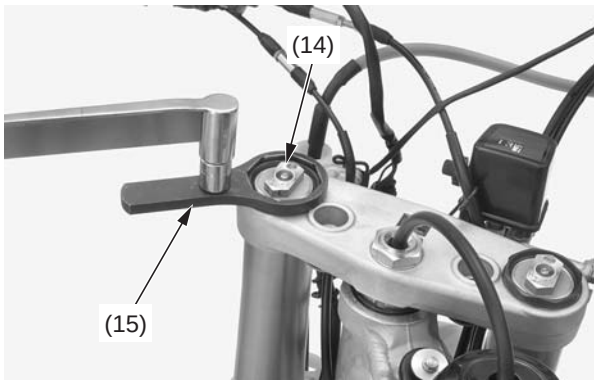
16. Insert both fork legs into the fork clamps. Tighten the fork bridge lower pinch bolts (13) to the specified torque:
    15 lbf·ft (20 N·m, 2.0 kgf·m)



(13) fork bridge lower pinch bolts

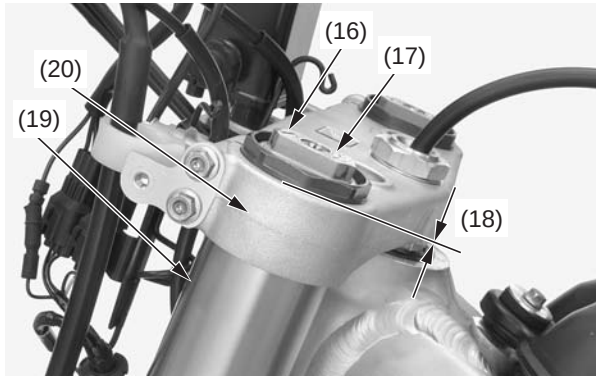
17. Tighten the fork damper (14) to the specified torque using a lock nut wrench (15).
    Actual:
    25 lbf·ft (34 N·m, 3.5 kgf·m)
    Torque wrench scale reading:
    23 lbf·ft (31 N·m, 3.2 kgf·m), using a 20 in (50 cm) long torque wrench.

When using a lock nut wrench, use a 20 in (50 cm) long deflecting beam type torque wrench. The lock nut wrench increases the torque wrench's leverage, so the torque wrench reading will be less than the torque actually applied to the fork damper.



(14) fork damper
(15) lock nut wrench

18. For ease of releasing air pressure after the forks are installed, loosen the fork bridge lower pinch bolts and position the outer tubes so that the fork air pressure release screws (16) are in front of the compression damping adjusters (17).
    Align (18) the top of the outer tube (19) with the top surface of the fork top bridge (20).

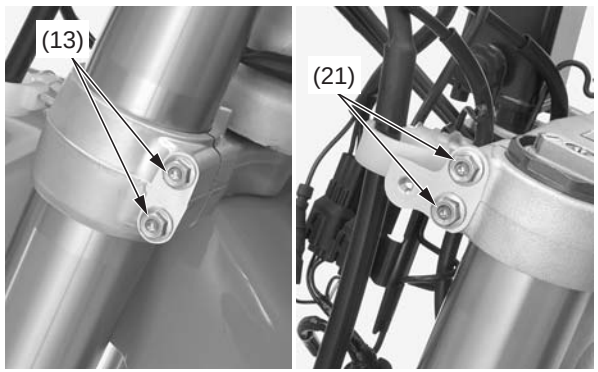


(16) fork air pressure release screw
(17) compression damping adjuster
(18) align
(19) outer tube
(20) fork top bridge

19. Tighten the fork bridge lower pinch bolts (13) to the specified torque:
    15 lbf·ft (20 N·m, 2.0 kgf·m)
20. Tighten the fork bridge upper pinch bolts (21) to the specified torque:
    16 lbf·ft (22 N·m, 2.2 kgf·m)

NOTICE

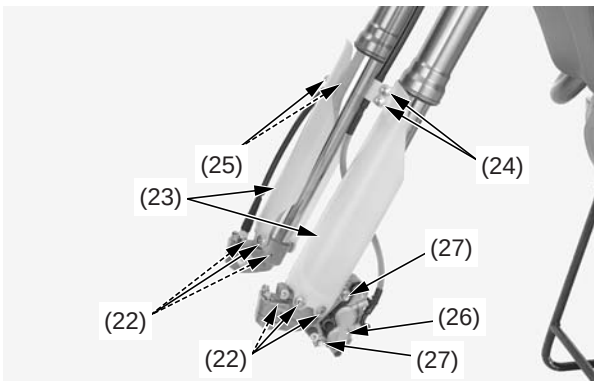
Over-tightening the pinch bolts can deform the outer tubes. Deformed outer tubes must be replaced.



(13) fork bridge lower pinch bolts
(21) fork bridge upper pinch bolts

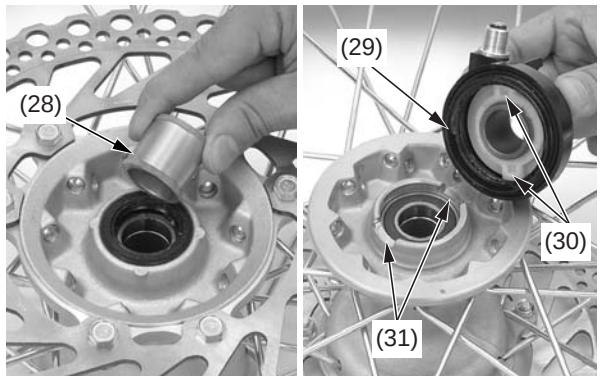
(cont'd)

21. Clean the threads of the fork protector bolts (22) and axle holder thoroughly.
    Apply locking agent to the fork protector bolt threads.
    Install the fork protectors (23), fork protector bolts, brake hose clamp bolts (24) and tripmeter cable clamp screws (25). Tighten the fork protector bolts to the specified torque:
    5.2 lbf·ft (7 N·m, 0.7 kgf·m)
    Tighten tripmeter cable clamp screws to the specified torque:
    0.5 lbf·ft (0.7 N·m, 0.1 kgf·m)
22. Align the brake caliper (26) and hose with the let fork leg, making sure that the brake hose is not twisted. An improperly routed brake hose may rupture and cause a loss of braking efficiency.
23. Clean the threads of the brake caliper mounting bolts (27) and brake caliper thoroughly. Apply locking agent to the bolt threads. Install the brake caliper on the slider and tighten the caliper mounting bolts to the specified torque:
    22 lbf·ft (30 N·m, 3.1 kgf·m)



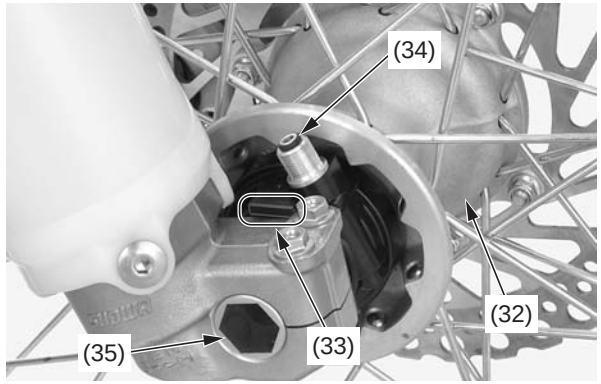
(22) fork protector bolts
(23) fork protectors
(24) brake hose clamp bolts
(25) tripmeter cable clamp screws
(26) brake caliper
(27) brake caliper mounting bolts

24. Check the left side collar (28) and tripmeter gear box (29) for wear or damage.
    Apply grease to the dust seal lips.
    Install the left side collar to the left wheel hub.
    Install the tripmeter gear box while aligning its tabs (30) of the tripmeter gear box with the grooves (31) on the right wheel hub.



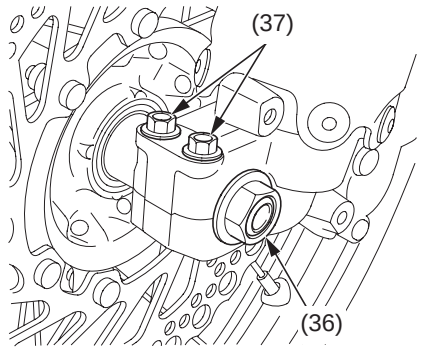
(28) left side collar
(29) tripmeter gear box
(30) tabs
(31) grooves

25. Clean the clamping surface of the axle shaft and axle holders.
    Install the front wheel (32) between the fork legs while inserting the disc between the pads, and align (33) the tab of the tripmeter gear box as shown.
    Check that the tripmeter gear box O-ring (34) is in good condition, replace it if necessary.
    Apply a thin layer of grease to the front axle shaft (35) and insert the front axle shaft from the right side.



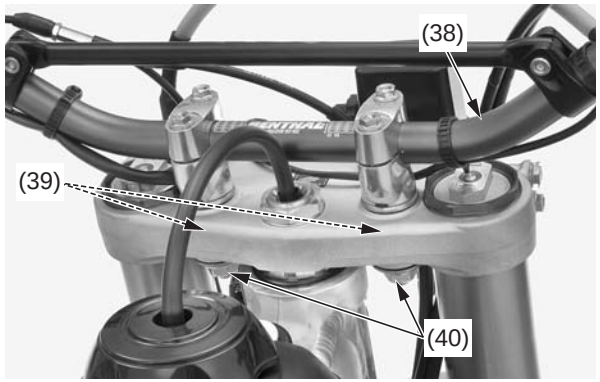
(32) front wheel
(33) align
(34) O-ring
(35) front axle shaft

26. Install and tighten the front axle nut (36) to the specified torque.
    65 lbf·ft (88 N·m, 9.0 kgf·m)
    Tighten the left axle pinch bolts (37) to the specified torque.
    15 lbf·ft (20 N·m, 2.0 kgf·m)



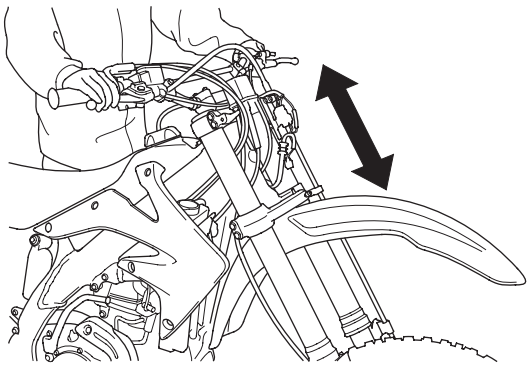
(36) front axle nut
(37) left axle pinch bolts

27. Install the handlebar (38), mounting rubbers (39), washers and handlebar lower holder nuts (40) and tighten the handlebar lower holder nuts to the specified torque:
    32 lbf·ft (44 N·m, 4.5 kgf·m)



(38) handlebar
(39) mounting rubbers
(40) washers/handlebar lower holder nuts

28. With the front brake applied, pump the fork up and down several times to seat the axle and check front brake operation.

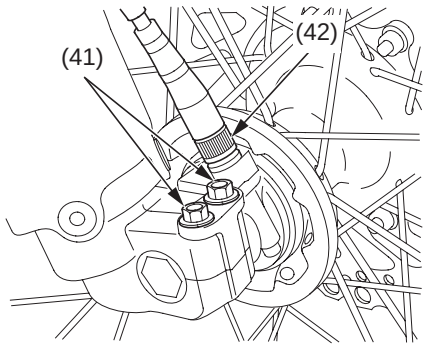


29. While keeping the forks parallel, alternately tighten the right axle pinch bolts (41) to the specified torque:
    15 lbf·ft (20 N·m, 2.0 kgf·m)

NOTICE

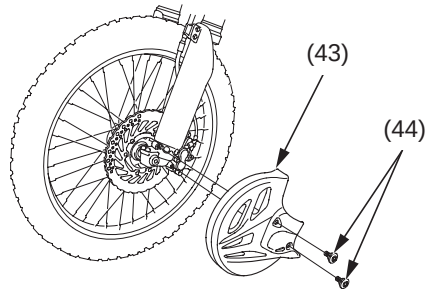
To avoid damage when torquing the axle pinch bolts, be sure the axle is seated firmly onto the right fork leg clamp inner surface.

30. Connect the tripmeter cable (42) and tighten the lock nut securely.



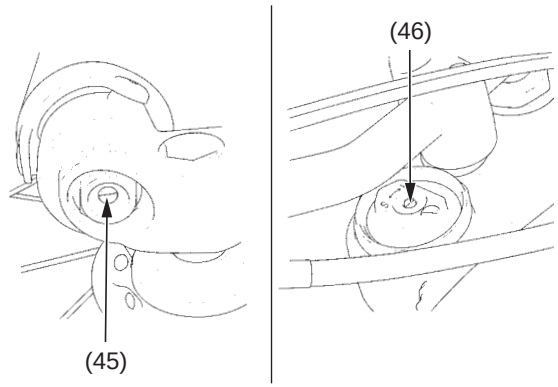
(41) right axle pinch bolts
(42) tripmeter cable

31. Install the disc cover (43) and tighten the disc cover bolts (44) to the specified torque:
    10 lbf·ft (13 N·m, 1.3 kgf·m)



(43) disc cover
(44) disc cover bolts

32. Turn the rebound damping (45) and compression damping (46) adjuster back to their original settings.



(45) rebound damping adjuster
(46) compression damping adjuster

33. Install the steering damper (page 101) and handlebar pad.

Rear Suspension Adjustments

The rear suspension can be adjusted for the rider's weight and riding conditions by changing the spring pre-load and the rebound and compression damping.

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

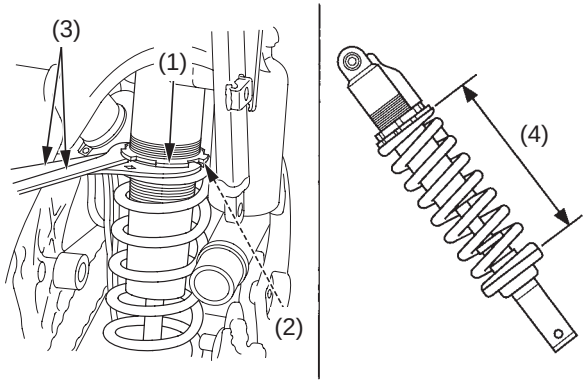
Puncture or exposure to flame may also result in an explosion, causing serious injury.
Service or disposal should only be done by your dealer or a qualified mechanic, equipped with the proper tools, safety equipment and the Honda Service Manual.

If your CRF is new, put enough part-throttle break-in time (about 1 hour) on it to ensure that the suspension has worked in.

Rear Suspension Spring Pre-Load

Pre-load should be adjusted when the engine is cold because it is necessary to remove the muffler (page 62).
Optional pin spanners are available for turning the lock nut and adjusting nut to adjust spring pre-load.

1. Place your CRF on an optional workstand or equivalent support with the rear wheel off the ground.
2. Lift the subframe to the upright position (page 39).
3. Check that the spring pre-load is adjusted to the standard length. Adjust as necessary by loosening the shock spring lock nut (1) and turning the adjusting nut (2).
   Each complete turn of the adjusting nut changes the spring length by 0.06 in (1.5 mm).
4. After adjustment, hold the adjusting nut and tighten the shock spring lock nut to the specified torque:
   32 lbf·ft (44 N·m, 4.5 kgf·m)



(1) shock spring lock nut
(2) adjusting nut
(3) pin spanners
(4) spring length

To increase spring pre-load:
Loosen the shock spring lock nut with the optional pin spanners (3) and turn the adjusting nut to shorten the spring length (4). Do not shorten to less than:
9.80 in (249.0 mm)

To decrease spring pre-load:
Loosen the shock spring lock nut with the optional pin spanners (3) and turn the adjusting nut to increase the spring length (4). Do not increase to more than:
10.20 in (259.0 mm)

Each turn of the adjuster changes spring length and spring pre-load. One turn equals: spring length/spring pre-load:
0.06 in (1.5 mm)/18.18 lbf (80.85 N)

Pin spanners should be used for turning the shock spring lock nut and adjusting nut. See page 169 for optional pin spanners.

Spring pre-load length (Standard spring)
Standard: 10.16 in (258.0 mm)
Min.: 9.80 in (249.0 mm)

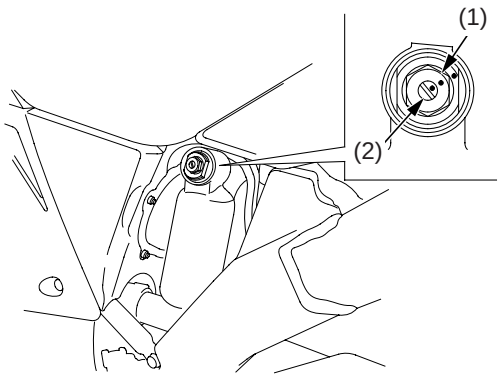
Spring pre-load length (Optional spring)
Min. (Softer, 296.9 lbf/in (52.0 N/mm)):
9.9 in (251 mm)
Min. (Stiffer, 319.2 lbf/in (55.9 N/mm)):
9.9 in (251 mm)

Rear Suspension Damping

Compression Damping
Compression damping may be adjusted in two stages with separate adjusters.

The high speed compression damping adjuster (1) is effective when compression damping adjustment is desired for high speed operation. The low speed compression damping adjuster (2) should be used when compression damping adjustment is desired at relatively low speeds.

- Both the high and low speed compression damping can be increased by turning the appropriate adjuster clockwise.
- Adjust the high speed compression damping adjuster in 1/12 turn increments.
- Be sure the low speed compression damping adjuster is firmly located in a detent, and not between positions.



(1) high speed compression damping adjuster
(2) low speed compression damping adjuster

High Speed Compression Damping:
The high speed compression damping can be adjusted by turning the hexagonal portion of the compression adjuster.
The high speed compression damping adjuster has 3-1/2 turns or more.

To adjust to the standard position:
1. Turn the adjuster clockwise until it will no longer turn (lightly seats). This is the full hard setting.
2. Turn the adjuster counterclockwise 7/12 – 1 1/12 turns and the punch marks are aligned.

Low Speed Compression Damping:
The low speed compression damping can be adjusted by turning the center screw of the compression adjuster.

The low speed compression damping adjuster has 13 positions or more.

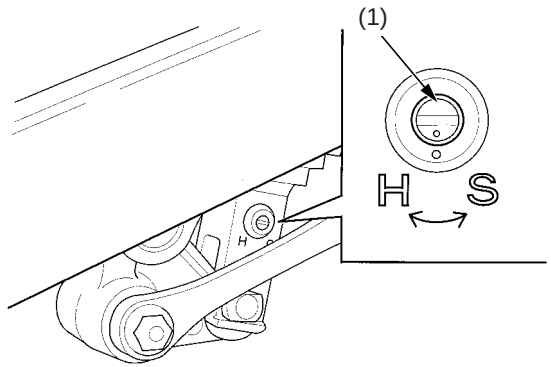
Turning the adjuster one full turn clockwise advances the adjuster 4 positions.

To adjust to the standard position:
1. Turn the adjuster clockwise until it will no longer turn (lightly seat). This is the full hard setting.
2. Turn the adjuster counterclockwise 10 clicks and the punch marks are aligned.

Rebound Damping
The rebound damping adjuster (1) is located at the lower end of the shock absorber.

It has 17 positions or more. Turning the adjuster one full turn advances the adjuster 4 positions.

- Rebound damping can be increased by turning the adjuster clockwise.
- Be sure that the rebound damping adjuster is firmly located in a detent, and not between positions.



(1) rebound damping adjuster

To adjust to the standard position:
1. Turn the adjuster clockwise until it will no longer turn (lightly seat). This is the full hard position.
2. Turn the adjuster counterclockwise 10 – 13 clicks with the punch marks on the adjuster and the shock absorber aligned.

Rear Suspension Adjustments

Rear Suspension Race Sag

Setting the proper race sag (ride height) is very important for competition use.

Race sag refers to the amount of rear wheel travel used by your CRF at rest, ready to ride, with you on the seat. As a general rule of thumb, the race sag dimension should be about one-third of the maximum travel.

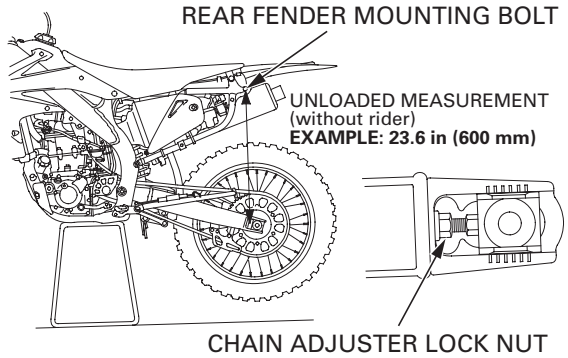
On your CRF, ride height is changed by adjusting the rear suspension spring pre-load.

Spring Pre-load & Race Sag Adjustment
The following adjustment procedure establishes the correct starting point for any suspension tuning — the proper rear spring pre-load adjustment for your specific needs.
Your CRF should be at normal racing weight, including fuel and transmission oil. You should be wearing all your normal protective apparel. You will need two helpers.

To calculate the proper adjustment, it is necessary to measure between two fixed points — from the center of the rear fender mounting bolt to the center of the chain adjuster lock nut as illustrated here — for three different situations:

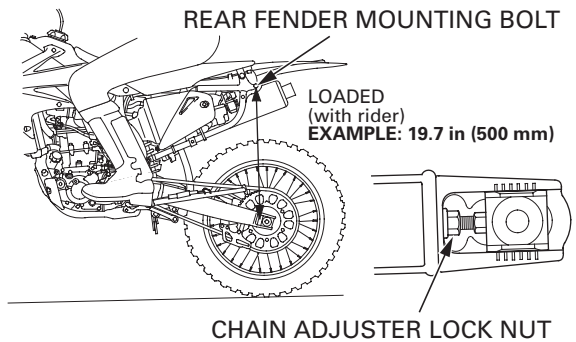
unloaded: motorcycle on an optional workstand with rear suspension fully extended, no rider.
loaded with rider: motorcycle on ground, with rider.
loaded without rider: motorcycle on ground, without rider.

1. Support your CRF on an optional workstand or equivalent with the rear wheel off the ground.
2. Measure the *unloaded* dimension.



3. Measure the *loaded with rider* dimension. Remove the workstand. With two helpers available, sit as far forward as possible on your CRF's seat, wearing your riding apparel. Ask one helper to steady your CRF perfectly upright so you can put both feet on the pegs. Bounce your weight on the seat a couple of times to help the suspension overcome any situation and settle to a good reference point.

   Ask the other helper to measure the *loaded with rider* dimension.

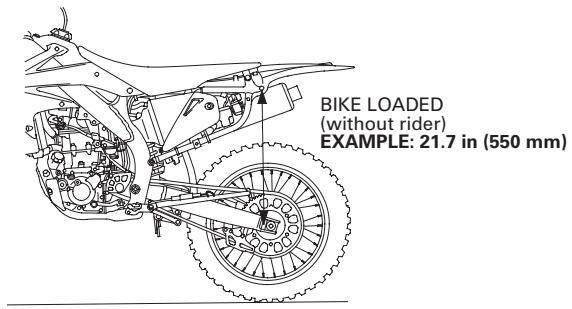


Example:

Unloaded	= 23.6 in (600 mm)
– Loaded	= 19.7 in (500 mm)
Race Sag	= 3.9 in (100 mm)

4. Calculate the *race sag* dimension.
   To do this, subtract the *loaded with rider* dimension (step 3) from the *unloaded* dimension (step 2).
   Standard Race Sag: 3.9 in (100 mm)

   Adjust spring pre-load as necessary to obtain the desired handling results. Decreasing the race sag dimension (example: 3.5 in, 90 mm) improves turning ability for tight terrain at the cost of slightly reduced straight line stability.
   Increasing the race sag dimension (example: 4.3 in, 110 mm) may improve stability on faster terrain with less turns, but will reduce turning performance slightly and may upset the balance between the front and rear suspension, producing a harsher ride. This will happen if the adjustment shifts the effective wheel travel toward the more progressive end of its range.
5. Measure the *loaded without rider* dimension. Do this with your CRF set at the standard race sag.



Example:

Unloaded	= 23.6 in (600 mm)
– Loaded	= 21.7 in (550 mm)
Sag	= 2.0 in (50 mm)
(Without Rider)	

6. Calculate the *free sag* dimension.
   To do this, subtract the *loaded without rider* dimension (step 5) from *the unloaded* dimension (step 2).
   Free sag indicates the distance your rear suspension should sag from the weight of the sprung portion of your CRF.
   With the spring pre-load set to obtain the proper race sag, the rear suspension should sag 0.4 to 1.0 in (10 to 25 mm).
   If the rear of your CRF sags less than 0.4 in (10 mm) from its own weight, the spring is too stiff for your weight. It is not compressed enough, even though you have the proper race sag adjustment. As a result, the rear suspension will not extend as far as it should.

Spring Rates

If you are lighter or heavier than the average rider and cannot set the proper ride height without altering the correct spring pre-load, consider an aftermarket shock absorber spring.

A spring that is too soft for your weight forces you to add excessive spring pre-load to get the right race sag and, as a result, the rear end of the motorcycle is raised. This can cause the rear wheel to unload too much in the air and top out as travel rebounds. The rear end may top out from light braking, or kick sideways over lips and square-edged terrain. It may even top-out when you dismount your CRF.

Because of the great absorption quality of the shock bumper rubber, it may be difficult for you to notice when your CRF's suspension is bottoming. Some riders may think the damping or perhaps the leverage ratio is too harsh. In reality, the problem is most likely insufficient spring pre-load or a spring that is too soft. Either situation prevents utilizing the full travel.

Keep in mind that a properly adjusted suspension system may bottom slightly every few minutes at full speed. Adjusting the suspension to avoid this occasional bottoming may cost more in overall suspension performance than it is worth.

A spring that is too stiff for your weight will not allow the rear tire to hook up under acceleration and will pass more bumps on to you.

Suspension Adjustments for Track Conditions

Soft Surface
On soft ground, sand, and especially mud, consider increasing compression damping front and rear.

Sand often requires a bit more rebound damping to minimize rear end kick. Although sand bumps are usually larger, there's more distance between them, giving the shock more time to recover.

You may want a little bit stiffer front suspension for sand tracks to help keep the front end up and improve straight-line stability.

In a muddy event, stiffer aftermarket springs front and rear may help, especially if you are heavier than the average rider. Your CRF may be undersprung because of the added weight of the clinging mud. This additional weight may compress the suspension too much and affect traction.

Hard Surface
For a fast, hard track with no large jumps, you can probably run the same spring as normal, but run softer damping both ways-compression and rebound. If you run softer rebound damping, the wheel will follow the rough ground and small bumps much better, and you will hook up better. With a lot of rebound damping, the wheel returns very slowly and doesn't contact the ground quickly enough after each bump. The result is a loss of traction and slower lap times.

Suspension Adjustment Guidelines

Follow the procedures described below to accurately adjust your CRF, using the methods described on pages 112 – 130. Remember to make all adjustments in one-click or 1/12 turn increments. Test ride after each adjustment.

Front Suspension Adjustment
Adjustments for Type of Track

Hard-surfaced track	Begin with the standard setting. If the suspension is too stiff/soft, adjust according to the chart below.
Sand track	Adjust to a stiffer position. Example: – Turn the compression damping adjuster to a stiffer position. – Install the optional stiff spring. (Adjust compression damping to a softer position and rebound damping to a stiffer position at this time.)
Mud track	Adjust to a stiffer position because mud build-up increases your CRF's weight Example: – Turn the compression damping adjuster to a stiffer setting. – Install the optional stiff spring.

Adjustments for Too Soft/Stiff Damping

	Symptom	Action
Soft suspension	Initial travel too soft: • Steering is too quick. • Front end darts while cornering or riding in a straight line.	– Test stiffer compression damping adjustments in one-click increments. – Test stiffer rebound damping in one-click increments.
	Middle travel too soft: • Front end dives when cornering.	If suspension isn't stiff in initial travel: – Test stiffer compression damping adjustments in one-click increments. If initial travel becomes stiff because of the above adjustment: – Reduce the rebound damping in one-click increments. – Test softer compression damping adjustments in one-click increments. If that doesn't solve the problem, install the optional stiff spring.
	Final travel too soft: • Bottoms on landings. • Bottoms on large bumps, especially downhill bumps.	If initial and middle travel aren't stiff: – Test stiffer compression damping adjustments in one-click increments. If initial and middle travel are stiff: – Install the optional stiff spring. If initial travel is stiff after installing the optional stiff spring: – Test soft compression damping adjustments in one-click increments. If initial travel is still soft after installing the optional stiff spring: – Test stiffer compression damping adjustments in one-click increments. If final travel is still soft after installing the optional stiff spring: – Increase the fork oil capacity in increments of 0.2 US oz (5 cm^3).
	Entire travel too soft: • Front end shakes. • Fork bottoms over any type of terrain.	– Install the optional stiff spring. – Test stiffer compression damping adjustments in one-click increments. – Increase rebound damping in one-click increments.

Suspension Adjustment Guidelines

	Symptom	Action
Stiff suspension	Initial travel too stiff: • Stiff on small bumps while riding at full throttle in a straight line. • Stiff on small cornering bumps. • Front end wanders while riding at full throttle in a straight line.	– Test softer compression damping adjustments in one-click increments. – Reduce the rebound damping adjustments in one-click increments. – Check for dirt in the dust seals. Check the fork oil for any contamination. If the front end dives while cornering, reduce the rebound damping in one click increments. If that doesn't solve the problem, install the optional stiff spring. If the stiff spring makes the suspension too stiff over the full range of travel: – Test softer compression damping adjustments in one-click increments until the desired compression damping for initial travel is obtained.
	Middle travel too stiff: • Stiff on bumps when cornering. • Front end wanders when cornering. • Stiff suspension on bumps, especially downhill bumps. • While braking, front end dives during initial travel, then feels stiff.	If initial travel isn't stiff: – Test stiffer compression damping adjustments in one-click increments. (This should produce smooth fork action from initial to middle travel.) If initial and middle travel is stiff: – Test softer compression damping adjustments in one-click increments. – Reduce the rebound damping in one-click increments.
	Final travel too stiff: • Doesn't bottom on landings, but feels stiff. • Stiff on large bumps, especially downhill bumps. • Stiff on large bumps when cornering.	If initial and middle travel aren't stiff: – Test stiffer compression damping adjustments in one-click increments. (This should produce smooth fork action from initial to middle travel.) If final travel is still stiff after the above adjustment, or If initial and middle travel becomes stiff: – Install the optional soft spring. – Test softer compression damping adjustments in one-click increments. If the entire travel feels stiff after the above adjustment: – Test softer compression damping adjustments in one-click increments until the desired initial travel compression damping is obtained. – Lower the oil capacity by 0.2 US oz (5 cm^3).
	Entire travel too stiff: • Stiff suspension on any type of terrain.	– Test softer compression damping adjustments in one-click increments. – Reduce the rebound damping in one-click increments. – Lower the oil capacity by 0.2 US oz (5 cm^3).

Rear Suspension Adjustment
Adjustments for Type of Track

Hard-surfaced track	Begin with the standard settings. If the suspension is too stiff/soft, adjust according to the chart below.
Sand track	Lower the rear end (to improve front wheel stability) by increasing Race Sag (reduce spring pre-load). Example: – Turn the compression damping adjuster and, especially, rebound damping adjuster to a stiffer setting. – Increase standard Race Sag (+0.2 to 0.4 in/5 to 10 mm).
Mud track	Adjust to a stiffer position because mud build-up increases your CRF's weight. Example: – Adjust the compression and rebound damping adjusters to stiffer settings. – Install the optional stiff spring. – Reduce standard Race Sag (–0.2 to 0.4 in/–5 to 10 mm).

Symptoms and Adjustment

- Always begin with the standard settings.
- Turn the low speed compression and rebound damping adjusters in one-click increments, and the high speed compression damping adjuster in 1/12 turn increments at a time. Adjusting two or more clicks or turns at a time may cause you to pass over the best adjustment. Test ride after each adjustment.
- If, after setting, the suspension feels unusual, find the corresponding symptom in the table and test stiffer or softer compression and/or rebound damping adjustments until the correct settings are obtained as described.

	Symptom	Action
Stiff suspension	Suspension feels stiff on small bumps	1. Test softer low speed compression adjustment. 2. If it still feels stiff, further test softer low and high speed compression adjustments simultaneously.
	Suspension feels stiff on large bumps	1. Test softer high speed compression adjustment. 2. If it still feels stiff, further test softer low and high speed compression adjustments simultaneously.
	Entire travel too stiff	1. Test softer high and low speed compression adjustments and rebound adjustment simultaneously. 2. If it still feels stiff, replace the spring with a softer spring (optional) and begin with the standard settings to softer settings.
Soft suspension	Entire travel too soft	1. Test stiffer high and low speed compression adjustments simultaneously. 2. If it still feels soft, replace the spring with a stiffer spring (optional) and begin with the standard settings to stiffer setting.
	Rear end sways	1. Test stiffer high and low speed compression adjustments and rebound adjustment to stiffer settings simultaneously.
Suspension bottoms	Suspension bottoms at landing after jumping	1. Test stiffer high speed compression adjustment. 2. If it still bottoms, test stiffer high and low speed compression adjustments, and replace the spring with a stiffer spring (optional) if necessary.
	Suspension bottoms after landing	1. Test stiffer low speed compression adjustment. 2. If it still bottoms, test stiffer high and low speed compression adjustments, and replace the spring with a stiffer spring (optional) if necessary.
	Suspension bottoms after end of continuous bumps	1. Test softer rebound dumping adjustment. 2. If it still bottoms, test stiffer high and low speed compression adjustments and softer rebound damping adjustment, and replace the spring with a stiffer spring (optional) if necessary.

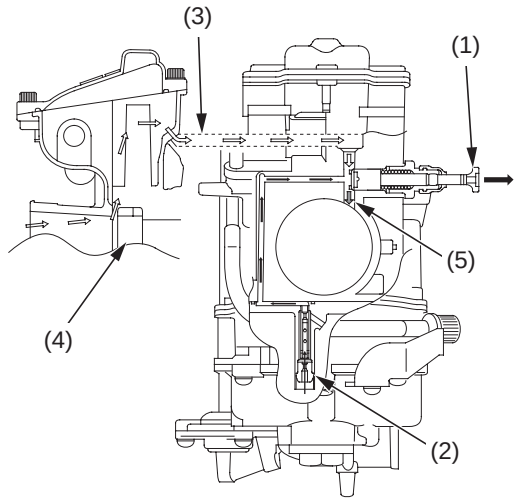
Carburetor Adjustment & Tuning Tips

The carburetor used on your CRF will seldom experience trouble with the standard settings under average load, and average climatic and barometric conditions. However, to fine-tune the engine's power output, the carburetor may require specific adjustments for competition use. However, in order to comply with emission regulations, we recommend that you make no carburetor changes unless you use your CRF for competition only.

Carburetor Components

Cold Start Circuit

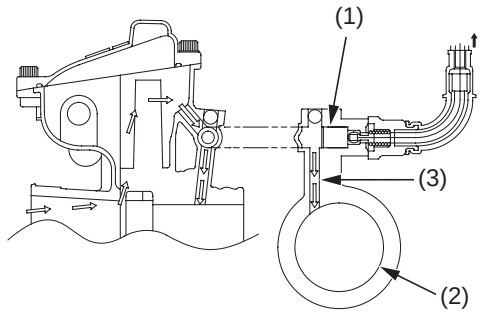
A very rich mixture must be delivered to the cylinder when a cold engine is being started. When the choke knob (1) is pulled out, fuel is metered by the starter jet (2) and is mixed with air from the air passage (3) (located above the throttle valve (4)) to provide a rich mixture for starting. The mixture discharges through the orifice (5) into the cylinder.



(1) choke knob
(2) starter jet
(3) air passage
(4) throttle valve
(5) orifice

Hot Start Circuit

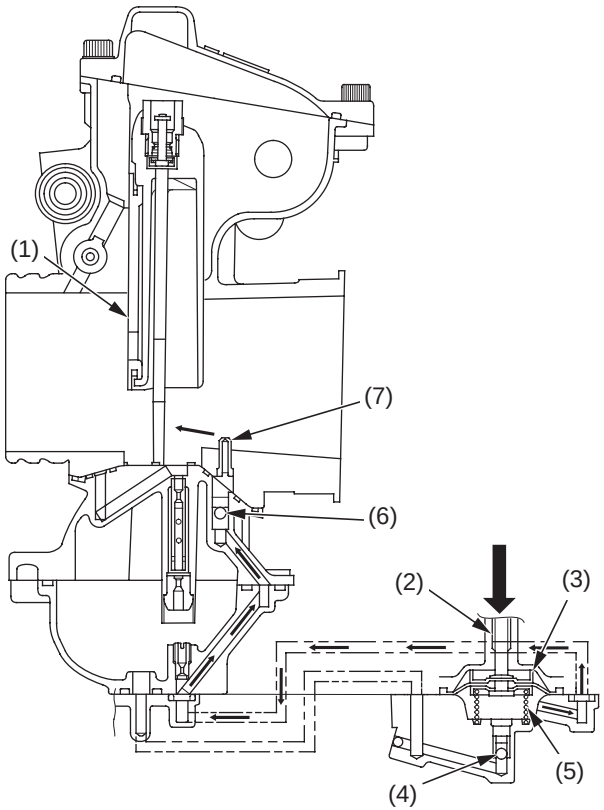
A lean mixture must be delivered to the cylinder when a hot engine is being started. When the hot start lever is pulled back, the hot start valve (1) opens, allowing air to be supplied to the main bore (2) through the hot start air passage (3). This extra air enters the air-fuel mixture from the slow circuit resulting in a lean condition.



(1) hot start valve
(2) main bore
(3) hot start air passage

Accelerator Pump Circuit

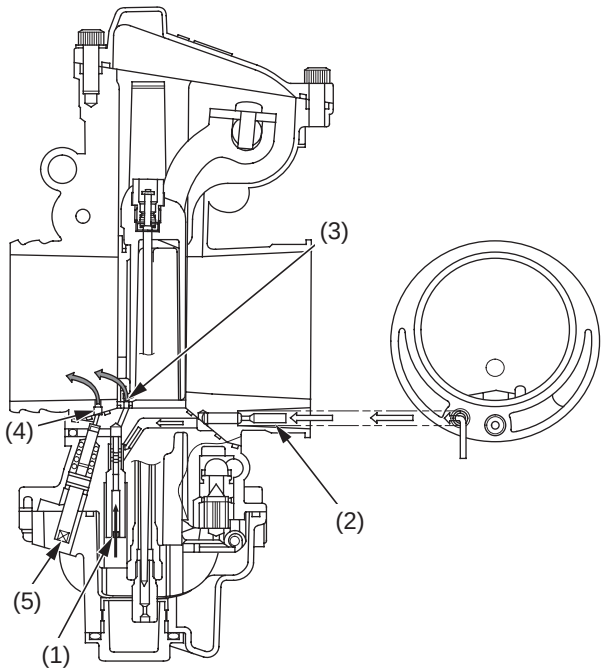
The accelerator pump circuit operates when the throttle is opened. As the throttle valve (1) opens, the pump rod (2) depress the diaphragm (3). At this time, the inlet check valve (4) is shut resulting in a sharp increase in pressure in the pump chamber (5). The outlet check valve (6) then opens, supplying fuel to the main bore via the accelerator nozzle (7).



(1) throttle valve
(2) pump rod
(3) diaphragm
(4) inlet check valve
(5) pump chamber
(6) outlet check valve
(7) accelerator nozzle

Slow Circuit

Fuel is metered by the slow jet (1) and mixed with air from the air passage (2). The mixture enters the venturi through the bypass (3) and pilot outlet (4) that has been metered by the pilot screw (5).



(1) slow jet
(2) air passage
(3) bypass
(4) pilot outlet
(5) pilot screw

Main Circuit

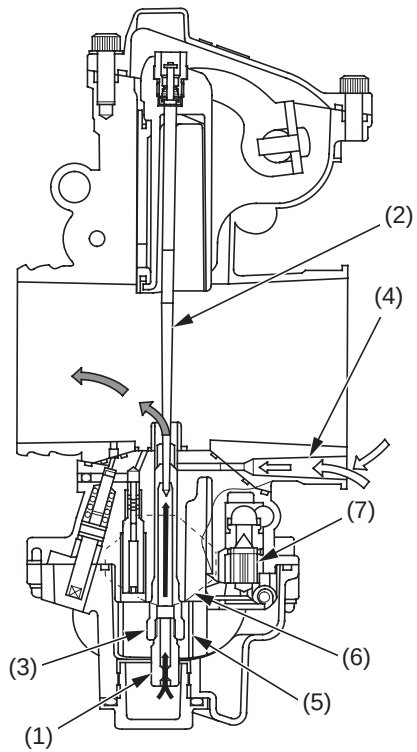
Fuel is metered by the main jet (1), jet needle (2) and needle jet (3). It is then mixed with air coming from the air jet (4) and enters the venturi past the needle jet.

Baffle Plate

The baffle plate (5) prevents foaming of fuel or abnormal fuel level around the main jet.

Float Bowl

The float (6) and float valve (7) operate to maintain a constant level of fuel in the float bowl.



(1) main jet
(2) jet needle
(3) needle jet
(4) air jet
(5) baffle plate
(6) float
(7) float valve

Carburetor Removal

1. Turn the fuel valve OFF.
2. Raise the rear wheel off the ground by placing an optional workstand or equivalent under the engine.
3. Remove the seat and fuel tank (pages 36, 37).
4. Remove the muffler (page 62).
5. Lift the subframe to the upright position (page 39).
6. Drain the remaining fuel in the float bowl by loosening the carburetor drain screw (1).

⚠ WARNING

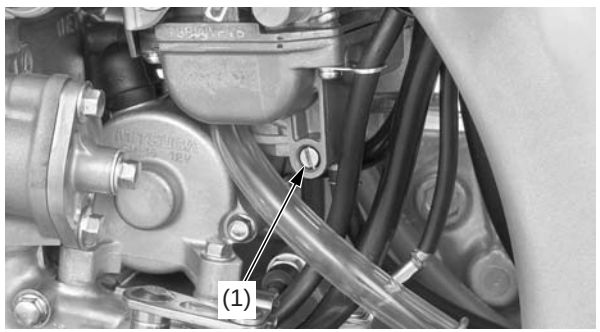
Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel.

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

Drain the carburetor into an approved gasoline container and dispose of it in an approved manner (page 151).

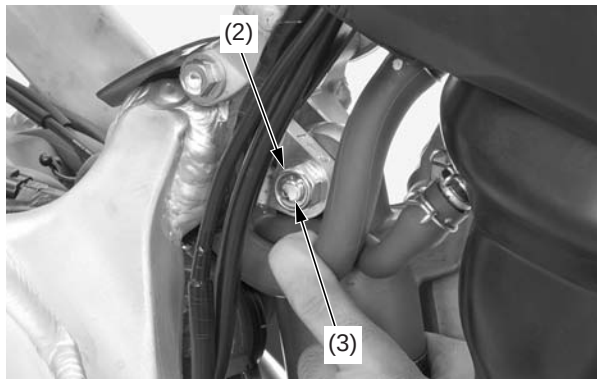
NOTICE

Improper disposal of drained fluids is harmful to the environment.



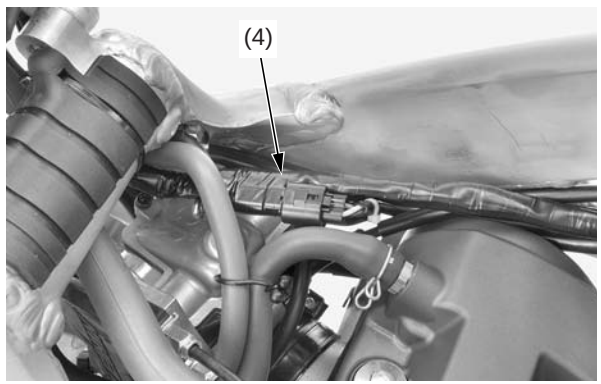
(1) carburetor drain screw

7. Tighten the carburetor drain screw.
8. Remove the shock absorber upper mounting nut (2) and bolt (3).



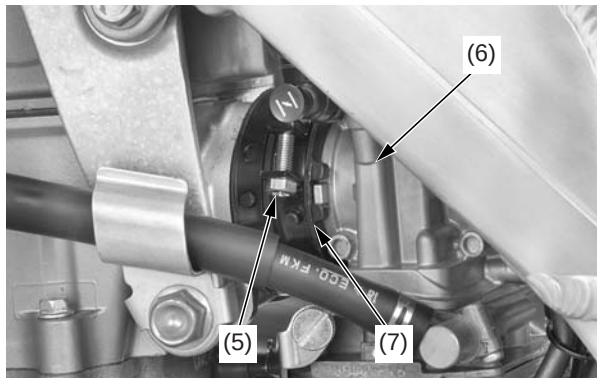
(2) shock absorber upper mounting nut
(3) shock absorber upper mounting bolt

9. Disconnect the throttle position sensor connector (4).



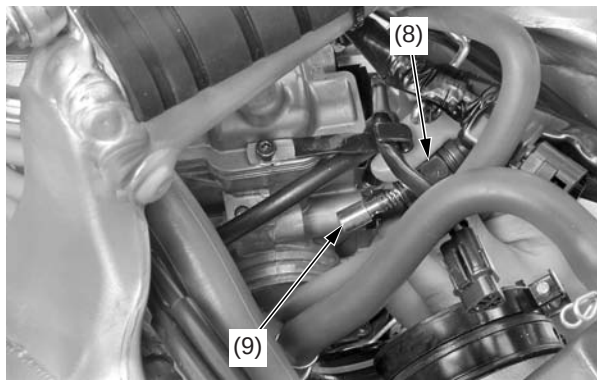
(4) throttle position sensor connector

10. Loosen the insulator band screw (5) and remove the carburetor (6) from the insulator (7).



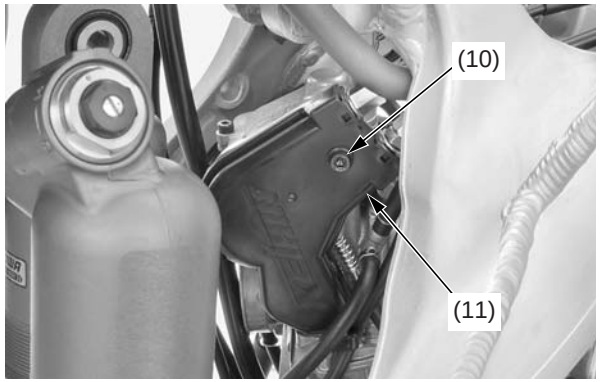
(5) insulator band screw
(6) carburetor
(7) insulator

11. Loosen the hot start cable nut (8) and remove the hot start valve (9) from the carburetor.



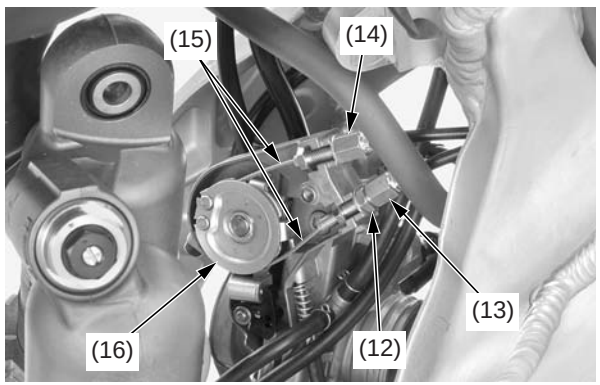
(8) hot start cable nut
(9) hot start valve

12. Remove the throttle drum cover bolt (10) and throttle drum cover (11).



(10) throttle drum cover bolt
(11) throttle drum cover

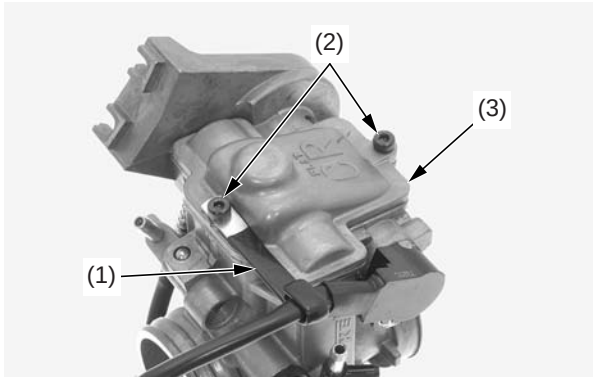
13. Loosen the throttle cable lock nut (12), adjuster (13), throttle cable bolt (14) and disconnect the throttle cables (15) from the throttle drum (16).



(12) throttle cable lock nut
(13) adjuster
(14) throttle cable bolt
(15) throttle cables
(16) throttle drum

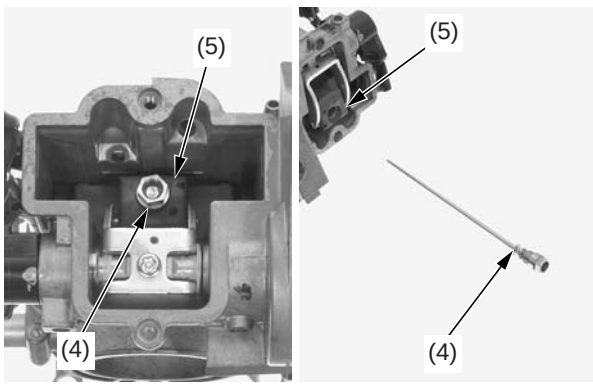
Carburetor Disassembly

1. Pull up the cable clamp (1).
2. Remove the carburetor top cover bolts (2), cable clamp and carburetor top cover (3).



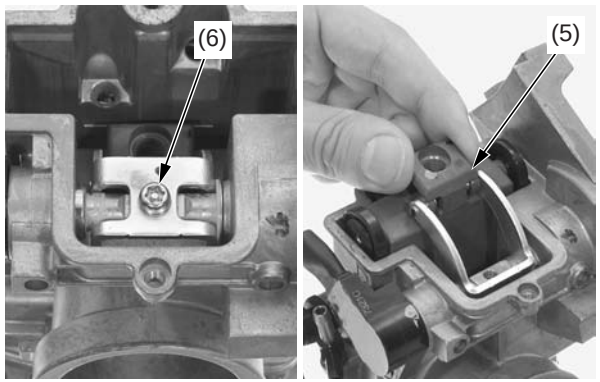
(1) cable clamp
(2) carburetor top cover bolts
(3) carburetor top cover

3. Remove the jet needle/holder assembly (4) from the throttle valve (5).



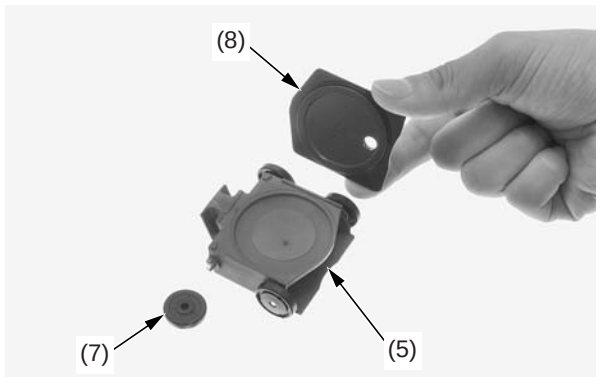
(4) jet needle/holder assembly
(5) throttle valve

4. Remove the link arm torx screw (6) and throttle valve (5).
When installing the link arm torx screw, apply a locking agent to the link arm torx screw threads.



(5) throttle valve
(6) link arm torx screw

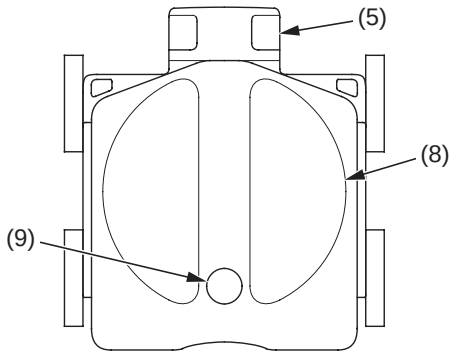
5. Remove the throttle valve roller (7) and floating valve (8).



(7) throttle valve roller
(8) floating valve

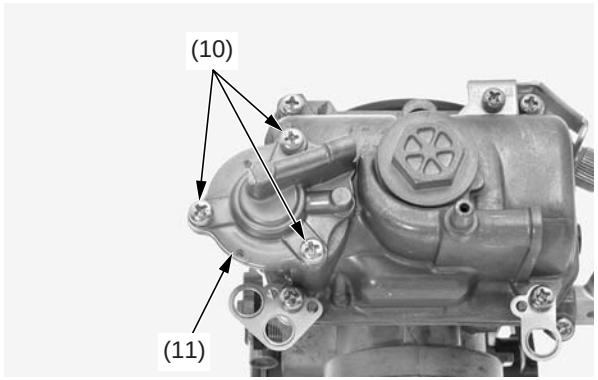
(cont'd)

When installing the floating valve (8) onto the throttle valve (5) make sure the floating valve's flat side faces out and the hole (9) faces down.



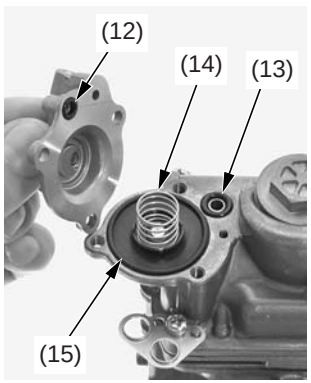
(5) throttle valve
(8) floating valve
(9) hole

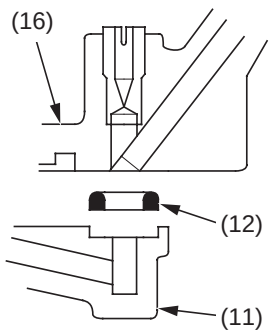
6. Remove the accelerator pump cover screws (10) and accelerator pump cover (11).



(10) accelerator pump cover screws
(11) accelerator pump cover

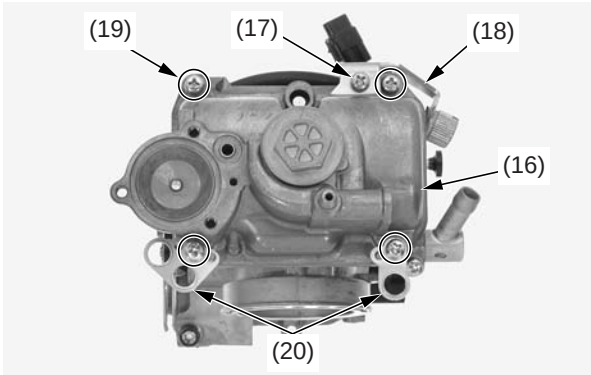
7. Remove the U-ring (12), O-ring (13), spring (14) and diaphragm (15).
Clean the diaphragm.
When installing the U-ring into the accelerator pump cover (11) make sure the U-ring flat-side faces down, away from the float bowl (16).





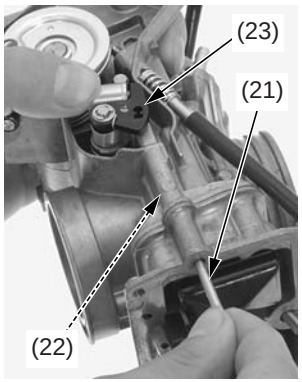
(11) accelerator pump cover
(12) U-ring
(13) O-ring
(14) spring
(15) diaphragm
(16) float bowl

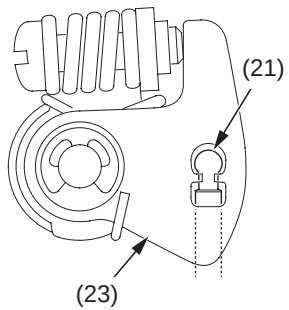
8. Remove the holder screw (17), throttle stop screw holder (18), float bowl screws (19), tube guides (20) and float bowl (16).



(16) float bowl
(17) holder screw
(18) throttle stop screw holder
(19) float bowl screws
(20) tube guides

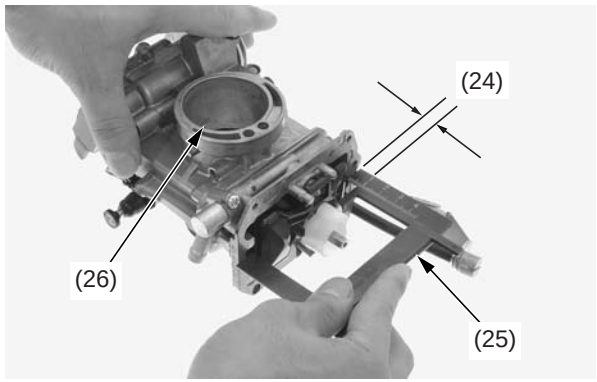
9. Remove the pump rod (21).
Clean the pump rod and rod passage (22).
Install the pump rod by pushing the rod forcibly into the link lever (23) until it snaps into place.





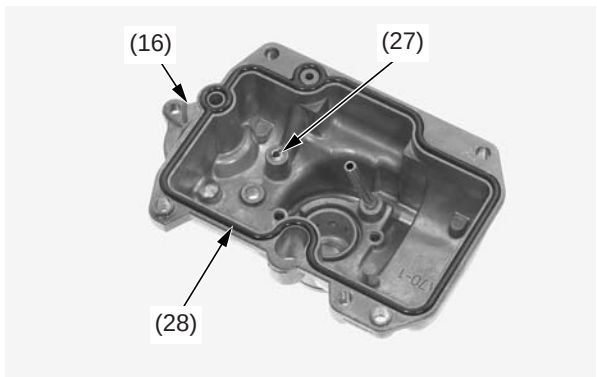
(21) pump rod
(22) rod passage
(23) link lever

10. Measure the float level (24) with the float level gauge (25) during float tab is just contacting the float valve and the carburetor intake (26) facing up. The float level should be 0.31 in (8.0 mm).
    If the float level is out of specification, adjust it by bending the float tab carefully.



(24) float level
(25) float level gauge
(26) carburetor intake

11. Remove the leak jet (27) and O-ring (28) from the float bowl (16).
    Clean the leak jet.



(16) float bowl
(27) leak jet
(28) O-ring

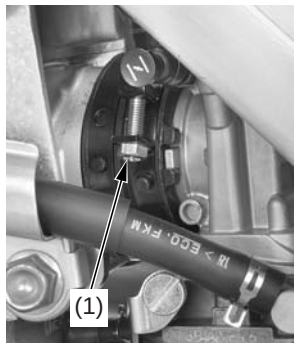
Carburetor Assembly

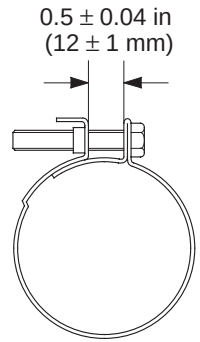
To assemble, reverse the disassembly procedures. To install the carburetor, reverse the removal procedures.

Tighten the following parts to the specified torque.

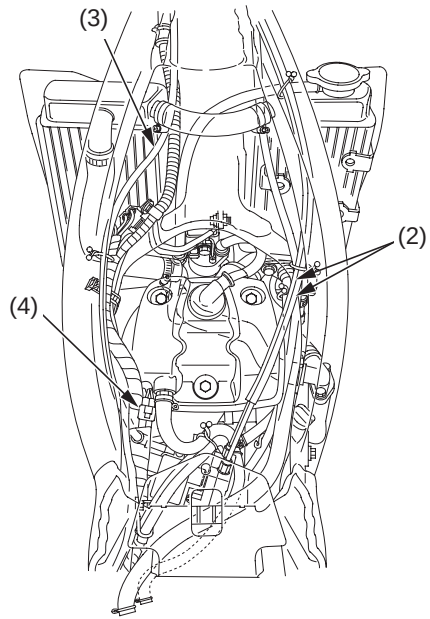
leak jet:
0.2 lbf·ft (0.3 N·m, 0.03 kgf·m)
float bowl screws:
1.5 lbf·ft (2.1 N·m, 0.2 kgf·m)
accelerator pump cover screws:
1.5 lbf·ft (2.1 N·m, 0.2 kgf·m)
carburetor top cover bolts:
1.5 lbf·ft (2.1 N·m, 0.2 kgf·m)
jet needle/holder assembly:
1.5 lbf·ft (2.1 N·m, 0.2 kgf·m)
link arm torx screw:
1.5 lbf·ft (2.1 N·m, 0.2 kgf·m)
throttle drum cover bolt:
2.5 lbf·ft (3.4 N·m, 0.3 kgf·m)
hot start cable nut:
1.5 lbf·ft (2.1 N·m, 0.2 kgf·m)
throttle cable lock nut:
3.0 lbf·ft (4.0 N·m, 0.4 kgf·m)
throttle cable bolt:
3.0 lbf·ft (4.0 N·m, 0.4 kgf·m)
shock absorber upper mounting nut:
32 lbf·ft (44 N·m, 4.5 kgf·m)

- Tighten the insulator band screw (1) so the insulator band distance is 0.5 ± 0.04 in (12 ± 1 mm).
- Route the throttle cables (2), hot start cable (3) and throttle position sensor wire correctly.
- After installing the carburetor, adjust the throttle grip freeplay and hot start lever freeplay.
- After installing the carburetor, check the throttle position sensor connector (4) for correct routing.
- After installing the carburetor, check the air vent hoses (5) and overflow hose (6) for kinking or pinching and correct routing.
- After connecting the fuel line (7), check the fuel line clamps (8) as illustrated. (next page)
- Check that the U-ring and O-ring are in good condition. Replace them if necessary.

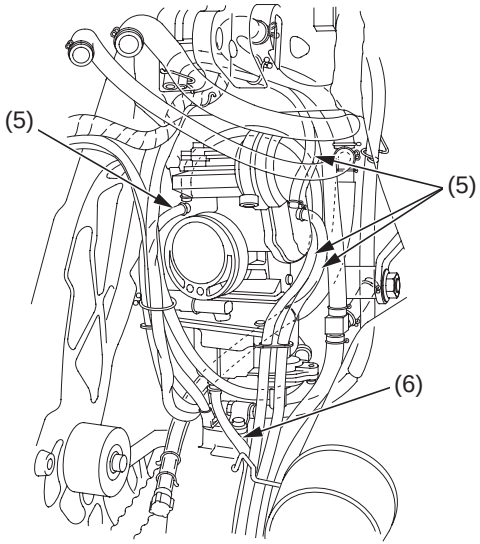


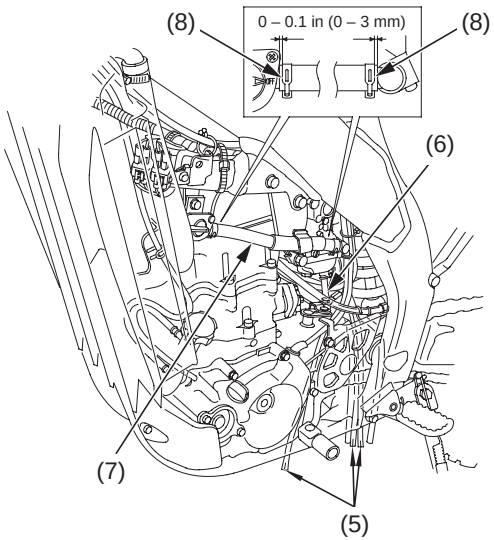


(1) insulator band screw



(2) throttle cables
(3) hot start cable
(4) throttle position sensor connector

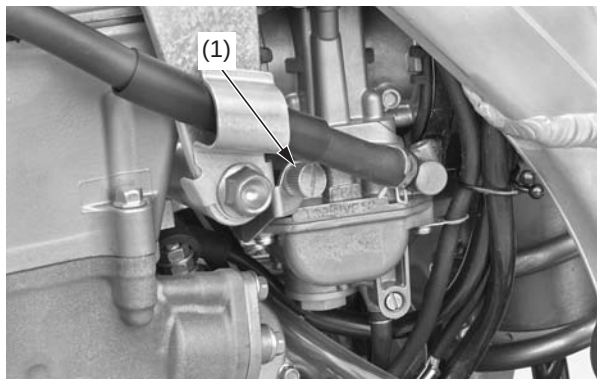




(5) air vent hoses
(6) overflow hose
(7) fuel line
(8) fuel line clamps

Idle Speed Adjustment

1. If the engine is cold, start it and warm it up 3 minutes. Then shut it off.
2. Connect a tachometer to the engine.
3. Shift the transmission into neutral. Start the engine.
4. Keep the motorcycle in an upright position.
5. Adjust idle speed with the throttle stop screw (1).
   Idle speed:
   1,700 ± 100 rpm



(1) throttle stop screw

The steering damper can be adjusted for riding conditions by using following method:

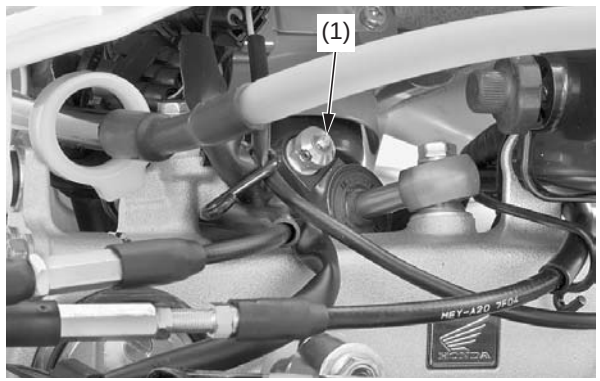
- **Damping** – Turning the steering damper adjuster adjusts how quickly the steering damper extends or compresses.

Steering Damper Adjustment

The steering damper adjuster (1) has 11 positions or more. Turning the adjuster one full turn clockwise advances the adjuster six positions.
To adjust the adjuster to the standard setting, proceed as follows:
Turn the adjuster clockwise until it will no longer turn (lightly seats). This is the full hard position.
The adjuster is set in the standard position when the adjuster is turned counterclockwise 9 clicks.
Damping can be increased by turning the adjuster clockwise.

NOTICE

Always start with full hard when adjusting damping.
Do not turn the adjuster more than the given positions or the adjuster may be damaged.
Be sure that the steering damper adjuster is firmly located in a detent, and not between positions.



(1) steering damper adjuster

Steering Damper Adjustment Guidelines

Follow the procedures described below to accurately adjust your CRF, using the methods described on this page.

Symptoms and Adjustment

- Always begin with the standard settings.
- Turn the steering damper adjuster in one-click increments at a time. Adjusting two or more clicks at a time may cause you to pass over the best adjustment. Test ride after each adjustment.

Symptom	Action
Steering is wobbling on large bumps	Adjust the steering damper adjuster to stiffer setting.
Steering is wobbling at sand track	Adjust the steering damper adjuster to stiffer setting.
Steering is heavy when cornering	Adjust the steering damper adjuster to softer setting.

The following suggestions may improve a specific concern. Subtle changes in overall handling may also be noted.

Rear End

If you have a problem with rear wheel traction, raise the rear end of your CRF by increasing the rear spring pre-load. Instead of running 3.9 in (100 mm) of sag, you can run 3.5 in (90 mm) so the rear of the bike will sit a little higher. This should produce more traction because of the change to the swingarm and location of your CRF's center of gravity.

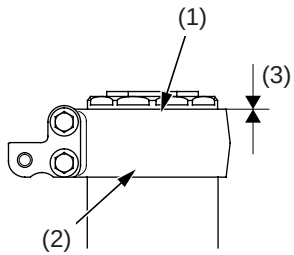
If you have a problem with the steering head shaking when you use the front brake hard or if your CRF wants to turn too quickly, lower the rear of the motorcycle by reducing the rear spring pre-load. This will increase fork rake and trail and should improve stability in a straight line. The effective suspension travel will be transferred toward the firmer end of wheel travel.

Keep the race sag adjustment (page 128) in the 3.5 – 4.3 in (90 – 110 mm) range.

Fork Height/Angle

Standard Position
The position of the outer tubes in the clamps is not adjustable. Align the top of outer tube (1) with the top of upper fork clamp (2).

(STANDARD POSITON)



(1) top of outer tube
(2) upper fork clamp
(3) standard position
0 in (0 mm)

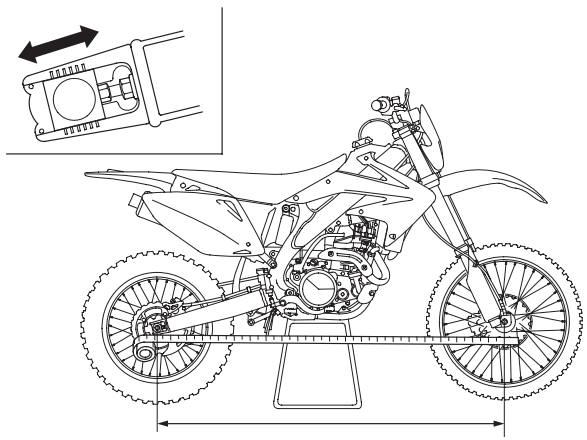
Wheelbase

Adjusting your CRF's wheelbase can offer subtle changes in overall handling. You may adjust wheelbase by adding or removing links on the drive chain. If you change the wheelbase, be sure to recheck the race sag and adjust, if necessary.

In the past, a general rule was lengthen the wheelbase to add straight line stability, shorten the wheelbase to improve turning. However, we suggest you do not lengthen the wheelbase of your CRF unless you are racing on a track with more fast sections than normal.

As a general recommendation, keep the wheelbase as short as possible. This positions the wheels closer together, improves turning response, increases weighting (traction) on the rear wheel, and lightens weighting on the front wheel.

With your CRF, you will probably find that the standard setting or a shorter wheelbase will offer more overall benefits.



Gearing

You can “adjust” the power delivery of the standard engine to suit track conditions by changing gearing. This allows you to utilize a different portion of the engine’s power range at a given throttle setting. New gearing may provide the change you are looking for without the need to consider further modifications.

The portion of your engine’s power range you use can be adjusted by changing the final drive ratio with different sized driven sprockets. Gearing changes allow you to more closely match the type of terrain and the available traction. Normally, a change of one tooth on the driven sprocket will be sufficient.

There is a choice of both higher and lower final drive ratios with two optional driven sprockets. Like the optional springs, these sprockets are listed in the Optional Parts List section of this manual (page 169).

Unless you have the required mechanical knowhow, tools, and an official Honda Service Manual, sprocket changing should be done by your dealer.

Higher Gearing (less driven sprocket teeth)

- increases top speed in each gear (provided the engine will pull the higher gearing)
- reduces frequency of shifting (wider gear ratios)
- reduces engine rpm at a given throttle setting or ground speed (which may allow better rear wheel traction on slippery or loose terrain)

However:

- the engine may not pull the higher gearing
- the spacing between gears may be too wide
- engine rpm may be too low

Lower Gearing (more driven sprocket teeth)

- decrease top speed in each gear
- increases frequency of shifting (narrower gear ratios)
- increases engine rpm at a given throttle setting or ground speed (which may provide more power-to-the-ground on good traction surfaces)

However:

- spacing between gears may be too narrow
- engine rpm may be too high

Some tracks may be watered heavily prior to the first race, then lightly or not at all during the day. This results in a track surface that is slippery during the first few races, then changes from good to great and back to good and possibly ends the day with a slick rock-hard consistency. Ideally, your gearing should be adjusted to suit all these conditions.

- Wet and slippery or sandy conditions: use a higher gear (less teeth) to keep engine rpm down, and avoid unwanted wheelspin. The engine may bog in certain corners so you’ll need to slip the clutch to compensate; downshifting may be too drastic a change in speed.
- Average conditions: use the standard sprocket.
- Hard (but not slippery) track conditions: use lower gearing (more teeth) to keep the engine rpm high where the engine produces the most power. This may require an extra upshift on certain sections or perhaps you can just rev it out a bit longer.

For tight tracks, consider lower gearing to avoid having to slip the clutch frequently. Repeated fanning or pulling of the clutch lever in a turn to raise engine rpm may eventually damage the clutch system.

A gearing change may help for riding in sand, where you want to keep the front end light so it can float from the peak of one sand whoop to the next. Generally, with higher gearing, it is easier to maintain that perfect attitude (maximum rear wheel traction and a light front end) because you remain in the powerband longer in each gear. The higher gearing allows you to steer more efficiently with throttle control and body English.

If you are riding a track with sections where you choose to over-rev the engine temporarily rather than shifting up, higher gearing might help.

Sometimes you have to sacrifice performance on one section of the track to gain a better overall time. Your goal is the fastest overall lap time, even if the cost is some sections where the gearing feels wrong.

If you decide to try a gearing change, have someone check your times with a stopwatch (before and after the change) to get an accurate appraisal of the change. “Seat-of-the-pants” feelings can’t be trusted. Eliminating wheelspin with a gearing change can make you feel like you’re going slower when, in reality, you’ve decreased your time by increasing your speed with better traction.

These gearing recommendations should be evaluated by considering your ability, your riding style, and the track.

Tire Selection for Track Conditions

Choosing the correct tire tread pattern and rubber compound can affect your placing in competition. The tires on your CRF offer a “happy medium” for the variety of soil conditions the majority of riders are likely to encounter.

Experienced competitors often switch to tires developed for specific terrain conditions. If you do switch, stay with the factory recommended sizes. Other tires may affect handling or acceleration.

Be aware that tire sizes (width and aspect ratio) do vary from manufacturer to manufacturer or even among tires made by the same manufacturer. Variations in tires, especially the sidewall profile, can change the attitude of your CRF and its handling. Tire variations that raise or lower the rear of your CRF have a more significant effect on handling than variations in front tires which, generally, don’t vary as much. Often, you can see or feel the change in tire size. Another way to check is to measure the rolling circumference of the old and new tires. A higher profile tire will have a larger rolling circumference.

If you do switch to tires designed for special terrain use, remember they will be less acceptable in other circumstances. For example, an aggressive mud tire will give excellent grip on wet, loamy terrain, but less impressive grip on a hard surface.

If you choose a tire with a sticky compound for added traction, remember that it may transfer additional loads to the transmission because it grips so well, especially when riding in situations that normally place unusual demands on the transmission.

Complete consumer information can be obtained from the various tire manufacturer representatives and dealers.

Some general recommendations for specific terrain follow:

Hard, Slick Soil
Use tires with many relatively short knobs that are close together in order to obtain the largest possible contact patch on the surface. The rubber compound needs to be softer for hard ground in order to hook up, but not so soft that the knobs roll over easily and affect holding a straight line. These tires tend to wear more quickly than standard tires because of the combination of soft rubber and hard terrain.

Muddy Soil
Use a more open tread pattern to avoid clogging. For these conditions, the relatively long knobs will probably be made from a harder rubber compound to reduce any tendency to bend back under acceleration or wear quickly.

Loose, Sandy Soil
Use a tire that is similar in construction to those needed for tacky soil and mud, but with a few more knobs.

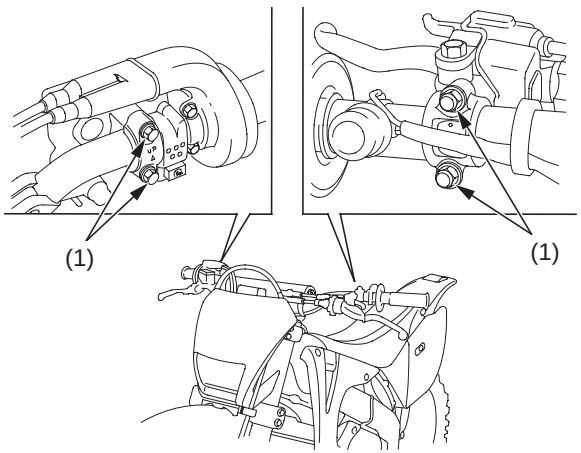
Personal Fit Adjustments

The following suggestions may make your ride both more comfortable and more responsive to your control input.

Control Positioning

- Position the control levers so that you can use them comfortably when seated and standing.
- Adjust the mounting bolt torque of the clutch and brake lever assemblies so that they can rotate on the handlebar in a fall. If an assembly does not rotate, it may bend or break a control lever. Make sure that the bolts are torqued securely enough to prevent slippage during normal operation.

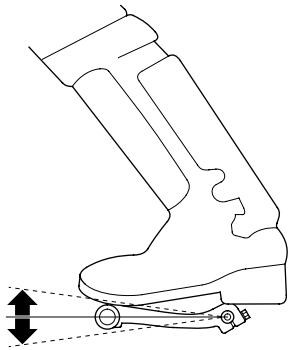
Apply Pro Honda Hondalock or an equivalent to the threads of these bolts prior to adjustment to help ensure the correct torque is retained. Tighten the top bolts first.



(1) control lever mounting bolts

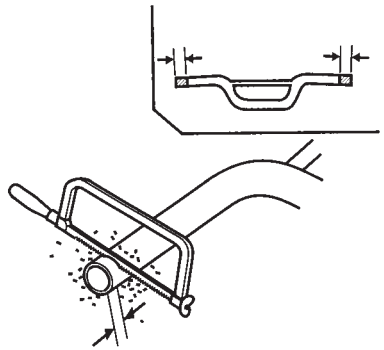
As an alternative, consider wrapping the handlebar area under the control assemblies with teflon tape. Then tighten the assemblies to their normal torque. Upon impact, the fully-tightened assemblies should rotate on the teflon tape.

- Position the shift lever and brake pedal so they are close to your boot for rapid access, but not so close that either is depressed when sitting or standing comfortably on your CRF.



Handlebar Position, Width & Shape

- Position the handlebar so that both gripping the bar and operating the controls is comfortable while both seated and standing, while riding straight ahead and turning. Tighten the forward bolts first.
- The handlebar position may be moved rearward either 0.1 in (3 mm) (using optional handlebar lower holders) or 0.2 in (6 mm) (by rotating the standard holders 180 degrees). Refer to the Service Manual for installation instructions. Be sure to check control cable and wiring harness routing after the adjustment.
- Handlebar width can be trimmed with a hacksaw to better suit your particular shoulder width and riding preference. Think this through carefully and cutoff just a small amount at a time from both sides equally. It is obviously much easier to make the handlebar narrower than it is to add material.



- Chamfer the edges to remove burrs and other irregularities or roughness after sawing the handlebar.
- An alternate handlebar shape, through varying rise or rearward sweep dimensions, will provide further adjustment to riding position and may better suit your particular body size or riding style. Each of the ergonomic dimensions of the machine were determined to suit the greatest possible number of riders based on an average size rider.

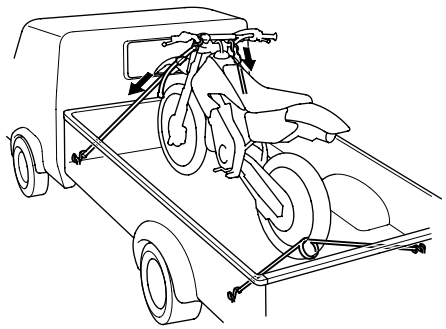
Here's helpful advice on how to transport and store your Honda, as well as three troubleshooting flow charts.

Transporting Your Motorcycle 148
Storing Your Honda 149
    Preparation for Storage 149
    Removal from Storage 150
You & the Environment 151
Troubleshooting 152

Transporting Your Motorcycle

If you use a truck or motorcycle trailer to transport your Honda, we recommend that you follow these guidelines:

- Use a loading ramp.
- Make sure the fuel valve is off.
- Secure the motorcycle in an upright position, using motorcycle tie-down straps. Avoid using rope, which can loosen and allow the motorcycle to fall over.



To secure your CRF, brace the front wheel against the front of the truck bed or trailer rail. Attach the lower ends of two straps to the tie-down hooks on your CRF. Attach the upper ends of the straps to the handlebar (one on the right side, the other on the left), close to the fork.

Check that the tie-down straps do not contact any control cables or electrical wiring.

Tighten both straps until the front suspension is compressed about half-way. Too much pressure is unnecessary and could damage the fork seals.

Use another tie-down strap to keep the rear of the motorcycle from moving.

We recommend that you do not transport your CRF on its side. This can damage the motorcycle, and leaking gasoline could be a hazard.

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

To reduce or prevent deterioration that can occur during storage, also follow the following procedures.

Preparation for Storage

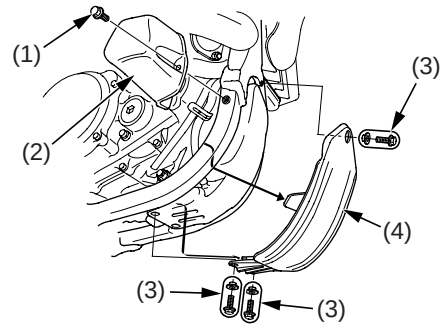
1. Completely clean all parts of your CRF. If your CRF has been exposed to sea air or salt water, wash it down with fresh water and wipe dry.
2. Change the engine oil and filter (page 44).
3. Change the transmission oil (page 47).
4. Drain the fuel tank and carburetor into an approved gasoline container.
   Turn the fuel valve OFF and loosen the carburetor drain screw. Drain gasoline into an approved container. Retighten the carburetor drain screw.

⚠ WARNING

Gasoline is highly flammable and explosive. You can be burned or seriously injured when handling fuel.

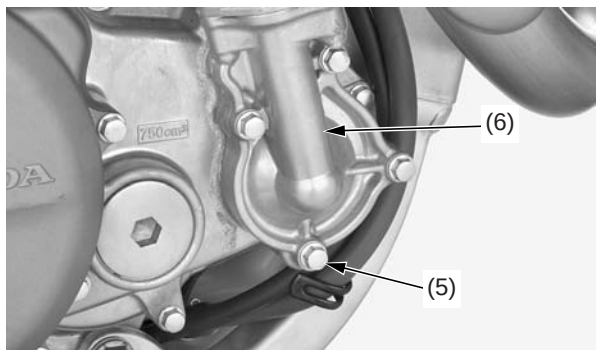
- Stop the engine and keep heat, sparks and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

5. Remove the right engine guard bolt (1) and right engine guard (2).
   Remove the center engine guard mounting bolts, collars (3) and center engine guard (4).



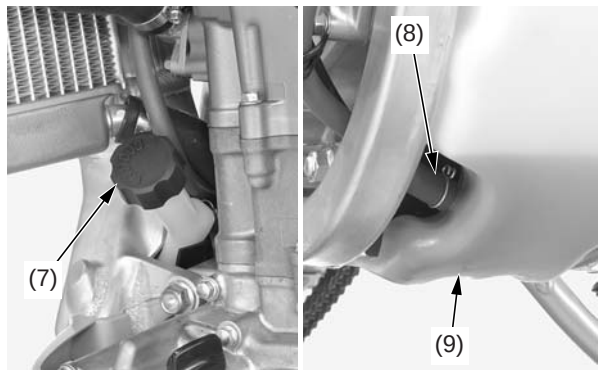
(1) right engine guard bolt
(2) right engine guard
(3) center engine guard mounting bolts/collars
(4) center engine guard

6. Remove the radiator cap and coolant drain bolt/sealing washer (5) at the water pump (6) to drain coolant.
   After the coolant has been completely drained, ensure that the drain bolt sealing washer is in good condition and reinstall the drain bolt and radiator cap.
   Coolant drain bolt:
   7 lbf·ft (10 N·m, 1.0 kgf·m)



(5) coolant drain bolt/sealing washer
(6) water pump

7. Remove the reserve tank cap (7).
   Disconnect the siphon hose (8) from the reserve tank (9).
   Pull out the reserve tank from the frame and drain the reserve tank coolant.
   Empty the reserve tank coolant and rinse the inside of the reserve tank with water.

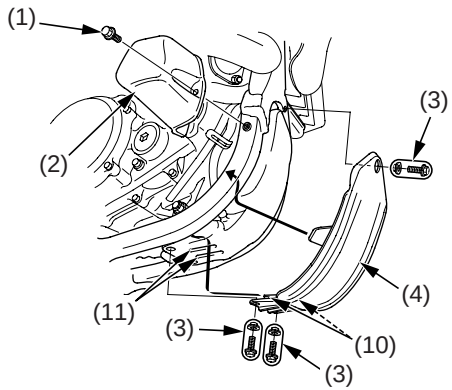


(7) reserve tank cap
(8) siphon hose
(9) reserve tank

8. Reinstall the reserve tank and reserve tank cap and connect the siphon hose.

(cont'd)

9. Install the center engine guard (4) while aligning its tabs (10) with the grooves (11) of the radiator reserve tank.
   Install the center engine guard mounting bolts and collars (3), then tighten them. Install the right engine guard (2) and tighten the right engine guard bolt (1).



(1) right engine guard bolt
(2) right engine guard
(3) center engine guard mounting bolts/collars
(4) center engine guard
(10) tabs
(11) grooves

10. Lubricate the drive chain (page 98).
11. Remove the battery and charge it fully.
    Store in an area protected from freezing temperatures and direct sunlight. Slow charge the battery (page 105) once a month.
12. Inflate the tires to their recommended pressures (page 93).
13. Place your CRF on an optional workstand or equivalent to raise both tires off the ground.
14. Stuff a rag into the muffler outlet. Then tie a plastic bag over the end of the muffler to prevent moisture from entering.
15. Store your CRF in an unheated area, free of dampness, away from sunlight, with a minimum of daily temperature variation.
16. Cover your CRF 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

1. Uncover and clean your CRF.
   Change the engine and transmission oil if more than 4 months have passed since the start of storage (pages 44, 47).
2. Uncover the end of the muffler and remove the rag from the muffler outlet.
3. Fill the fuel tank with recommended fuel (page 41).
4. Charge the battery (page 105) as required. Install the battery.
5. Pour a fresh recommended coolant mixture (page 48) slowly into the radiator filler hole up to the filler neck.
   Capacity:
   1.53 US qt (1.45 ℓ)
   After disassembly
   1.28 US qt (1.21 ℓ)
   After draining

   Remove the radiator reserve tank cap and fill the reserve tank to the upper level line.
   Bleed air from the system (page 50).

6. Perform all maintenance checks (page 11).

Owning and riding a motorcycle can be enjoyable, but you must do your part to protect nature. When you show respect for the land, wildlife, and other people, you also help preserve the sport of off-road riding.

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

- **Choose Sensible Cleaners.** Use a biodegradable detergent when you wash your CRF. 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, 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 get instructions on how to dispose of non-recyclable wastes.

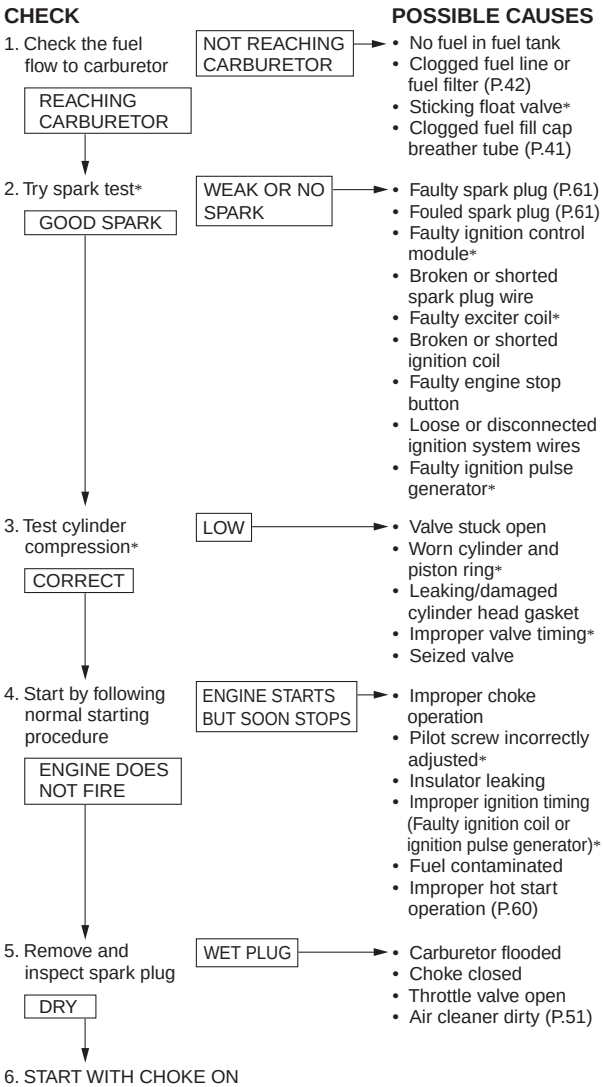
NOTICE

Improper disposal of drained fluids is harmful to the environment.

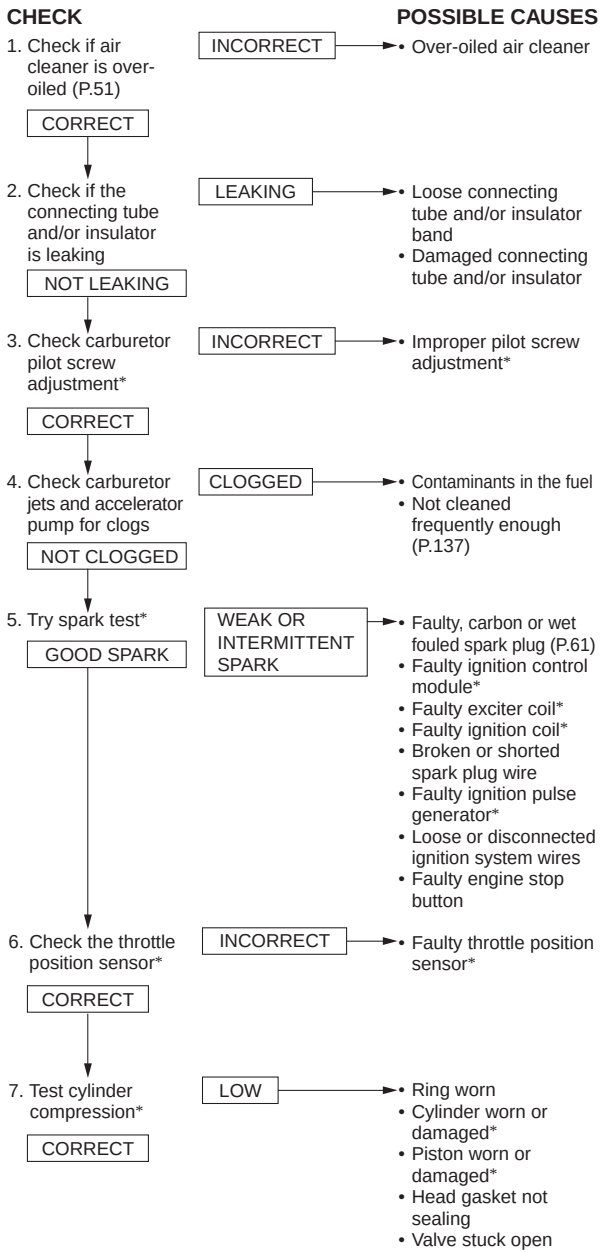
Troubleshooting

The items that are serviceable using this Manual are followed by the page number reference in parenthesis. The items that require use of the Honda Service Manual are followed by an asterisk (*).

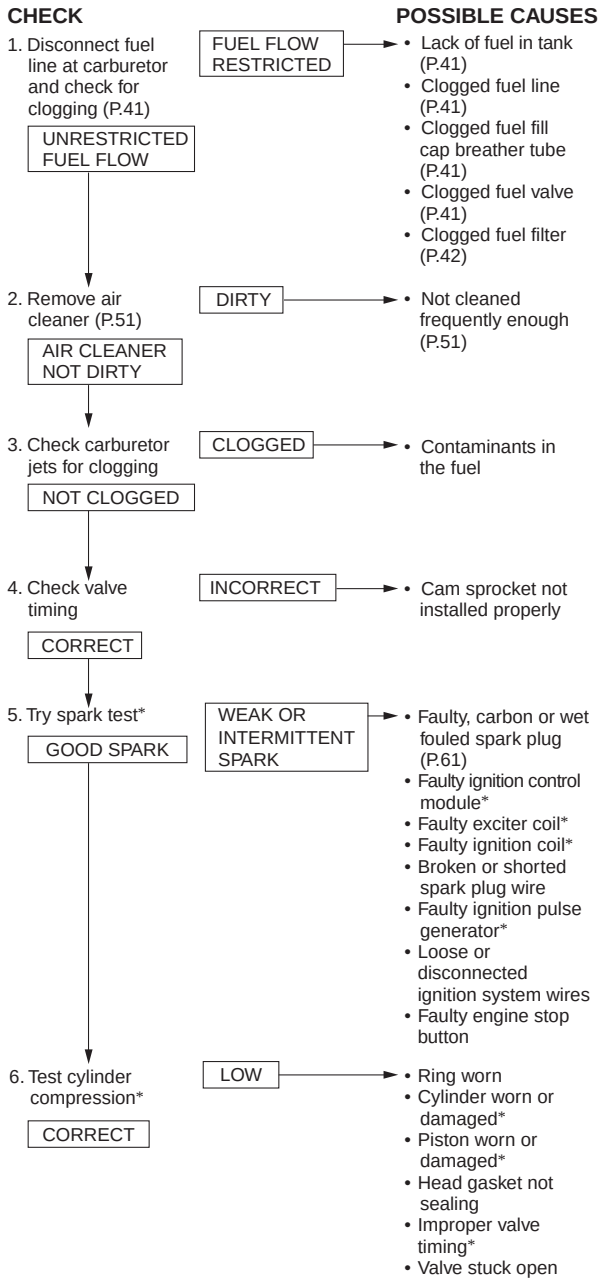
ENGINE DOES NOT START OR IS HARD TO START



POOR PERFORMANCE AT LOW AND UNSTABLE IDLE SPEED



POOR PERFORMANCE AT HIGH SPEED



This section gives practical advice to help you solve problems.

If a Fuse Blows 154
If Your Battery Is Low (or Dead)..... 155

If a Fuse Blows

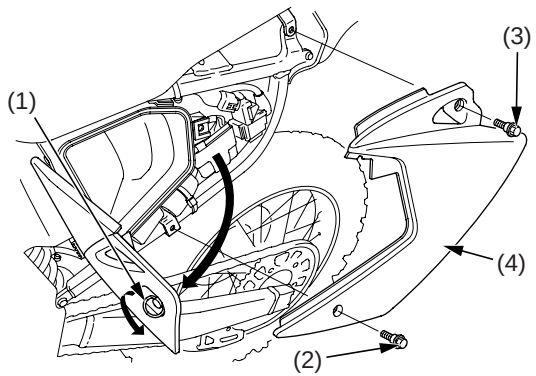
All of the electrical circuits on your CRF have a fuse to protect them from damage caused by excess current flow (short circuit or overload).

If something electrical on your CRF stops working, the first thing you should check for is a blown fuse. Check the fuse before looking elsewhere for another possible cause of the problem. Replace a blown fuse and check component operation.

- The main fuse (and spare) are located on the starter motor magnetic switch behind the left side cover.

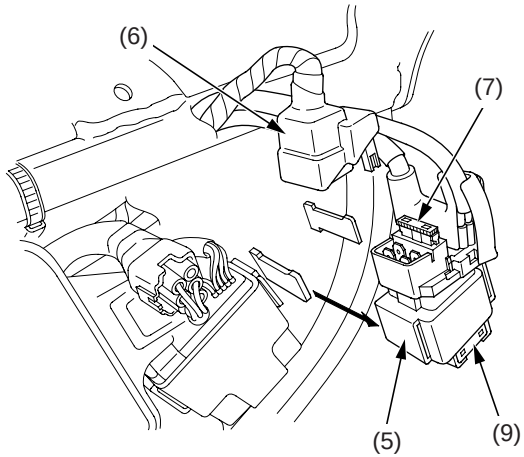
Recommended Main Fuse: 15A

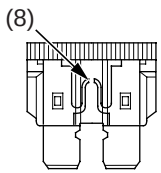
1. To prevent an accidental short circuit, stop the engine.
2. Open the air cleaner housing cover by turning the quick fastener (1) counterclockwise and remove the left side cover bolt (2), seat mounting bolt (3) and left side cover (4).



(1) quick fastener
(2) left side cover bolt
(3) seat mounting bolt
(4) left side cover

3. Remove the starter magnetic switch (5) with the rubber case.
4. Disconnect the wire connector (6) of the starter magnetic switch.
5. Pull out the main fuse (7). If it is blown (8), install the spare main fuse (9).





(5) starter magnetic switch
(6) wire connector
(7) main fuse
(8) blown fuse
(9) spare main fuse

6. Reconnect the wire connector and install the starter magnetic switch.

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.

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 the spare fuse that was installed.

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

7. Install the left side cover and left side cover bolt.
8. Close the air cleaner housing cover.

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 CRF's electrical system.

Bump starting is also not recommended.

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

Technical Information

This section contains dimensions, capacities, and other technical data.

Vehicle Identification 158
Specifications 159
Torque Specifications 160
Emission Control Systems 164
Oxygenated Fuels 166
Competition Logbook 167
Optional Parts List 169
Spare Parts & Equipment 170
Wiring Diagram 171

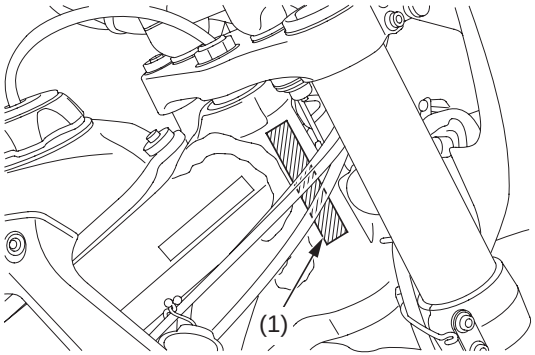
Vehicle Identification

Serial Numbers

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

The VIN (1) is stamped on the right side of the steering head.

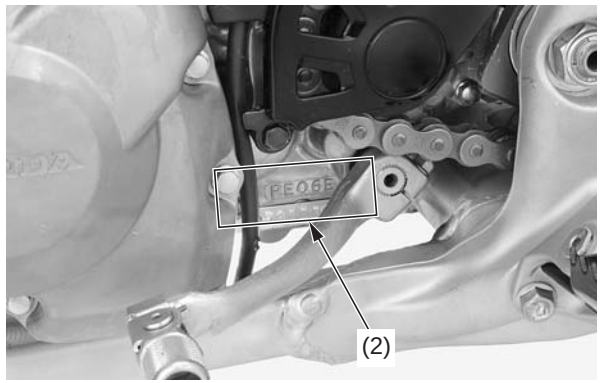
RIGHT SIDE



(1) VIN

The engine number (2) is stamped on the left crankcase.

LEFT SIDE



(2) engine number

For USA & CANADA

Item	English	Metric
Dimension		
Overall length	85.8 in	2,179 mm
Overall width	32.3 in	821 mm
Overall height	50.1 in	1,273 mm
Wheelbase	58.3 in	1,480 mm
Seat height	37.9 in	963 mm
Footpeg height	17.0 in	431 mm
Ground clearance	13.6 in	345 mm
Frame		
Type	Twin tube	
F. suspension	Telescopic fork, travel 11.0 in (279 mm) stroke 12.4 in (315 mm)	
R. suspension	Pro-link, travel 12.3 in (313 mm)	
Tire size, front	80/100 – 21 51M	
	DUNLOP	D742FA
Tire size, rear	110/100 – 18 64M	
	DUNLOP	D756
Tire type	bias-ply, tube type	
Tire pressure, front (cold)	15 psi (100 kPa, 1.0 kgf/cm^2)	
Tire pressure, rear (cold)	15 psi (100 kPa, 1.0 kgf/cm^2)	
F. brake, swept area	Single disc brake 51.8 in^2 (334.5 cm^2)	
R. brake, swept area	Single disc brake 60.6 in^2 (391.1 cm^2)	
Fuel recommendation	unleaded gasoline, pump octane number of 91 or higher	
Fuel capacity	1.90 US gal	7.2 ℓ
Fuel reserve capacity	0.42 US gal	1.6 ℓ
Caster angle	27°03'	
Trail length	4.53 in	115 mm
Fork oil capacity (except fork damper per leg)	11.0 US oz	324 cm^3

Item	English	Metric
Engine		
Type	Liquid cooled, 4-stroke	
Cylinder arrangement	Single 6° inclined from vertical	
Bore and stroke	3.78 x 2.44 in	96.0 x 62.1 mm
Displacement	27.4 cu-in	449 cm^3
Compression ratio	12.0 : 1	
Valve clearance (cold)	Intake: 0.006 ± 0.001 in (0.16 ± 0.03 mm) Exhaust: 0.011 ± 0.001 in (0.28 ± 0.03 mm)	
Engine oil capacity After draining	0.71 US qt	0.67 ℓ
After draining and oil filter change	0.74 US qt	0.70 ℓ
After disassembly	0.92 US qt	0.87 ℓ
Transmission oil capacity After draining	0.69 US qt	0.65 ℓ
After disassembly	0.79 US qt	0.75 ℓ
Cooling system, capacity After draining	1.28 US qt (1.21 ℓ)	
After disassembly	1.53 US qt (1.45 ℓ)	
Carburetor		
Type	Piston valve	
Identification number	FCR13B	
Main jet	#145	
Jet needle	NNEU	
Slow jet	#45	
Pilot screw opening	1-1/8 turns out	
Float level	0.31 in	8.0 mm
Idle speed	1,700 ± 100 rpm	

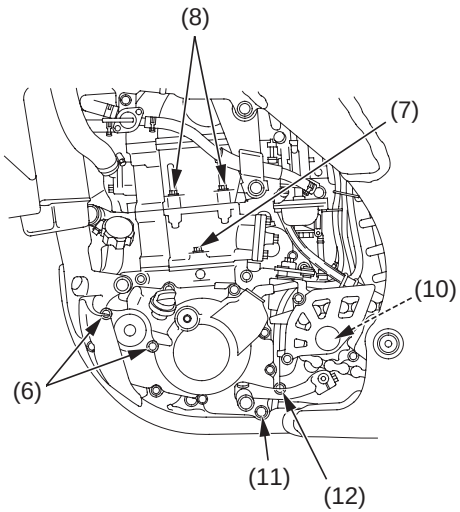
Item	English	Metric
Drive train		
Clutch type	Wet, multi-plate type	
Transmission	5-speed, constant mesh	
Primary reduction	2.739	
Gear ratio I	2.230	
Gear ratio II	1.625	
Gear ratio III	1.235	
Gear ratio IV	1.000	
Gear ratio V	0.826	
Final reduction	3.923	
Gear shift pattern	Left foot-operated return system 1-N-2-3-4-5	
Electrical		
Battery	YTZ7S 12V-6 Ah (10HR)	
Ignition	ICM	
Starting system	Electric, Kickstarter	
Spark plug : Standard	NGK IFR8H11	
	DENSO VK24PRZ11	
Optional	NGK IFR9H11	
	DENSO VK27PRZ11	
Spark plug gap	0.039 – 0.043 in (1.0 – 1.1 mm)	
Light		
Headlight	12V-35 W	
Fuse		
Main fuse	15 A	

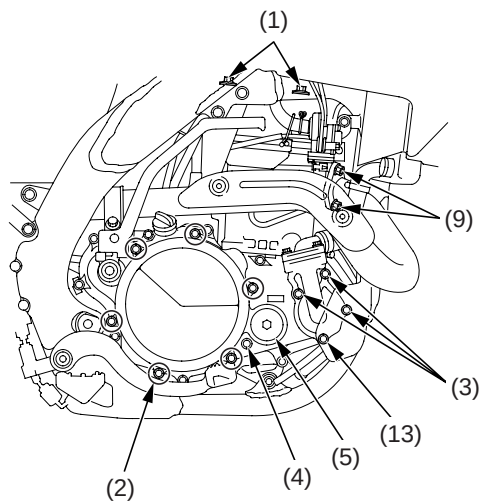
Torque Specifications

Nuts, Bolts, Fasteners

Check and tighten nuts, bolts, and fasteners before every outing.

Engine



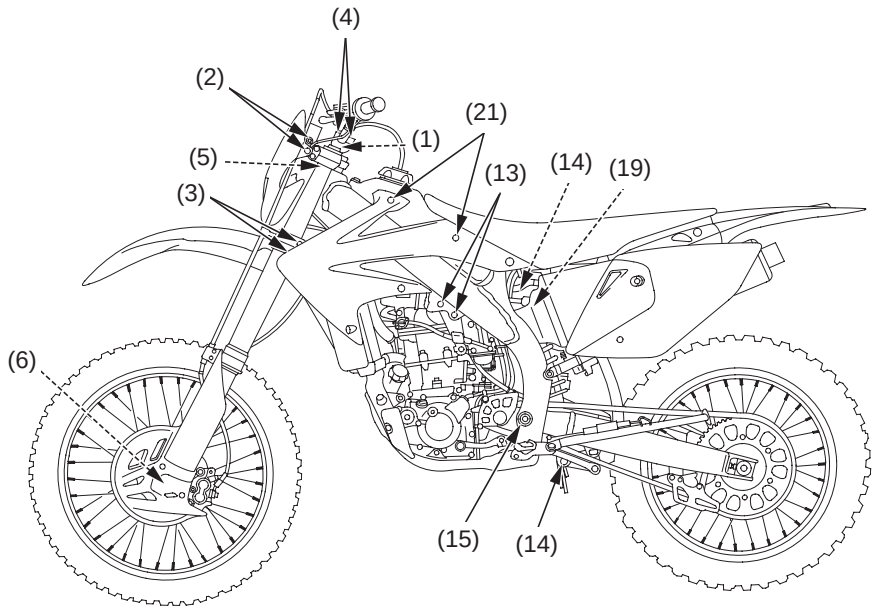


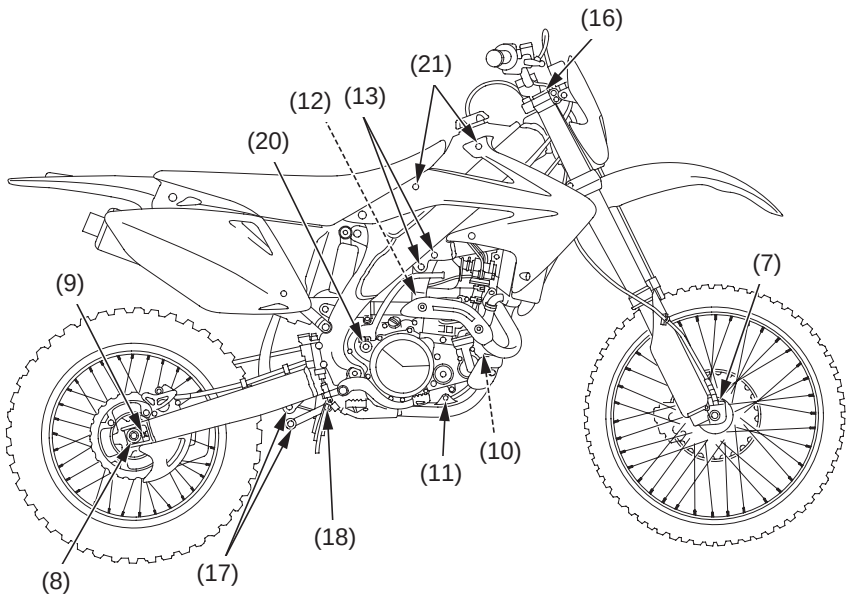
ENGINE

	Item	Torque			Remarks
		lbf•ft	N•m	kgf•m	
1	Cylinder head cover bolts	7	10	1.0	
2	Clutch cover bolts	7	10	1.0	
3	Water pump cover bolts	7	10	1.0	
4	Transmission oil check bolt	7	10	1.0	
5	Crankshaft hole cap	11	15	1.5	NOTE 2
6	Oil filter cover bolts	7	10	1.0	
7	Cylinder bolt	7	10	1.0	
8	Cylinder head bolts	7	10	1.0	
9	Exhaust pipe joint nuts	15	21	2.1	
10	Drive sprocket bolt	23	31	3.2	NOTE 1
11	Engine oil drain bolt	12	16	1.6	NOTE 3
12	Transmission oil drain bolt	12	16	1.6	NOTE 3
13	Coolant drain bolt	7	10	1.0	

NOTES: 1. UBS bolt.
2. Apply grease to the threads.
3. Apply oil to the threads and seating surface.

Frame





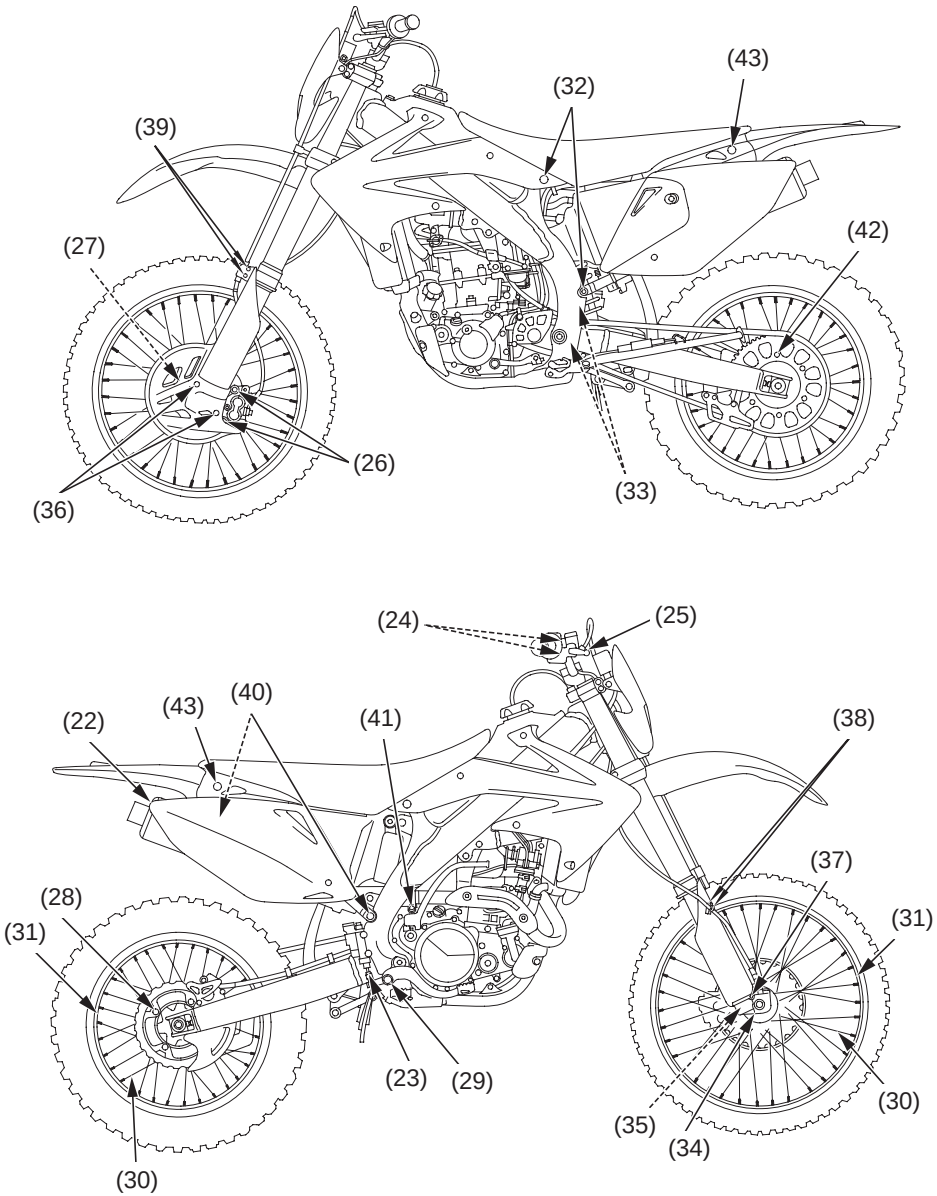
FRAME

Item		Torque			Remarks
		lbf•ft	N•m	kgf•m	
1	Steering stem nut	80	108	11.0	
2	Fork bridge upper pinch bolts	16	22	2.2	
3	Fork bridge lower pinch bolts	15	20	2.0	
4	Handlebar upper holder bolts	16	22	2.2	
5	Handlebar lower holder nuts	32	44	4.5	
6	Front axle nut	65	88	9.0	
7	Axle pinch bolts	15	20	2.0	
8	Rear axle nut	94	128	13.1	NOTE 1
9	Chain adjuster lock nuts	20	27	2.8	NOTE 2
10	Front engine hanger nut	40	54	5.5	
11	Middle engine hanger nut	40	54	5.5	
12	Engine hanger nut	40	54	5.5	
13	Engine hanger plate bolts	19	26	2.7	
14	Shock absorber (upper)	32	44	4.5	NOTE 1
	(lower)	32	44	4.5	NOTE 1
15	Swingarm pivot nut	65	88	9.0	NOTE 1
16	Fork (fork damper)	25	34	3.5	
	(fork cap assembly)	22	30	3.1	
17	Rear shock arm nuts (swingarm side)	39	53	5.4	NOTE 1, 6
	(shock link side)	39	53	5.4	NOTE 1, 6
18	Rear shock link nuts	39	53	5.4	NOTE 1, 6
19	Shock spring lock nut	32	44	4.5	
20	Kickstarter arm bolt	28	38	3.9	
21	Shroud B bolts	3.7	5	0.5	

NOTES: 1. U-nut.
2. UBS nut.
3. SH bolt.
4. Apply locking agent to the threads.
5. Alock bolt: replace with a new one.
6. Apply molybdenum oil to the threads and flange surface.
7. Apply a seizure inhibitor (Three Bond 1901 or equivalent) to the bolt threads.

Torque Specifications

Frame

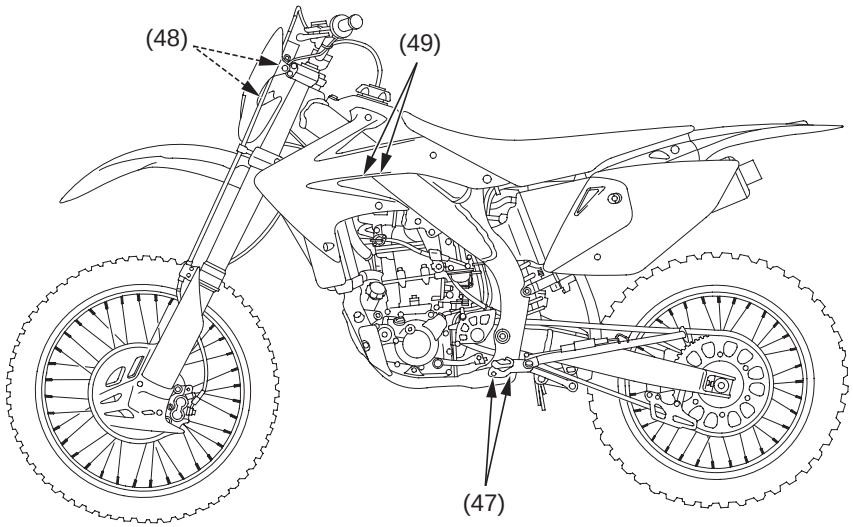


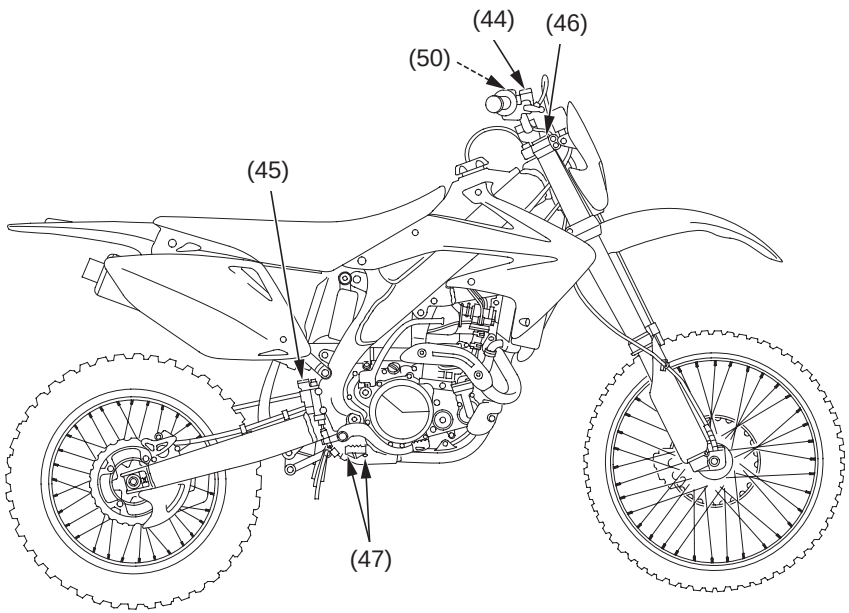
FRAME

Item			Torque			Remarks
			lbf•ft	N•m	kgf•m	
22	Spark arrester mounting bolts		4.4	6	0.6	NOTE 7
23	Brake pedal adjuster lock nut		4.4	5.9	0.6	
24	Front brake master cylinder holder bolts		7.3	9.9	1.0	
25	Brake hose bolts		25	34	3.5	
26	Front brake caliper mounting bolts		22	30	3.1	NOTE 5
27	Front brake disc nuts		12	16	1.6	NOTE 1
28	Rear brake disc nuts		12	16	1.6	NOTE 1
29	Brake pedal pivot bolt		27	36	3.7	
30	Spokes	(front)	2.7	3.68	0.4	
		(rear)	2.7	3.7	0.4	
31	Rim locks		9	12	1.2	
32	Subframe mounting bolts	(upper)	36	49	5.0	
		(lower)	36	49	5.0	
33	Drive chain roller	(upper)	9	12	1.2	NOTE 3
		(lower)	9	12	1.2	NOTE 1
34	Fork center bolt		51	69	7.0	NOTE 4
35	Fork center bolt lock nut		16	22	2.2	
36	Disc cover bolts		10	13	1.3	
37	Fork protector bolts		5.2	7	0.7	NOTE 5
38	Tripmeter cable clamp screws		0.5	0.7	0.1	
39	Front brake hose guide bolts		3.8	5.2	0.5	
40	Muffler mounting bolts	(front)	19	26	2.7	
		(rear)	19	26	2.7	
41	Muffler clamp bolt		15	21	2.1	
42	Driven sprocket nuts		24	32	3.3	NOTE 1
43	Seat mounting bolts		19	26	2.7	

NOTES: 1. U-nut.
2. UBS nut.
3. SH bolt.
4. Apply locking agent to the threads.
5. Alock bolt: replace with a new one.
6. Apply molybdenum oil to the threads and flange surface.
7. Apply a seizure inhibitor (Three Bond 1901 or equivalent) to the bolt threads.

Frame





FRAME

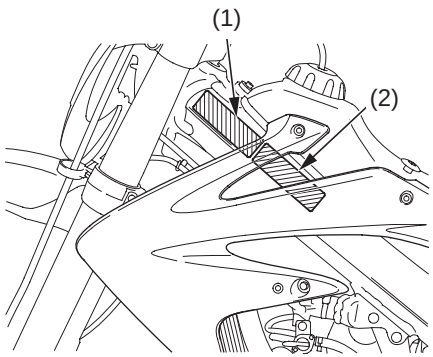
Item		Torque			Remarks
		lbf•ft	N•m	kgf•m	
44	Front brake reservoir cap screws	0.7	1	0.1	
45	Rear brake reservoir cap bolts	0.7	1	0.1	
46	Fork air pressure release screw	0.9	1.2	0.1	
47	Right/left step bracket mounting bolts (upper)	41	55	5.6	
	(lower)	22	30	3.1	
48	Steering damper mounting bolts	15	20	2.0	NOTE 5
49	Fuel joint mounting bolts	7	10	1.0	
50	Throttle cable adjuster lock nuts	3.0	4	0.4	

NOTES: 1. U-nut.
2. UBS nut.
3. SH bolt.
4. Apply locking agent to the threads.
5. Alock bolt: replace with a new one.
6. Apply molybdenum oil to the threads and flange surface.
7. Apply a seizure inhibitor (Three Bond 1901 or equivalent) to the bolt threads.

Emission Control Systems

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

The vehicle emission control information label (1) (2) is attached on the left side frame.



(1) vehicle emission control information label
(2) vehicle emission control information label (Canada only)

Noise Emission Requirements
The EPA also requires that motorcycles built after January 1,1983 comply with applicable noise emission standards for one year or 1,865 miles (3,000 km) after the time of sale to the ultimate purchaser, the time operated and maintained according to the instructions provided. (USA only)

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 ACTS LISTED BELOW:
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.

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

Federal regulations prohibit removing or disabling a device or element of design that may affect your engine's emission performance unless your CRF will be used exclusively in competition. If you modify your engine for use in sanctioned competition events, you must deface or destroy the emission control information label.

Source of Emission
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 is composed of appropriate carburetor settings. No adjustments should be made except for an idle speed adjustment with the throttle stop screw.

The exhaust emission control system is separate from the crankcase emission control system.

Secondary Air Injection System
The exhaust emission control system consists of a 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.
No adjustments to this system should be made although periodic inspection of the components is recommended.

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 muffler through the air cleaner and the carburetor.

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.

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 15% methanol by volume as long as it 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.

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.

Any serious competition effort relies heavily on the knowledge gained and compiled from previous racing events. The best way to organize the many bits of information is to record them in a logbook.

Your logbook can include such information as suspension adjustments, gearing, and tire selection. This detailed information, along with your comments, can prove valuable when you compete at the same track or on similar terrain.

Your logbook can also tell you when maintenance was performed and when it will be necessary again. Your logbook also lets you record any repairs and lets you keep track of the running time on the engine and suspension components.

If you choose to sell your CRF, the accurate maintenance records in your logbook might be the deciding deal-maker for a potential buyer.

Consider using different color pens or pencils to record important information on specific subjects. For example, record results in black, suspension/chassis settings in blue, and gearing selections in green. Color codes will help you identify the information you want with a glance.

Tuning & Adjustment Records
Keep track of the settings and adjustments that worked best at a particular location. These items include:
- basic track conditions, altitude, and temperature
- suspension settings
- chassis adjustments tested and selected
- gearing
- tire selection
- air pressure

Competition Records
- your placings
- thoughts to improve performance next time: both yours and your CRF's
- strategy notes

Maintenance Records
- regular interval maintenance
- repairs
- running time on engine
- running time on suspension components

Timekeeping
This Manual lists maintenance intervals for every-so-many hours of running.

The most effective way to schedule maintenance is by the hours you have run your CRF.

An official "guesstimate" is close enough for our timekeeping purposes. You may choose to record your time the same way aircraft operators do (but without the benefit of an electrical hourmeter). All running time is broken down into hours and tenths of an hour (each six minutes represents one tenth of an hour).

Racing Records
Information worth recording for this section of your logbook may include:
- Your placing in each moto and overall finishing position.
- Thoughts on what you could do to improve your performance next time.
- Notes on any patterns noted in choice of starting gate positions or in riding portions of the course as the day progressed that may prove helpful in future events.
- Any places on the course where you chose the wrong line and were passed too easily.
- Notes on strategy used by your competition or by riders in another event that are worth remembering.

Maintenance Records
Regular maintenance items you'll want to record in your logbook should include:
- Dates and results of cylinder, piston and ring examinations
- Patterns for frequency of need for decarbonization with a particular oil
- When you last performed shock linkage and swingarm pivot bearing maintenance
- Engine, transmission, and suspension oil changes
- Chain, sprockets, chain guide and slider replacements
- Coolant changes and related component replacements
- Spark plug, brake pads and control cable replacements

In addition, you should record any irregularities noted in component wear so you'll remember to keep a close eye on these areas in the future.

Competition Logbook

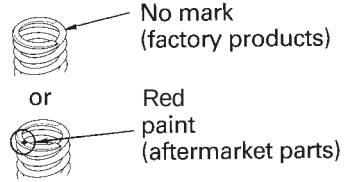
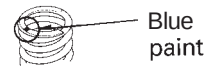
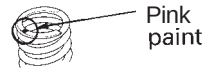
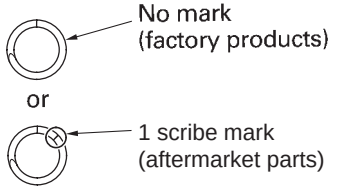
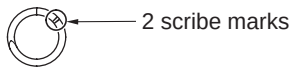
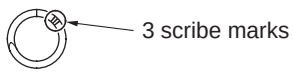
Date	Running Time	Location/Event	Comments (Suspension Settings, Gearing, Chassis Adjustments, Maintenance Performed, etc.)

(Make several photocopies of this page for future use)

These parts and tools may be ordered from your dealer.

FRAME	Remarks
Driven sprocket Standard	< >: Drive chain links 51 Teeth, Aluminum. <114>
Optional	50 Teeth, Aluminum <114>
	52 Teeth, Aluminum <116>
Drive chain size/link	DID520MXV/120
Handlebar lower holder Standard	3 mm offset
Optional	no offset

TOOLS	Remarks
Pin spanner A 	To adjust spring pre-load. (two spanners required)
Workstand 	For maintenance
Air gauge	For checking tire air pressure

FRAME	Remarks
Shock spring Standard	307.8 lbf/in (53.9 N/mm) 
Optional Softer	296.9 lbf/in (52.0 N/mm) 
Stiffer	319.2 lbf/in (55.9 N/mm) 
Fork spring Standard	26.32 lbf/in (4.61 N/mm) 
Optional Softer	25.18 lbf/in (4.41 N/mm) 
Stiffer	27.47 lbf/in (4.81 N/mm) 

The standard fork spring and shock spring mounted on the motorcycle when it leaves the factory are not marked. Before replacing the springs, be sure to mark them so they can be distinguished from other optional springs.

Spare Parts & Equipment

There are numerous spare parts you can take to an event to help ensure you get in a full day of riding. In addition to the usual nuts and bolts, consider the following:

Spare Parts

spark plugs
shims
air cleaner (clean & oiled, sealed in a plastic bag)
chain & masterlink/plate
chain guide slider
chain slider
chain rollers
inner tubes (front & rear)
fenders
footpegs
front visor & side covers
handlebar
grips
levers (brake, clutch & hot start)
clutch lever handlebar mount
clutch cable
hot start cable
throttle assembly
throttle cable
shift lever
brake pedal
spokes (front & rear, each side)
sprockets (smaller than standard, for gearing changes & collision damage replacement)
assorted nuts, bolts, washers, screws, cotter pins
headlight bulbs
battery
fuses

Additional Spares

front brake assembly
rear brake assembly
wheels & tires (front & rear, mounted)
clutch discs and plates
engine & transmission oil
seat
ignition components
radiator hoses
radiator shrouds (L & R)
brake hoses (front & rear)

General Tools

sockets (3/8 in drive)
screwdrivers: blade & Phillips No. 1, 2, 3
wrench, large adjustable
wrenches: open end & box
wrenches: hex (Allen)
wrench, spoke
torque wrench (metric scale, click-stop style)
pliers: standard, needle-nose, channel-lock set
hammer, plastic head
syringe with adjustable stop
tire pressure gauge
tire irons
tire pump or air tank
feeler gauge set
vernier caliper (metric)
pressure/vacuum testing equipment (USA only)

Honda Special Tools

Any special tools for your CRF purchased from your dealer.

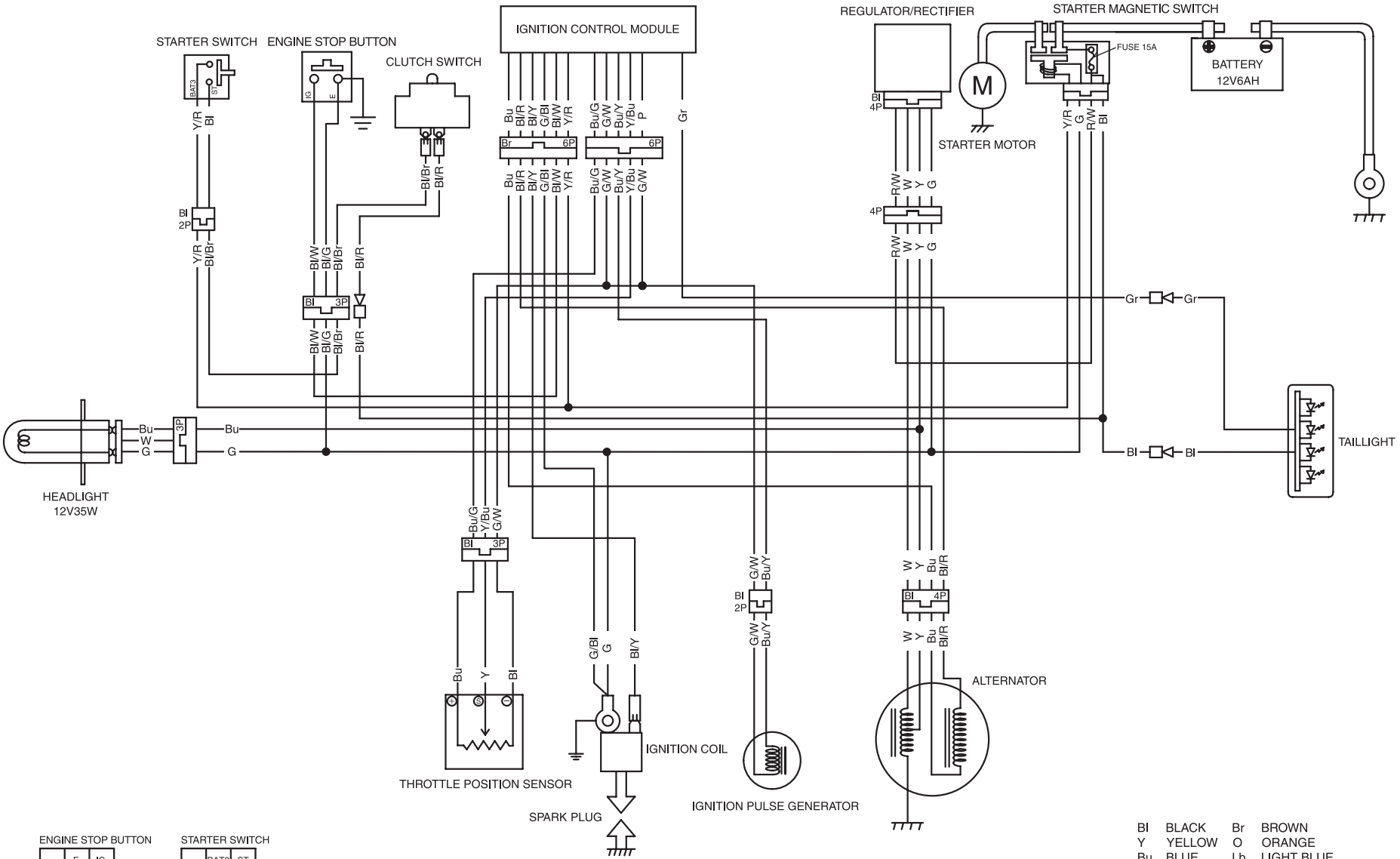
• Lock Nut Wrench	07WMA-KZ30100
• Tensioner Stopper	07AMG-001A100
• Spoke Wrench	07JMA-MR60100
• Piston Base	07958-2500001

Chemical Products

Pro Honda GN4 4-stroke Oil (Engine and Transmission Oil)
SAE 80 or 90 gear oil
Pro Honda HP Fork Oil 5W
Pro Honda DOT4 Brake Fluid
Pro Honda Chain Lube
Pro Honda Foam Filter Oil
Pro Honda Hondabrite
Pro Honda Dielectric Grease
Pro Honda Handgrip Cement
Pro Honda Hondalock
Molybdenum disulfide grease (containing more than 3% molybdenum disulfide additive)
Pro Honda White Lithium Grease
Multi-purpose Grease
Rust-inhibiting Oil
Cable lubricant
Pro Honda HP Coolant
Urea based multi-purpose grease designed for high temperature, high pressure performance (example: EXCELITE EP2 manufactured by KYODO YUSHI, Japan or Shell Stamina EP2 or equivalent)

Other Products

pliers-safety wire
safety wire
mechanic's wire
duct tape
plastic tie-wraps
hose clamps
drop light
electrical tape
Scotch-Brite Hand Pad #7447 (maroon)
Teflon tape


STARTER SWITCH
ENGINE STOP BUTTON
CLUTCH SWITCH
IGNITION CONTROL MODULE
REGULATOR/RECTIFIER
STARTER MAGNETIC SWITCH
FUSE 15A
BATTERY
12V6AH
STARTER MOTOR
HEADLIGHT
12V35W
TAILLIGHT
THROTTLE POSITION SENSOR
IGNITION COIL
SPARK PLUG
IGNITION PULSE GENERATOR
ALTERNATOR
ENGINE STOP BUTTON
STARTER SWITCH
BI BLACK
Y YELLOW
Bu BLUE
G GREEN
R RED
W WHITE
Br BROWN
O ORANGE
Lb LIGHT BLUE
Lg LIGHT GREEN
P PINK
Gr GRAY

This section contains information about contacting Honda and how to get an official Honda service manual.

Authorized Manuals.....174
Warranty Coverage 175
Warranty Service.....176
Contacting Honda 177
Your Honda Dealer 178
The Honda Rider's Club (USA only).....179

Authorized Manuals

The Service Manual used by your authorized dealer is available from your Honda dealer or Helm, Inc (USA only, Canada: See your 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 on Honda motorcycles, scooters, ATVs, MUVs, and PWCs.

These Honda manuals are written for the professional technician, but most mechanically-capable owners should find them helpful if they have the proper tools and skills. Special Honda tools are necessary for some procedures.

Publication Item No.	Description
61MEY05	CRF450X Service Manual
61CM002	Common Service Manual
31MEY660	CRF450X Owner's Manual

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

Your new Honda is covered by these warranties:

- Emission Control System Warranty
- Noise Control Warranty (USA only)

There are responsibilities, restrictions, and exclusions which apply to these warranties. Please read the Honda Motorcycle 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.

Canada: Please refer to the Warranty Booklet posted on our website at www.honda.ca.

It is important to realize that your warranty for your Honda applies to defects in material or factory workmanship. 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 or lack of maintenance are not covered.

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 Honda, 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 his designated representative.

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 he doesn't have the answer right away, he 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:

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

Canada: Honda Canada Inc., Customer Relations Dept, 180 Honda Boulevard, Markham, Ontario L6C 0H9, telephone: (888) 946 – 6329, facsimile: (877) 939 – 0909.

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 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.

Your Honda dealer can inform you about competition events in your area. You'll also find that your dealer is a source of information (USA only) about the Honda Rider's Club of America.

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)

The Honda Rider's Club of America (HRCA) sponsors local riding chapters at Authorized Honda Dealerships across the country. You can log on to the HRCA Clubhouse website for more information at *www.hrca.honda.com.*

Index

A

accessories 4
adjustments,
  carburetor 140
  chassis 143
  control freeplay 54, 56, 60, 88
  for competition 111
  gearing 144
  personal fit 146
  steering damper 141
  suspension, front 112
  suspension, rear 126
  suspension, track conditions 130
  tire selection 94
after competition maintenance 33
air cleaner 51
air pressure,
  front suspension 112
  tires 93
apparel, protective 2
appearance care 108
authorized manuals 174

B

basic operation 13
before riding 9
between motos & practice maintenance 33
brakes,
  fluid level 89
  lever, front adjustment 88
  pad wear 91
  pedal height 88
break-in guidelines 21

C

capacity, fuel 41
carburetor,
  adjustment 140
  assembly 139
  circuit functions 134
  components 134
  disassembly 137
  idle speed 140
  removal 136
care, appearance 108
chain drive 96
chassis adjustment for track conditions 143
choke knob 15
cleaner, air 51
cleaning, appearance care 108
clutch system, adjustment 56
competition logbook 167
consumer information 173
contacting Honda 177
controls, operating 7
coolant 48
customer service 178
cylinder system 77

D

damping adjustments,
  front 112
  rear 127
dealer, your Honda 178
diagram, wiring 171
drive chain 96

E

engine,
  flooded 16
  idle speed 140
  number 158
  oil 43
  pinging 41
  starting 15
  stop button 16
  stopping 16
  won't start 152
environment, protecting 151

F

filter,
  air 51
  fuel 42
  oil 44
flooded engine, starting 16
fork,
  front suspension adjustment 112
  front suspension inspection 84
  oil recommendation 86
front brake lever adjustment 88
front suspension maintenance 84
fuel,
  filter 42
  line 41
  oxygenated 166
  recommendation 41
  refueling 41
  system 41
  tank capacity 41
  valve 15

G

gap, spark plug 61
gasohol 166
gasoline 41
gearing 144
guidelines,
  steering damper 142
  suspension adjustment 131
guidelines, suspension adjustment 131

H

handlebar inspection 102
Honda,
  contacting 177
  Rider's Club 179
  service manual 174
  your dealer 178

I

identification, vehicle 158
idle speed, engine 140
inspection, pre-ride 11

L

labels, safety 5
logbook, competition 167

M

maintenance,
  after competition 33
  before & after competition 33
  between motos & practice 33
  component locations 35
  general competition 29
  importance 24
  safety 25
  schedule 26, 27, 28
manual, service 174
modifications 4

O

oil,
  engine 43
  fork 86
  transmission 46
operating,
  controls 7
  instructions 13
operation component locations 8
optional,
  parts list 169
  sprockets 169
oxygenated fuels 166

P

pads, brake 91
parts, optional 169
personal fit adjustments 146
pinging, engine 41
plug, spark 61
pre-load, rear suspension 126
pre-ride inspection 11
protective apparel 2

R

rear suspension maintenance 85
Rider's Club Honda 179
riding,
  apparel 2
  basic operation 13
  before 9
  important safety information 2
  safety precautions 2

S

safety,
  a few words about ..... Safety Messages
  important information 2
  important precautions 2
  labels 5
  maintenance 25
  riding precautions 14
schedule, maintenance 26, 27, 28
serial numbers 158
service,
  customer 178
  manuals 174
  warranty 176
side stand 14, 95
spare parts 170
spark arrester 65
spark knock 41
spark plug 61
  maintenance 61
specifications 159
spring pre-load, rear suspension 126
starting,
  engine 15
  troubleshooting 152
steering damper,
  adjustment 141
  guidelines 142
  operation inspection 99

(cont'd)

Index

steering head bearing inspection 102
stopping engine 16
storage 149
subframe 39
suspension,
  front 84
  rear 85
suspension adjustment,
  for track conditions 130
  front 112
  guidelines 131
  rear 126

T

throttle,
  freeplay 54
  inspection 55
tires,
  air pressure 93
  flat 93
  selection 94
tools 169
torque specifications,
  carburetor 139
  engine 160
  frame ..... 161 – 163
transmission oil 46
transporting 148
tripmeter 14
troubleshooting 152
tubes, replacing 93
tuning tips 134

V

valve clearance 66
valve, fuel 15
vehicle identification no. (VIN) 158

W

warranty,
  coverage 175
  extended 175
washing your motorcycle 108
weight limit 3
wheels 92
wiring diagram 171

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.

How To Avoid Costly Repairs

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 engine repairs are:
- Transmission oil & engine oil — insufficient quantity, improper oil.
- Air cleaner — dirty, leaking because of improper installation (poor seal).

Record important information here:

VIN	
Engine No.	
Owner's:	
Name	
Address	
City/State	
Phone	
Dealer's:	
Name	
Address	
City/State	
Phone	
Service Mgr.	

Maintenance	The maintenance schedule (pages 27-28) lists service frequencies for: about 2.5 hours, about 7.5 hours, about 15.0 hours, about 22.5 hours, and about every 30.0 hours.					
Pre-ride Inspection	Check the items listed on the Pre-ride inspection checklist each time before you ride (page 11):					
Fuel/Capacity	unleaded gasoline, pump octane number of 91 or higher tank: 1.90 US gal (7.2 ℓ), reserve: 0.42 US gal (1.6 ℓ)					
Engine oil	Pro Honda GN4 4-stroke oil or an equivalent motorcycle oil.					
Transmission oil	Pro Honda GN4 4-stroke oil or an equivalent motorcycle oil.					
Tires	Front	80/100-21 51M		Rear	110/100-18 64M	
		DUNLOP	D742FA		DUNLOP	D756
	Type	bias-ply, tube type				
Tire Pressure (cold)	Front: 15 psi (100 kPa, 1.0 kgf/cm^2) Rear: 15 psi (100 kPa, 1.0 kgf/cm^2)					
Spark Plug	standard: IFR8H11 (NGK) or VK24PRZ11 (DENSO) optional: IFR9H11 (NGK) or VK27PRZ11 (DENSO)					
Coolant	ethylene glycol antifreeze (silicate-free) for aluminum engines in 50/50 solution with Pro Honda HP Coolant or an equivalent distilled water					
Fuse	main: 15 A					
Drive Chain Size/Link	DID 520MXV/114					

Quick Reference

These symbols are used in Operating Controls and Basic Operating Instructions sections:

SYMBOL	COMPONENT	SEE PAGE
	choke knob	8,15
	START button	8,15