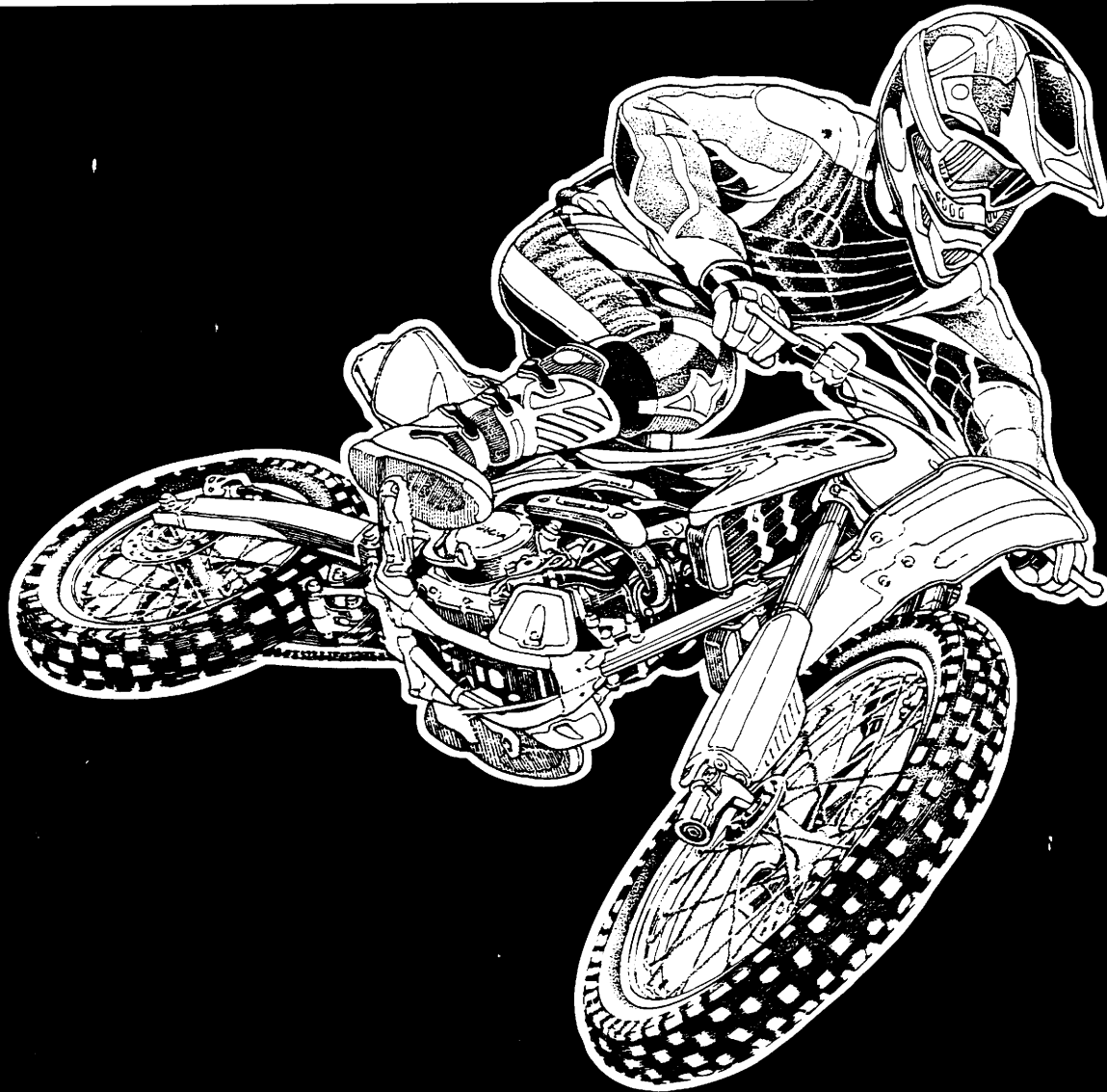




CRF150R/RB



OWNER'S MANUAL & COMPETITION HANDBOOK
MANUEL DU CONDUCTEUR ET DE COMPETITION
FAHRER-HANDBUCH und WETTBEWERBSANLEITUNG

INSTRUCTIEBOEKJE & WEDSTRIJDHANDBOEK
MANUAL DEL PROPIETARIO Y GUÍA DE COMPETICIONES
MANUALE D'USO E DEGLI ASSETTI DA COMPETIZIONE

HONDA

CRF150R/RB

OWNER'S MANUAL & COMPETITION HANDBOOK

E

MANUEL DU CONDUCTEUR ET DE COMPETITION

F

FAHRER-HANDBUCH und WETTBEWERBSANLEITUNG

G

INSTRUCTIEBOEKJE & WEDSTRIJDHANDBOEK

D

MANUAL DEL PROPIETARIO Y GUÍA DE COMPETICIONES

S

MANUALE D'USO E DEGLI ASSETTI DA COMPETIZIONE

I

IMPORTANT NOTICES

THIS MOTORCYCLE IS DESIGNED AND MANUFACTURED FOR COMPETITION USE ONLY AND IS SOLD "AS IS" WITH NO WARRANTY. IT DOES NOT CONFORM TO FEDERAL MOTOR VEHICLE SAFETY STANDARDS AND OPERATION ON PUBLIC STREETS, ROADS, OR HIGHWAYS IS ILLEGAL.

STATE LAWS PROHIBIT OPERATION OF THIS MOTORCYCLE EXCEPT IN AN ORGANIZED RACING OR COMPETITIVE EVENT UPON A CLOSED COURSE WHICH IS CONDUCTED UNDER THE AUSPICES OF A RECOGNIZED SANCTIONING BODY OR BY PERMIT ISSUED BY THE LOCAL GOVERNMENTAL AUTHORITY HAVING JURISDICTION.

FIRST DETERMINE THAT OPERATION IS LEGAL.

OPERATOR ONLY, NO PASSENGERS.

This motorcycle is designed and constructed as an operator-only model.
The motorcycle load limit and seating configuration do not safely permit the carrying of a passenger.

READ THIS MANUAL CAREFULLY.

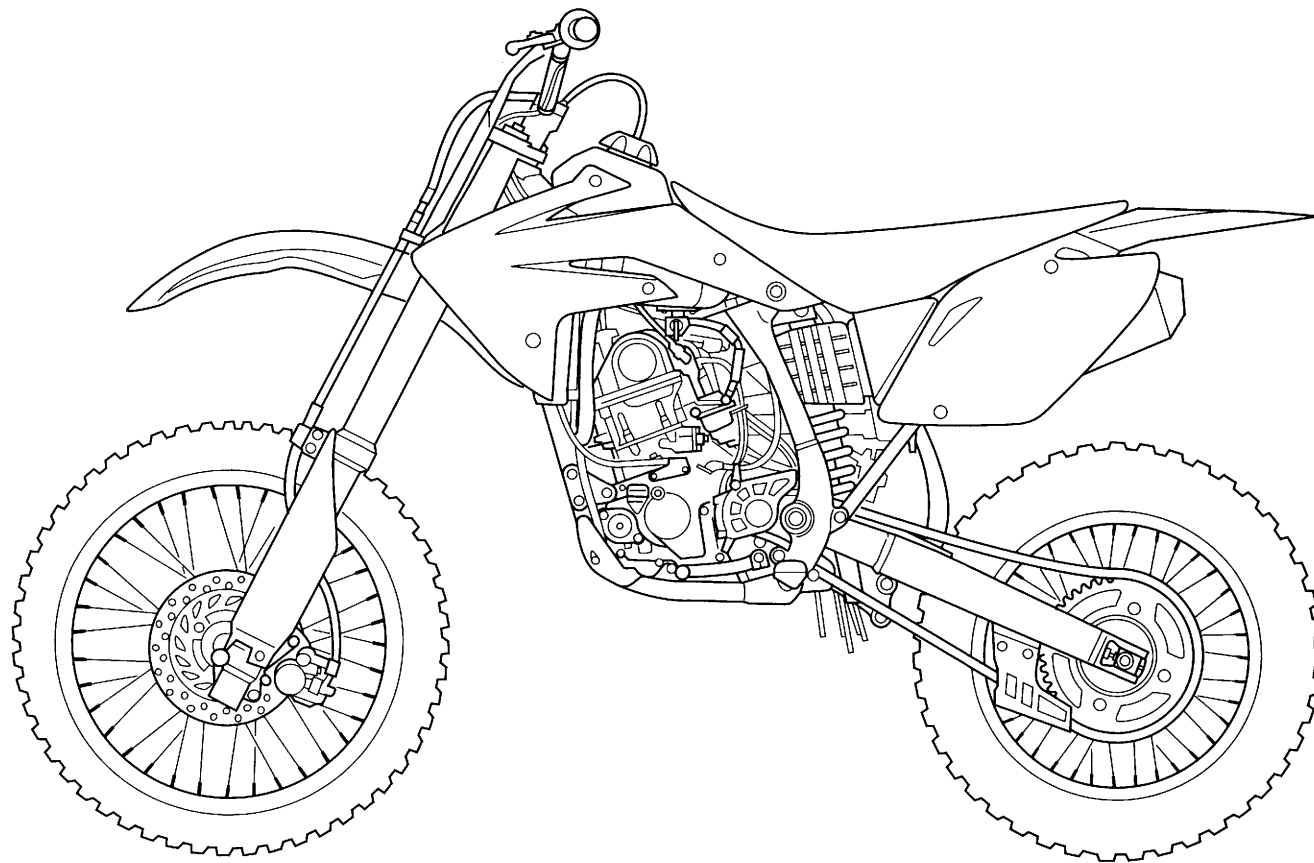
This manual should be considered a permanent part of the motorcycle and should remain with the motorcycle when it is resold.

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Honda CRF150R/RB
OWNER'S MANUAL & COMPETITION HANDBOOK



Introduction

Congratulations on choosing your Honda CRF motocross 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 CRF is a high performance racing motorcycle that utilizes the latest motocross technology and is intended for competition use in sanctioned, closed-course events by experienced riders only.

Be aware that motocross is a physically demanding sport that requires more than just a fine motorcycle. To do well, you must be in excellent physical condition and be a skillful rider. For the best results, work diligently on your physical conditioning and practice frequently.

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 Honda dealer for the service and adjustment procedures discussed in this manual.

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.


Happy riding!

- The following codes in this manual indicate each country.
- | | |
|----|-----------------------|
| ED | European direct sales |
| U | Australia |
| CM | Canada |

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, this manual contains a section devoted to *Motorcycle Safety*, as well as a number of Safety Messages throughout the manual.

Safety Messages are 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.

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 judgement.

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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.

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 Important Message to Parents.....2

Accessories & Modifications3

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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.

As an experienced rider, you know there is much you can do to protect yourself when you ride. The following are a few precautions we consider most important.

Never Carry a Passenger.

Your CRF is designed for one operator only. Carrying a passenger can cause an accident in which you and others can be hurt.

Wear Protective Gear.

Whether you're practicing to improve your skills, or riding in competition, always wear an approved helmet, eye protection, and proper protective gear.

Take Time to Get to Know Your CRF.

Because every motorcycle is unique, take time to become thoroughly familiar with how this one operates and responds to your commands before placing your machine, and yourself, in competition.

Learn and Respect Your Limits.

Never ride beyond your personal abilities or faster than conditions warrant. Remember that alcohol, drugs, illness and fatigue can reduce your ability to perform well 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.

Maintaining your CRF properly is critical to your safety. A loose bolt, for example, can cause a breakdown in which you can be seriously injured.

Important Message to Parents

Your child's safety is very important to Honda. That's why we urge you to read this message before you let any young person ride this motorcycle. Competitive riding can be fun. But bad judgement can result in injury, and we don't want that to happen. As a parent, you can help prevent accidents by making good decisions about when and how your youngster rides this motorcycle.

- Remember, this CRF is designed only for competition use by experienced junior riders. It is an operator only model, and the maximum load capacity is 68 kg (150 lbs). Rider weight must not exceed this limit.
- The junior rider must be tall enough to hold the motorcycle up while straddling it with both feet on the ground. He or she must also be strong enough to pick up the motorcycle if it is on its side.
- The parent and junior rider must be fully familiar with the motorcycle, the motorcycle controls and control functions. Both must also fully understand everything in this manual before riding begins.
- For your child's safety, be sure to make pre-practice and pre-race inspections, and impress on the junior rider the importance of checking all the items thoroughly before riding.

Accessories & Modifications

Installing non-Honda accessories, removing original equipment, or modifying your CRF in any way that would change its design or operation, could seriously impair your CRF's handling, stability, and braking, making it unsafe to ride.

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.

Safety Labels

Read this label carefully and don't remove it.

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

(CM type)

IMPORTANT INFORMATION

Operator only. No passengers. This Honda Motorcycle is sold as is without warranty, and the entire risk as to quality and performance is with the buyer. Read owner's manual.

This vehicle is designed, manufactured and sold for competition use only. It does not conform to Federal Motor Vehicle Safety Standards or U.S. EPA Noise and Emissions Standards. Operation on public streets, roads, highways or for off-road recreation is illegal.

State and Federal laws prohibit operation of this vehicle except in an organized racing or competitive event on a closed course. Or by permit issued by the local governmental agency having jurisdiction.

(ED, U type)

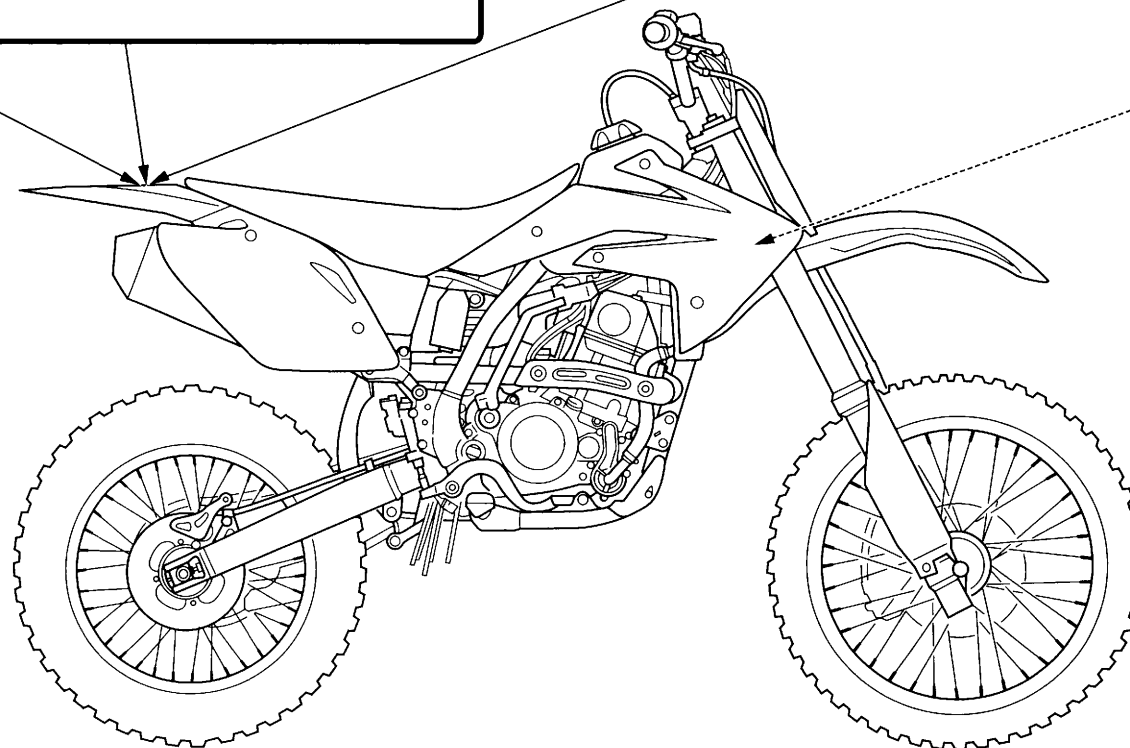
IMPORTANT INFORMATION

OPERATOR ONLY. NO PASSENGERS. THIS HONDA MOTORCYCLE IS SOLD AS IS WITHOUT WARRANTY, AND THE ENTIRE RISK AS TO QUALITY AND PERFORMANCE IS WITH THE BUYER. READ OWNER'S MANUAL.

THIS VEHICLE IS DESIGNED AND MANUFACTURED FOR COMPETITION USE ONLY. IT DOES NOT CONFORM TO FEDERAL MOTOR VEHICLE SAFETY STANDARDS AND OPERATION ON PUBLIC STREETS, ROADS, OR HIGHWAYS IS ILLEGAL. STATE LAWS PROHIBIT OPERATION OF THIS VEHICLE EXCEPT IN AN ORGANIZED RACING OR COMPETITIVE EVENT UPON A CLOSED COURSE WHICH IS CONDUCTED UNDER THE AUSPICES OF A RECOGNIZED SANCTIONING BODY OR BY PERMIT ISSUED BY THE LOCAL GOVERNMENTAL AUTHORITY HAVING JURISDICTION. FIRST DETERMINE THAT OPERATION IS LEGAL.

(CM type)

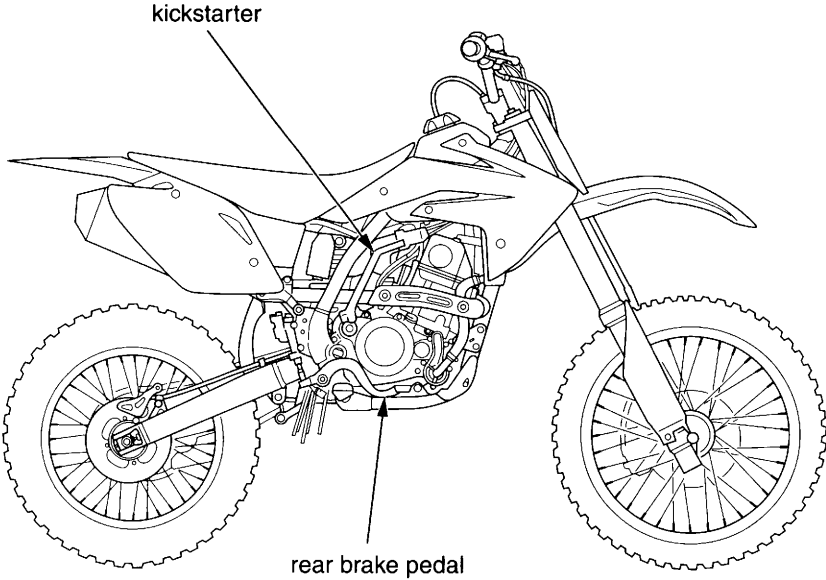
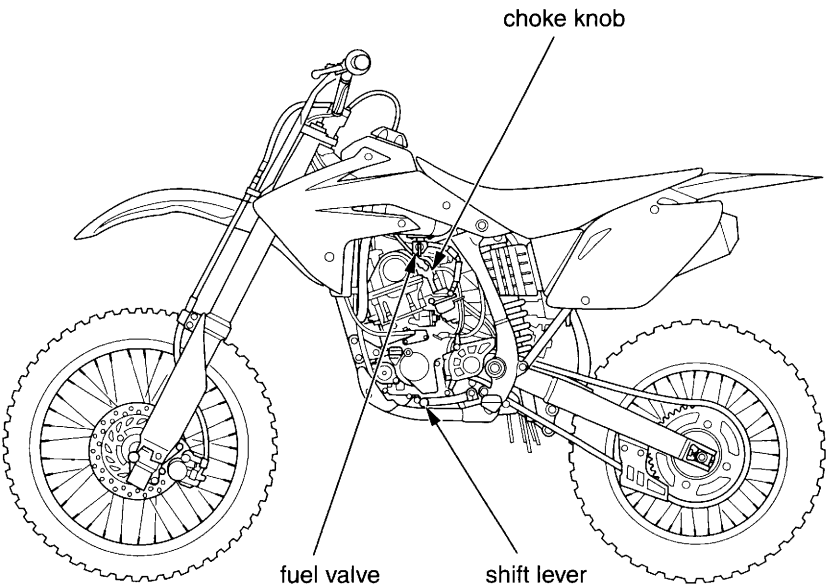
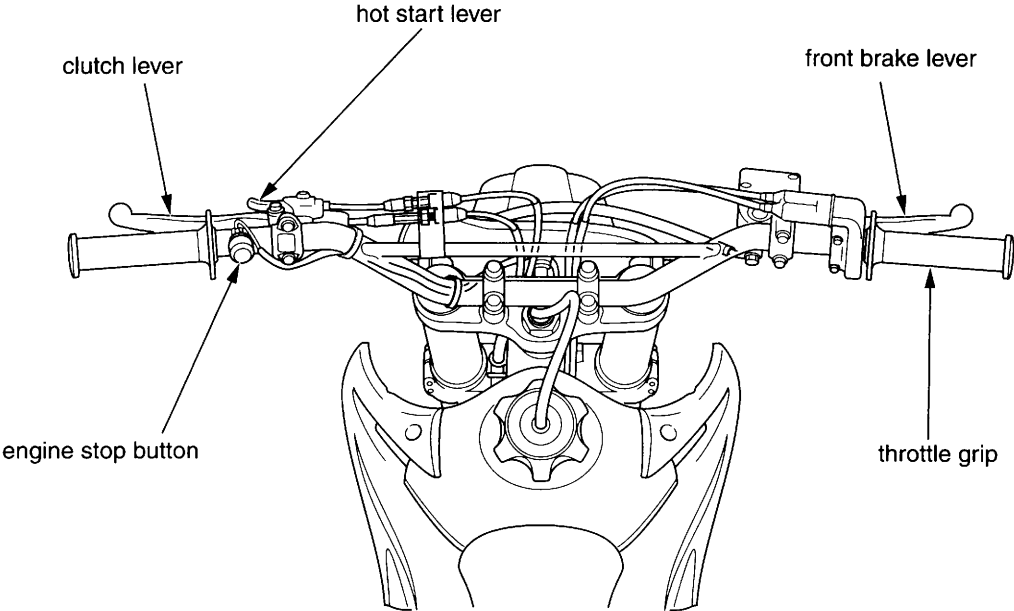
THIS COMPETITION VEHICLE IS FOR USE EXCLUSIVELY IN CLOSED-COURSE COMPETITION AND IS NOT INTENDED FOR USE ON PUBLIC HIGHWAYS.
CE VÉHICULE DE COMPÉTITION EST DESTINÉ À ÊTRE UTILISÉ EXCLUSIVEMENT DANS LES COURSES EN CIRCUIT FERMÉ ET N'EST PAS DESTINÉ AUX VOIES PUBLIQUES.



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

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Operation Component Locations



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 93.

Are You Ready to Ride?.....8
Is Your Motorcycle Ready to Ride?9
Pre-ride Inspection9

Are You Ready to Ride?

Before riding your CRF for the first time, we strongly 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 93.

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 level37
- Transmission oil level40
- Coolant for proper level41
- Cooling system and hoses for condition42
- Spark plug for proper heat range, carbon fouling and spark plug wire terminal for looseness52
- Air cleaner for condition and contamination43
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- Breather drain for cleaning45
- Steering head bearing and related parts for condition88
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- 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)89, 137–139

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

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Basic Operating Instructions

Safe Riding Precautions

Before riding your CRF for the first time, please review the *Important Safety Precaution* 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.

Always follow the proper starting procedure described below.

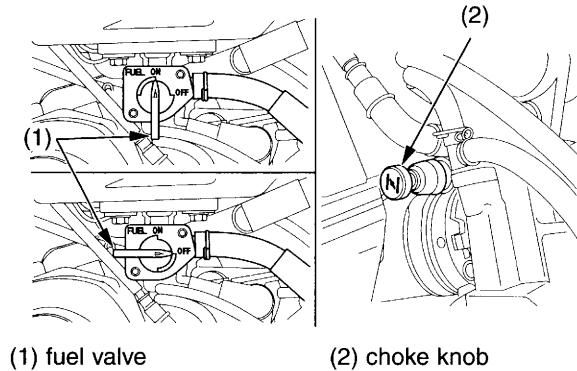
Your CRF can be kickstarted with the transmission in gear by pulling in the clutch lever before operating the kickstarter.

Preparation

Make sure that the transmission is in neutral.

Starting Procedure

Always follow the proper starting procedure described as follow.



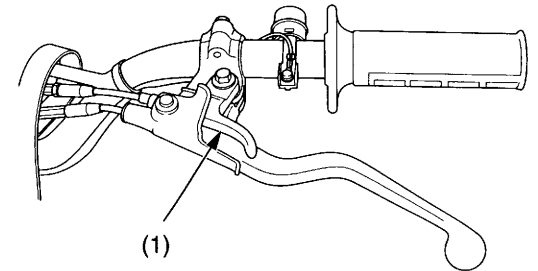
Check the engine oil, transmission oil and coolant levels before starting the engine (pages 37, 40, 41).

Cold Engine Starting

1. Turn the fuel valve (1) ON.
2. Shift the transmission into neutral.
3. If the temperature is 35°C (95°F) or below, pull the choke knob (2) fully out.
4. 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.)
5. With the throttle closed, operate the kickstarter starting from the top of the kickstarter stroke, kick through to the bottom with a rapid, continuous motion. (Do not open the throttle, As the carburetor is equipped with an accelerator pump, excessive fuel will be charged into the engine, and the spark plug will be fouled if the throttle is opened and closed repeatedly. Excessive fuel in the engine makes kickstarting difficult.)
6. About a minute after the engine starts, push the choke knob all the way to fully OFF. If idling is unstable, open the throttle slightly.

Warm Engine Starting

1. Turn the fuel valve ON.
2. Shift the transmission into neutral.
3. Pull the hot start lever (1) and kick-start the engine. (Do not open the throttle.)
4. As soon as the engine starts, release the hot start lever.



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

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

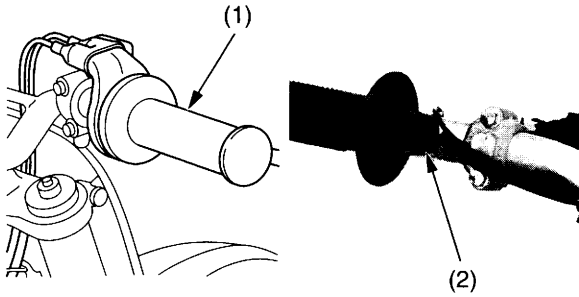
Flooded Engine

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

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

Starting & Stopping the Engine

How to Stop the Engine



(1) throttle

(2) engine stop button

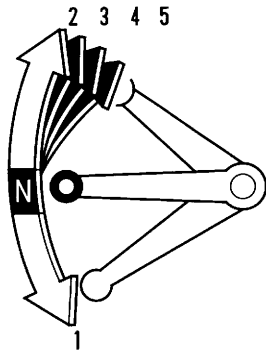
Normal Engine Stop

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. Depress and hold 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, depress the engine stop button.



NOTICE

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

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.

1. After the engine has been warmed up, the motorcycle is ready for riding.
2. While the engine is idling, pull in the clutch lever and depress the shift lever to shift into 1st (low) gear.
3. Slowly release the clutch lever and at the same time gradually increase engine speed by opening the throttle. Coordination of the throttle and clutch lever will assure a smooth positive start.

NOTICE

When moving off from a standing start, be careful not to use too much throttle. The motorcycle may “wheelie” over backwards.

4. When the motorcycle attains a moderate speed, close the throttle, pull in the clutch lever and shift to 2nd gear by raising the shift lever.
5. This sequence is repeated to progressively shift to 3rd, 4th, 5th (top) gear. Raise the shift lever to shift to a higher gear and depress it to downshift. Each stroke of the shift lever engages the next gear in sequence. The shift lever automatically returns to the horizontal position when released.

Break-in Guidelines

Help assure your CRF's future reliability and performance by paying extra attention to how you ride during the first operating day or 25 km (15 miles). 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 Shop Manual.

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

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The Importance of Maintenance

Keeping your CRF well-maintained is absolutely essential to your safety. It's also a good way to get maximum performance during each heat. Careful pre-ride inspections and good maintenance are especially important because your CRF is designed to be ridden in off-road competition.

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 an optional workstand or a maintenance stand to provide support.
- To reduce the possibility of a fire or explosion, be careful when working around petrol. Use only a non-flammable (high flash point) solvent such as kerosene —not petrol— 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 Schedule that follows.

The Maintenance Schedule lists 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 Honda dealer perform these tasks unless you have advanced mechanical skills and the required tools. Procedures for items in this schedule are provided in a shop manual available for purchase.

Service intervals in the maintenance schedule are expressed in terms of races and riding hours. To avoid overlooking required service, we urge you to develop a convenient way to record the number of races and/or hours 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 9) at each scheduled maintenance period.

Summary of Maintenance Schedule Notes and Procedures:

Notes:

- 1. Clean after every heat 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.

Maintenance Procedures:

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

Maintenance Schedule

Perform the Pre-ride Inspection (page 9) at each scheduled maintenance period.

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

FREQUENCY ITEMS	NOTE	Each race or about 2.5 hours	Every 3 races or about 7.5 hours	Every 6 races or about 15.0 hours	Every 9 races or about 22.5 hours	Ref. Page
THROTTLE OPERATION		I				46
HOT STARTER		I				51
AIR FILTER	(NOTE 1)	C				43
CRANKCASE BREATHER		I				45
SPARK PLUG		I				52
VALVE CLEARANCE/DECOMPRESSOR SYSTEM	(NOTE 4)			I		53
ENGINE OIL	(NOTE 3)			R		36
ENGINE OIL FILTER	(NOTE 3)			R		37
ENGINE IDLE SPEED		I				48
PISTON AND PISTON RINGS				R		62
PISTON PIN				R		64
TRANSMISSION OIL	(NOTE 5)	I		R		39
RADIATOR COOLANT	(NOTE 2)	I				41
COOLING SYSTEM		I				41
DRIVE CHAIN		I, L	R			82
DRIVE CHAIN SLIDER		I				82
DRIVE CHAIN ROLLER		I				83
DRIVE SPROCKET		I				84
DRIVEN SPROCKET		I				84
BRAKE FLUID	(NOTE 2)	I				76
BRAKE PADS WEAR		I				78
BRAKE SYSTEM		I				75
CLUTCH SYSTEM	(NOTE 5)	I				49
CONTROL CABLES		I, L				88
EXHAUST PIPE/MUFFLER		I				85
SUSPENSION		I				70, 71
SWINGARM/SHOCK LINKAGE			L			25, 71
FORK OIL	(NOTE 3)		R			72
NUTS, BOLTS, FASTENERS		I				89, 137–139
WHEELS/TYRES		I				79, 80–81
STEERING HEAD BEARINGS					I	88

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

- NOTE:
1. Clean after every heat 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.

General Competition Maintenance

Perform maintenance on firm, level ground using an optional 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 Items

Refer to *Pre-ride Inspection* page 9.

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. (page 21).

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 37).

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 40).

Air Cleaner

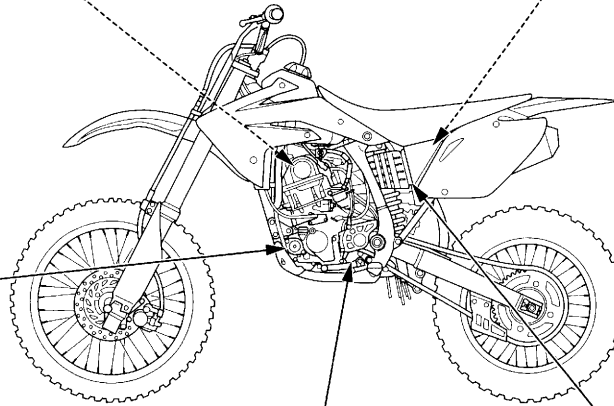
Clean and oil your air cleaner regularly because the volume of air able to pass through it has a great effect on performance. Both engine performance and long term durability may be affected by an air cleaner that has deteriorated and allows dirt to pass. Inspect the air cleaner closely each time it's 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 heats. 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 Honda Foam Air Filter Oil or an equivalent. Be sure to grease the air cleaner flange where it contacts the air cleaner housing. Honda White Lithium Grease, or an equivalent, is handy for this because any dirt that penetrates this sealing area will show up clearly (page 43).

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 housing boot where it connects to the air cleaner housing with Hand Grip Cement or an 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.



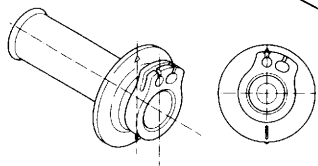
General Competition Maintenance

Handgrips

Always use Hand Grip Cement when replacing handgrips. Refer to the Shop Manual for installation instructions.

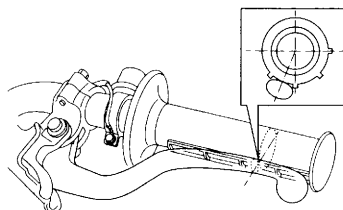
Throttle Grip:

Align the "Δ" mark on the throttle grip with the hole of the throttle cable guide.

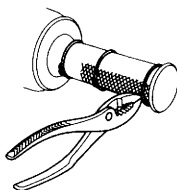


Left Handlebar Grip:

Align the top of the waffle pattern on the grip with the clutch lever as shown in the illustration.



For added security, you may choose to bind the handgrips to the handlebar and throttle pipe with safety wires 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 handgrip rubber so they will not snag your glove.



Throttle Control

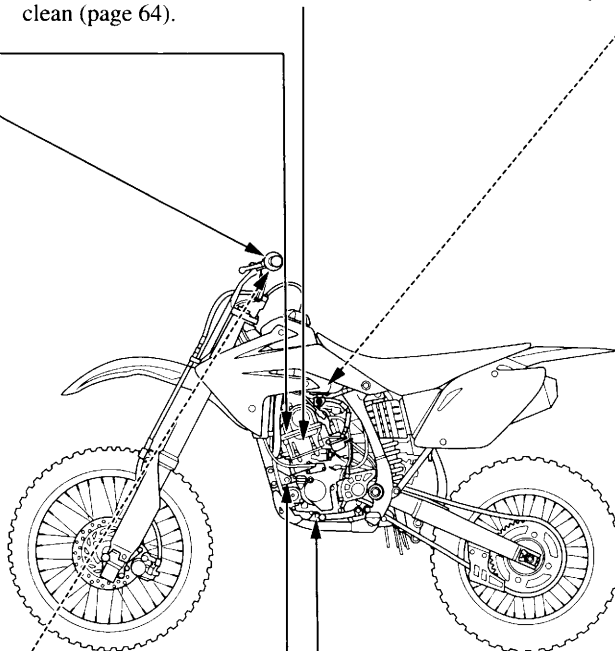
Remove the throttle control every few rides, clean the inside of the throttle pipe and the handlebar thoroughly, and apply a light coating of oil. Inspect the cable carefully for kinks or other damage that may restrict throttle control in any way. Move the handlebar from lock to lock to be sure there 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 64).



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 35).

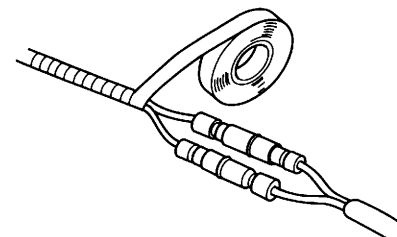
Fuel Contamination

Refer to *Fuel System* in your Owner's Manual, page 34. 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 35). Loosen the 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 112).

For maximum efficiency, drain and replace fuel that has remained in your fuel tank for more than a month.

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 Honda Dielectric Grease on all electrical connections.

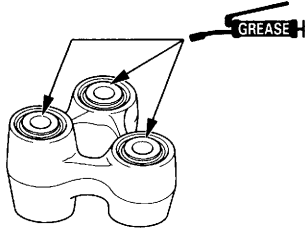


Engine Mounting Bolts and Nuts

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 Honda Thread Lock or an equivalent prior to torquing the nuts.

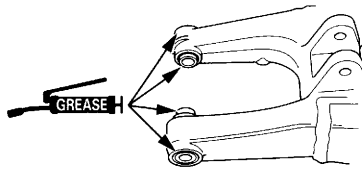
Suspension Linkage Lubrication

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.

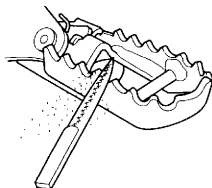


Swingarm

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 pegs are free to pivot freely and that the pivot pin retaining cotter pins are in good condition.

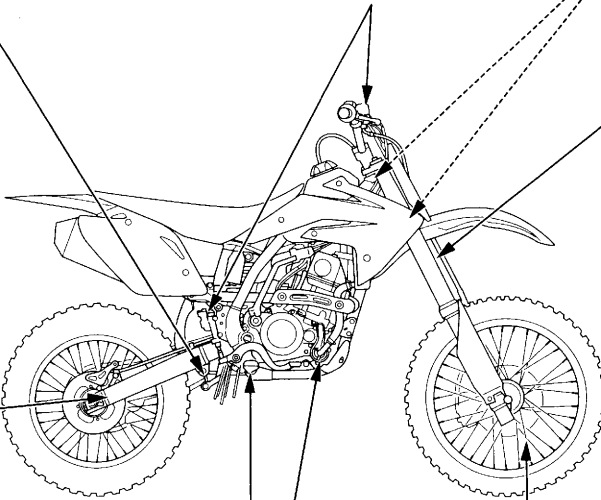


Brake Fluid Replacement

Refer to *Brake Pad Wear* in your Owner's Manual, page 78.

Brake Caliper Inspection: Be sure both the front and rear calipers are able to move freely on the 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 Shop Manual 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.

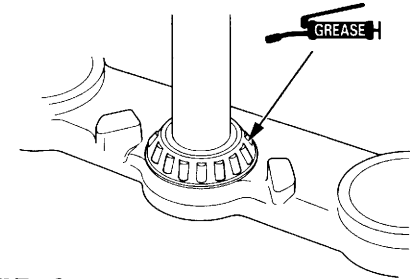


Bleed Hole

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 with extreme pressure (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 Shop Manual. Use only Honda ULTRA CUSHION OIL SPECIAL 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 79).

Nuts, Bolts, Etc.

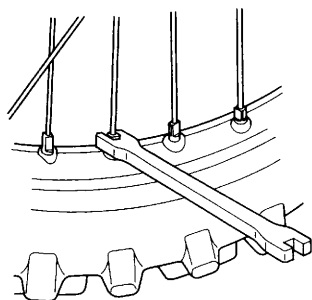
Application of a thread locking agent to essential fasteners offers added assurance and security. Remove the nuts, clean the threads of both the nuts and bolts, apply Honda Thread Lock or an equivalent and tighten to the specified torque.

Before & After Competition Maintenance

Between Heats & Practice Maintenance

After practice or between heats 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 tyre air pressure.
- Check spoke tension, and make sure the rim locks are secure.

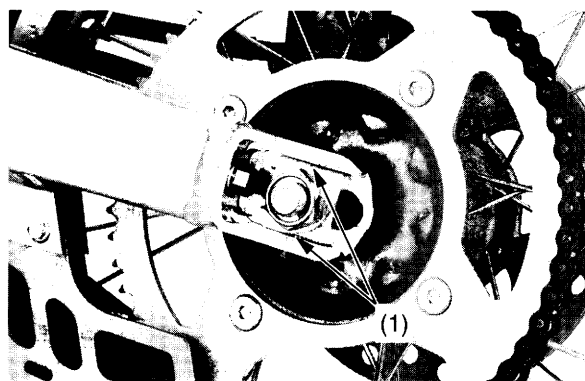


- Check to make sure the sprocket bolts and nuts are secure.
- Clean the sides of the drive chain with a stiff, nylon parts-cleaning brush. Lubricate and adjust the chain as necessary.

Do not perform maintenance while engine is running.

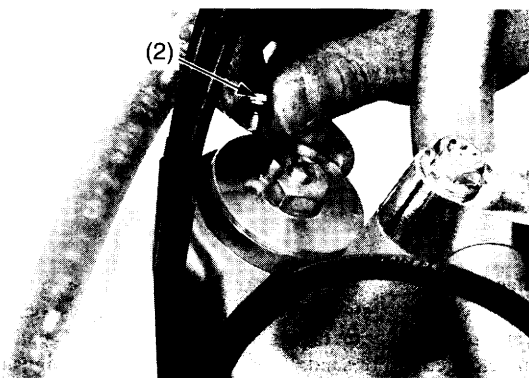
Injury to your fingers or hands may result.

- 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 kPa (0 kgf/cm², 0 psi)) 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

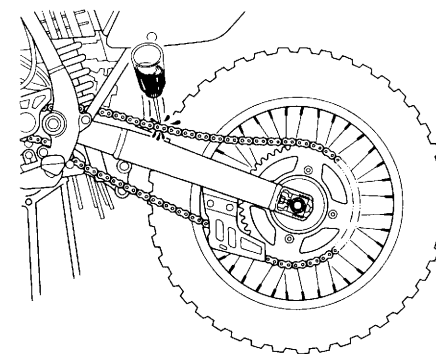
It is important to the long term performance of your CRF to practice a consistent maintenance program. Right after the event is a good time to begin your next maintenance cycle.

After Race Lubrication

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 brake disc.

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

Remove the drive chain, clean and lubricate it (pages 83, 84). Be sure the chain is wiped clean and is dry before lubricating the chain.



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.

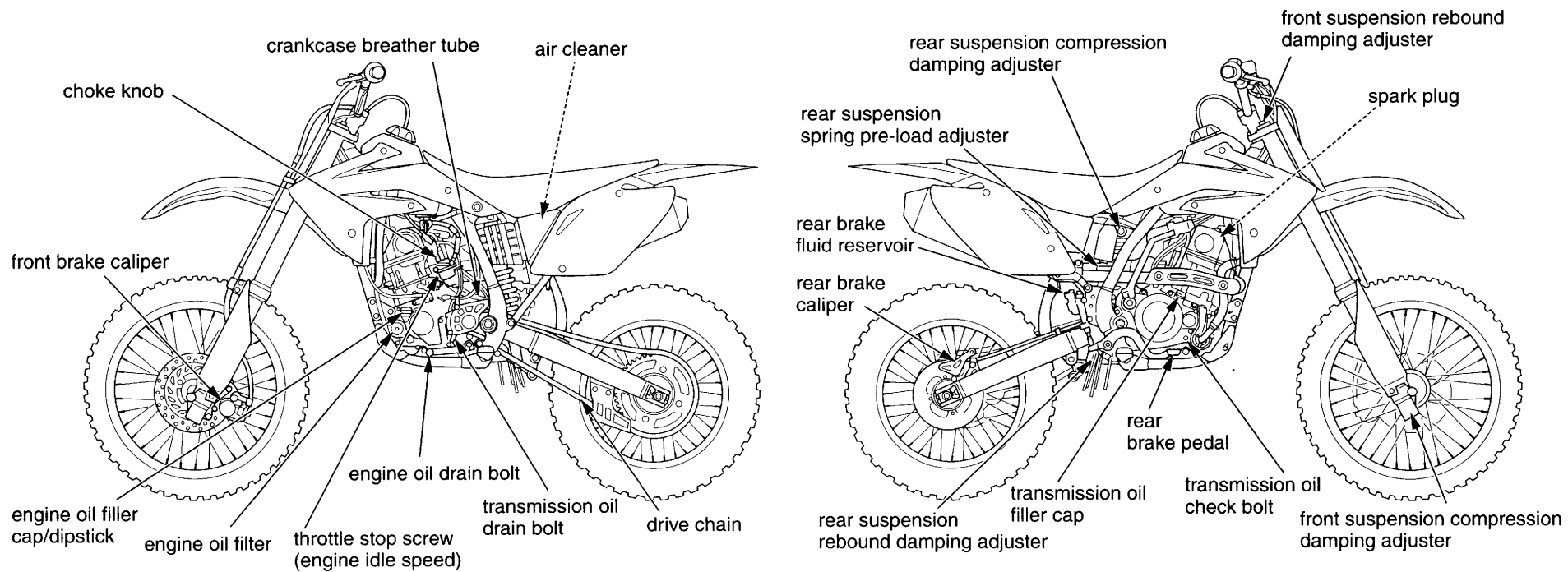
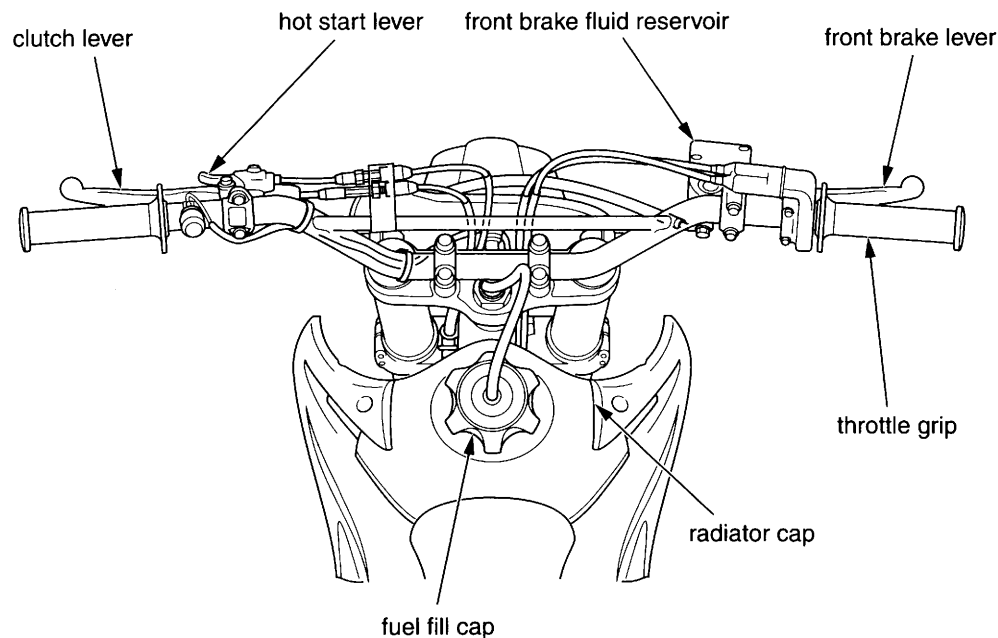
Take care to prevent catching your fingers between the chain and sprocket.

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 90).

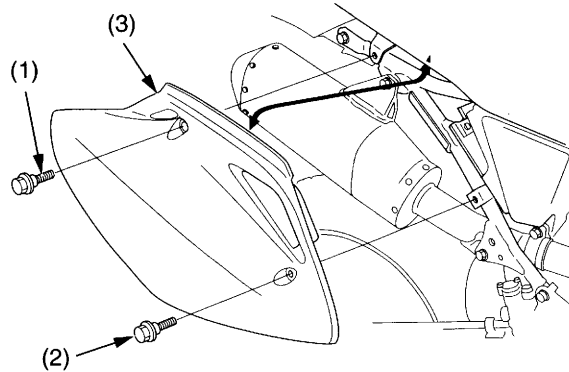
Maintenance Component Locations



Refer to *Safety Precautions* on page 19.

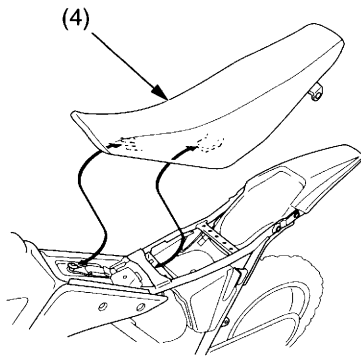
Removal

1. Remove the seat mounting bolts (1), side cover bolts (2) and side covers (3).



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

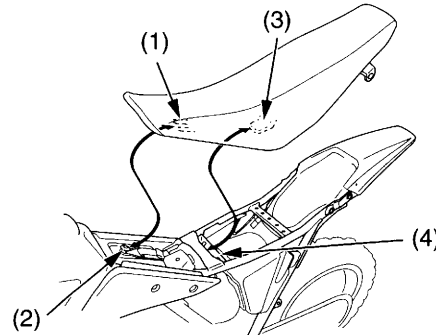
2. Remove the seat (4) by sliding it backward.



- (4) seat

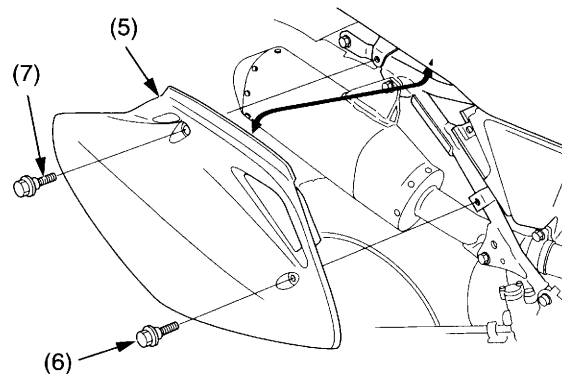
Installation

1. Install the seat while aligning the front prong (1) with the seat bracket (2) and rear prong (3) with the tab (4) of the frame.



- (1) front prong
(2) seat bracket
(3) rear prong
(4) tab

2. Install the side covers (5) and tighten the side cover bolts (6).
3. Install and tighten the seat mounting bolts (7) to the specified torque:
26 N·m (2.7 kgf·m, 19 lbf·ft)



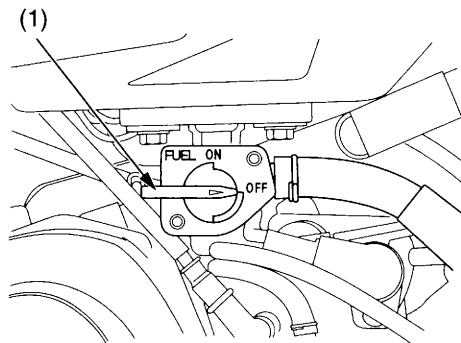
- (5) side cover
(6) side cover bolt
(7) seat mounting bolt

Fuel Tank

Refer to *Safety Precautions* on page 19.

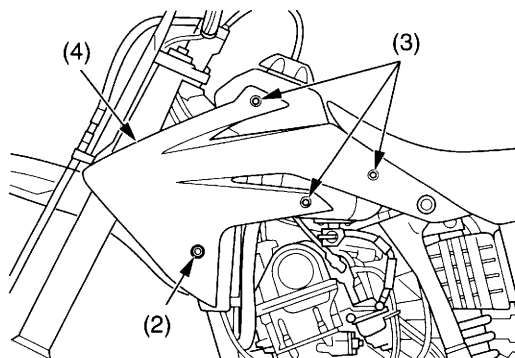
Removal

1. Turn the fuel valve (1) OFF.



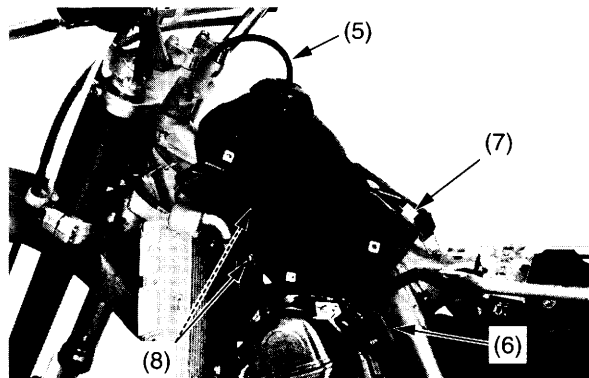
(1) fuel valve

2. Remove the shroud A bolts/collars (2).
3. Remove the shroud B bolts (3) and shrouds (4).



(2) shroud A bolt/collar
(3) shroud B bolts
(4) shroud

4. Remove the seat (page 29).
5. Pull the breather tube (5) out of steering stem nut.
6. Disconnect the fuel line (6).
7. Unhook the fuel tank band (7).
8. Remove the fuel tank bolts/washers (8).
9. Remove the fuel tank.



(5) breather tube
(6) fuel line
(7) fuel tank band
(8) fuel tank bolts/washers

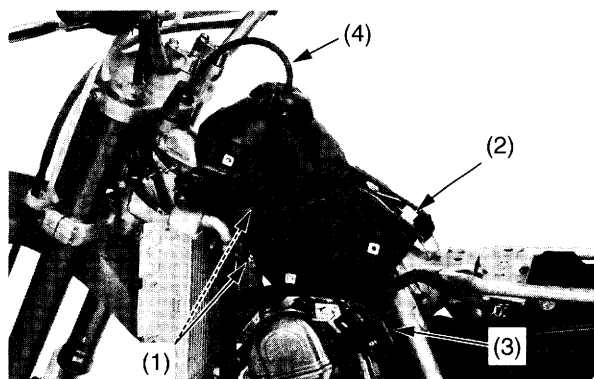
⚠ WARNING

Petrol 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.

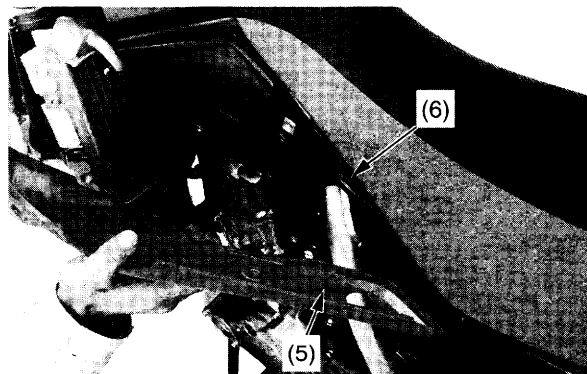
Installation

1. Install the fuel tank on the frame.
2. Install the fuel tank bolts/washers (1), then tighten them.
3. Hook the fuel tank band (2).
4. Connect the fuel line (3).
5. Put the breather tube (4) in the steering stem nut.



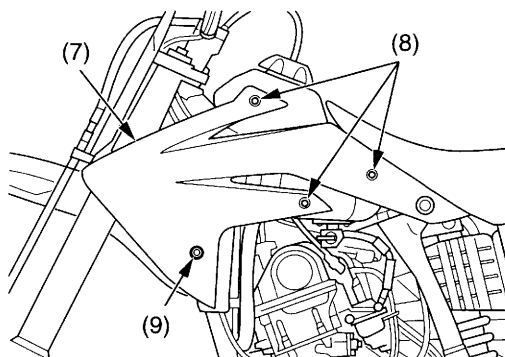
- (1) fuel tank bolts/washers
(2) fuel tank band
(3) fuel line
(4) breather tube

6. Install the seat (page 29).
7. Install the left shroud tab (5) under the crankcase breather hose (6).



- (5) left shroud tab (6) crankcase breather hose

8. Install the shrouds (7) and shroud B bolts (8).
9. Install and tighten the shroud A bolts/collars (9).
10. Tighten the shroud B bolts.



- (7) shroud
(8) shroud B bolts
(9) shrouds A bolt/collar

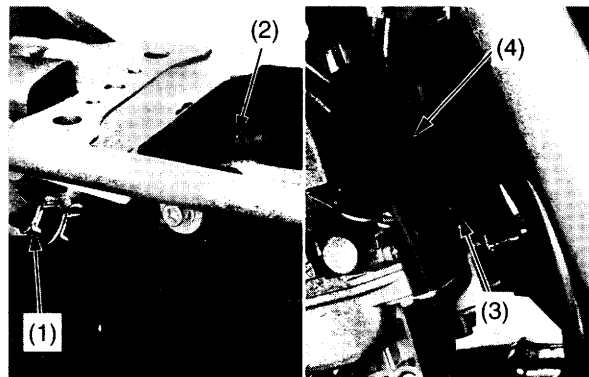
Subframe

Refer to *Safety Precautions* on page 19.

Removal

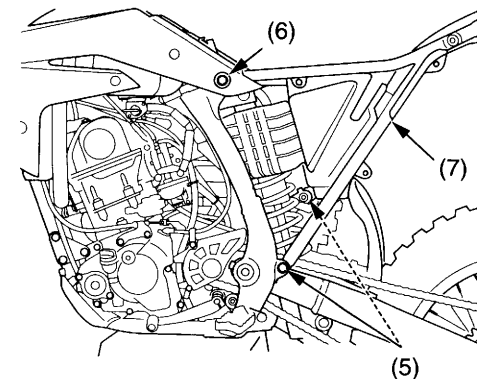
1. Remove the muffler (page 85).
2. Remove the seat (page 29).

3. Disconnect the crankcase breather tube (1).
4. Pull out the transmission breather tube (2) from the air cleaner housing.
5. Loosen the screw (3) on the air cleaner connecting tube clamp (4).



- (1) crankcase breather tube
(2) transmission breather tube
(3) screw
(4) air cleaner connecting tube clamp

6. Remove the subframe lower mounting bolts (5) and upper mounting bolt (6). Then remove the subframe (7) by pulling it straight backward.



- (5) subframe lower mounting bolts
(6) subframe upper mounting bolt
(7) subframe

Installation

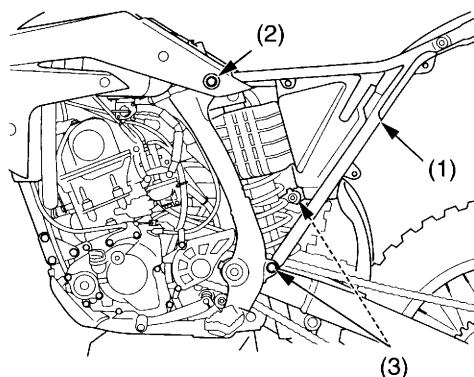
1. Loosely attach the upper and lower ends of the subframe (1) to the mainframe while connecting the air cleaner connecting tube to the carburetor.

Be careful not to bend the subframe.

Install the subframe upper mounting bolt (2) and lower mounting bolts (3).

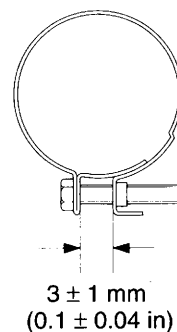
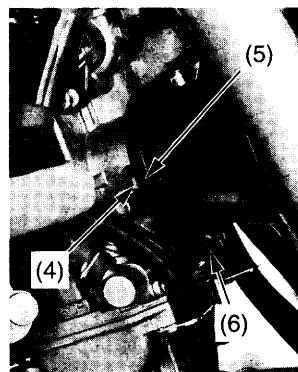
Tighten the upper mounting bolt and lower mounting bolts to the specified torque:

30 N·m (3.1 kgf·m, 22 lbf·ft)



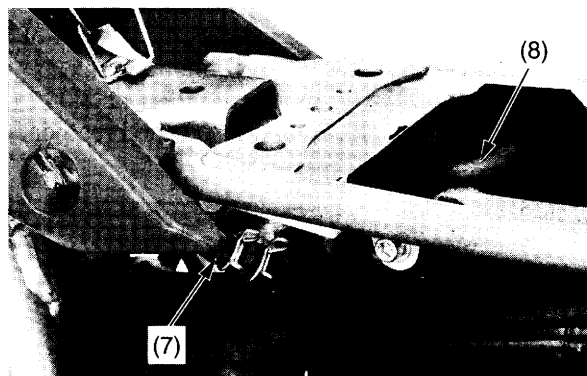
- (1) subframe
- (2) subframe upper mounting bolt
- (3) subframe lower mounting bolts

2. Make sure the carburetor tab (4) aligns with the air cleaner connecting tube groove (5).
3. Tighten the connecting tube clamp screw (6) so the gap between the tabs of the clamp is 3 ± 1 mm (0.1 ± 0.04 in).



- (4) carburetor tab
- (5) air cleaner connecting tube groove
- (6) connecting tube clamp screw

4. Connect the crankcase breather tube (7).
5. Route the transmission breather tube (8) into the air cleaner housing.



- (7) crankcase breather tube
- (8) transmission breather tube

6. Install the seat (page 29).
7. Install the muffler (page 86).

Fuel System

Refer to *Safety Precautions* on page 19.

Fuel Recommendation

Type	Unleaded
Research Octane Number	95 (or higher)

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

Your engine is designed to use any petrol that has a pump octane number $(R + M)/2$ of 91 or higher, or a research octane number of 95 or higher. Petrol pumps at service stations normally display the pump octane number. For information on the use of *Petrol Containing Alcohol*, see page 140.

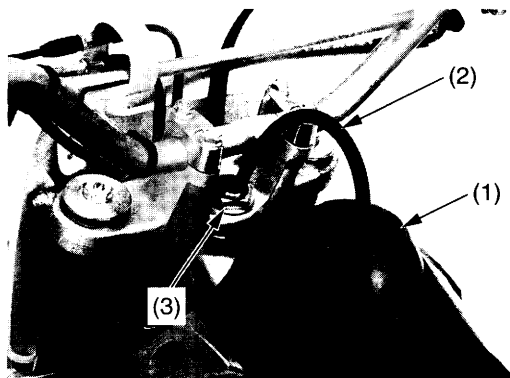
Use of lower octane petrol can cause persistent “pinging” or “spark knock” (a louder rapping noise) which, if severe, can lead to engine damage. (Light pinging experienced while operating under a heavy load, such as climbing a hill, is no cause for concern.)

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

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

Refueling Procedure

Fuel Tank Capacity: 4.3 ℓ (1.14 US gal, 0.95 Imp gal)



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

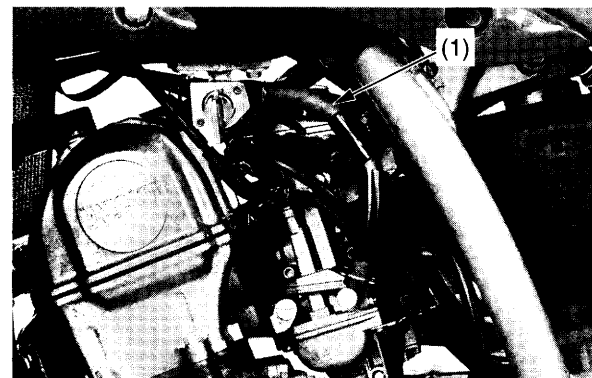
1. To open the fuel fill cap (1), pull the breather tube (2) out of the steering stem nut (3). Turn the fuel fill cap counterclockwise and remove it.
2. Add fuel until the level reaches the bottom of the filler neck. Avoid overfilling the tank. There should be no fuel in the filler neck.
3. Close the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

⚠ WARNING

Petrol 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

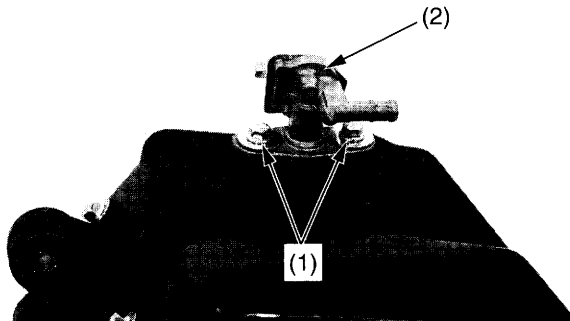
1. Check for leaks.
2. Check the fuel line (1) for cracks, deterioration, damage or leakage. Replace the fuel line, if necessary.

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:

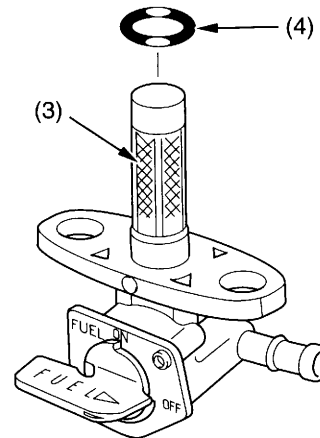
1. Drain the fuel from the fuel tank into an approved petrol container.
2. Remove the fuel tank (page 30).
3. Remove the fuel valve (2) from the fuel tank by removing the bolts/collars (1).



(1) bolts/collars

(2) fuel valve

4. Wash the fuel filter (3) in high flash-point cleaning solvent.
5. Make sure the O-ring (4) is in good condition and install it onto the fuel valve.
6. Install the fuel valve in the fuel tank by tightening the bolts/collars to the specified torque:
10 N·m (1.0 kgf·m, 7 lbf·ft)
7. Install the fuel tank (page 31) and refill the fuel.
Turn the fuel valve ON; check for leaks.



(3) fuel filter

(4) O-ring

Engine Oil

Refer to *Safety Precautions* on page 19.

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	Honda "4-STROKE MOTORCYCLE OIL" or equivalent

- 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.

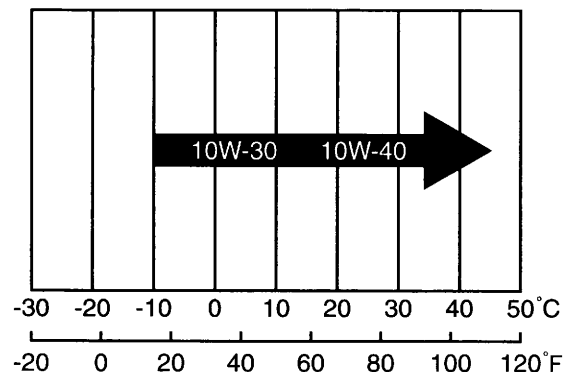


NOT RECOMMENDED



OK

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

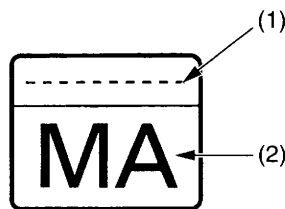


JASO T 903 standard

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

There are two classes: MA and MB.

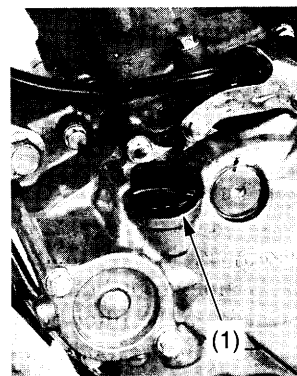
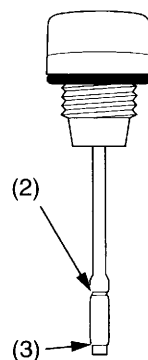
Oil conforming to the standard is labeled on the oil container. For example, the following label shows the MA classification.



PRODUCT MEETING JASO T 903
COMPANY GUARANTEEING THIS MA PERFORMANCE:

- (1) code number of the sales company of the oil
(2) oil classification

Checking & Adding Oil



- (1) engine oil filler 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 filler cap/dipstick (1), wipe it clean, and insert the engine oil filler cap/dipstick without screwing it in. Remove the engine oil filler cap/dipstick.
5. Check that the oil level is between the upper (2) and lower (3) level marks on the engine oil filler 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 it reaches the upper level mark. (Do not overfill)
 Reinstall the engine oil filler cap/dipstick. Repeat steps 1–5.
6. Reinsert the engine oil filler cap/dipstick.
7. Check for oil leaks.

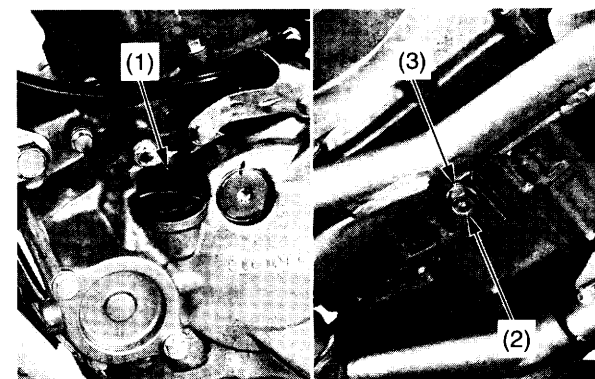
Changing Engine Oil & Filter

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 filler 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: 22 N·m (2.2 kgf·m, 16 lbf·ft)

Pour the drained oil into a suitable container and dispose of it in an approved manner (page 130).

NOTICE

Improper disposal of drained fluids is harmful to the environment.

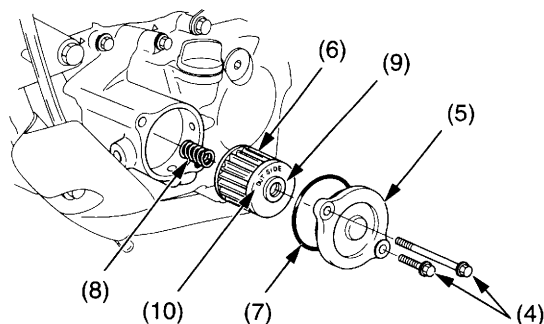


- (1) engine oil filler cap/dipstick
(2) engine oil drain bolt
(3) sealing washer

(cont'd)

Engine Oil

6. It is recommended to replace the oil and filter every 6 races or about every 15.0 hours. However, if you replace only the oil before the recommended interval, see page 21.
7. Remove the oil filter cover bolts (4) and oil filter cover (5).
8. Remove the oil filter (6) from the oil filter cover.
9. Check that the oil filter cover O-ring (7) is in good condition and replace it if necessary.



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

NOTICE

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

10. Apply grease to the filter side of the spring end, then install the spring (8) into a new oil filter.
11. Position the spring against the engine crankcase and install a new oil filter with the rubber seal (9) facing out, away from the engine. You should see the "OUT-SIDE" mark (10) 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 the 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:
10 N·m (1.0 kgf·m, 7 lbf·ft)
14. Fill the crankcase with the recommended oil.
Capacity: 0.59 ℓ (0.62 US qt, 0.52 Imp qt)
after draining and oil filter change
0.56 ℓ (0.59 US qt, 0.49 Imp qt)
after draining
15. Install the engine oil filler cap/dipstick.
16. Check the engine oil level by following the steps in *Checking & Adding Oil* (page 37).

Pour the drained oil into a suitable container and dispose of it in an approved manner (page 130).

NOTICE

Improper disposal of drained fluids is harmful to the environment.

Refer to *Safety Precautions* on page 19.

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.

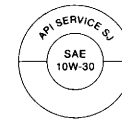
Oil Recommendation

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 as molybdenum additives
suggested oil	Honda "4-STROKE MOTORCYCLE OIL" or equivalent

- 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.

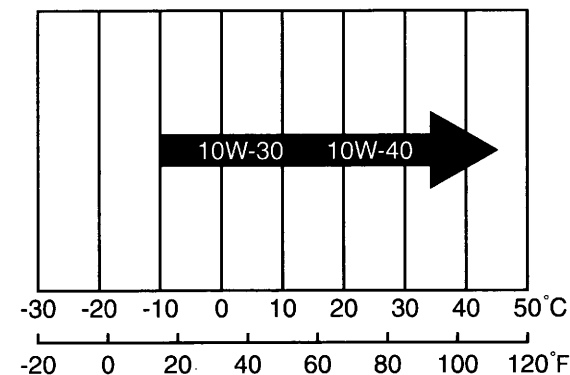


NOT RECOMMENDED



OK

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



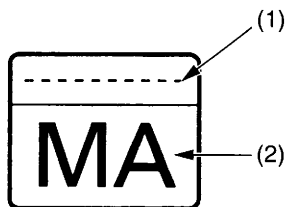
Transmission Oil

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.

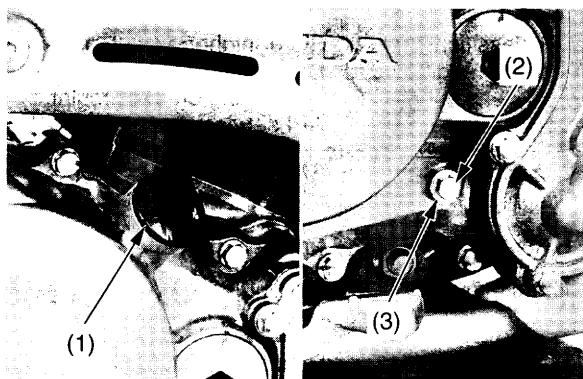
Oil conforming to the standard is labeled on the oil container. For example, the following label shows the MA classification.



PRODUCT MEETING JASO T 903
COMPANY GUARANTEEING THIS MA PERFORMANCE:

- (1) code number of the sales company of the oil
(2) oil classification

Checking & Adding Oil

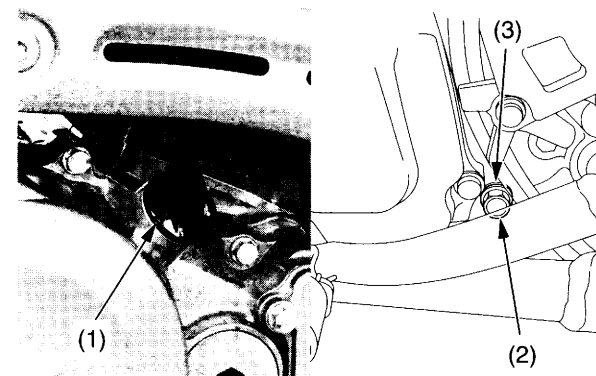


- (1) transmission oil filler cap (3) sealing washer
(2) oil check bolt

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 filler 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 filler hole until oil starts to flow out of the oil check bolt hole.
Install the oil check bolt with a new sealing washer and transmission oil filler cap. Repeat step 1–4.
5. After inspecting the oil level or adding oil, tighten the oil check bolt to the specified torque:
Oil Check Bolt: 10 N·m (1.0 kgf·m, 7 lbf·ft)
6. Install the transmission oil filler 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 filler 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: 22 N·m (2.2 kgf·m, 16 lbf·ft)
6. Fill the crankcase with recommended oil.
Capacity: 0.57 ℓ (0.60 US qt, 0.50 Imp qt) after draining
7. Check the transmission oil level by following the steps in *Checking & Adding Oil* (this page).



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

Pour the drained oil into a suitable container and dispose of it in an approved manner (page 130).

NOTICE

Improper disposal of drained fluids is harmful to the environment.

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 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 the water seal or blockage of the 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.

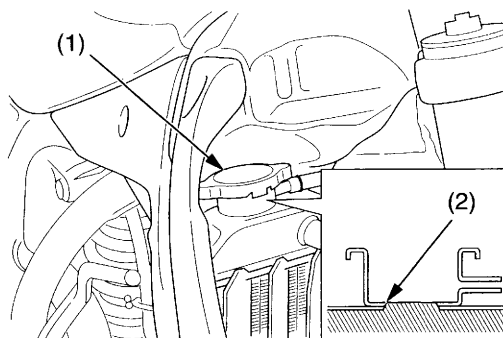
Decreasing the concentration of antifreeze to less than 40% will not provide proper corrosion protection.

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 19.

1. With the engine cold, remove the radiator cap (1) and check coolant level. The coolant level is correct when it is at the bottom of the radiator filler neck (2).



- (1) radiator cap
(2) radiator filler neck

⚠ 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.

2. Add coolant up to the filler neck if the level is low.
Inspect the coolant level before each outing. A coolant loss of 20 – 60 cm³ (0.7 – 2.0 US oz, 0.7 – 2.1 Imp oz) through the over flow tube is normal. If coolant loss is more than this, inspect the cooling system.
Capacity:
0.76 l (0.80 US qt, 0.67 Imp qt)
after disassembly
3. Install the radiator cap securely.

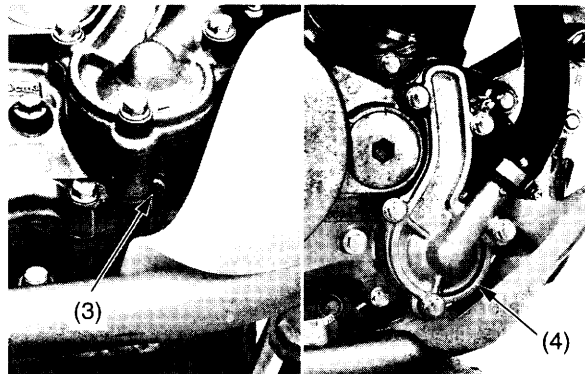
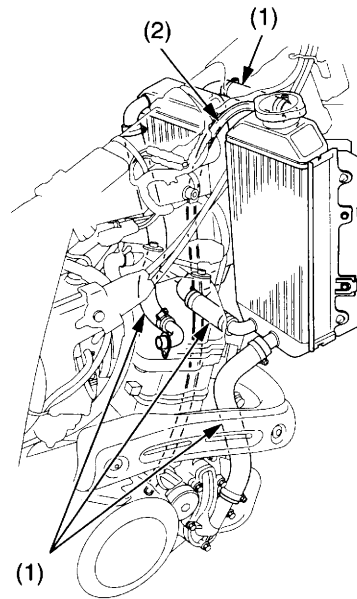
NOTICE

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

Coolant

Cooling System Inspection

1. Check the cooling system for leaks (see the Honda Shop Manual for troubleshooting of leaks).
2. Check the water hoses (1) for cracks, deterioration, and hose clamps bands for looseness.
3. Check the radiator mount for looseness.
4. Make sure the overflow 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 Shop Manual or consult your Honda dealer for replacing the water seal or the oil seal. Both seals should be replaced at the same time.



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

Coolant Replacement

Refer to *Safety Precautions* on page 19.

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

⚠ 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 130.

NOTICE

Improper disposal of drained fluids is harmful to the environment.

Refer to *Safety Precautions* on page 19.

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 Honda 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 damage.

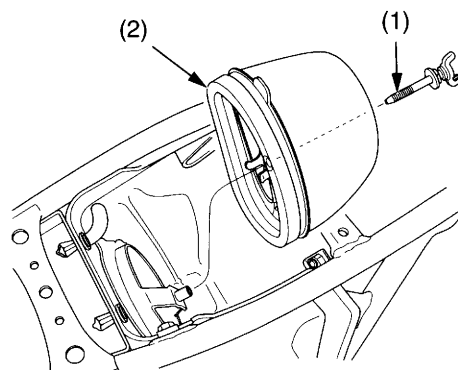
Proper air cleaner maintenance can prevent premature engine wear or damage, expensive repairs, low engine power, poor gas mileage, and spark plug fouling.

NOTICE

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

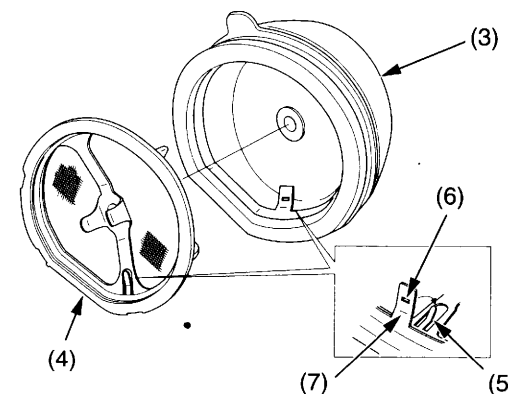
Cleaning

1. Remove the seat (page 29).
2. Remove the air cleaner retaining bolt (1) and air cleaner assembly (2).



- (1) air cleaner retaining bolt
(2) air cleaner assembly

3. Remove the air cleaner element (3) from the air cleaner holder (4).



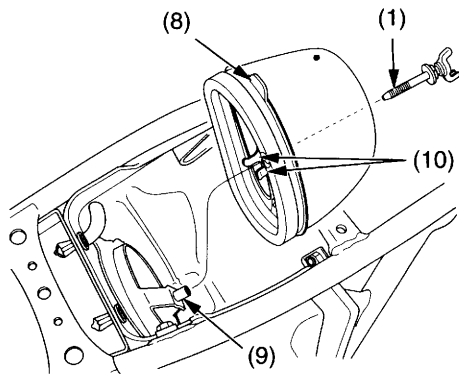
- (3) air cleaner element (6) hole
(4) air cleaner holder (7) air cleaner tab
(5) holder tab

4. 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.
5. Clean the inside of the air cleaner housing.
6. After drying, soak the air cleaner element in clean Honda Foam Air Filter Oil or an equivalent air cleaner oil.
Apply air cleaner oil to the entire surface, inner and outer, and rub it with both hands to saturate the air cleaner element with oil.
Squeeze out excess oil.
7. Apply 2.6 – 3.0 g (0.09 – 0.11 oz) of Honda White Lithium Grease or equivalent to the air cleaner housing contact area of the air cleaner element.
8. Assemble the air cleaner element and holder. Install the holder tab (5) in the hole (6) of the air cleaner tab (7).

(cont'd)

Air Cleaner

9. Install the air cleaner assembly into the air cleaner housing.
 - Install the air cleaner assembly with the air cleaner element tab (8) facing up.
 - Position the air cleaner element stay boss (9) between the air cleaner holder tabs (10).
10. Install and tighten the air cleaner retaining bolt (1).



- (1) air cleaner retaining bolt
- (8) air cleaner element tab
- (9) air cleaner element stay boss
- (10) air cleaner holder tabs

NOTICE

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

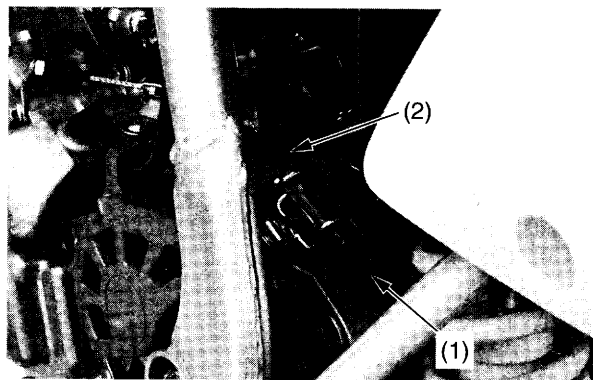
11. Install the seat (page 29).

Refer to *Safety Precautions* on page 19.

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 deposits into a suitable container.
2. Reinstall the crankcase breather tube plug.

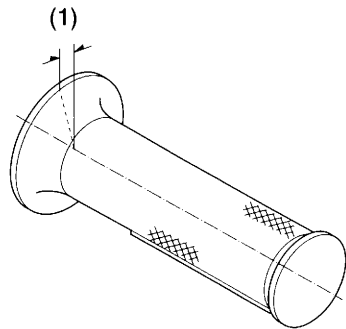


- (1) crankcase breather tube plug
(2) tube

Throttle

Refer to *Safety Precautions* on page 19.

Throttle Freeplay



(1) freeplay

Inspection

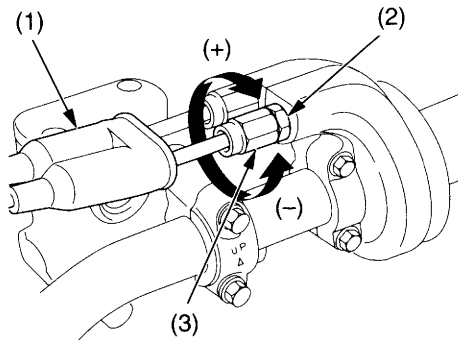
Check freeplay (1).

Freeplay: 3 – 5 mm (0.1 – 0.2 in)

If necessary, adjust to the specified range.

Upper Adjustment

Minor adjustments are generally made with the upper adjuster.



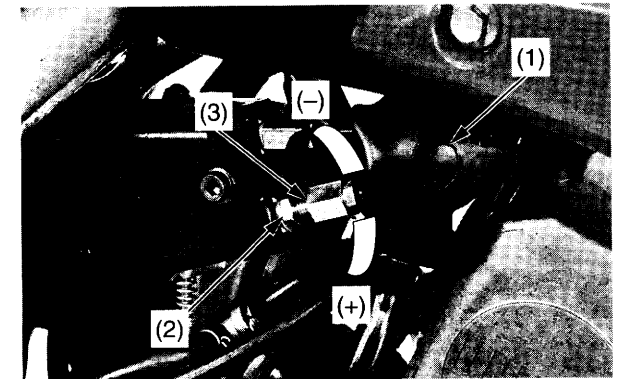
(1) dust cover
(2) lock nut
(3) adjuster

(+) increase freeplay
(-) decrease freeplay

1. Pull the dust cover (1) back.
2. Loosen the lock nut (2).
3. Turn the adjuster (3).
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.
4.0 N·m (0.4 kgf·m, 3.0 lbf·ft)
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:
4.0 N·m (0.4 kgf·m, 3.0 lbf·ft)
Install 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 cannot get the proper adjustment with the upper adjuster.



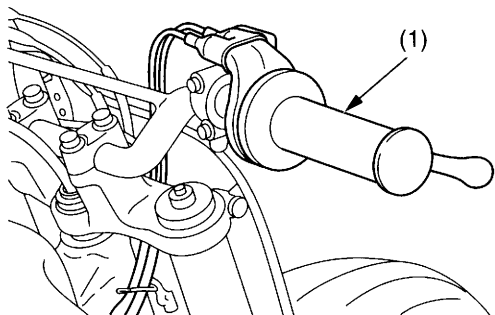
(1) dust cover
(2) lock nut
(3) adjuster

(+) increase freeplay
(-) decrease freeplay

1. Pull the dust cover (1) back.
2. Loosen the lock nut (2).
3. Turn the adjuster (3) in direction (–) to decrease freeplay, and in direction (+) to increase freeplay.
4. Tighten the lock nut to the specified torque.
4.0 N·m (0.4 kgf·m, 3.0 lbf·ft)
5. Operate the throttle grip to ensure that it functions smoothly and returns completely.
6. Install the dust cover.

If you can't get the freeplay within the specified range, contact your Honda 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 Honda 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.

Engine Idle Speed

Refer to *Safety Precautions* on page 19.

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

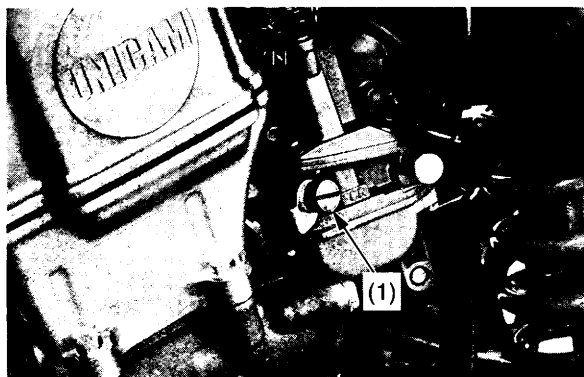
The engine must be at normal operating temperature for accurate idle speed adjustment.

The best way to assure proper carburetion is to see your Honda dealer for regularly scheduled servicing, including carburetor adjustment.

Idle Speed Adjustment

1. If the engine is cold, start it and warm it up 3 minutes and then shut it off.
2. Connect a tachometer to the engine.
3. Shift the transmission into neutral and start the engine.
4. Keep the motorcycle in an upright position.
5. Adjust idle speed with the throttle stop screw (1).

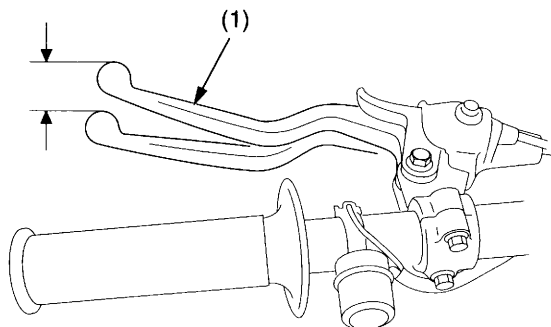
Idle speed:
 $2,100 \pm 100 \text{ min}^{-1} (\text{rpm})$



(1) throttle stop screw

Refer to *Safety Precautions* on page 19.

Clutch Lever Freeplay



(1) clutch lever

Inspection

Check freeplay.

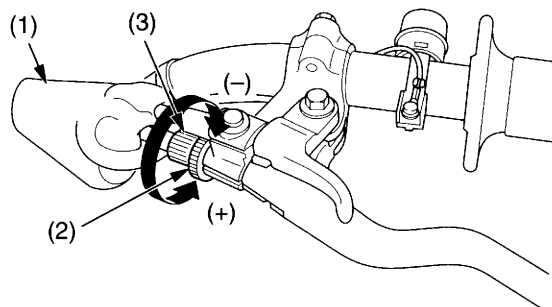
Freeplay: 10 – 20 mm (0.4 – 0.8 in)

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

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

Cable End Adjustment

Minor adjustments are generally made with the cable end adjuster.

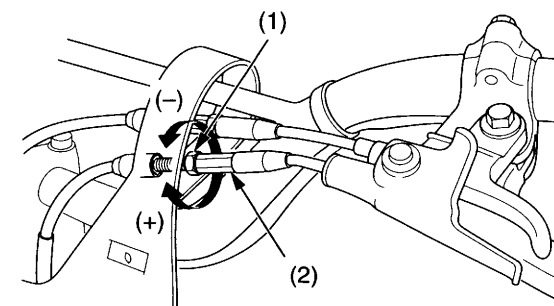


(1) dust cover
(2) lock nut
(3) cable end adjuster
(+) increase freeplay
(-) decrease freeplay

1. Pull the dust cover (1) back.
2. Loosen the lock nut (2) and turn the cable end adjuster (3). Turning the adjuster in direction (–) will decrease freeplay and turning in the direction (+) will increase freeplay.
3. After adjustment, tighten the lock nut and install the dust cover.
4. Check the freeplay again.

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 freeplay
(-) decrease freeplay

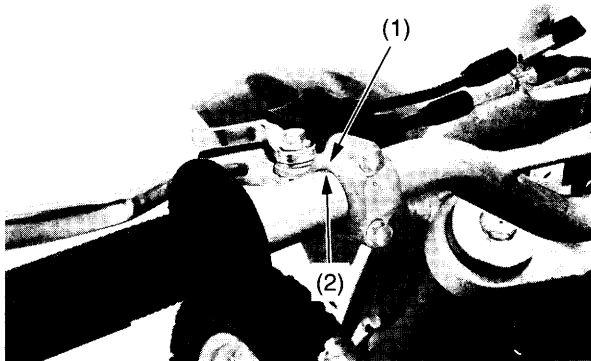
1. Turn the cable end adjuster in direction (+) until it seats lightly and then turn it out one turn.
2. Loosen the lock nut (1).
3. Turn the integral cable adjuster (2) to obtain the specified freeplay.
4. Tighten the lock nut. Check the freeplay.
5. Start the engine, pull the clutch lever in, and shift 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. See your Honda dealer or refer to the Honda Shop Manual.

Clutch System

Other Inspections & Lubrication

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



(1) end of the holder (2) punch mark

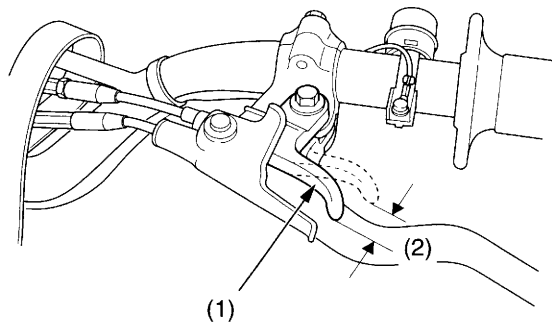
- Check the clutch cable for kinks or signs of wear. If necessary, have it replaced.
- Lubricate the clutch cable with a commercially-available cable lubricant to prevent premature wear and corrosion.

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.

Refer to *Safety Precautions* on page 19.

Hot Start Lever Freeplay



- (1) hot start lever
- (2) hot start lever freeplay

Inspection

Check freeplay:

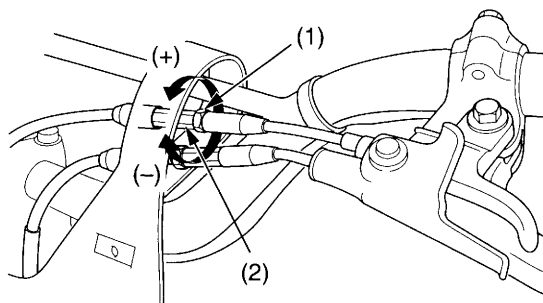
Freeplay: 2 – 3 mm (0.08 – 0.12 in)

If necessary, adjust to the specified range.

Adjustment

Adjustments can be made with the cable 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 freeplay
- (–) decrease freeplay

Spark Plug

Refer to *Safety Precautions* on page 19.

Spark Plug Recommendation

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

Standard	CR8EH-9 (NGK)
	U24FER9 (DENSO)
Optional	CR9EH-9 (NGK)
	U27FER9 (DENSO)

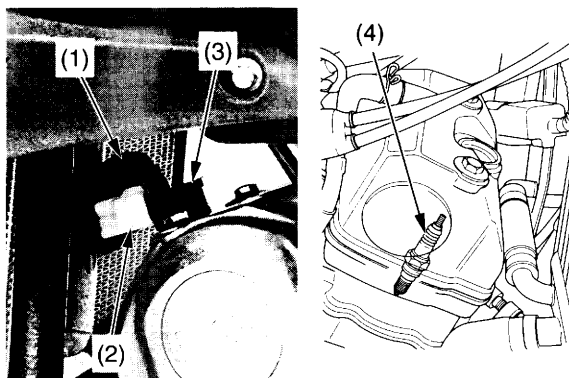
Use only the recommended type of spark plugs in the recommended heat range.

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.

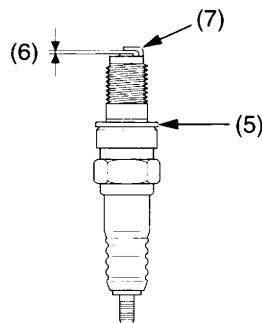
Spark Plug Inspection & Replacement

1. Pull the dust cover (1) back.
2. Disconnect the direct ignition coil connector (2).
3. Disconnect the direct ignition coil (3).
4. Clean any dirt from around the spark plug bases.
5. Remove the spark plug (4).



- (1) dust cover (2) direct ignition coil connector (3) direct ignition coil (4) spark plug

6. Check the electrodes for wear or deposits, the sealing gasket (5) for damage, and the insulator for cracks. Replace if you detect them.
 7. Check the spark plug gap (6) using a feeler gauge, and adjust by carefully bending the side electrode (7).
- The recommended spark plug gap is:
0.8 – 0.9 mm (0.031 – 0.035 in)



- (5) sealing gasket
(6) spark plug gap
(7) side electrode

8. 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 centre 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 colour 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 (page 122). Check the carburetor, fuel system and ignition timing.

9. With the sealing gasket attached, thread the spark plug in by hand to prevent cross-threading.
10. 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: 1/2 turn after it seats.
DENSO: 1 turn after it seats.
 - b) Then loosen the plug.
 - c) Next, tighten the plug again:
1/8 turn after it seats.

NOTICE

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.

11. Connect the direct ignition coil. Take care to avoid pinching any cables or wires.
12. Connect the direct ignition coil connector.
13. Install the dust cover.

Refer to *Safety Precautions* on page 19.

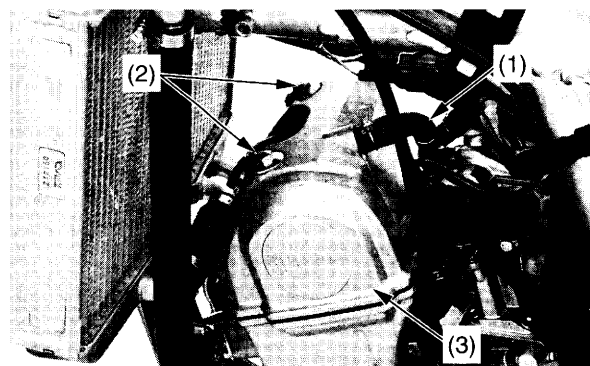
Excessive valve clearance will cause noise and eventual engine damage. Little or no clearance will prevent the valve from closing and cause valve damage and power loss. Check the valve clearance when the engine is cold at the intervals specified in the Maintenance Schedule (page 21).

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 29, 30).
2. Remove the spark plug (page 52).
3. Disconnect the breather tube (1).
4. Remove the cylinder head cover bolts (2) and cylinder head cover (3).

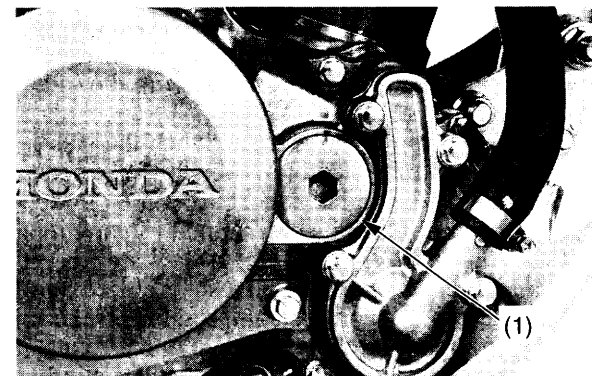


- (1) breather tube
(2) cylinder head cover bolts
(3) cylinder head cover

5. Remove the spark plug hole packing.

Positioning At Top Dead Centre On The Compression Stroke

1. Remove the crankshaft hole cap (1).



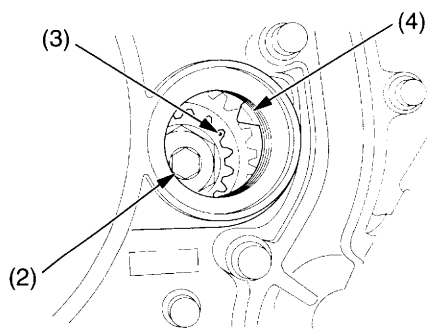
- (1) crankshaft hole cap

(cont'd)

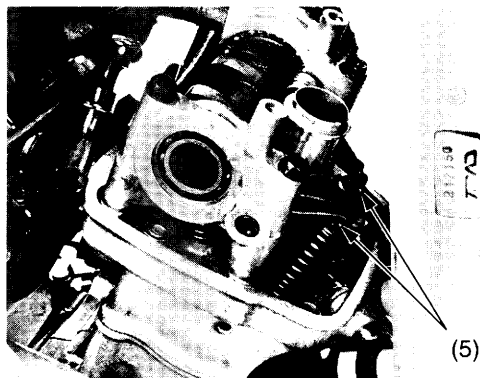
Valve Clearance

2. Rotate the crankshaft by turning the primary drive gear bolt (2) (crankshaft) 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 arms (5). If they are free, it is an indication that the valves are closed and that the piston is on the compression stroke. If they are 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 arms

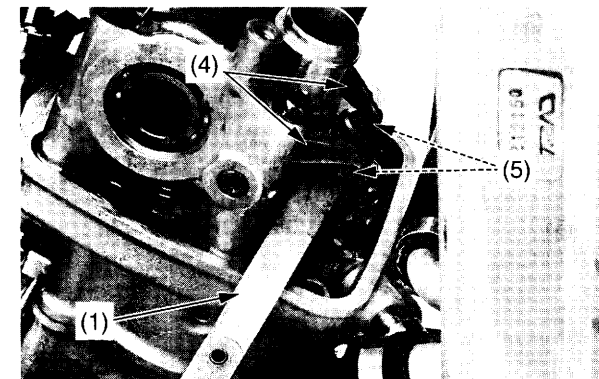
Valve Clearance Inspection

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

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



- (1) feeler gauge
(4) exhaust rocker arms
(5) exhaust valve shims

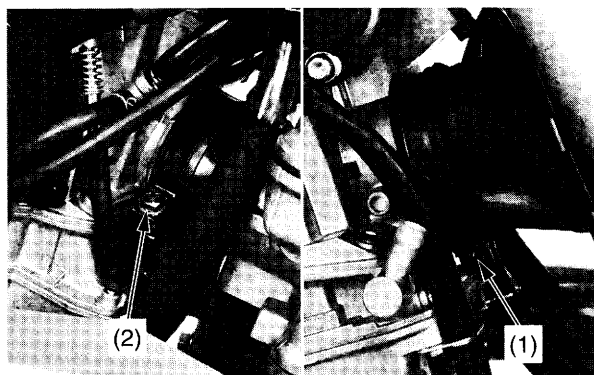
Valve Clearance:

IN: 0.16 ± 0.03 mm (0.006 ± 0.001 in)
EX: 0.26 ± 0.03 mm (0.010 ± 0.001 in)

If intake valve clearance and exhaust valve clearance need adjustment, see *Camshaft Holder Assembly Removal* (page 55) and select the correct shim for each valve.

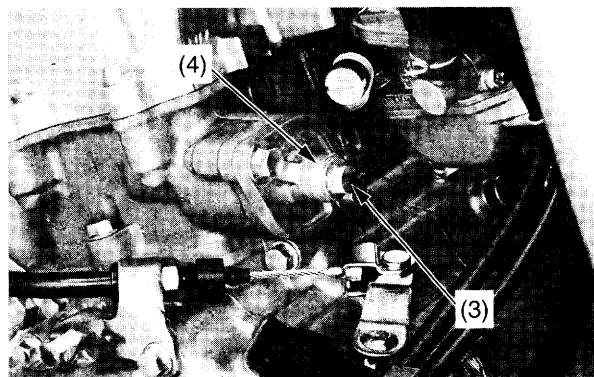
Camshaft Holder Assembly Removal

1. Record the intake valve clearance and exhaust valve clearance.
Make sure the piston is at TDC (Top Dead Centre) on the compression stroke (page 53).
2. Loosen the connecting tube clamp screw (1) and insulator band screw (2) and rotate the carburetor to access for the cam chain tensioner lifter.



- (1) connecting tube clamp screw
(2) insulator band screw

3. Remove the cam chain tensioner lifter cover bolt (3) and sealing washer (4).

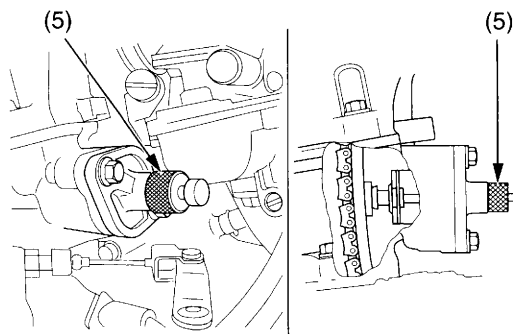


- (3) cam chain tensioner lifter cover bolt
(4) sealing washer

Use the tensioner stopper tool.

- Tensioner stopper 070MG-0010100

4. Turn the tensioner shaft clockwise with the tensioner stopper (5) 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.

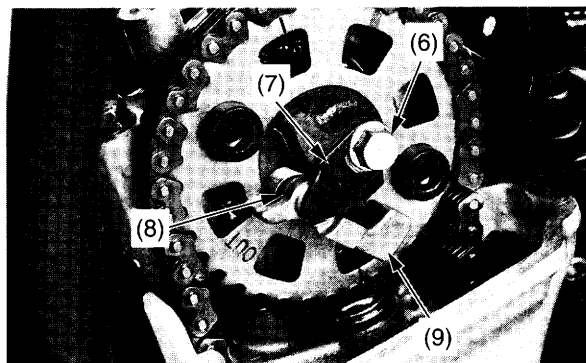


(5) tensioner stopper

5. Remove the bolt (6), stopper plate (7), return spring (8) and decompressor weight (9).

NOTICE

Do not let the bolt, stopper plate, return spring and decompressor weight fall into the crankcase.

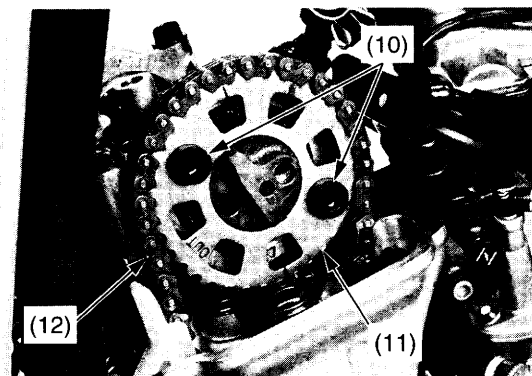


- (6) bolt
(7) stopper plate
(8) return spring
(9) decompressor weight

6. Remove the socket bolts (10) and cam sprocket (11), then attach a piece of wire to the cam chain (12) to prevent it from falling into the crankcase.

NOTICE

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



- (10) socket bolts
(11) cam sprocket
(12) cam chain

(cont'd)

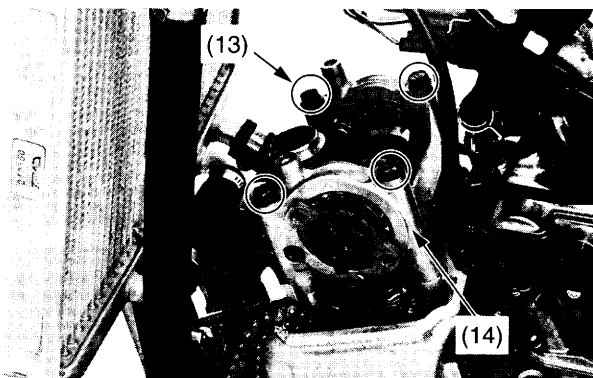
Valve Clearance

7. Make sure the piston is at TDC (Top Dead Centre) on the compression stroke. Loosen the camshaft holder assembly bolts (13) in a crisscross pattern in two or three steps. Remove the camshaft holder assembly bolts and camshaft holder assembly (14).

- As you remove the camshaft holder assembly, valve lifters and 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.

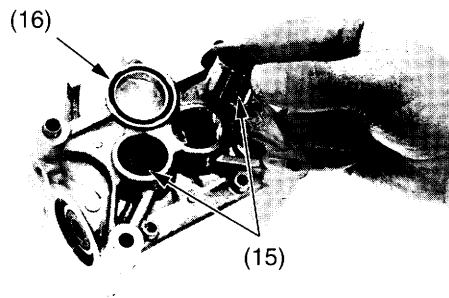
NOTICE

Do not let the valve lifters and shims fall into the crankcase.



(13) camshaft holder assembly bolts
(14) camshaft holder assembly

8. Remove the valve lifters (15).
9. Remove the O-ring (16).



(15) valve lifters

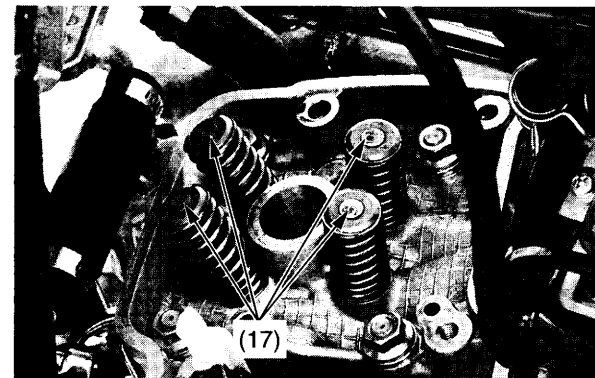
(16) O-ring

10. Remove the shims (17).

Keep the shims so as to allow identification of the originally installed location such as intake or exhaust, right or left.

NOTICE

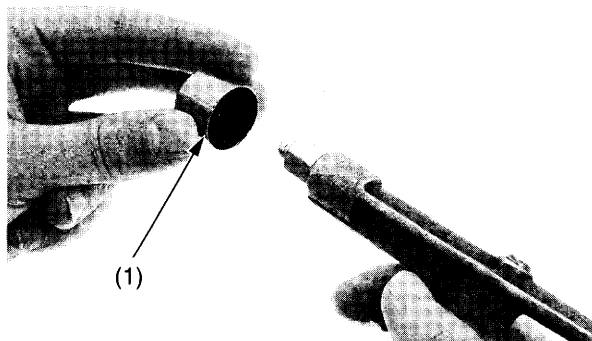
Do not let the shims fall into the crankcase.



(17) shims

Shim Selection

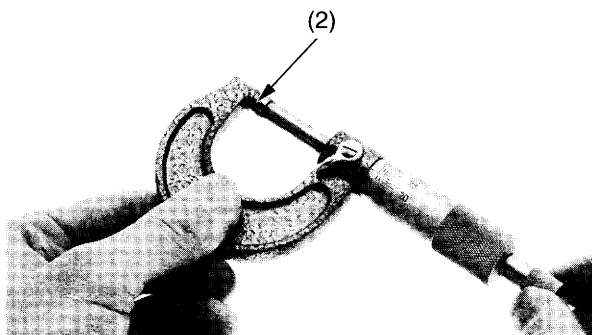
1. Clean the valve shim contact area in the valve lifter (1) with compressed air.



(1) valve lifter

2. Measure the shim thickness with a micrometer and record it.

Sixty-nine different thickness shims (2) are available from the thinnest (1.200 mm thickness) shim to the thickest (2.900 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

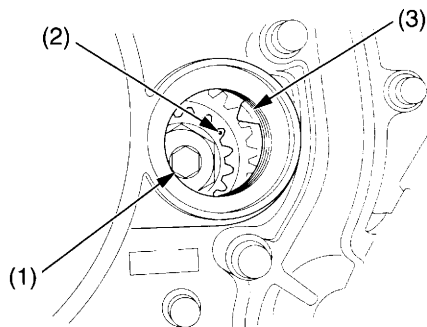
- Make sure of the correct shim thickness by measuring the shim with a micrometer.
- Reface the intake valve seat if carbon deposits result in a calculated dimension of over 2.450 mm.
 Reface the exhaust valve seat if carbon deposits result in a calculated dimension of over 2.900 mm.

			
1.80 mm	1.825 mm	1.85 mm	1.875 mm

Valve Clearance

Camshaft Holder Assembly Installation

1. While holding the cam chain, rotate the primary drive gear bolt (1) (crankshaft) clockwise and align the punch mark (2) with the index mark (3).

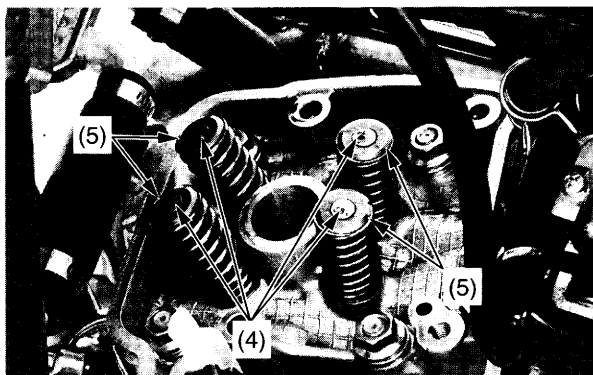


- (1) primary drive gear bolt
(2) punch mark
(3) index mark

2. Install the newly selected shims (4) on the valve spring retainers (5).

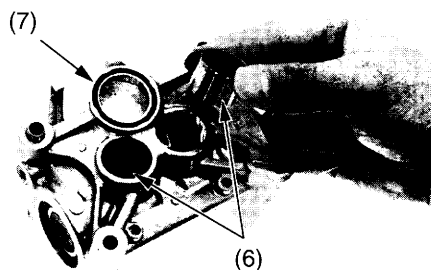
NOTICE

Do not let the shims fall into the crankcase.



- (4) shims (5) valve spring retainers

3. 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 outer surface of each valve lifter (6).
4. Install the valve lifters in their original location into the camshaft holder assembly.
5. Apply oil to new O-ring (7) and install it.



- (6) valve lifters (7) O-ring

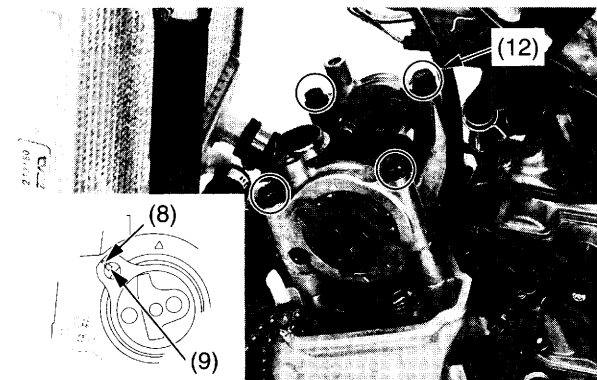
6. Apply molybdenum disulfide oil (a mixture of 1/2 engine oil and 1/2 molybdenum disulfide grease containing more than 3% molybdenum disulfide additive) to the surface of the cam lobes.

Install the camshaft holder assembly onto the cylinder head aligning the index line (8) on the camshaft flange with the index mark (9) on the camshaft holder as illustrated above. Apply oil to the camshaft holder assembly bolt threads and seating surface.

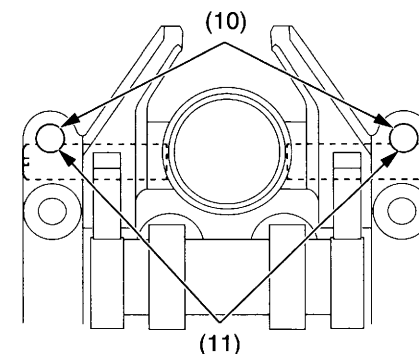
Align the camshaft holder assembly bolt holes (10) with the rocker arm shaft cut-outs (11). Tighten the camshaft holder assembly bolts (12) in a crisscross pattern in two or three steps to the specified torque:
13 N·m (1.3 kgf·m, 10 lbf·ft)

NOTICE

Do not let the bolts and valve lifters fall into the crankcase.



- (8) index line
(9) index mark
(12) camshaft holder assembly bolts



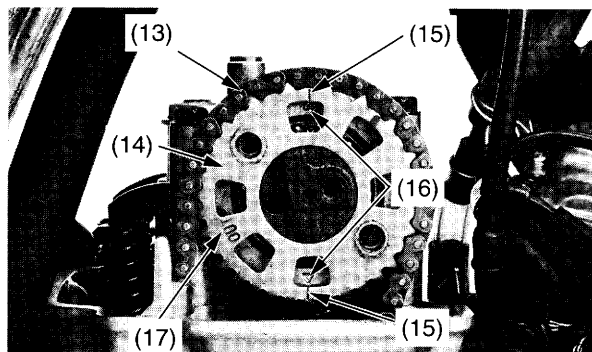
- (10) camshaft holder assembly bolts holes
(11) rocker arm shaft cut-outs

7. Install the cam chain (13) on the cam sprocket (14) while aligning the timing marks (15) on the cam sprocket with the "Δ" marks (16) on the camshaft holder, then install the cam sprocket on the camshaft.

Install the cam sprocket with its "OUT" mark (17) facing out.

NOTICE

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

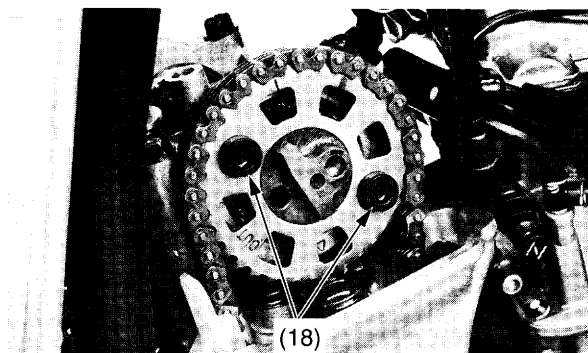


(13) cam chain
(14) cam sprocket
(15) timing marks
(16) "Δ" marks
(17) "OUT" mark

8. Clean and apply locking agent to the cam sprocket bolt threads.
9. Tighten the cam sprocket bolts (18) alternately to the specified torque:
20 N·m (2.0 kgf·m, 15 lbf·ft)

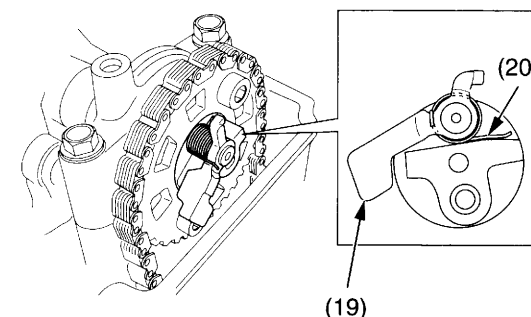
NOTICE

Do not let the bolts fall into the crankcase.



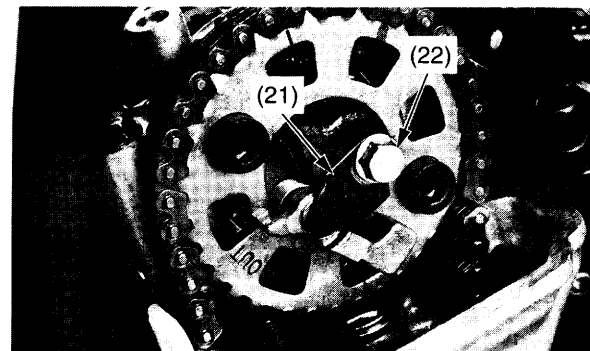
(18) cam sprocket bolts

10. Install the decompressor weight (19) and return spring (20) as illustrated below.



(19) decompressor weight
(20) return spring

11. Clean and apply locking agent to the bolt threads (coating width: 6.5 ± 1 mm (0.26 ± 0.04 in) from tip).
12. Install the stopper plate (21) and tighten the bolt (22) to the specified torque:
10 N·m (1.0 kgf·m, 7 lbf·ft)

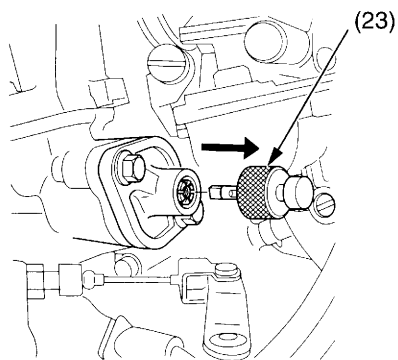


(21) stopper plate
(22) bolt

(cont'd)

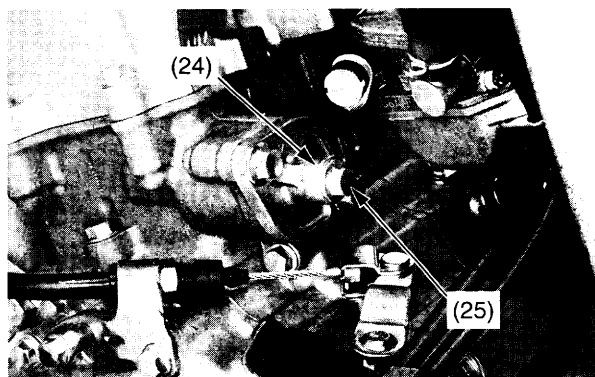
Valve Clearance

13. Remove the tensioner stopper (23) from the cam chain tensioner lifter.



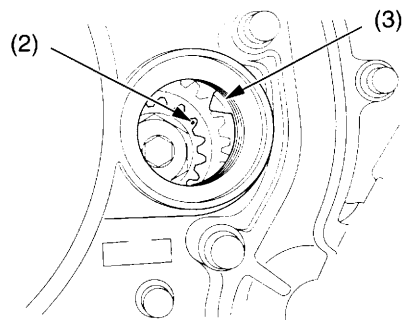
(23) tensioner stopper

14. Install a new sealing washer (24) and tighten the cam chain tensioner lifter cover bolt (25).



(24) sealing washer
(25) cam chain tensioner lifter cover bolt

15. Rotate the primary drive gear bolt (crankshaft) clockwise two turns and align the punch mark (2) with the index mark (3).



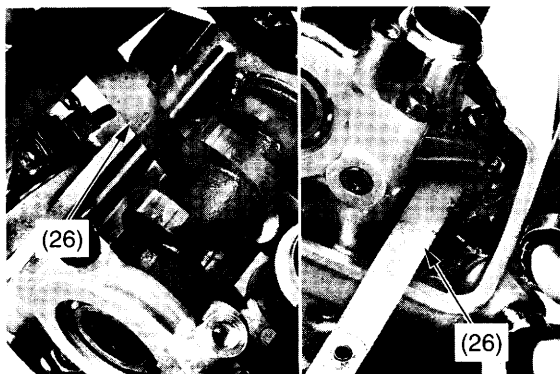
(2) punch mark
(3) index mark

16. Measure the intake valve clearance and exhaust valve clearance by inserting a feeler gauge (26).

Valve Clearance:

IN: 0.16 ± 0.03 mm (0.006 ± 0.001 in)

EX: 0.26 ± 0.03 mm (0.010 ± 0.001 in)



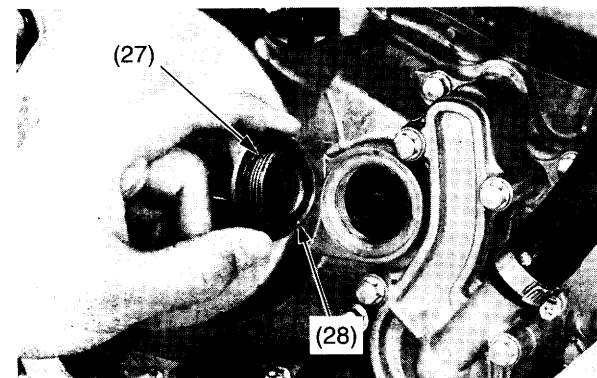
(26) feeler gauge

17. Coat a new O-ring (27) with oil and install it onto the crankshaft hole cap (28).

Apply grease to the crankshaft hole cap threads.

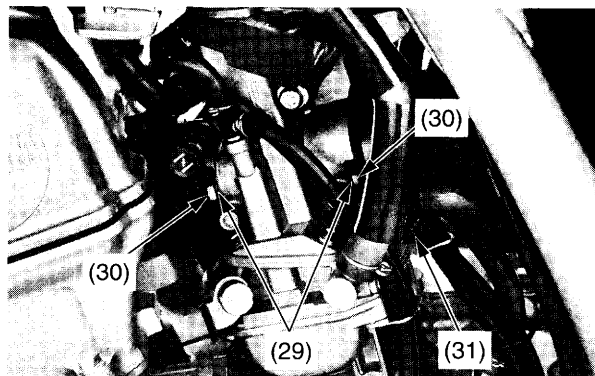
Install and tighten the crankshaft hole cap to the specified torque:

15 N·m (1.5 kgf·m, 11 lbf·ft)

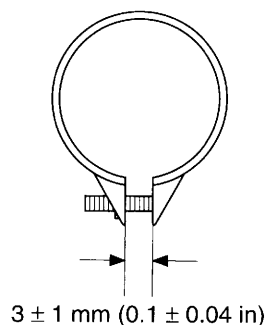


(27) O-ring
(28) crankshaft hole cap

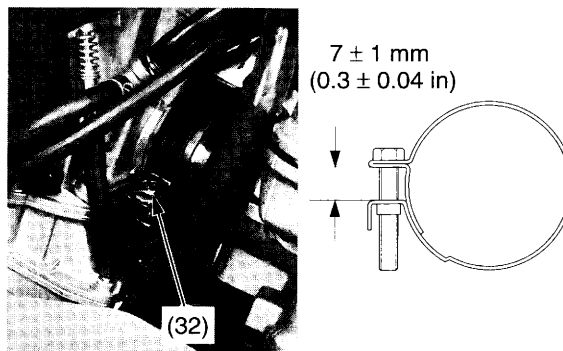
18. Rotate the carburetor and align the tabs (29) on the carburetor with the grooves (30) on the insulator and connecting tube.
19. Tighten the connecting tube clamp screw (31) so the gap between the tabs of the clamp is 3 ± 1 mm (0.1 ± 0.04 in).



(29) tabs
(30) grooves
(31) connecting tube clamp screw



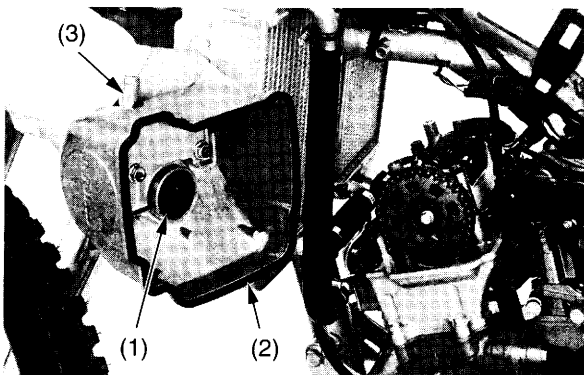
20. Tighten the insulator band screw (32) so the gap between the tabs of the clamp is 7 ± 1 mm (0.3 ± 0.04 in).



(32) insulator band screw

Cylinder Head Cover Installation

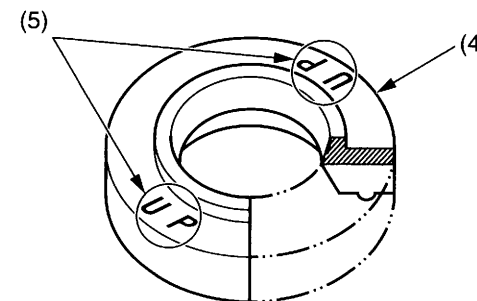
1. Check the spark plug hole packing (1) is in good condition, replace it if necessary. Apply oil to the spark plug hole packing. Install the spark plug hole packing to the cylinder head cover.
2. Inspect the cylinder head cover packing (2) for damage or deterioration, replace it if necessary. Install the cylinder head cover packing into the groove of the cylinder head cover (3).



(1) spark plug hole packing
(2) cylinder head cover packing
(3) cylinder head cover

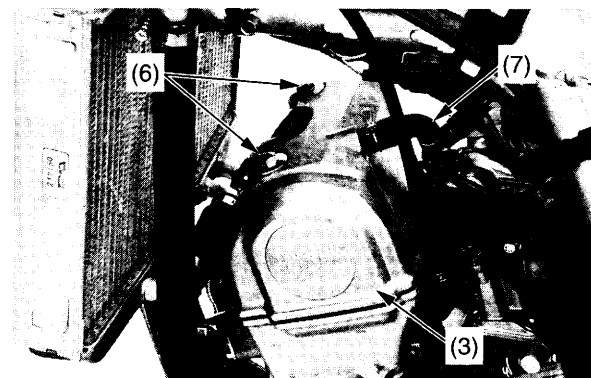
3. Check the rubber seal (4) is in good condition, replace them if necessary.

Install the rubber seals onto the cylinder head cover with their "UP" marks (5) facing up.



(4) rubber seal
(5) "UP" marks

4. Install the cylinder head cover (3) and tighten the cylinder head cover bolts (6) to the specified torque:
 10 N·m (1.0 kgf·m, 7 lbf·ft)
5. Connect the breather tube (7).



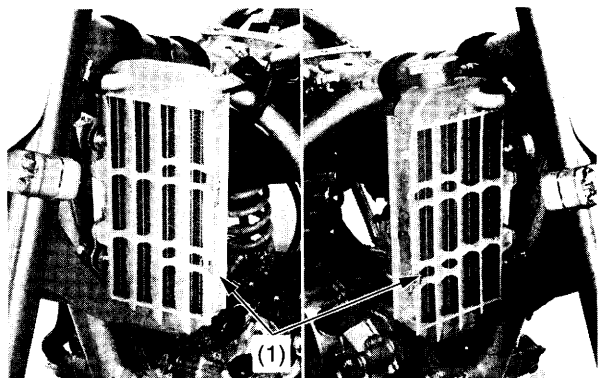
(3) cylinder head cover
(6) cylinder head cover bolts
(7) breather tube

6. Install the spark plug (page 52).
7. Install the fuel tank and the seat (pages 29, 31).

Piston/Piston Rings/Piston Pin

Cylinder Head Removal

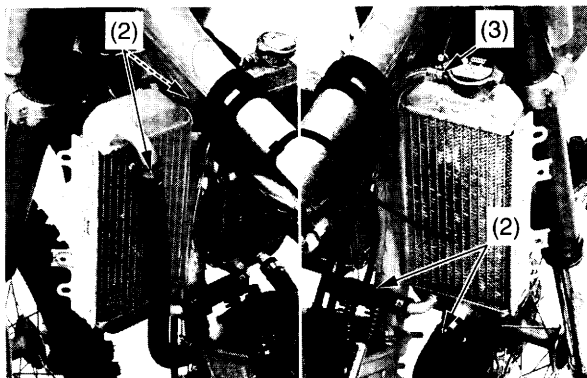
1. Clean the area above the engine before removal to prevent dirt falling into the engine.
2. Drain the radiator coolant after cooling the motorcycle (page 42).
3. Remove the seat and fuel tank (pages 29, 30).
4. Remove the carburetor (page 112).
5. Remove the exhaust pipe (page 87).
6. Remove the spark plug (page 52).
7. Remove the cylinder head cover (page 53).
8. Remove the camshaft holder assembly (page 55).
9. Remove the radiator grills (1).



(1) radiator grills

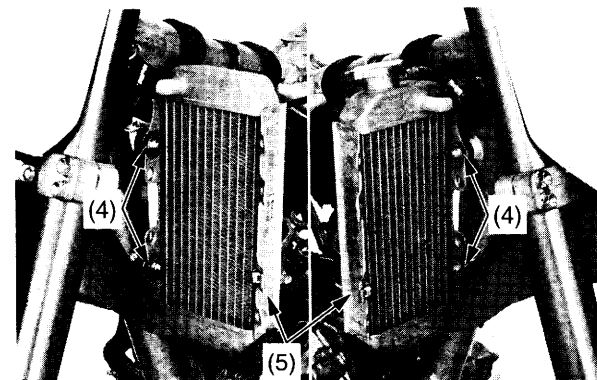
10. Loosen the water hose clamp screws and disconnect the water hoses (2).
11. Disconnect the radiator overflow hose (3).

- Note the direction of the hose clamp.
- Be careful not to damage the radiator core.



(2) water hoses
(3) radiator overflow hose

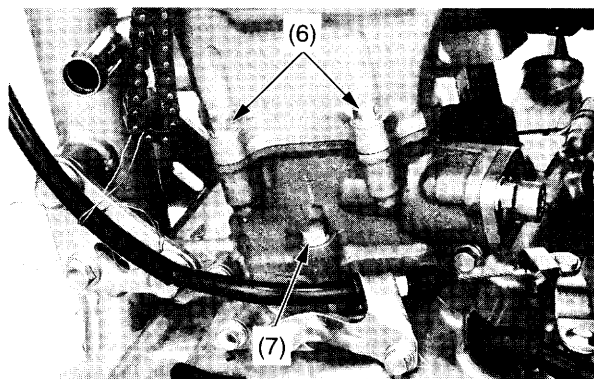
12. Remove the radiator mounting bolts/washers (4) and radiators (5).



(4) radiator mounting bolts/washers
(5) radiators

13.Remove the cylinder head bolts (6).

14.Loosen the cylinder bolt (7).



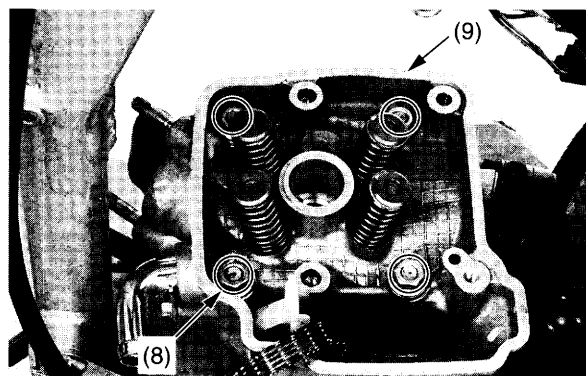
(6) cylinder head bolts
(7) cylinder bolt

15.Remove the cylinder head nuts/washers (8) and cylinder head (9).

Loosen the nuts in a crisscross pattern in two or three steps.

NOTICE

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

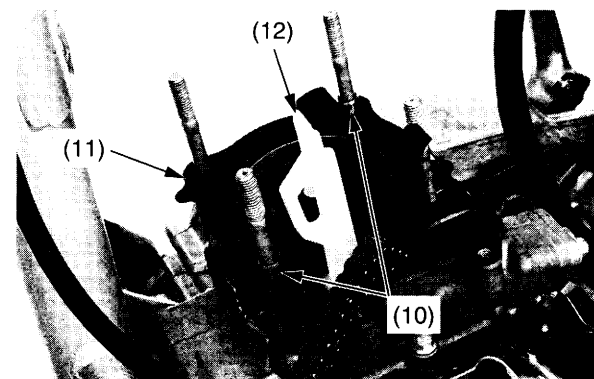


(8) cylinder head nuts/washers
(9) cylinder head

16.Remove the dowel pins (10), cylinder head gasket (11) and cam chain guide (12).

NOTICE

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



(10) dowel pins
(11) cylinder head gasket
(12) cam chain guide

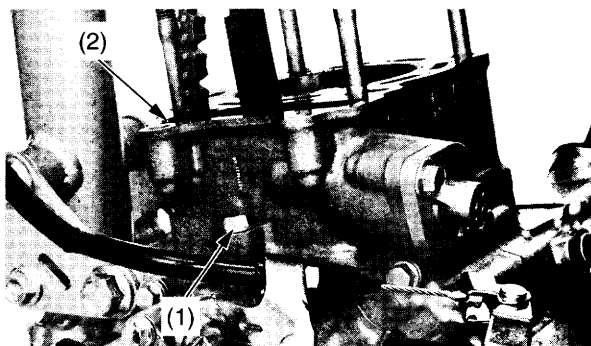
Piston/Piston Rings/Piston Pin

Cylinder Removal

1. Remove the cylinder bolt (1) and cylinder (2).

NOTICE

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

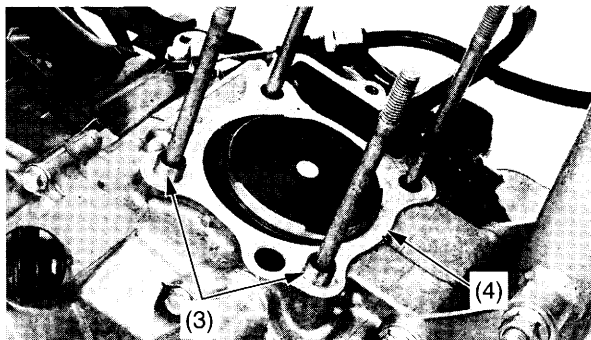


(1) cylinder bolt
(2) cylinder

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

NOTICE

Do not let the dowel pins fall into the crankcase.

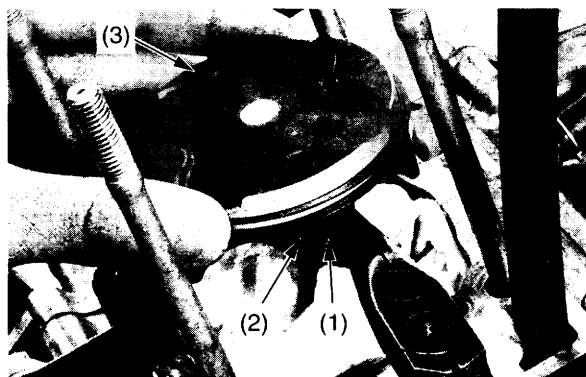


(3) dowel pins
(4) cylinder gasket

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 should be replaced after 15.0 hours of running. Replace the piston pin after 15.0 hours of running.



(1) piston pin clip
(2) piston pin

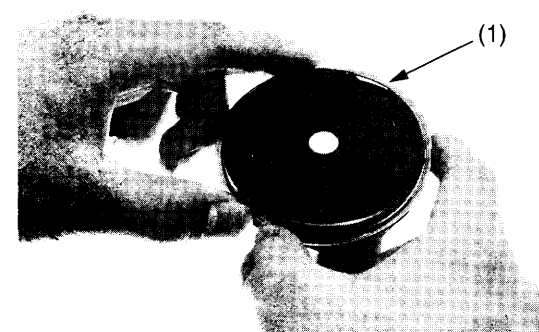
(3) piston

Piston Ring Removal

Spread each piston ring (1) and remove by lifting it up at a point just opposite the gap. Under racing conditions, the piston rings should be replaced after 15.0 hours of running.

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 Shop Manual or your Honda dealer for correct Service Limit measurements.

Piston Ring Installation

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



(1) removed ring

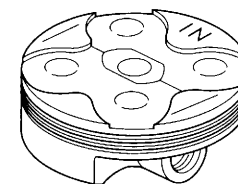
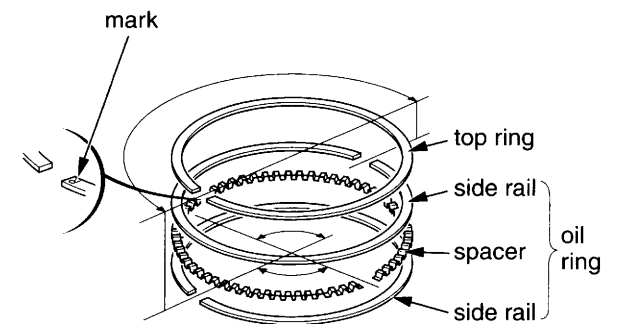
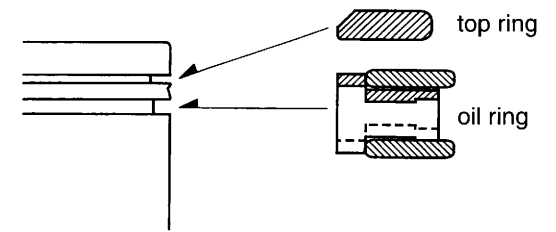
2. Apply engine oil to piston rings and install them.

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/Piston Rings/Piston Pin

Piston Installation

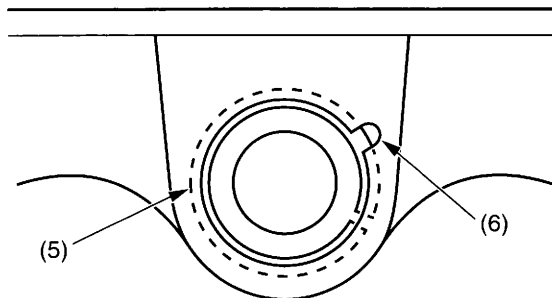
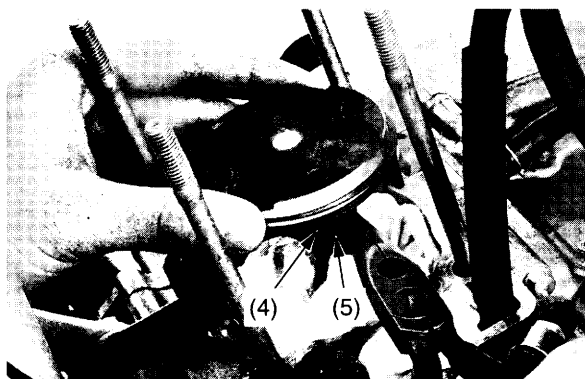
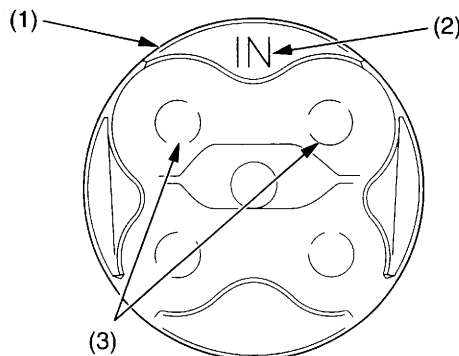
1. Place clean shop towels over the crankcase opening to keep the piston pin clips from falling into the crankcase.
2. Apply molybdenum disulfide oil (a mixture of 1/2 engine oil and 1/2 molybdenum disulfide grease containing more than 3% molybdenum disulfide additive) to the inner surface of the connecting rod small end.
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) and inner surface of the piston pin hole. 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).



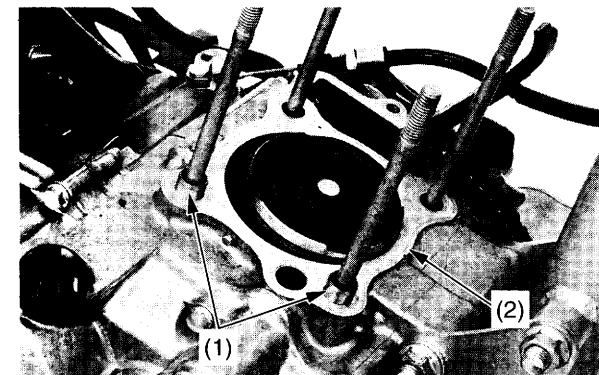
- | | |
|--------------------------|---------------------|
| (1) piston | (4) piston pin |
| (2) "IN" mark | (5) piston pin clip |
| (3) large valve recesses | (6) piston cut-out |

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 a new cylinder gasket (2).

NOTICE

Do not let the dowel pins fall into the crankcase.



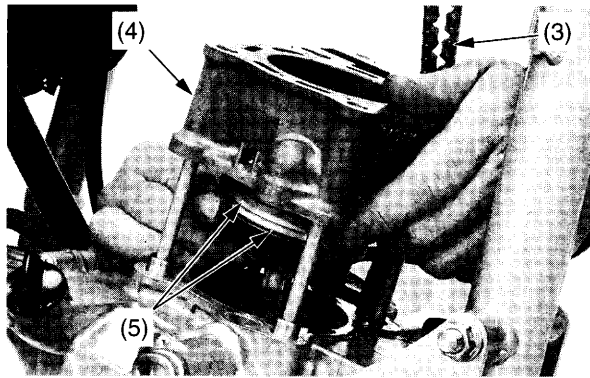
- (1) dowel pins
(2) cylinder gasket

4. Clean any gasket material off the cylinder.

5. Apply clean 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).

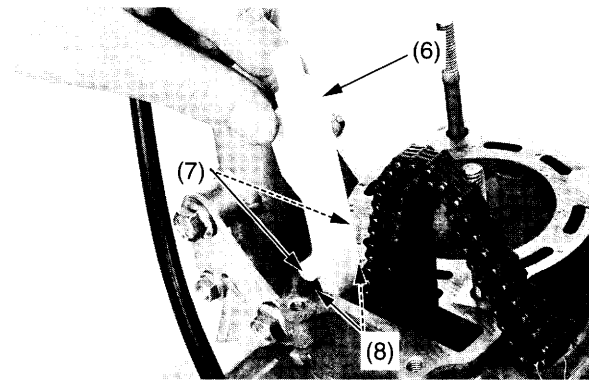
NOTICE

Do not damage the piston rings and cylinder wall.



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

6. Install the cam chain guide (6) and fit the cam chain guide tabs (7) in the cylinder cut-outs (8). Push the guide until it bottoms in the crankcase guide hole.



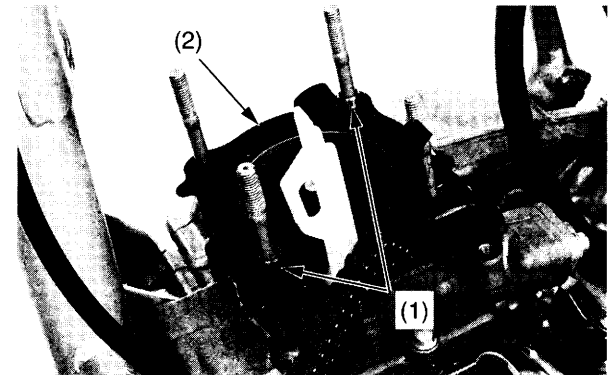
(6) cam chain guide
(7) cam chain guide tabs
(8) cylinder cut-outs

Cylinder Head Installation

1. Install the dowel pins (1) and a 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)

Piston/Piston Rings/Piston Pin

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

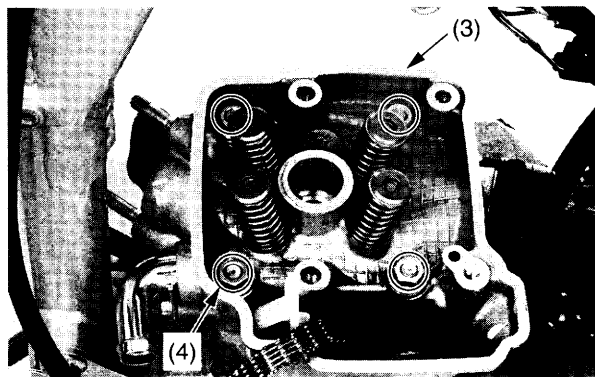
NOTICE

Do not damage mating surfaces when installing the cylinder head.

3. Apply engine oil to the cylinder head nut threads.
Install the washers and cylinder head nuts (4).
Tighten the cylinder head nuts in a crisscross pattern in two or three steps. to the specified torque:
29 N·m (3.0 kgf·m, 21 lbf·ft)

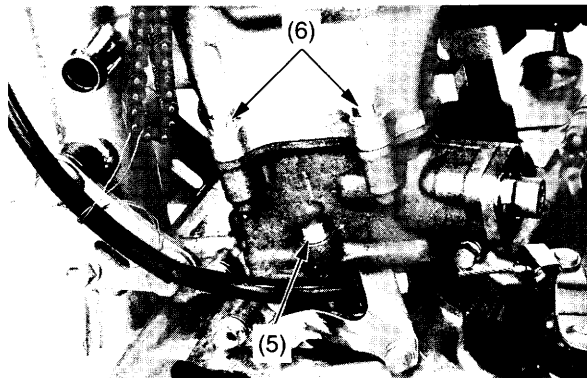
NOTICE

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



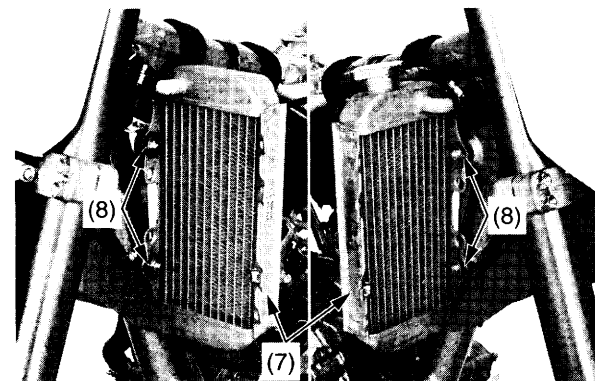
(3) cylinder head
(4) cylinder head nuts/washers

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



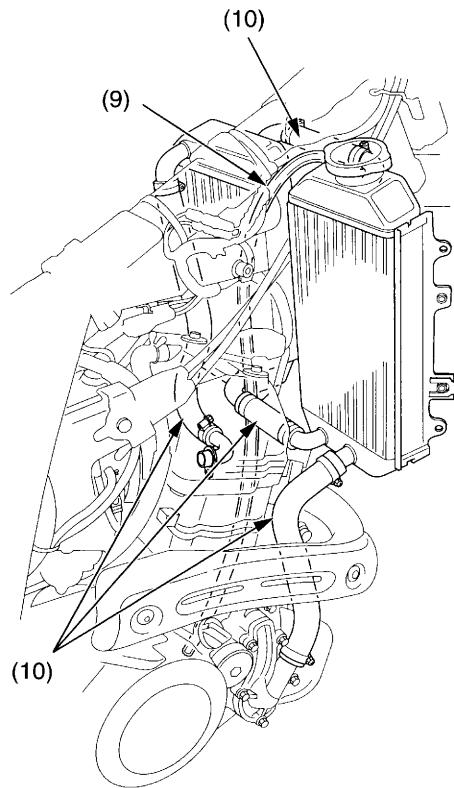
(5) cylinder bolt
(6) cylinder head bolts

5. Install the radiators (7) and tighten the radiator mounting bolts/washers (8).



(7) radiators
(8) radiator mounting bolts/washers

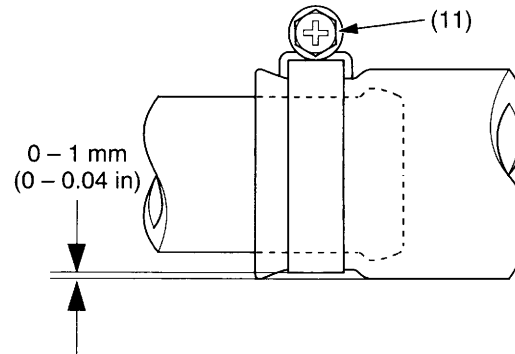
6. Connect the radiator overflow hose (9).
7. Connect the water hoses (10).



(9) radiator overflow hose
(10) water hoses

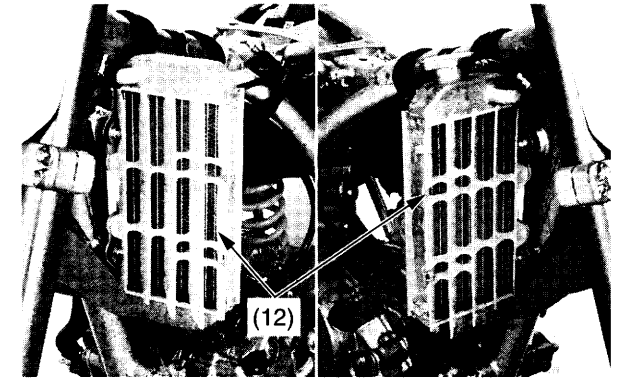
8. Tighten the hose clamp screws (11) as illustrated below.

- Route the hoses correctly.
- Be careful not to damage the radiator core.



(11) hose clamp screw

9. Install the radiator grills (12).



(12) radiator grills

10. Install the camshaft holder assembly (page 58).
11. Install the cylinder head cover (page 61).
12. Install the spark plug (page 52).
13. Install the exhaust pipe (page 87).
14. Install the carburetor (page 116).
15. Install the fuel tank (page 31) and seat (page 29).
16. Pour a fresh recommended coolant mixture (page 41).

Check for the following:

- compression leaks
- abnormal engine noise
- secondary air leaks
- coolant leaks

Suspension

Refer to *Safety Precautions* on page 19.

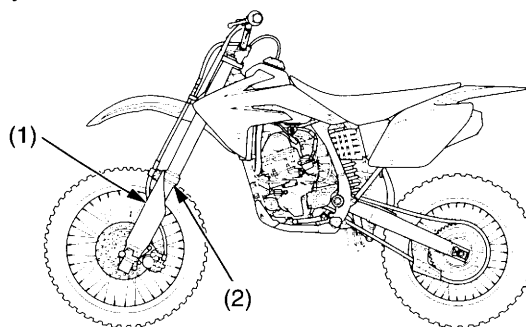
Loose, worn, or damaged suspension components may adversely affect the handling and stability of your CRF. If any suspension components appear worn or damaged, see your Honda dealer for further inspection. Your dealer is qualified to determine whether or not replacement parts or repairs are needed.

Front Suspension Inspection

- When your CRF is new, break it in for approximately 1 hour to ensure that the suspension has worked in (page 16).
- 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 94 for fork disassembly.
- Replace the fork oil every 3 races or 7.5 hours of running. See pages 73, 74 for oil level adjustment after changing the fork oil.
- Use Honda ULTRA CUSHION OIL SPECIAL 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 107). Make all rebound and compression damping adjustments in one-click or 1/4 turn increments. (Adjusting two or more clicks, or 1/2 or more turns 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.

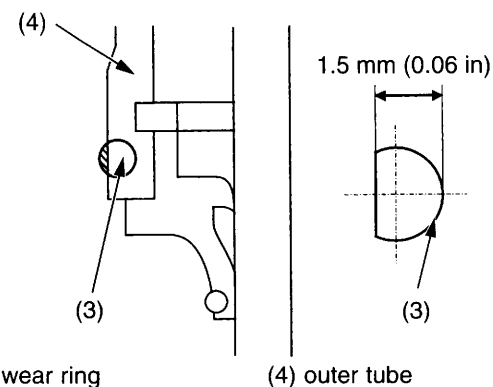
1. Make sure that the fork protectors (1) and dust seals (2) are clean and not packed with mud and dirt.
2. Check for signs of oil leakage. Damaged or leaking fork seals should be replaced before your CRF is ridden.



(1) fork protector

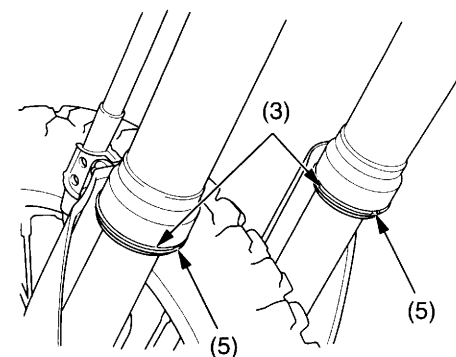
(2) dust seal

3. Inspect the wear rings (3) for wear or damage. Replace the wear ring if it is 1.5 mm (0.06 in) or flat with the outer tube (4). Remove the fork leg when replacing the wear ring (page 94). Install the wear ring with its end gap (5) facing rearward.



(3) wear ring

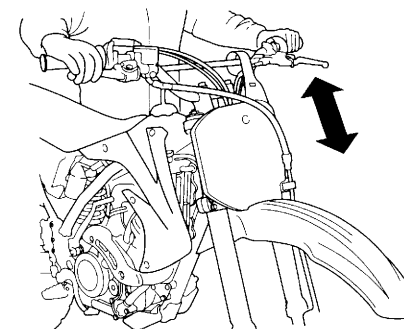
(4) outer tube



(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

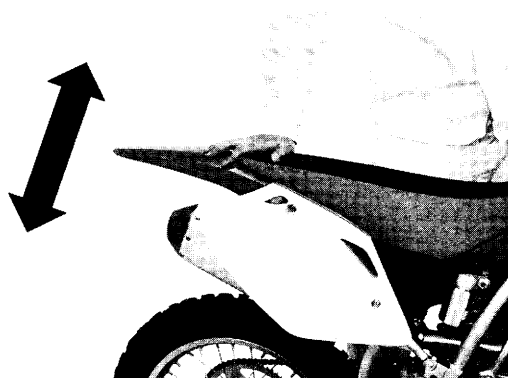
The swingarm is controlled by one hydraulic shock absorber with an aluminum reservoir for oil and nitrogen gas pressure. The gas pressure in the reservoir is contained within a rubber bladder.

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 104, 106, 107).

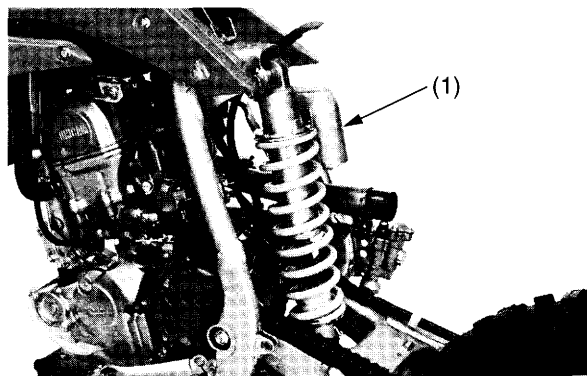
Do not attempt to disassemble, service, or dispose of the damper; see your Honda dealer. The instructions found in this owner's manual are limited to adjustments of the shock assembly only.

- 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 107). Make all compression and rebound damping adjustments in 1/4 turn increments (Adjusting 1/2 or more 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 both the compression and rebound damping adjusters in 1/4 turn increments until the suspension feels approximately "right." (Turning just one adjuster, rather than both, may cause a loss of balance between compression and rebound damping.) After adjusting both adjusters simultaneously, suspension may be fine-tuned by turning either the compression or rebound damping adjuster in 1/4 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. Remove the subframe (page 32).
3. Check for a broken or collapsed spring.
4. Check the rear shock absorber (1) for a bent rod or oil leaks.



(1) rear 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 Honda dealer.

Suspension

Recommended Fork Oil

viscosity (weight)	5 W
suggested oil	Honda ULTRA CUSHION OIL SPECIAL or equivalent

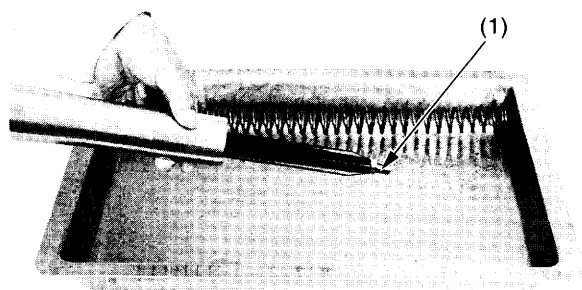
Fork Oil Change

1. Remove the fork cap, and fork spring as described in Front Suspension Oil Level (page 94).
2. Pour out the fork oil by pumping the fork tube and piston rod (1) eight - ten times with the rod end down as shown.

Pour the drained oil into a suitable container and dispose of it in an approved manner (page 130).

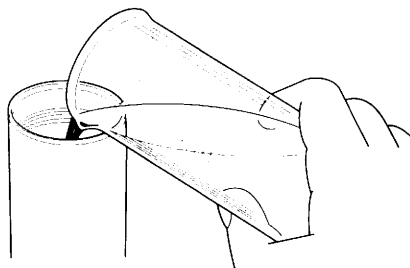
NOTICE

Improper disposal of drained oil is harmful to the environment.

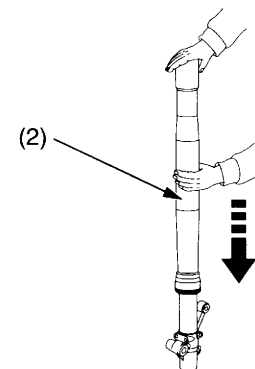


(1) piston rod

3. Pour half of the recommended fork oil into the fork slider and fork tube.

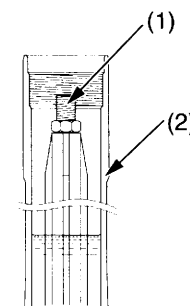


4. Raise the fork tube (2) and cover the top of the tube with your hand. Compress the fork tube fully, then release your hand. Use your other hand to secure the fork tube. Repeat this procedure three times.

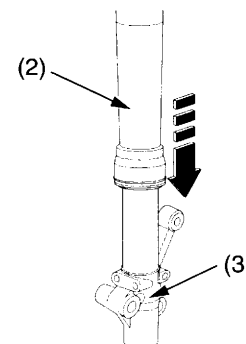


(2) fork tube

5. Pour the remaining fork oil into the piston rod until a little oil flows out of the top of the rod. Pump the piston rod slowly eight - ten times through a stroke of 25 cm (10 in). Gently slide the fork tube down onto the lower end of the slider pipe (3). Wait about 5 minutes.

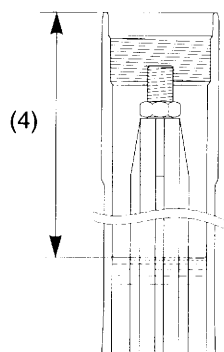


(1) piston rod
(2) fork tube



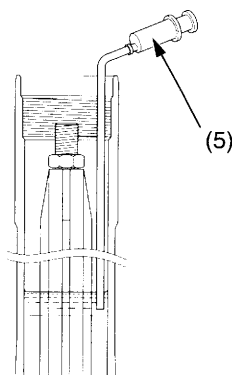
(3) lower end of the slider pipe

6. With the fork tube held upright, measure the oil level (4) from the top of the tube.



(4) oil level

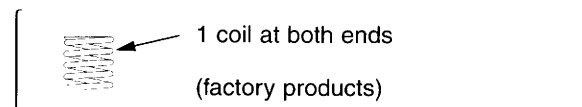
7. Adjust the oil level by adding or removing the oil with an after market syringe (5).



(5) syringe

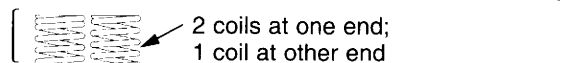
Fork Oil Level (CRF150R)

Standard 0.34 kgf/mm (19.0 lbf/in) Fork Spring



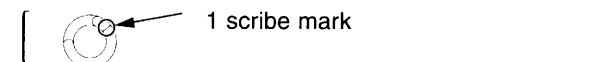
Standard oil level [capacity]	123.0 mm 4.84 in [357.0 cm ³ (12.07 US oz, 12.57 Imp oz)]	
Maximum oil level [capacity]	123.0 mm 4.84 in [357.0 cm ³ (12.07 US oz, 12.57 Imp oz)]	Slightly stiffer as it nears full compression.
Minimum oil level [capacity]	189.0 mm 7.44 in [303.7 cm ³ (10.27 US oz, 10.69 Imp oz)]	Slightly softer as it nears full compression.

Optional Softer 0.32 kgf/mm (17.9 lbf/in) Fork Spring



Standard oil level [capacity]	127.7 mm 5.03 in [353.2 cm ³ (11.95 US oz, 12.43 Imp oz)]	
Maximum oil level [capacity]	127.7 mm 5.03 in [353.2 cm ³ 11.95 US oz, 12.43 Imp oz)]	Slightly stiffer as it nears full compression.
Minimum oil level [capacity]	193.7 mm 7.63 in [299.9 cm ³ (10.14 US oz, 10.56 Imp oz)]	Slightly softer as it nears full compression.

Optional Stiffer 0.36 kgf/mm (20.2 lbf/in) Fork Spring



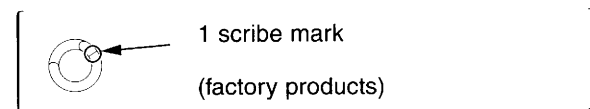
Standard oil level [capacity]	128.3 mm 5.05 in [352.7 cm ³ (11.93 US oz, 12.42 Imp oz)]	
Maximum oil level [capacity]	128.3 mm 5.05 in [352.7 cm ³ (11.93 US oz, 12.42 Imp oz)]	Slightly stiffer as it nears full compression.
Minimum oil level [capacity]	194.3 mm 7.65 in [299.4 cm ³ (10.13 US oz, 10.54 Imp oz)]	Slightly softer as it nears full compression.

(cont'd)

Suspension

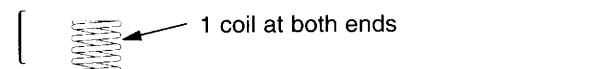
Fork Oil Level (CRF150RB)

Standard 0.36 kgf/mm (20.2 lbf/in) Fork Spring



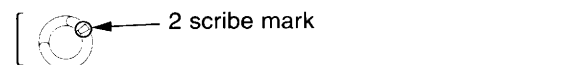
Standard oil level [capacity]	141.0 mm 5.55 in [342.0 cm ³ (11.57 US oz, 12.04 Imp oz)]	
Maximum oil level [capacity]	131.0 mm 5.16 in [350.1 cm ³ (11.84 US oz, 12.32 Imp oz)]	Slightly stiffer as it nears full compression.
Minimum oil level [capacity]	193.7 mm 7.63 in [299.4 cm ³ (10.13 US oz, 10.54 Imp oz)]	Slightly softer as it nears full compression.

Optional Softer 0.34 kgf/mm (19.0 lbf/in) Fork Spring



Standard oil level [capacity]	135.7 mm 5.34 in [346.3 cm ³ (11.71 US oz, 12.19 Imp oz)]	
Maximum oil level [capacity]	125.7 mm 4.95 in [354.4 cm ³ (11.99 US oz, 12.47 Imp oz)]	Slightly stiffer as it nears full compression.
Minimum oil level [capacity]	188.4 mm 7.42 in [303.7 cm ³ (10.27 US oz, 10.69 Imp oz)]	Slightly softer as it nears full compression.

Optional Stiffer 0.38 kgf/mm (21.3 lbf/in) Fork Spring



Standard oil level [capacity]	137.9 mm 5.43 in [344.5 cm ³ (11.65 US oz, 12.13 Imp oz)]	
Maximum oil level [capacity]	127.9 mm 5.04 in [352.6 cm ³ (11.92 US oz, 12.41 Imp oz)]	Slightly stiffer as it nears full compression.
Minimum oil level [capacity]	190.6 mm 7.50 in [301.9 cm ³ (10.21 US oz, 10.63 Imp oz)]	Slightly softer as it nears full compression.

Be sure to check the oil level. Some oil will be left in the fork tube when the oil is drained and causes the oil level to be raised slightly.

Be sure the oil level is the same in both fork legs. If a syringe is not available, first set the oil level somewhat lower than normal, then add small amounts of oil until the correct level is obtained, measuring the level each time oil is added.

8. Install the fork spring and fork cap.

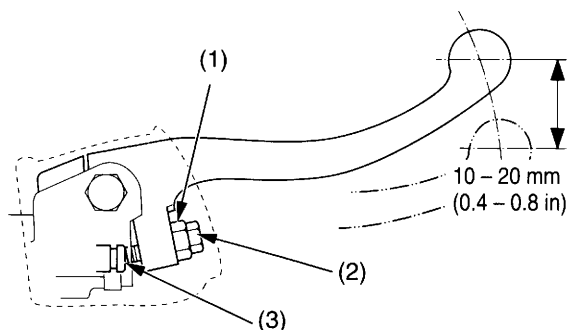
Refer to *Safety Precautions* on page 19.

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 the 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 78), there is probably air in the brake system. Refer to the Honda Shop Manual or see your Honda dealer to have the air bled from the system.

Front Brake Lever Adjustment



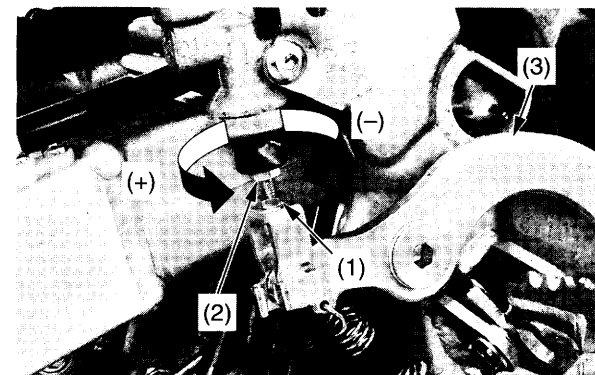
- (1) lock nut
(2) adjuster
(3) piston

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:
5.9 N·m (0.6 kgf·m, 4.4 lbf·ft)
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 front brake lever until the brake starts to engage.
Freeplay: 10 - 20 mm (0.4 - 0.8 in)
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 rear brake pedal (3) or in direction (-) to lower it.
2. Tighten the lock nut to the specified torque at the desired pedal height:
5.9 N·m (0.6 kgf·m, 4.4 lbf·ft)

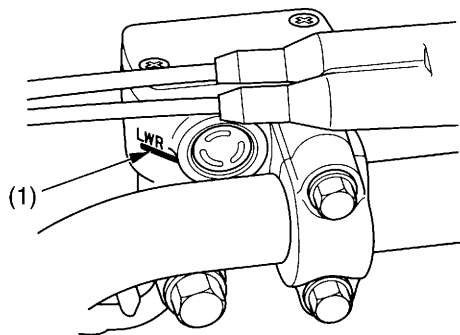


- (1) lock nut
(2) adjusting bolt
(3) rear brake pedal
(+) raise the pedal height
(-) lower the pedal height

Brakes

Fluid Level Inspection

Front Brake Fluid Level Check



(1) LWR mark

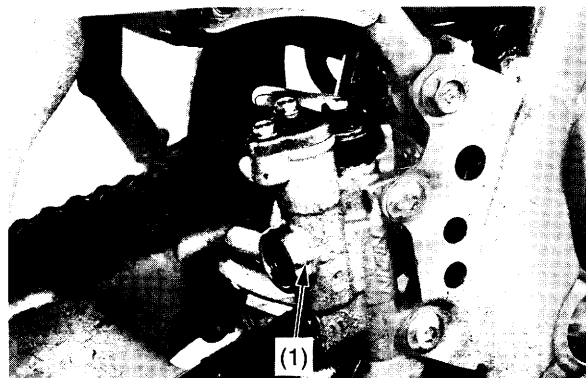
With the motorcycle in an upright position, check the fluid level.

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 78).

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 20 mm (0.8 in), there is probably air in the brake system and it must be bled. Refer to the Honda Shop Manual or see your Honda 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 78).

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

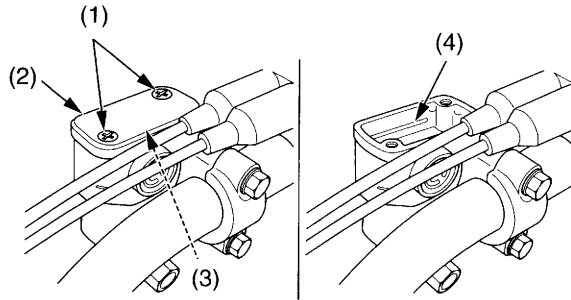
If the brake pedal freeplay exceeds 30 mm (1.2 in), there is probably air in the brake system and it must be bled. Refer to the Honda Shop Manual or see your Honda dealer for brake bleeding.

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 DOT 4 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 DOT 4 brake fluid or an equivalent.



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

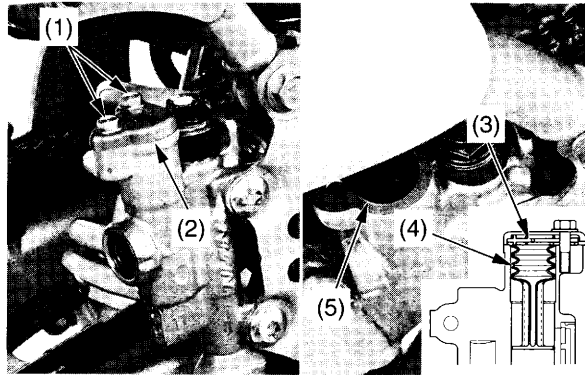
1. Remove the front brake reservoir cap screws (1), reservoir cap (2) and diaphragm (3).
2. Fill the reservoir with DOT 4 brake fluid to the upper level mark (4). Do not overfill.
3. Install the diaphragm and reservoir cap.
4. Tighten the front brake reservoir cap screws to the specified torque:
1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)

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 DOT 4 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 DOT 4 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 DOT 4 brake fluid to the upper level mark (5). Do not overfill.
3. Set the diaphragm as shown.
4. Install the set plate and reservoir cap.

5. Tighten the rear brake reservoir cap bolts to the specified torque:
1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)

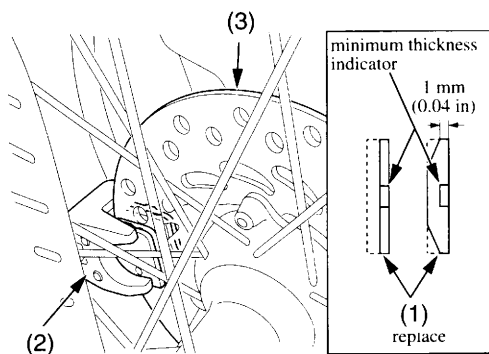
Brakes

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 (page 21).

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 1 mm (0.04 in), both pads must be replaced.

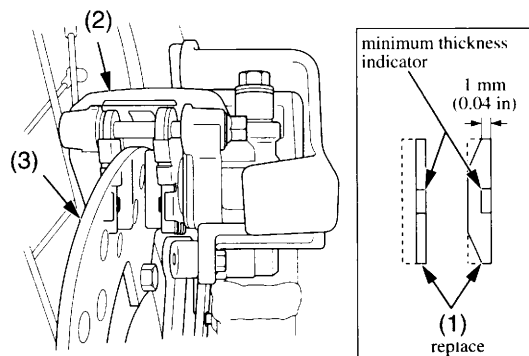


(1) brake pads
(2) front brake caliper

(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 1 mm (0.04 in), 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.

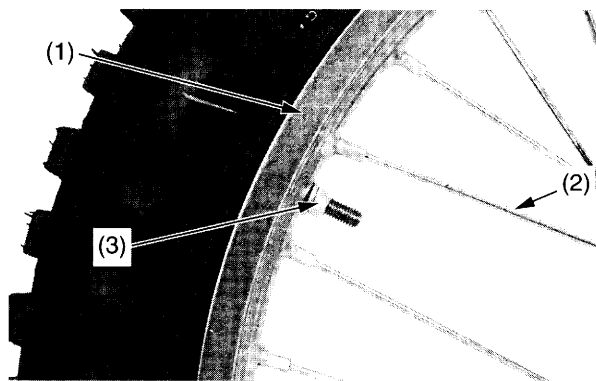
Make sure there are no fluid leaks. Check for deterioration or cracks in the hoses and fittings.

Refer to *Safety Precautions* on page 19.

Maintenance of spoke tension and wheel trueness (roundness) 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 tyre slippage.

It is not necessary to remove the wheels to perform the recommended service in the Maintenance Schedule (page 21). 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 : 3.7 N·m (0.4 kgf·m, 2.7 lbf·ft)
Rim Locks : 12.4 N·m (1.3 kgf·m, 9 lbf·ft)
3. Check wheel rim runout. If runout is noticeable, see the Honda Shop Manual for inspection instructions.

Axles & Wheel Bearings

See the Honda Shop Manual for inspection information:

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

Tyres & Tubes

Refer to *Safety Precautions* on page 19.

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

⚠ WARNING

Using tyres 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 tyre inflation and maintenance.

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

Air Pressure

Properly inflated tyres provide the best combination of handling, tread life, and riding comfort. Generally, underinflated tyres wear unevenly, adversely affect handling, and are more likely to fail from being overheated. Underinflated tyres can also cause wheel damage on hard terrain. Overinflated tyres 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 tyres are “cold.” If you check air pressure when your tyres 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 tyres to match the recommended cold pressures, the tyres will be underinflated.

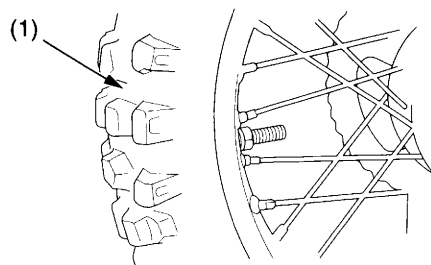
The correct “cold” tyre pressures are:

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

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

Inspection

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



(1) tyre tread depth

- Inspect carefully for bumps or bulges in the side of the tyre or the tread. Replace any tyre that has a bump or bulge.
- Look closely for cuts, slits, or cracks in the tyres. Replace a tyre if you can see fabric or cord.
- Check for rocks or other objects embedded in the tyre or tread. Remove any objects.
- Measure tread depth (1). Replace the tyre before depth at the centre reaches 3 mm (0.12 in), or any time you notice a reduction in traction.
- Check the position of both valve stems. A tilted valve stem indicates the tube is slipping inside the tyre or the tyre 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.

Tyre Replacement

The tyres 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 tyres 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 tyres recommended in this owner's manual.

CRF150R:

Front	ED, CM	70/100-17 40M	
		BRIDGESTONE	M23
U		70/100-17 40M	
		IRC	M6B
Rear	ED, CM	90/100-14 49M	
		BRIDGESTONE	M22
U		90/100-14 49M	
		IRC	M5C
Type	bias-ply, tube		

CRF150RB:

Front	70/100—19 42M	
	BRIDGESTONE	M61
Rear	90/100—16 52M	
	BRIDGESTONE	M58
Type	bias—ply, tube	

- Use a replacement tyre equivalent to the original.
- Replace the tube any time you replace a tyre. The old tube will probably be stretched and, if installed in a new tyre, could fail.

Drive Chain

Refer to *Safety Precautions* on page 19.

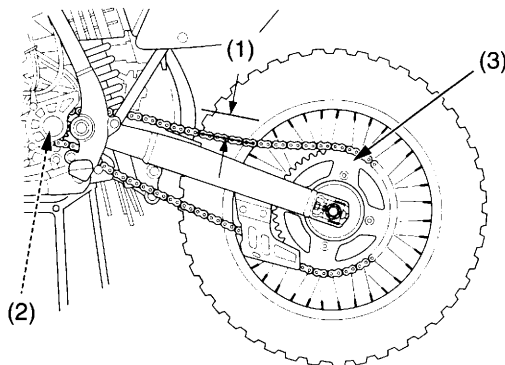
The service life of the chain depends on proper lubrication and adjustment. Poor maintenance can cause premature wear or damage to the drive chain or sprockets.

When the motorcycle is ridden on unusually dusty or muddy tracks, more frequent maintenance will be necessary.

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

Inspection

1. Turn the engine off, 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:
35 – 45 mm (1.4 – 1.8 in)



(1) drive chain slack
(2) drive sprocket

(3) driven sprocket

3. Check drive chain slack at several points along the chain. The slack should remain constant. If it isn't, some links may be kinked and binding. Lubricating the chain will often eliminate binding and kinking.

NOTICE

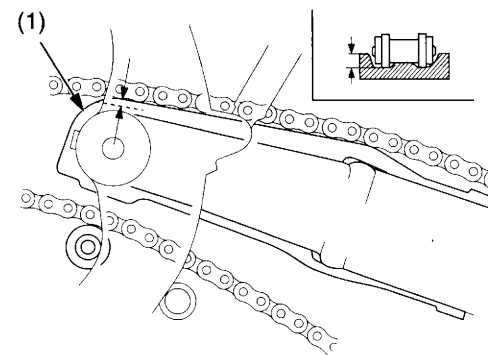
Excessive chain slack may allow the drive chain to damage the engine cases.

4. Inspect the drive chain for:
 - damaged rollers
 - loose pins
 - dry or rusted links
 - kinked or binding links
 - excessive wear

Replace the drive chain (page 84) if it has damaged rollers, loose pins, or kinks that cannot be free. Lubricate the drive chain (page 83) if it appears dry or shows signs of rust. Lubricate any kinked or binding links and work them free. Adjust chain slack if needed (page 83).

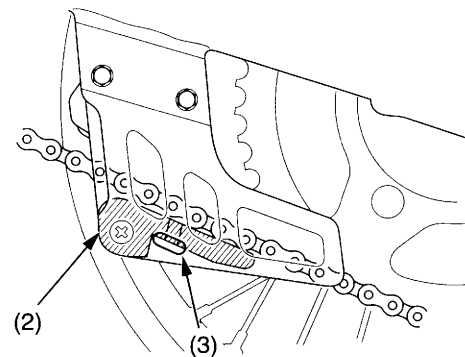
Drive Chain Sliders

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



(1) chain slider

2. Check the chain guide slider (2) for wear. Replace the chain guide slider if the chain is visible through the wear inspection window (3).

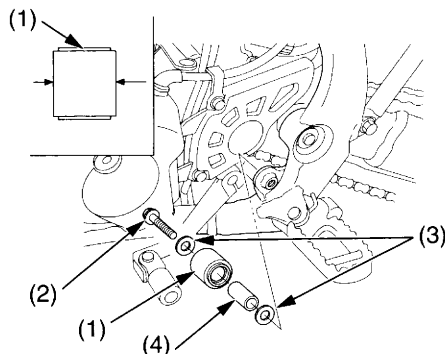


(2) chain guide slider
(3) wear inspection window

Drive Chain Rollers

1. Check the drive chain roller (1) for wear or damage.
2. Measure the outer diameter of the drive chain roller and replace it if below the service limit.
Service Limit: 18 mm (0.7 in)

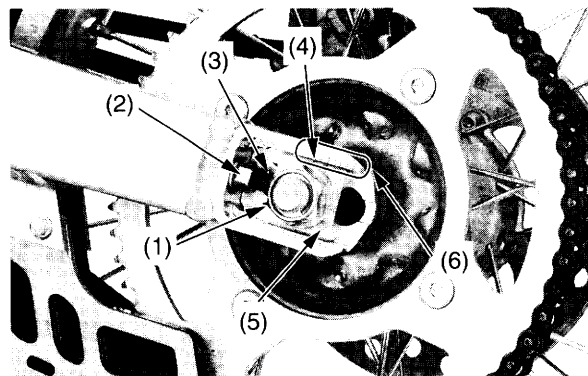
Replace the roller if necessary as follows.
Remove the bolt (2), washers (3), collar (4) and drive chain roller.
Install a new drive chain roller, collar, washers and tighten the bolt.



- (1) drive chain roller
- (2) bolt
- (3) washers
- (4) collar

Adjustment

1. Loosen the rear axle nut (1).
2. Loosen both 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.



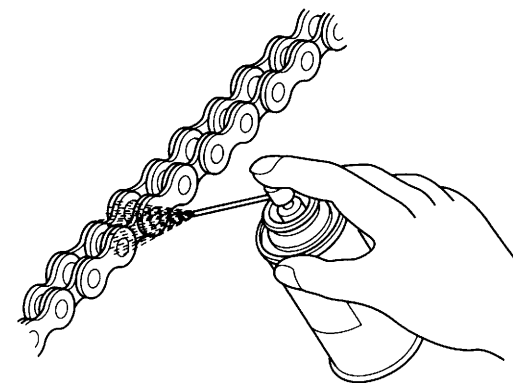
- (1) rear axle nut
- (2) chain adjuster lock nut
- (3) adjusting bolt
- (4) index mark
- (5) axle plate
- (6) reference mark

3. Tighten the rear axle nut to the specified torque:
88 N·m (9.0 kgf·m, 65 lbf·ft)
4. Recheck chain slack and adjust as necessary.
5. Turn the adjusting bolts counterclockwise lightly until it touches the axle plates lightly. Then tighten the chain adjuster lock nut to the specified torque while holding the adjusting bolts with a wrench:
27 N·m (2.8 kgf·m, 20 lbf·ft)

Lubrication

Commercially prepared drive chain lubricants may be purchased at most motorcycle shops and should be used in preference to motor oil. Chain Lube or an equivalent, or SAE 80 or 90 gear oil is recommended.

Saturate each chain joint so that the lubricant penetrates the space between adjacent surfaces of the link plates and rollers.

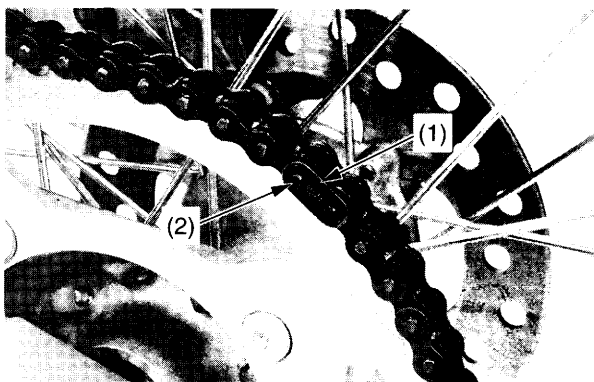


Drive Chain

Removal, Cleaning & Replacement

For maximum service life, the drive chain should be cleaned, lubricated, and adjusted before each outing.

1. Remove the master link retaining clip (1) with pliers. Do not bend or twist the clip. Remove the master link (2). Remove the drive chain.



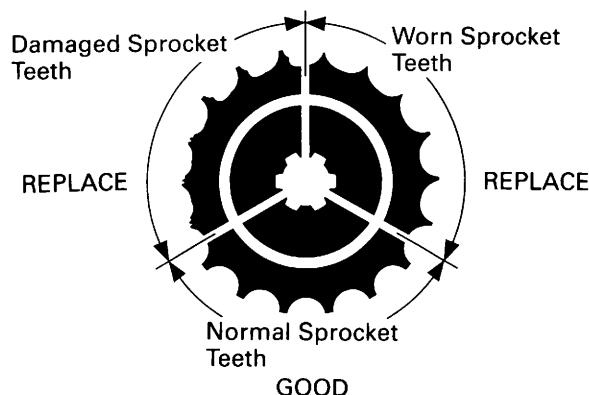
(1) master link retaining clip (2) master link

2. Clean the drive chain in high flash-point solvent and allow it to dry.
3. Inspect the drive chain for possible wear or damage. Replace the drive chain if it has damaged rollers, loose fitting links, or otherwise appears unserviceable.

Replacement chain:

	Size/link
CRF150R	DID420DS3/120
CRF150RB	DID420DS3/126

4. Inspect the sprocket teeth for wear or damage. We recommend replacing the sprocket whenever a new chain is installed. 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.

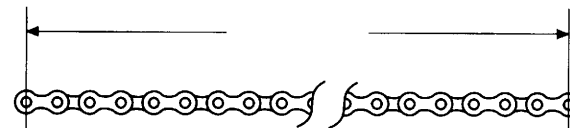


NOTICE

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

5. Measure a section of the drive chain to determine whether the chain is worn beyond its service limit. Put the transmission in gear, and then turn the rear wheel forward until the lower section of the chain is pulled taut. With the chain held taut and any kinked joints straightened, measure the distance between a span of 21 pins, from pin centre to pin centre. If the measurement exceeds the service limit, replace the chain. After the chain is measured, shift the transmission into neutral again before proceeding with inspection and service.

Service limit: 259.0 mm (10.20 in)



MEASURE A SPAN OF 21 PINS (20 PITCHES)

6. Lubricate the drive chain (page 83).
7. Pass the chain over the sprockets and join the ends of the chain with the master link. For ease of assembly, hold the chain ends against adjacent rear sprocket teeth while inserting the master link. Install the master link retaining clip so that the closed end of the clip will face the direction of forward wheel rotation.
8. Recheck chain slack and adjust as necessary.

More About Drive Chain

- The master link is the most critical element of drive chain security. Master links are reusable, as long as they remain in excellent condition. We recommend installing a new master link retaining clip when the drive chain is reassembled.
- You may find it easier to install a new chain by connecting it to the old chain with a master link and pulling the old chain to position the new chain on the sprockets.

Exhaust Pipe/Muffler Inspection

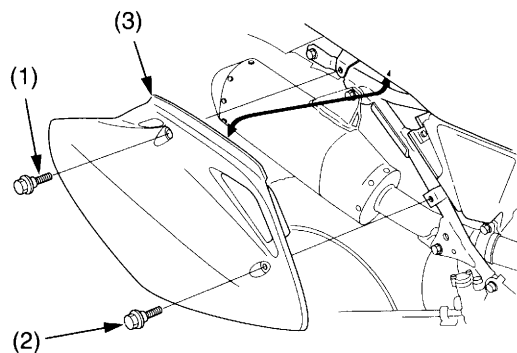
Check the mounting bolts and joint nuts for tightness.

Check the exhaust pipe and muffler for cracks or deformation.

A damaged exhaust pipe and muffler may reduce engine performance.

Muffler Removal

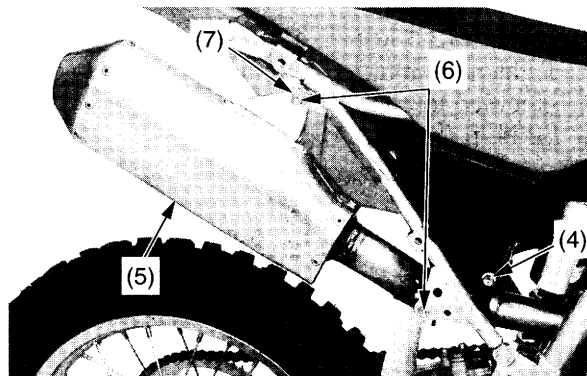
1. Remove the seat mounting bolts (1), side cover bolt (2) and right side cover (3).



- (1) seat mounting bolt
(2) side cover bolt

- (3) right side cover

2. Loosen the muffler clamp bolt (4).
3. Remove the muffler (5) by removing the muffler mounting bolts (6) and washer (7).

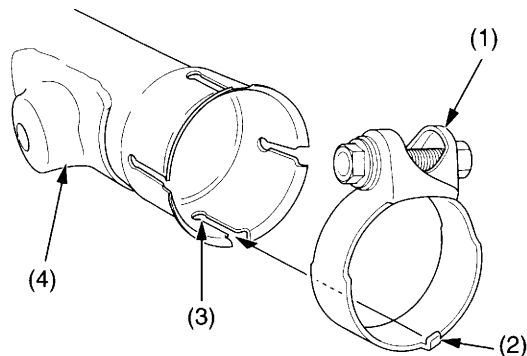


- (4) muffler clamp bolt
(5) muffler
(6) muffler mounting bolts
(7) washer

Exhaust Pipe/Muffler

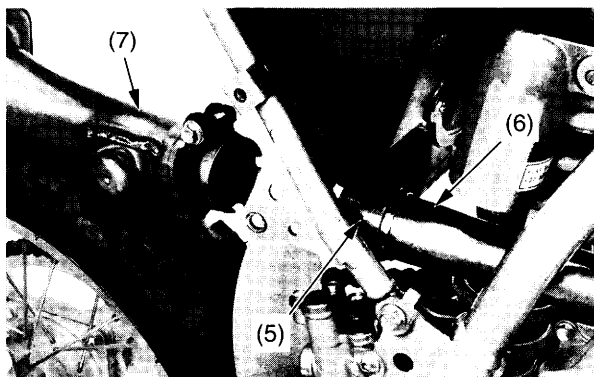
Muffler Installation

1. Remove the old gasket.
2. Install the muffler clamp (1) by aligning the tab (2) of the muffler clamp with the cut-out (3) of each muffler (4).



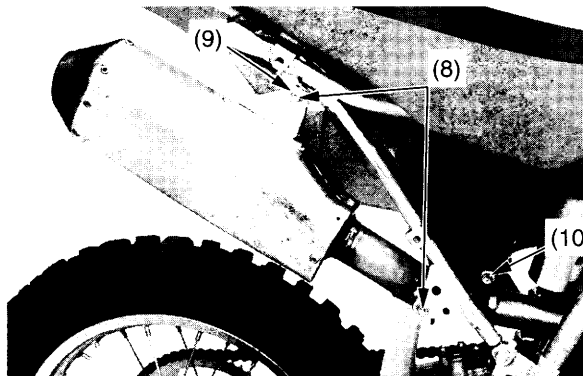
- (1) muffler clamp
(2) tab
(3) cut-out
(4) muffler

3. Install a new gasket (5) to the exhaust pipe (6).
4. Install the muffler (7) to the exhaust pipe.



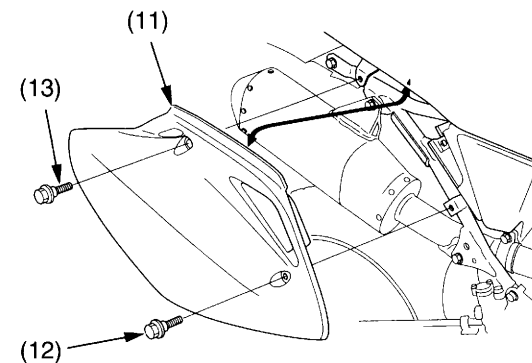
- (5) gasket (new)
(6) exhaust pipe
(7) muffler

5. Install the muffler mounting bolts (8) and washer (9).
6. Tighten the muffler clamp bolt (10) to the specified torque:
21 N·m (2.1 kgf·m, 15 lbf·ft)
7. Tighten the muffler mounting bolts (8) to the specified torque:
32 N·m (3.3 kgf·m, 24 lbf·ft)



- (8) muffler mounting bolts
(9) washer
(10) muffler clamp bolt

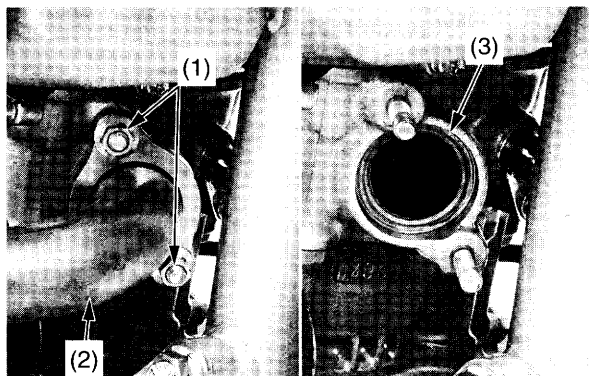
8. Install the right side cover (11) and side cover bolt (12).
9. Install the seat mounting bolts (13) and tighten them to the specified torque:
26 N·m (2.7 kgf·m, 19 lbf·ft)



- (11) right side cover
(12) side cover bolt
(13) seat mounting bolt

Exhaust Pipe Removal

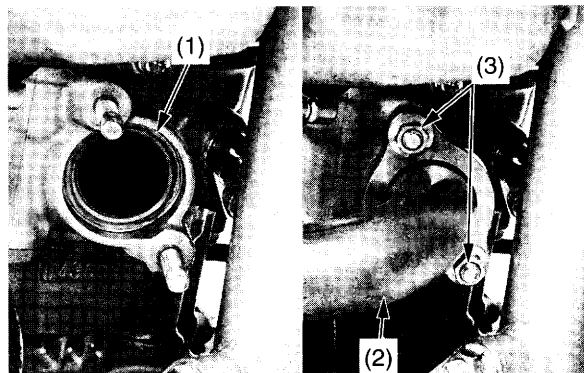
1. Remove the muffler (page 85).
2. Remove the exhaust pipe joint nuts (1), exhaust pipe (2) and old gasket (3).



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

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

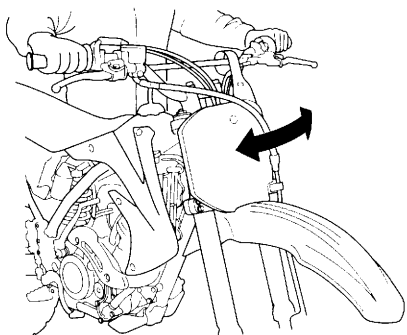
3. Install the muffler (page 86) but do not tighten the bolts yet.
4. Tighten the exhaust pipe joint nuts to the specified torque:
11 N·m (1.1 kgf·m, 8 lbf·ft)
5. Tighten the muffler clamp bolt and muffler mounting bolts (page 86).
6. Installation can be done in the reverse order of removal.

Additional Maintenance Procedures

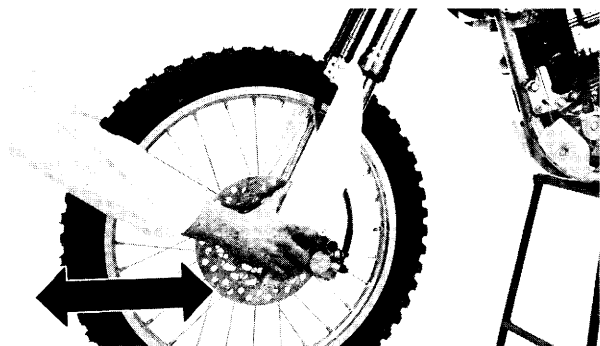
Refer to *Safety Precautions* on page 19.

Steering Head Bearings 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.

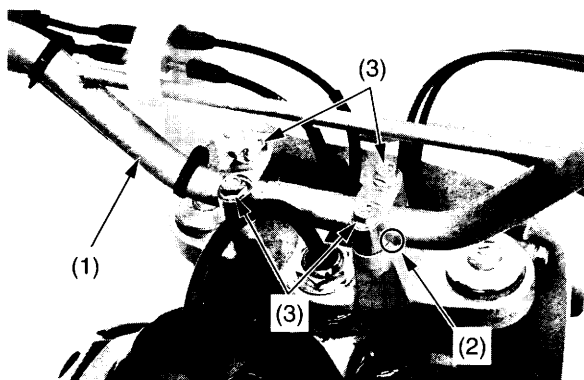


2. Stand in front of your CRF, grab the fork (at the axle), look at the steering head, and push the fork in and out (toward the engine) to check for play in the steering head bearings. If any roughness or play is felt, but you do not see any movement in the steering head, the fork bushings may be worn. Refer to the Honda Shop Manual for replacement or adjustment procedures, or see your Honda dealer.



Handlebar Inspection

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



(1) handlebar
(2) punch 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.

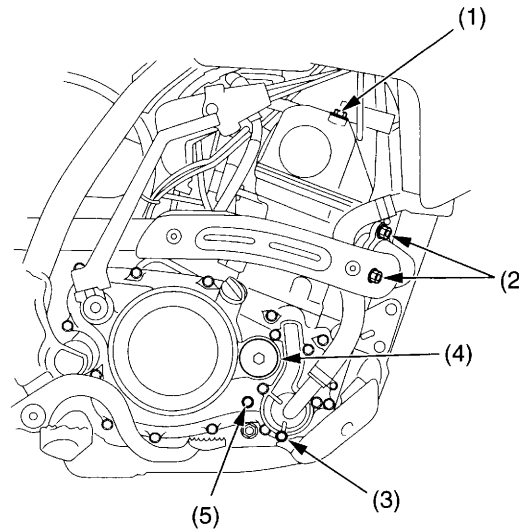
Nuts, Bolts, Fasteners

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

ENGINE

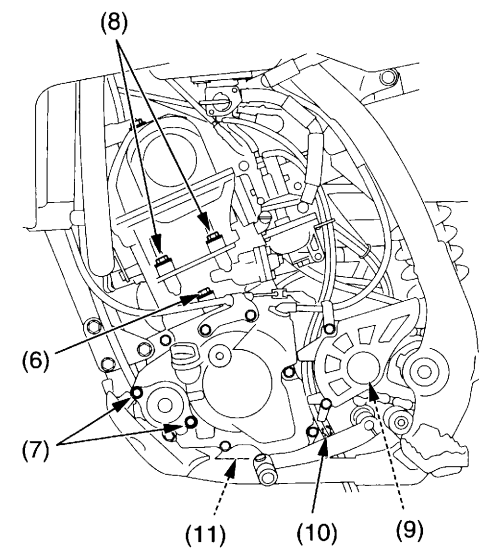
	Item	Torque		
		N•m	kgf•m	lbf•ft
1	Cylinder head cover bolts	10	1.0	7
2	Exhaust pipe joint nuts	11	1.1	8
3	Coolant drain bolt	10	1.0	7
4	Crankshaft hole cap	15	1.5	11
5	Transmission oil check bolt	10	1.0	7
6	Cylinder bolt	10	1.0	7
7	Oil filter cover bolts	10	1.0	7
8	Cylinder head bolts	10	1.0	7
9	Drive sprocket bolt	13	1.3	10
10	Transmission oil drain bolt	22	2.2	16
11	Engine oil drain bolt	22	2.2	16

RIGHT SIDE



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

LEFT SIDE



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

Appearance Care

Refer to *Safety Precautions* on page 19.

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.

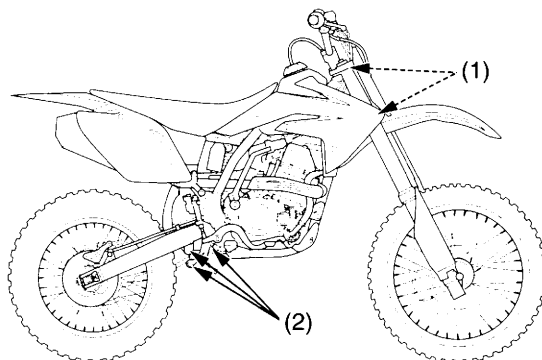
While you're cleaning, be sure to look for damage, wear, and petrol or oil leaks.

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 discolour 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
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 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 multi-surface cleaner/degreaser 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 discolour the frame surface. Muffler stain remover (Scotch-Brite Hand Pad #7447-maroon) should only be used 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.
5. Dry your CRF with a chamois or a soft towel.
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.

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.

Exhaust Pipe And Muffler Maintenance

The exhaust pipe and muffler is 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 a 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.

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.

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Front Suspension Adjustments

Refer to *Safety Precautions* on page 19.

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 level are only felt during the final 100 mm (3.9 in) of fork travel.
- **Compression damping** — Turning the compression damping screw adjusts how quickly the fork compresses.
- **Rebound damping** — Turning the rebound damping screw adjusts how quickly the fork extends.
- **Fork springs** — Optional springs are available in softer and stiffer types than the standard rate. (pages 144, 146)

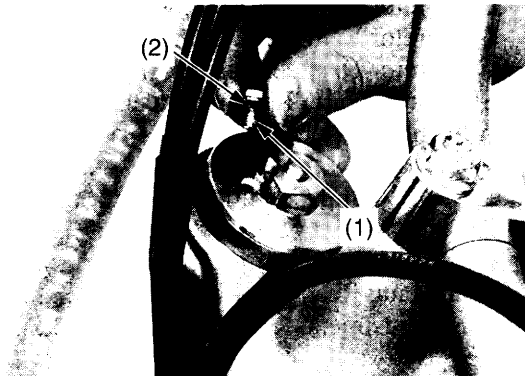
Front Suspension Air Pressure

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 heats. Be sure the fork is fully extended with the front tyre off the ground when you release the pressure.

The standard air pressure is 0 kPa (0 kgf/cm², 0 psi). 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:
1.3 N·m (0.1 kgf-m, 1.0 lbf-ft)



(1) fork air pressure release screw

(2) O-ring

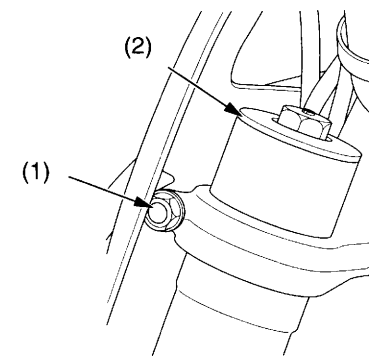
Front Suspension Oil Level

- 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 Shop Manual or your Honda dealer for this service.

1. Place your CRF on an optional workstand or equivalent support with the front wheel off the ground.
2. Loosen the fork bridge upper pinch bolts (1) (before loosening the fork caps to avoid damaging the fork caps).
3. Loosen the fork caps (2), but do not remove them yet.

NOTICE

Using an adjustable wrench to loosen the fork caps may damage them.

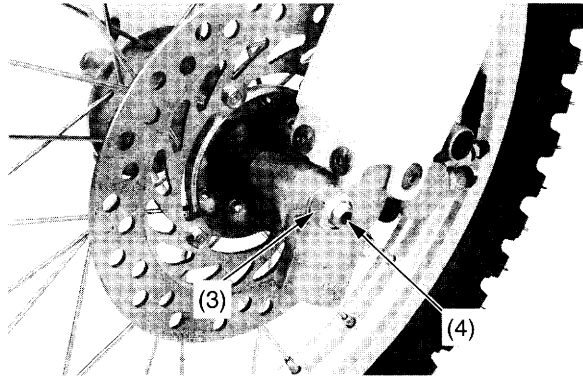


(1) fork bridge upper pinch bolt

(2) fork cap

Front Suspension Adjustments

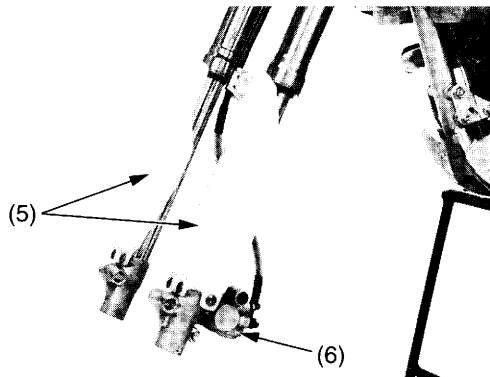
4. Remove the front axle nut (3).
5. Pull the front axle shaft (4) out of the wheel hub and remove the front wheel.



(3) front axle nut (4) front axle shaft

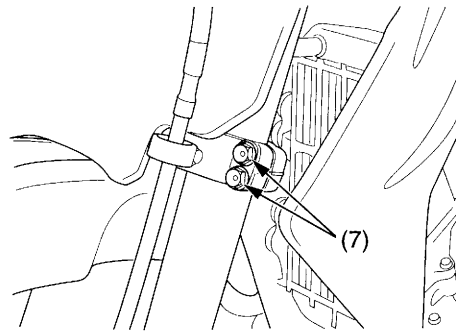
6. Remove the fork protectors (5) and brake caliper (6).

- 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.



(5) fork protectors (6) brake caliper

7. Loosen the fork bridge lower pinch bolts (7), then pull the fork legs down and out.

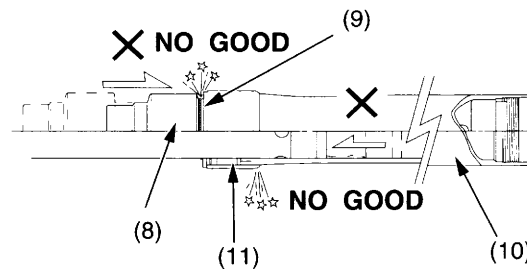


(7) fork bridge lower pinch bolts

8. Clean the fork assembly, especially the sliding surface of the slider pipe (8) and dust seal (9).

NOTICE

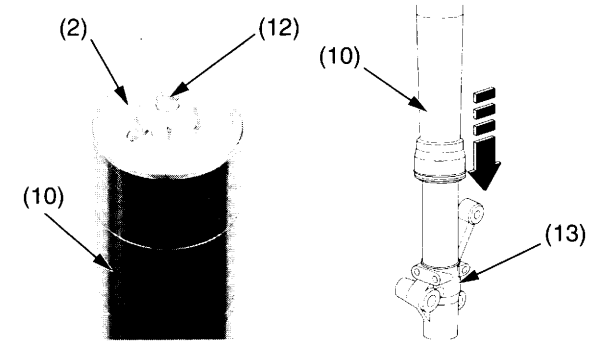
The fork tube (10) can drop on the slider and damage the fork dust seal and guide bushing (11) when the fork cap is removed. To avoid damage hold both the fork tube and slider pipe when removing the fork cap.



(8) slider pipe (9) dust seal (10) fork tube (11) guide bushing

9. Record the rebound damping adjuster position and turn the adjuster screw (12) counterclockwise until it stops.

10. Hold the fork tube (10), then remove the fork cap (2), from the fork tube. Gently slide the fork tube down onto the lower end of the slider pipe (13).

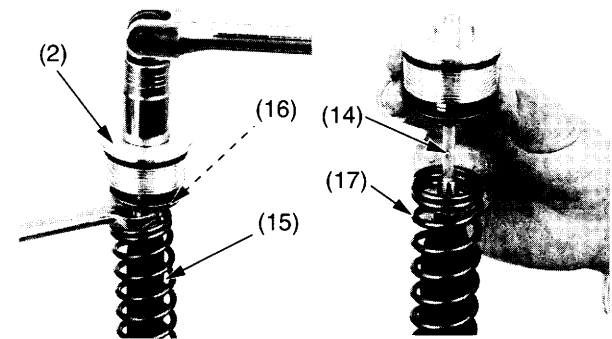


(2) fork cap (10) fork tube (12) adjuster screw (13) slider pipe, lower end

NOTICE

When removing the fork cap, be careful not to damage the damping force adjuster needle rod (14) and the needle on the rod end.

11. Remove the fork cap (2) from the piston rod (15) by holding the lock nut (16).
12. Remove the fork spring (17).

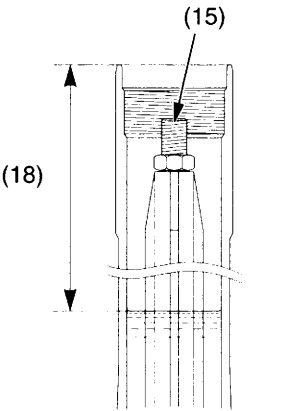


(2) fork cap (14) adjuster needle rod (15) piston rod (16) lock nut (17) fork spring

(cont'd)

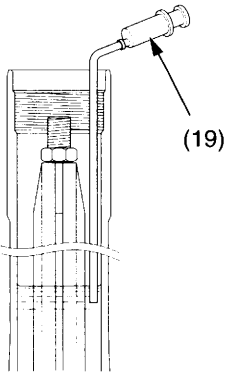
Front Suspension Adjustments

13. Pour the recommended fork oil into the piston rod (15) until a little oil flows out of the top of the piston rod. Leave the piston rod for about one minute.
14. With the fork held upright, measure the oil level (18) from the top of the fork tube to the fork oil.



(15) piston rod (18) oil level

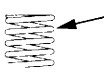
15. Adjust the oil level by adding or removing oil with an aftermarket syringe (19).



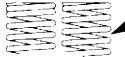
(19) syringe

Fork Oil Level (CRF150R)


Standard 0.34 kgf/mm (19.0 lbf/in) Fork Spring

 1 coil at both ends (factory products)		
Standard oil level [capacity]	123.0 mm 4.84 in [357.0 cm ³ (12.07 US oz, 12.57 Imp oz)]	
Maximum oil level [capacity]	123.0 mm 4.84 in [357.0 cm ³ (12.07 US oz, 12.57 Imp oz)]	Slightly stiffer as it nears full compression.
Minimum oil level [capacity]	189.0 mm 7.44 in [303.7 cm ³ (10.27 US oz, 10.69 Imp oz)]	Slightly softer as it nears full compression.

Optional Softer 0.32 kgf/mm (17.9 lbf/in) Fork Spring

 2 coils at one end; 1 coil at other end		
Standard oil level [capacity]	127.7 mm 5.03 in [353.2 cm ³ (11.95 US oz, 12.43 Imp oz)]	
Maximum oil level [capacity]	127.7 mm 5.03 in [353.2 cm ³ (11.95 US oz, 12.43 Imp oz)]	Slightly stiffer as it nears full compression.
Minimum oil level [capacity]	193.7 mm 7.63 in [299.9 cm ³ (10.14 US oz, 10.56 Imp oz)]	Slightly softer as it nears full compression.

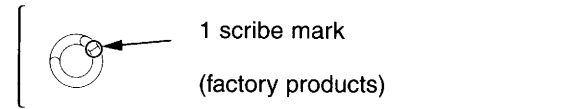
Optional Stiffer 0.36 kgf/mm (20.2 lbf/in) Fork Spring

 1 scribe mark		
Standard oil level [capacity]	128.3 mm 5.05 in [352.7 cm ³ (11.93 US oz, 12.42 Imp oz)]	
Maximum oil level [capacity]	128.3 mm 5.05 in [352.7 cm ³ (11.93 US oz, 12.42 Imp oz)]	Slightly stiffer as it nears full compression.
Minimum oil level [capacity]	194.3 mm 7.65 in [299.4 cm ³ (10.13 US oz, 10.54 Imp oz)]	Slightly softer as it nears full compression.

Front Suspension Adjustments

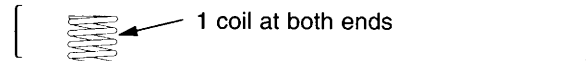
Fork Oil Level (CRF150RB)

Standard 0.36 kgf/mm (20.2 lbf/in) Fork Spring



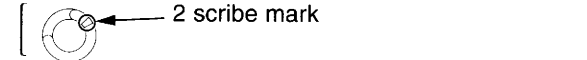
Standard oil level [capacity]	141.0 mm 5.55 in [342.0 cm ³ (11.57 US oz, 12.04 Imp oz)]	
Maximum oil level [capacity]	131.0 mm 5.16 in [350.1 cm ³ (11.84 US oz, 12.32 Imp oz)]	Slightly stiffer as it nears full compression.
Minimum oil level [capacity]	193.7 mm 7.63 in [299.4 cm ³ (10.13 US oz, 10.54 Imp oz)]	Slightly softer as it nears full compression.

Optional Softer 0.34 kgf/mm (19.0 lbf/in) Fork Spring



Standard oil level [capacity]	135.7 mm 5.34 in [346.3 cm ³ (11.71 US oz, 12.19 Imp oz)]	
Maximum oil level [capacity]	125.7 mm 4.95 in [354.4 cm ³ (11.99 US oz, 12.47 Imp oz)]	Slightly stiffer as it nears full compression.
Minimum oil level [capacity]	188.4 mm 7.42 in [303.7 cm ³ (10.27 US oz, 10.69 Imp oz)]	Slightly softer as it nears full compression.

Optional Stiffer 0.38 kgf/mm (21.3 lbf/in) Fork Spring



Standard oil level [capacity]	137.9 mm 5.43 in [344.5 cm ³ (11.65 US oz, 12.13 Imp oz)]	
Maximum oil level [capacity]	127.9 mm 5.04 in [352.6 cm ³ (11.92 US oz, 12.41 Imp oz)]	Slightly stiffer as it nears full compression.
Minimum oil level [capacity]	190.6 mm 7.50 in [301.9 cm ³ (10.21 US oz, 10.63 Imp oz)]	Slightly softer as it nears full compression.

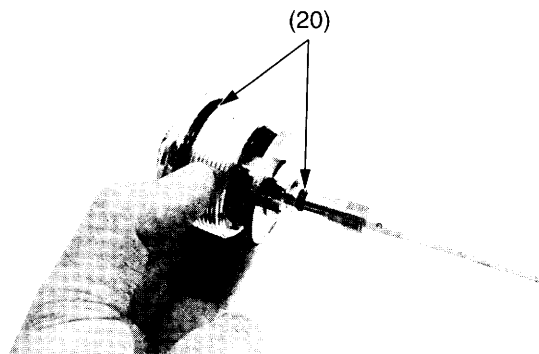
- Be sure the oil level is the same in both fork legs.
- Always use the after market syringe while adjusting the oil level.
If it isn't used, air may get into the fork.
- If a syringe is not available, first set the oil level somewhat lower than the normal level, then add small amounts of oil until the correct level is obtained, measuring the level each time oil is added.

16. Inspect both ends of the fork spring. If you find any roughness or burred edge on the end of either spring, smooth the roughness with a file and some emery cloth.

(cont'd)

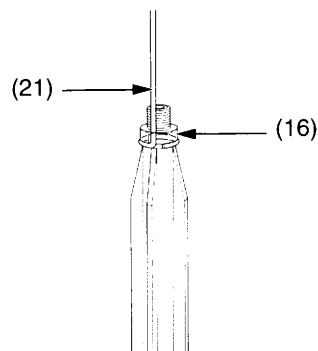
Front Suspension Adjustments

17. Clean the spring and spring seat thoroughly with a high flash point solvent to remove all metal particles and dirt.
18. Dry the spring and spring seat with air pressure rather than a shop towel. Using a shop towel allows lint to stick to the springs. Lint or any particles that stick in the damping passages can cause inconsistent damping.
19. Check that the O-rings (20) on the fork cap and needle rod are in good condition. Apply the recommended fork oil to the O-rings.



(20) O-rings

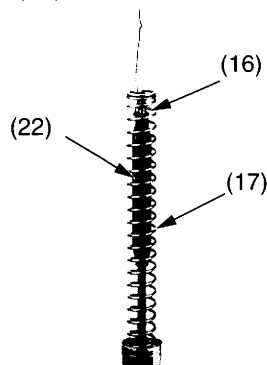
20. Loosen the lock nut (16) slightly.
21. Attach a two-foot length of mechanic's wire (21) to the threaded portion on the lock nut. Wrap the wire securely around the threads.



(16) lock nut

(21) mechanic's wire

22. Install the fork spring (17) as follows:
 - With the fork spring held upright on its marked end, feed the mechanic's wire up through the spring.
 - Angle the fork spring and slowly slide it down into the fork using a gentle rocking motion.
23. Reaching through the two adjacent coils near the oil lock valve, hold the spring guide (22) with your finger. Remove the mechanic's wire and hand tighten the lock nut (16).



(16) lock nut
(17) fork spring

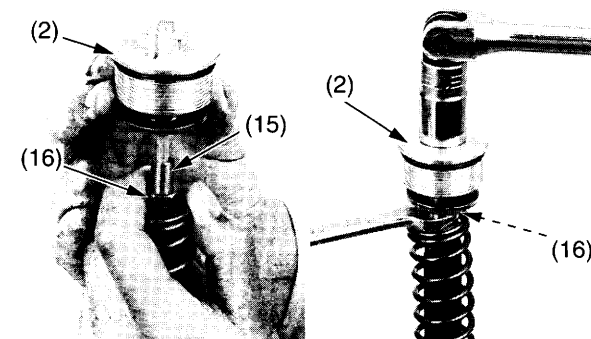
(22) spring guide

24. Install the fork cap into piston rod.

NOTICE

When installing the fork cap, be careful not to damage the damping force adjuster needle rod and the needle or the rod end.

25. Screw the fork cap (2) on the piston rod (15). Hold the lock nut (16) and tighten it to the specified torque:
19.7 N·m (2.0 kgf·m, 15 lbf·ft)



(2) fork cap
(15) piston rod

(16) lock nut

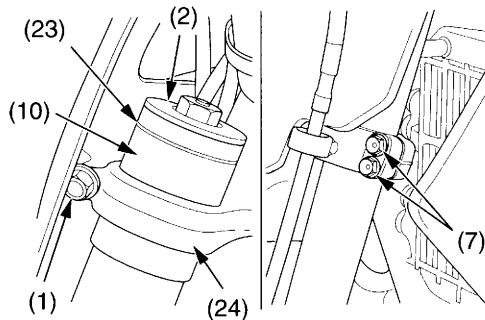
26. Temporarily thread the fork cap into the fork tube.
27. Insert both fork legs into the fork clamps.

Front Suspension Adjustments

28. Align the groove (23) in the fork tube (10) with the top surface of the upper fork clamps (24).
29. Temporarily tighten the fork bridge lower pinch bolts (7) and then tighten the fork cap (2) to the specified torque:
34 N·m (3.5 kgf·m, 25 lbf·ft)
30. For ease of releasing air pressure after the forks are installed, loosen the fork bridge lower pinch bolts and position the fork outer tubes so that the fork air pressure release screws are in front of the rebound damping adjusters.
31. Tighten the fork bridge lower pinch bolts to the specified torque:
22 N·m (2.2 kgf·m, 16 lbf·ft)
32. Tighten the fork bridge upper pinch bolts (1) to the specified torque:
22 N·m (2.2 kgf·m, 16 lbf·ft)

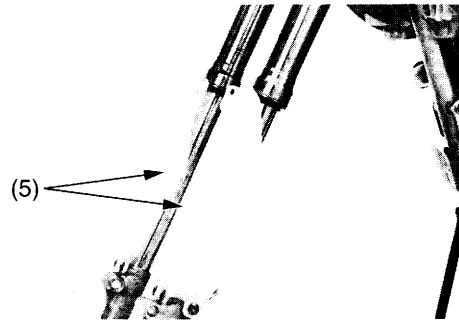
NOTICE

Over-tightening the pinch bolts can deform the fork tubes. Deformed fork tubes must be replaced.



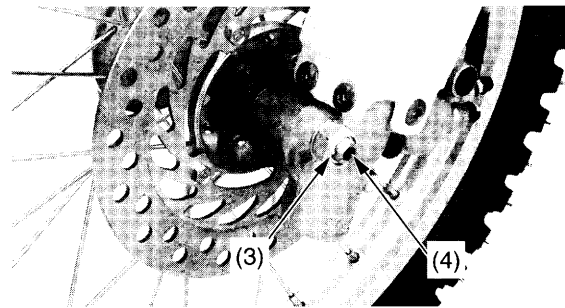
- (1) fork bridge upper pinch bolt
(2) fork cap
(7) fork bridge lower pinch bolts
(10) fork tube
(23) groove
(24) upper fork clamp

33. Clean the threads of the fork protector bolts and axle holder thoroughly.
34. Apply locking agent to the bolt threads.
35. Install the fork protectors (5) and tighten the bolts to the specified torque:
7.0 N·m (0.7 kgf·m, 5.2 lbf·ft)



(5) fork protectors

36. Clean the surfaces where the front axle shaft and axle clamps contact each other.
37. Install the left and right side collars into the wheel hub.
38. Insert the front axle shaft (4) through the wheel hub from the right side. Make sure the axle shaft is seated firmly onto the left fork leg clamp inner surface.
39. Install the front axle nut (3).



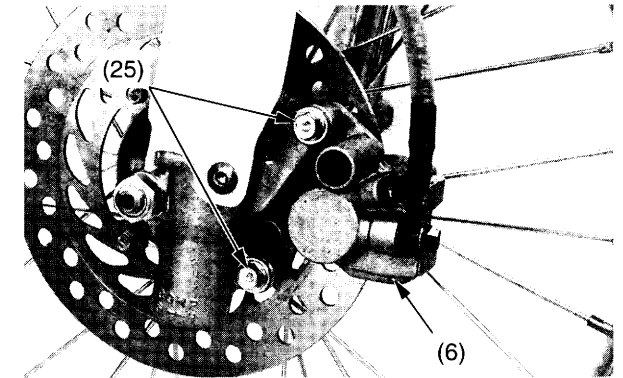
(3) front axle nut

(4) front axle shaft

40. Align the brake caliper (6) with the left 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.
41. Clean the threads of the brake caliper mounting bolts (25) and brake caliper thoroughly.
42. Apply locking agent to the bolt threads.
43. Install the brake caliper on the fork slider and tighten the brake caliper mounting bolts to the specified torque:
30 N·m (3.1 kgf·m, 22 lbf·ft)

NOTICE

Fit the brake caliper over the disc, taking care not to damage the brake pads.

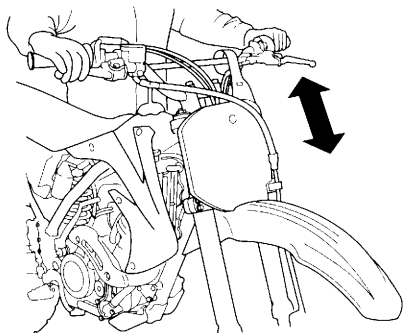


(6) brake caliper
(25) brake caliper mounting bolts

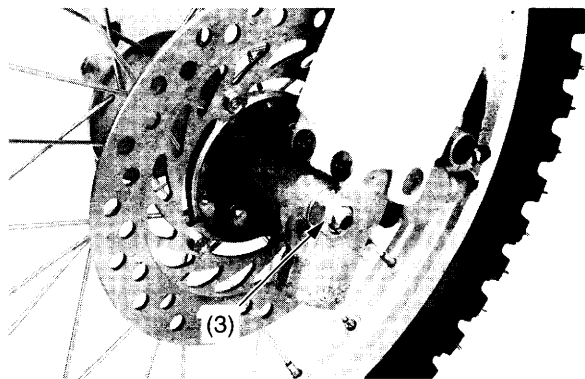
(cont'd)

Front Suspension Adjustments

44. With the front brake applied, pump the fork up and down several times to seat the axle and check front brake operation.



45. Tighten the front axle nut (3) to the specified torque:
69 N·m (7.0 kgf·m, 51 lbf·ft)



(3) front axle nut

46. Turn the rebound damping adjuster screws back to their original settings.

Front Suspension Damping

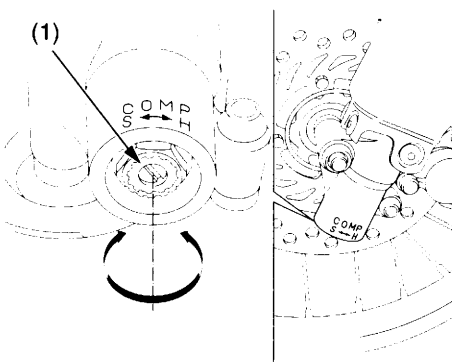
Compression Damping

Compression damping affects how quickly the fork compresses.

The compression damping adjuster has 15 positions or more. Turning the adjuster screw one full turn advances the adjuster 4 positions.

Always start with the full hard position when adjusting damping.

To adjust to the standard position:



(1) compression damping adjuster

1. Turn the compression damping adjuster (1) clockwise until it will no longer turn (lightly seats). This is the full hard position.
2. Turn the adjuster counterclockwise 7 clicks. This is the standard position.
3. Make sure that both fork legs are adjusted to the same position.

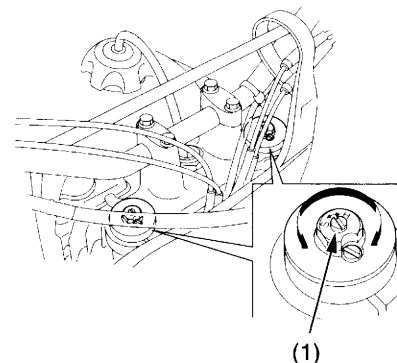
Rebound Damping

Rebound damping effects how quickly the fork rebounds.

The rebound damping adjuster has 3 turns or less.

Always start with the full hard position when adjusting damping.

To adjust to the standard position:



(1) rebound damping adjuster

1. Turn the rebound damping adjuster (1) clockwise until it will no longer turn (lightly seats). This is the full hard position.
2. Turn the adjuster counterclockwise 1 1/4 turn. This is the standard position.
3. Make sure both fork legs are adjusted to the same position.

Fork Springs

The fork springs in CRF's are about right for riders weighting between 68 kg (150 lbs) and 73 kg (160 lbs) (less riding gear). So if you're a heavier rider, you have to go up on the oil level 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 1/4 turn and lower the oil level in increments of 5 mm (0.2 in) in both fork legs until the desired performance is obtained. Do not, however, lower the oil level below the minimum oil level.

Minimum oil level: (CRF150R)

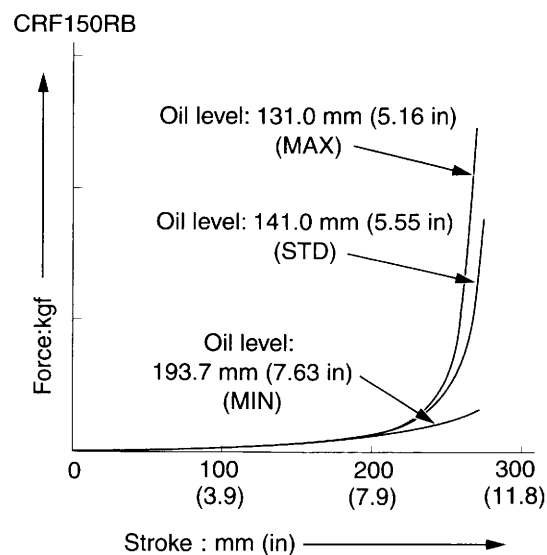
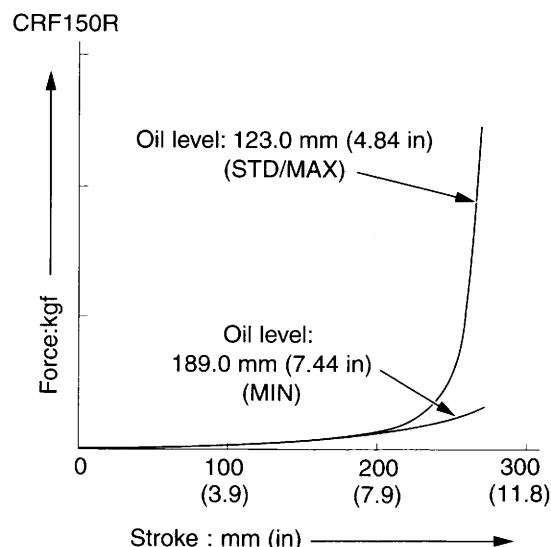
Standard Spring:	189.0 mm (7.44 in)
Softer Spring:	193.7 mm (7.63 in)
Stiffer Spring:	194.3 mm (7.65 in)

Minimum oil level: (CRF150RB)

Standard Spring:	193.7 mm (7.63 in)
Softer Spring:	188.4 mm (7.42 in)
Stiffer Spring:	190.6 mm (7.50 in)

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

Fork Travel Characteristics



Rear Suspension Adjustments

Refer to *Safety Precautions* on page 19.

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 Honda 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 authorized Honda dealer or a qualified mechanic, equipped with the proper tools, safety equipment and the official Honda Shop 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

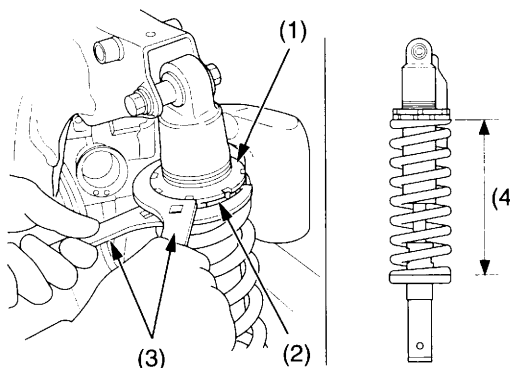
An optional pin spanner is available for turning the lock nut and adjusting nut to adjust spring pre-load.

1. Place an optional workstand under the engine to raise the rear wheel off the ground.
2. Remove the subframe. See page 32.

3. Check that the spring pre-load is adjusted to the standard length. Adjust as necessary by loosening the lock nut (1) and turning the adjusting nut (2).

Each complete turn of the adjuster nut changes the spring length by 1.5 mm (0.06 in).

4. After adjustment, hold the adjusting nut and tighten the lock nut to the specified torque: 88 N·m (9.0 kgf·m, 65 lbf·ft)



(1) lock nut
(2) adjusting nut

(3) pin spanners
(4) spring length

To increase spring pre-load:

Loosen the 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:

222 mm (8.7 in).....CRF150R
226 mm (8.9 in).....CRF150RB

To decrease spring pre-load:

Loosen the 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:

234.5 mm (9.23 in).....CRF150R
232.8 mm (9.17 in).....CRF150RB

Each turn of the adjuster changes spring length and spring pre-load. One turn equals: spring length/spring pre-load:

1.5 mm (0.06 in)/7.5 kgf (16.5 lbf)...CRF150R
1.5 mm (0.06 in)/7.8 kgf (17.2 lbf)...CRF150RB

Pin spanners should be used for turning the lock nut and adjusting nut.

(CRF150R)

Spring pre-load length (Standard spring)

Standard: 233.5 mm (9.19 in)
Min. : 222 mm (8.7 in)

Spring pre-load length (Optional spring)

Min. (Softer, 4.8 kgf/mm (268.8 lbf/in)): 223 mm (8.8 in)
Min. (Stiffer, 5.2 kgf/mm (291.2 lbf/in)): 226 mm (8.9 in)

(CRF150RB)

Spring pre-load length (Standard spring)

Standard: 231.8 mm (9.13 in)
Min. : 226 mm (8.9 in)

Spring pre-load length (Optional spring)

Min. (Softer, 4.8 kgf/mm (268.8 lbf/in)): 223 mm (8.8 in)
Min. (Softer, 5.0 kgf/mm (280.0 lbf/in)): 222 mm (8.7 in)
Min. (Stiffer, 5.4 kgf/mm (302.4 lbf/in)): 221 mm (8.7 in)

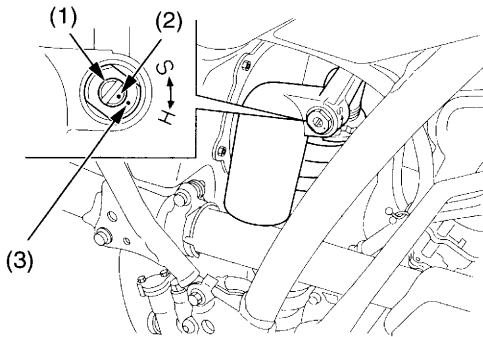
Rear Suspension Damping

Compression Damping

Compression damping can be adjusted with the adjuster located on the rear shock absorber's reservoir.

To increase damping, turn the adjuster screw clockwise.

To decrease damping, turn the screw counterclockwise.



(1) compression damping adjuster (3) reference mark
(2) punch mark

To adjust to the standard position:

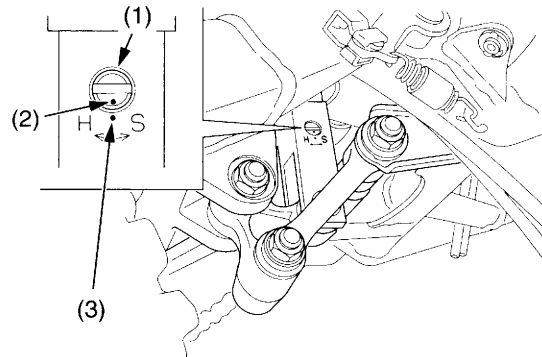
1. Turn the compression damping adjuster (1) clockwise until it will no longer turn (lightly seats). This is the full hard position.
2. Turn the adjuster counterclockwise approximately $1 \frac{3}{8}$ turns so that the punch mark (2) on the adjuster aligns with the reference mark (3) on the shock absorber.

Rebound Damping

The rebound damping adjuster (1) is located at the lower end of the shock absorber.

To increase damping, turn the adjuster screw clockwise.

To decrease damping, turn the adjuster screw counterclockwise.



(1) rebound damping adjuster (3) reference mark
(2) punch mark

To adjust to the standard position:

1. Turn the adjuster clockwise until it will no longer turn (lightly seats). This is the full hard position.
2. Turn the adjuster counterclockwise approximately $\frac{1}{2}$ turn so that the punch mark (2) on the adjuster aligns with the reference mark (3) on the shock absorber.

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.

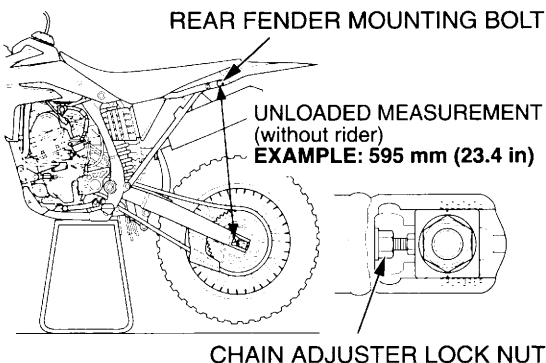
To calculate the proper adjustment, it is necessary to measure between two fixed points — from the centre of the rear fender mounting bolt to the centre of the chain adjuster lock nut as illustrated here — for three different situations:

unloaded: motorcycle on an optional workstand with rear suspension fully extended, no rider.

loaded with rider: motorcycle on ground, with rider.

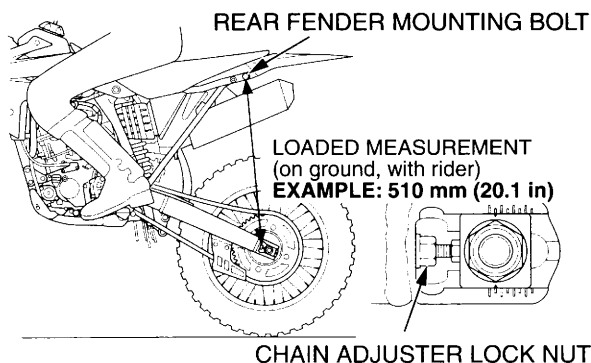
loaded without rider: motorcycle on ground, without rider

1. Support your CRF on an optional workstand 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 = 595 mm (23.4 in)
– Loaded = 510 mm (20.1 in)
Race Sag = 85 mm (3.3 in)

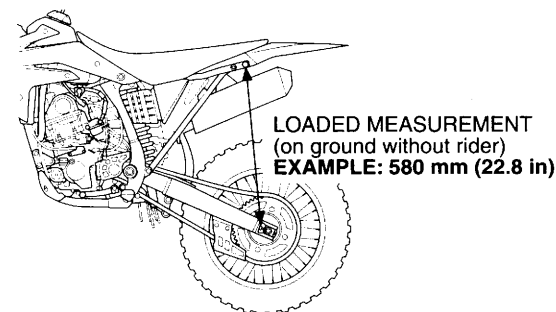
4. Calculate the *race sag* dimension. To do this, subtract the *loaded with rider* dimension (step 3) from the *unloaded* dimension (step 2).
Standard Race Sag: 85 mm (3.3 in)

Adjust spring pre-load as necessary to obtain the desired handling results.

Decreasing the race sag dimension (example: 90 mm, 3.5 in) improves turning ability for tight terrain at the cost of slightly reduced straight line stability.

Increasing the race sag dimension (example: 100 mm, 3.9 in) 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 = 595 mm (23.4 in)
– Loaded = 580 mm (22.8 in)
Sag = 15 mm (0.6 in)
(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: 10 to 25 mm (0.4 to 1.0 in)

If the rear of your CRF sags less than 10 mm (0.4 in) 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 tyre 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 94 – 103. Remember to make all adjustments in one-click or 1/4 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 1/4 turn 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 1/4 turn 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 level in increments of 5 cm ³ (0.2 US oz, 0.2 Imp oz).
	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 1/4 turn increments.

Suspension Adjustment Guidelines

	Symptom	Action
Stiff suspension	Initial travel too stiff: <ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> – Test softer compression damping adjustments in one-click increments. – Reduce the rebound damping adjustments in 1/4 turn 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 1/4 turn 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: <ul style="list-style-type: none"> • 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. 	<p>If initial travel isn't stiff:</p> <ul style="list-style-type: none"> – Test stiffer compression damping adjustments in one-click increments. (This should produce smooth fork action from initial to middle travel.) <p>If initial and middle travel is stiff:</p> <ul style="list-style-type: none"> – Test softer compression damping adjustments in one-click increments. – Reduce the rebound damping in 1/4 turn increments.
	Final travel too stiff: <ul style="list-style-type: none"> • Doesn't bottom on landings, but feels stiff. • Stiff on large bumps, especially downhill bumps. • Stiff on large bumps when cornering. 	<p>If initial and middle travel aren't stiff:</p> <ul style="list-style-type: none"> – Test stiffer compression damping adjustments in one-click increments. (This should produce smooth fork action from initial to middle travel.) <p>If final travel is still stiff after the above adjustment, or</p> <p>If initial and middle travel becomes stiff:</p> <ul style="list-style-type: none"> – Install the optional soft spring. – Test softer compression damping adjustments in one-click increments. <p>If the entire travel feels stiff after the above adjustment:</p> <ul style="list-style-type: none"> – Test softer compression damping adjustments in one-click increments until the desired initial travel compression damping is obtained. – Lower the oil level by 5 cm³ (0.2 US oz, 0.2 Imp oz).
	Entire travel too stiff: <ul style="list-style-type: none"> • Stiff suspension on any type of terrain. 	<ul style="list-style-type: none"> – Test softer compression damping adjustments in one-click increments. – Reduce the rebound damping in 1/4 turn increments. – Lower the oil level by 5 cm³ (0.2 US oz, 0.2 Imp oz).

Suspension Adjustment Guidelines

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 (+5 to 10 mm/0.2 to 0.4 in).
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 (–5 to 10 mm/0.2 to 0.4 in).

Adjustments for Too Soft/Stiff Suspension

	Symptom	Action
Stiff suspension	Entire travel too stiff	– Test softer compression and rebound damping adjustments in 1/4 turn increments. – Install the optional soft spring.
Soft suspension	Suspension bottoms or rear end shakes	– Test stiffer compression and rebound damping adjustments in 1/4 turn increments. – Install the optional stiff spring.

Adjustments for Too Soft/Stiff Suspension

Symptom	Action
Rear end kicks up on deep bumps on sand track.	– Test stiffer compression and rebound damping adjustments in 1/4 turn increments until the rear end does not kick up and/or the suspension becomes stiff. – Then test softer compression damping adjustments in 1/4 turn increments.
Suspension bottoms and rear end kicks up on large bumps on a hard-surface track.	– Test stiffer compression and rebound damping adjustments in 1/4 turn increments.
Rear end gets poor traction accelerating away from a corner.	– Test softer rebound damping adjustments in 1/4 turn increments. (Test no more than 3 turns.) – If 1/2 or 3/4 turns don't produce satisfactory results, test softer compression damping adjustments in 1/4 turn increments. – After the above adjustment, check if the suspension bottoms after jumping. If it does, test stiffer compression damping adjustments in 1/4 turn increments.
Rear end kicks sideways and suspension feels stiff on continuous bumps.	– Test softer rebound damping adjustments in 1/4 turn increments. – After the above adjustment, check if the suspension bottoms after jumping. If it does, test stiffer compression damping adjustments in 1/4 turn increments.

Carburetor Adjustments & Tuning Tips

The carburetor used on your CRF should perform suitably with the standard recommended settings under average load, climatic, and barometric conditions. However, to fine tune the engine's power output, the carburetor may require adjustments for specific competition needs.

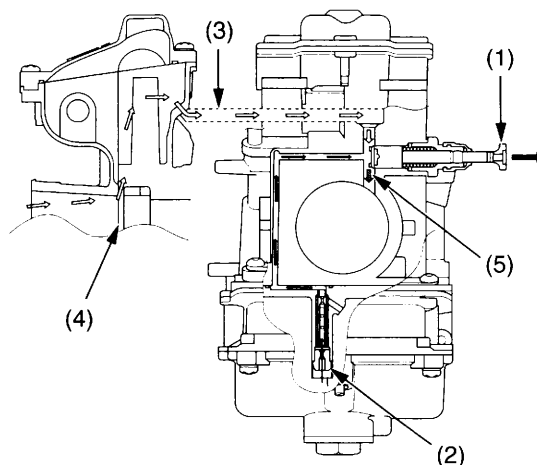
Optional main jets, slow jets, leak jets and accelerator pump diaphragms are available for your CRF. See your Honda dealer.

Any engine or air cleaner housing modifications or the use of an aftermarket exhaust system may require jetting changes.

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.

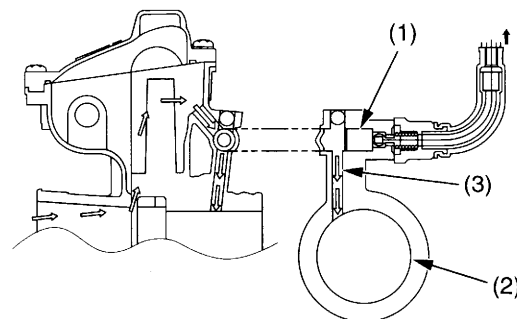


- (1) choke knob
- (2) starter jet
- (3) air passage

- (4) throttle valve
- (5) orifice

Hot Start Circuit

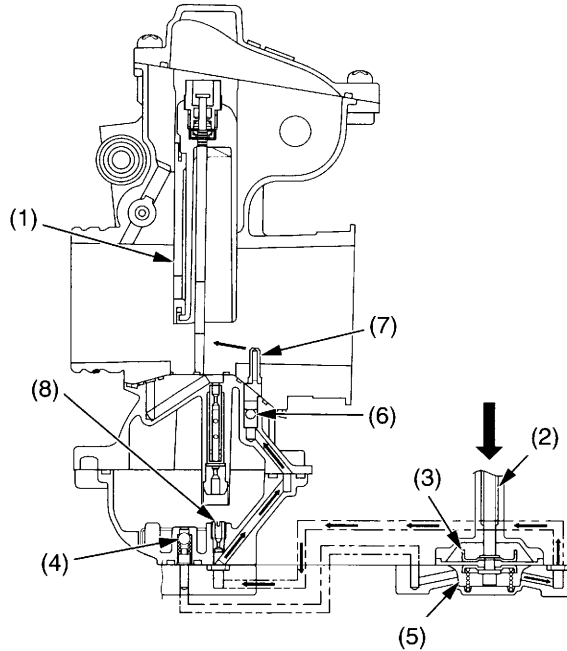
A lean mixture must be delivered to the cylinder when a hot engine is being started. When the hot start lever is pulled back, the hot start valve (1) opens, allowing air to be supplied to the main bore (2) through the hot start air passage (3). This extra air enters the air-fuel mixture from the slow circuit resulting in a lean condition.



- (1) hot start valve
- (2) main bore
- (3) hot start air passage

Accelerator Pump Circuit

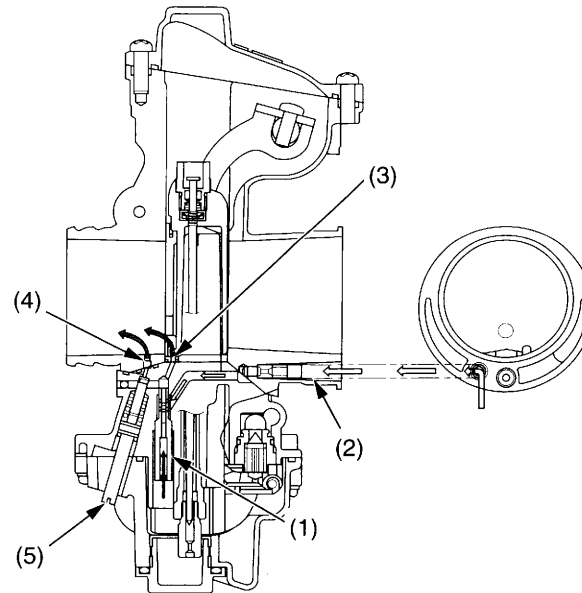
The accelerator pump circuit operates when the throttle is opened. As the throttle valve (1) opens, the pump rod (2) depresses the diaphragm (3). At this time, the inlet check valve (4) is shut resulting in a sharp increase in pressure in the pump chamber (5). The outlet check valve (6) then opens, supplying fuel to the main bore via the accelerator nozzle (7). Leak jet (8) operation is related to both the length of time before the fuel starts flowing after the opening of the throttle (time lag) and the flow amount.



- (1) throttle valve
- (2) pump rod
- (3) diaphragm
- (4) inlet check valve
- (5) pump chamber
- (6) outlet check valve
- (7) accelerator nozzle
- (8) leak jet

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

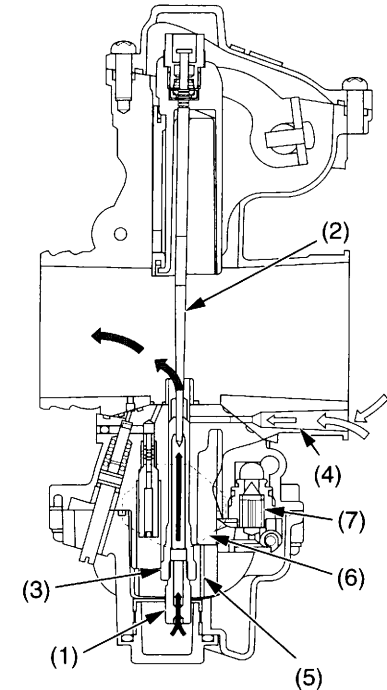
Fuel is metered by the main jet (1), jet needle (2) and needle jet (3). It is then mixed with air coming from the air jet (4) and enters the venturi past the needle jet.

Baffle Plate

The baffle plate (5) prevents foaming of fuel or abnormal fuel level around the mainjet.

Float Bowl

The float (6) and float valve (7) operate to maintain a constant level of fuel in the float bowl.



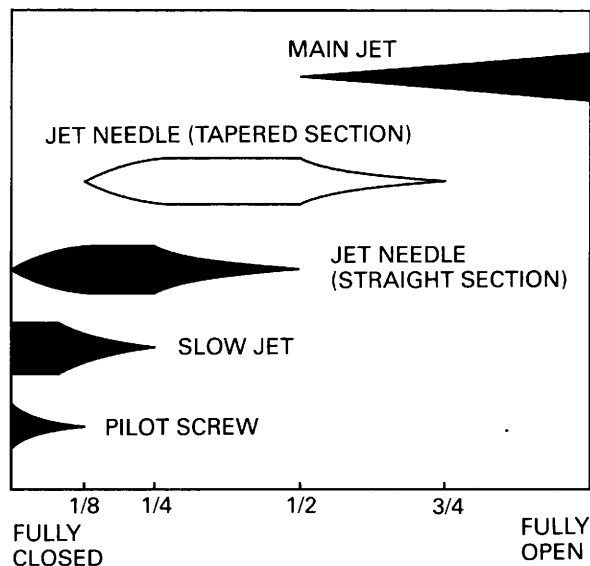
- (1) main jet
- (2) jet needle
- (3) needle jet
- (4) air jet
- (5) baffle plate
- (6) float
- (7) float valve

Carburetor Adjustments & Tuning Tips

Carburetor Circuit Functions

The carburetor has several major circuits, each providing the fuel/air mixture over a given portion of throttle valve opening.

These major circuits overlap as shown below.



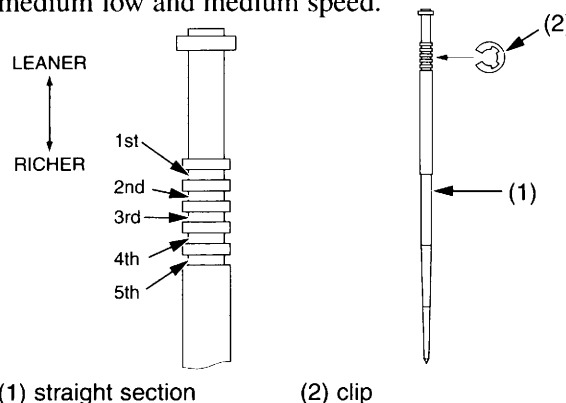
Main jet

The main jet affects fuel/air ratio from half (1/2) to full throttle (4/4). The size should be reduced at higher altitudes.

Honda carburetor jet sizes are numbered in increments of 2 or 3. When changing the main jet size, increase or decrease it gradually until the desired jetting is obtained. Because Honda jet size numbers do not correspond with other carburetor manufacturer's jet size numbers, use only Honda jets.

Jet Needle

The jet needle controls fuel/air mixture over fully closed to 3/4 throttle. The straight section (1) affects throttle response at smaller throttle openings. By changing the position of the clip (2) in its groove, you can improve acceleration at medium low and medium speed.



(1) straight section

(2) clip

Slow Jet and Pilot Screw

The slow jet and pilot screw affects fuel/air ratio over fully closed to 1/4 throttle.

Adjust the pilot screw to obtain the best off-idle performance.

- If the engine blubbers (rich) exiting a corner, turn the pilot screw clockwise to lean the mixture.
- If the engine surges (lean) exiting a corner, turn the pilot screw counterclockwise to richen the mixture.

The minimum to maximum range of pilot screw adjustment is 1 3/8 to 2 1/8 (ED, U type), 1 1/2 to 2 1/4 (CM type) turns out from the lightly seated position. If you exceed 2 1/8 (ED, U type), 2 1/4 (CM type) turns out, the next larger slow jet is needed. If you are under 1 3/8 (ED, U type), 1 1/2 (CM type) turns out, the next smaller slow jet is needed.

Leak jet

The smaller the number, the smaller the jet bore diameter. This controls the amount of fuel returned to the float chamber under pressure, therefore the flow amount is increased or decreased. With a small jet, pressure is raised faster and the elapsed time before the fuel starts flowing is shorter.

Carburetor Removal

1. Remove the seat and fuel tank (pages 29, 30).
2. Turn the fuel valve OFF.
3. Drain the remaining fuel in the float bowl by loosening the drain screw (1).

⚠ WARNING

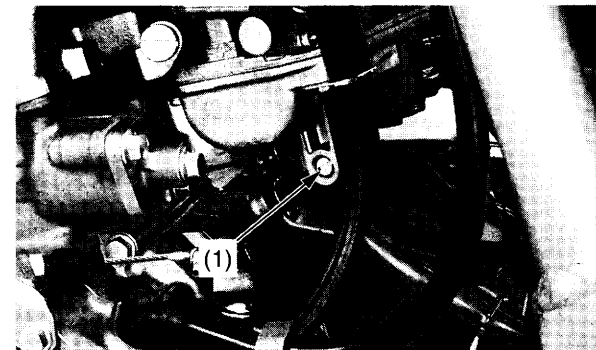
Petrol is highly flammable and explosive. You can be burned or seriously injured when handling fuel.

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

Drain the carburetor into an approved petrol container and dispose of it in an approved manner (page 130).

NOTICE

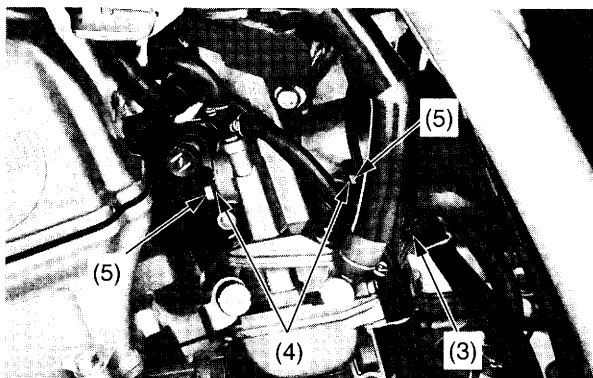
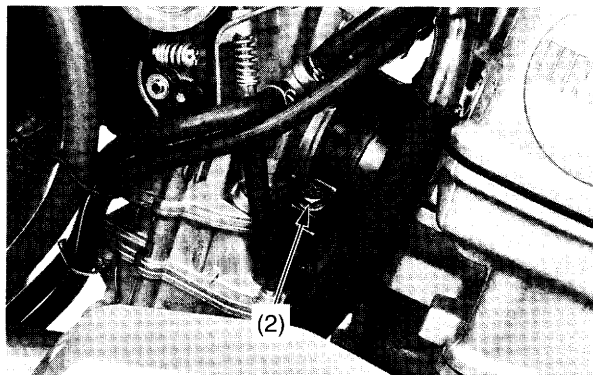
Improper disposal of drained fluids is harmful to the environment.



(1) drain screw

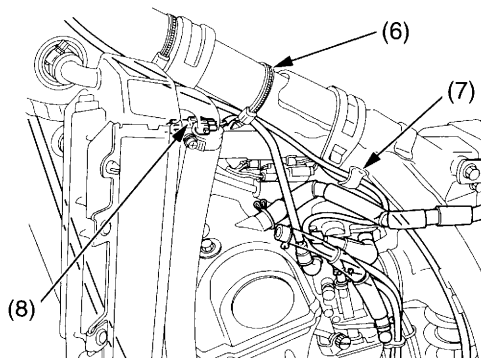
Carburetor Adjustments & Tuning Tips

4. Tighten the drain screw.
5. Loosen the insulator band screw (2) and connecting tube clamp screw (3).
6. When installing the carburetor, align the carburetor tabs (4) with the insulator and connecting tube grooves (5).



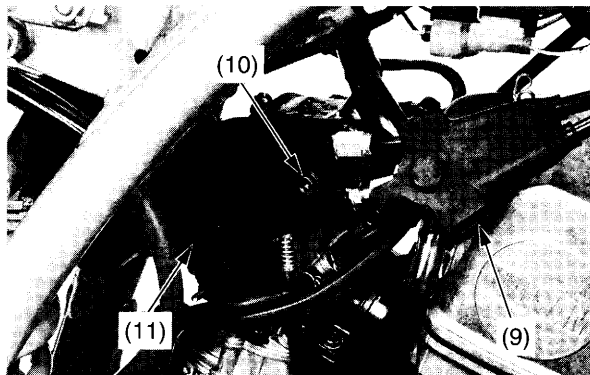
- (2) insulator band screw
(3) connecting tube clamp screw
(4) tabs
(5) grooves

7. Release the throttle sensor wire from the wire band (6) and clamp (7).
8. Disconnect the throttle position sensor connector (8).



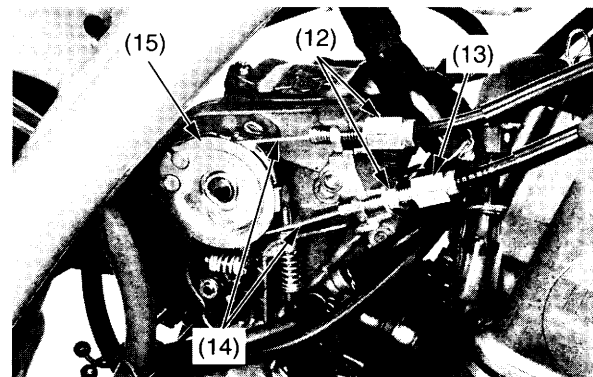
- (6) wire band
(7) clamp
(8) throttle position sensor connector

9. Pull the dust cover (9) back.
10. Remove the throttle drum cover bolt (10) and throttle drum cover (11).



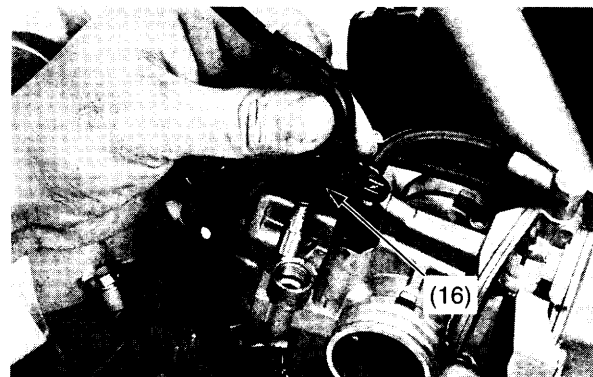
- (9) dust cover
(10) throttle drum cover bolt
(11) throttle drum cover

11. Loosen the lock nuts (12), adjuster (13) and disconnect the throttle cables (14) from the throttle drum (15).



- (12) lock nuts
(13) adjuster
(14) throttle cables
(15) throttle drum

12. Remove the hot start cable holder (16).

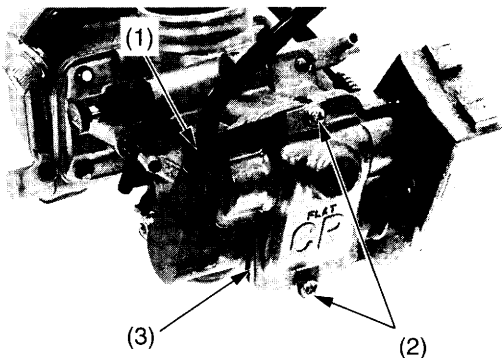


- (16) hot start cable holder

Carburetor Adjustments & Tuning Tips

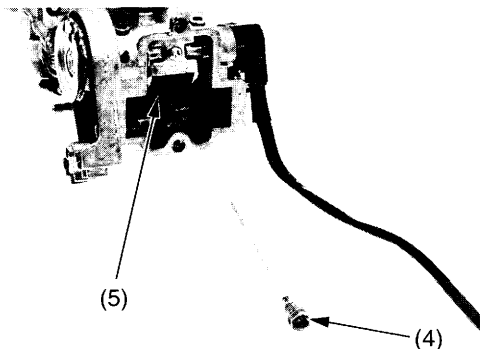
Carburetor Disassembly/Assembly

1. Pull up the cable clamp (1) and remove the carburetor top screws (2).
Then remove the carburetor top (3).



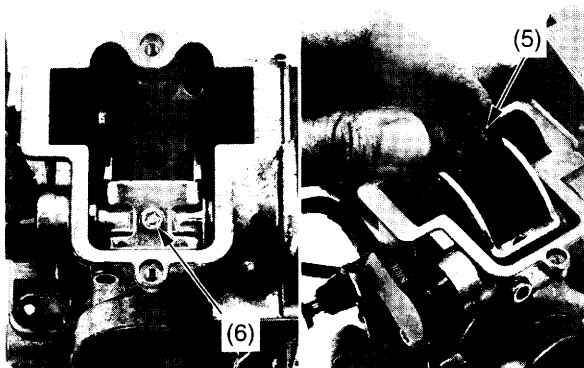
- (1) cable clamp
(2) carburetor top screws
(3) carburetor top

2. Remove the jet needle/holder assembly (4) from the throttle valve (5).



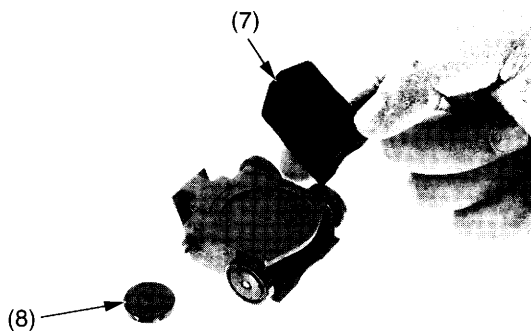
- (4) jet needle/holder assembly
(5) throttle valve

3. Remove the link arm torx screw (6).
When installing the link arm torx screw, apply a locking agent to the link arm torx screw threads.
4. Remove the throttle valve (5).



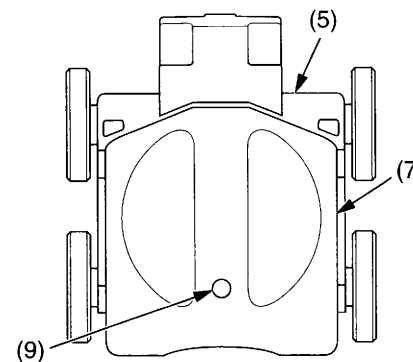
- (5) throttle valve
(6) link arm torx screw

5. Remove the floating valve (7) and roller (8) from the throttle valve.



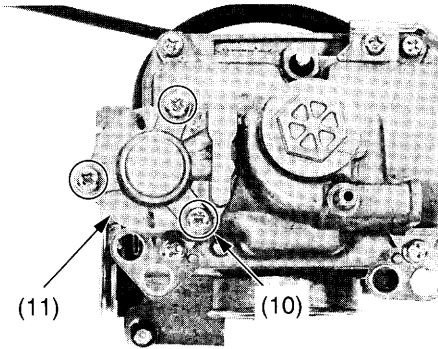
- (7) floating valve
(8) roller

When installing the floating valve (7) onto the throttle valve (5), make sure the floating valve's flat side faces out and the hole (9) faces down.



- (5) throttle valve
(7) floating valve
(9) hole

6. Remove the accelerator pump cover screws (10) and accelerator pump cover (11).

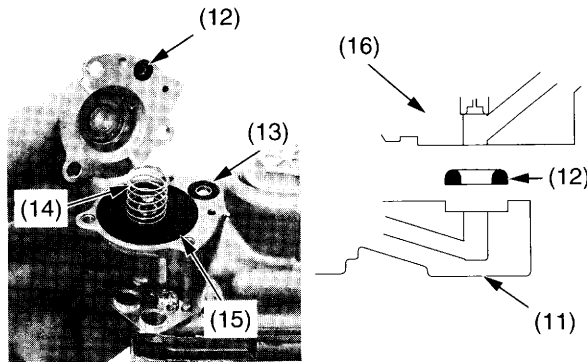


(10) accelerator pump cover screws
(11) accelerator pump cover

7. Remove the U-ring (12), O-ring (13), spring (14) and diaphragm (15).

Clean the diaphragm.

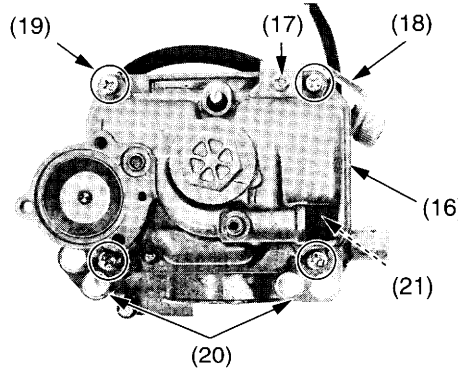
When installing the U-ring into the accelerator pump cover (11) make sure the U-ring flatside faces the accelerator pump cover, away from the float bowl (16).



(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), hose guides (20), float bowl (16) and O-ring (21).

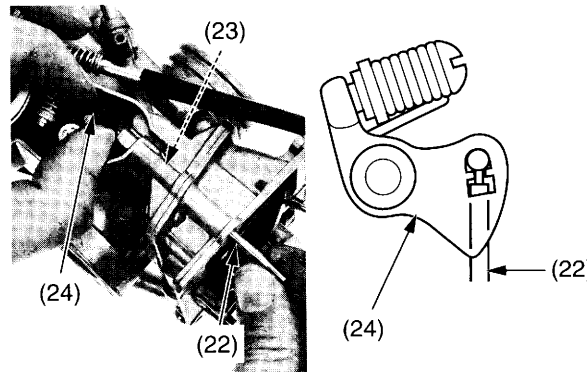


(16) float bowl
(17) holder screw
(18) throttle stop screw holder
(19) float bowl screws
(20) hose guides
(21) O-ring

9. Remove the pump rod (22).

Clean the pump rod and rod passage (23).

Install the pump rod by pushing the rod forcibly into the link lever (24) until it snaps into place.

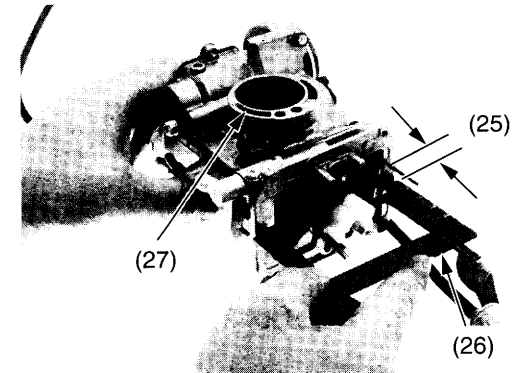


(22) pump rod
(23) rod passage

(24) link lever

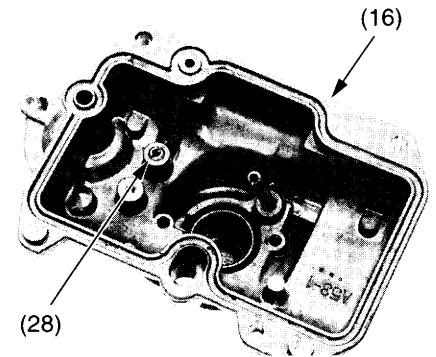
10. Measure the float level (25) with the float level gauge (26) while the float tab is just contacting the float valve and the carburetor intake (27) is facing up. The float level should be 7.0 mm (0.28 in).

If the float level is out of specification, adjust it by bending the float tab carefully.



(25) float level
(26) float level gauge
(27) carburetor intake

11. Remove the leak jet (28) from the float bowl (16). Clean the leak jet.



(16) float bowl

(28) leak jet

Carburetor Adjustments & Tuning Tips

To assemble, reverse the disassembly procedures.
To install the carburetor, reverse the removal procedures.

Tighten the following parts to the specified torque.

float bowl screws:

2.1 N·m (0.2 kgf·m, 1.5 lbf·ft)

accelerator pump cover screws:

2.1 N·m (0.2 kgf·m, 1.5 lbf·ft)

carburetor top screws:

2.1 N·m (0.2 kgf·m, 1.5 lbf·ft)

jet needle/holder assembly:

2.1 N·m (0.2 kgf·m, 1.5 lbf·ft)

link arm torx screw:

2.1 N·m (0.2 kgf·m, 1.5 lbf·ft)

throttle drum cover bolt:

3.4 N·m (0.3 kgf·m, 2.5 lbf·ft)

hot start cable nut:

2.1 N·m (0.2 kgf·m, 1.5 lbf·ft)

throttle cable lock nut:

4.0 N·m (0.4 kgf·m, 3.0 lbf·ft)

leak jet:

0.3 N·m (0.03 kgf·m, 0.2 lbf·ft)

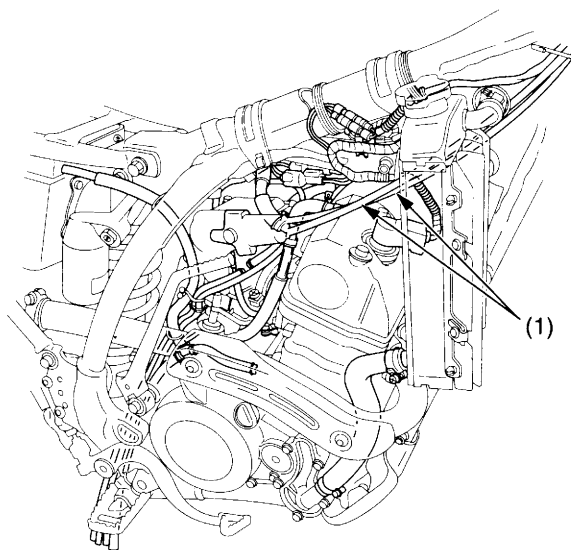
main jet:

1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)

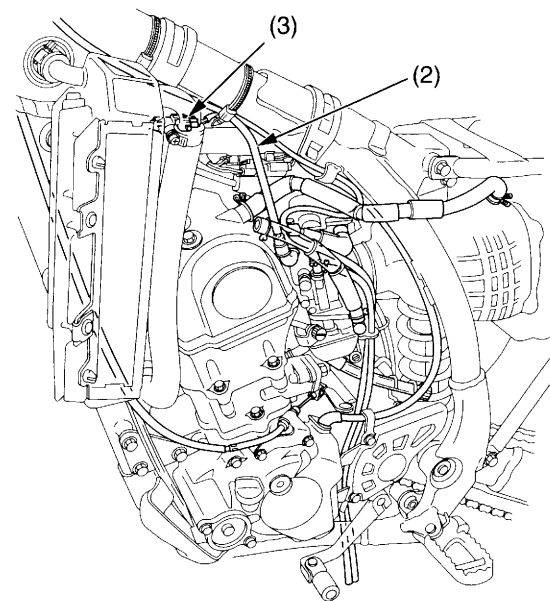
slow jet:

1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)

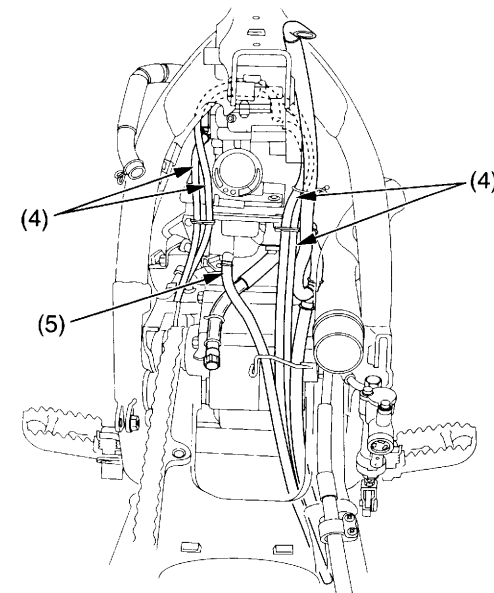
- Route the throttle cables (1), hot start cable (2) and throttle position sensor wire correctly.
- After installing the carburetor, adjust the throttle grip freeplay and hot start lever freeplay.
- After installing the carburetor, check the throttle position sensor connector (3) for correct routing.
- After installing the carburetor, check the air vent hoses (4) and overflow hose (5) for kinking or pinching and correct routing.
- Check that the U-ring and O-ring are in good condition. Replace them if necessary.



(1) throttle cables



(2) hot start cable
(3) throttle position sensor connector



(4) air vent hoses
(5) overflow hose

Carburetor Adjustments & Tuning Tips (ED, U Type)

Standard Tuning Recommendations

For the following recommendations to be accurate, you must use the standard settings as a baseline. Also, don't change any of the settings until you've determined what changes are necessary.

Adjustment	Standard settings
Pilot screw opening	1 7/8 turns out
Slow jet	#40
Jet needle	NMQT
Needle clip position	3rd groove
Main jet	#130
Float level	7.0 mm (0.28 in)
Identification number	FCR15A

Adjustments for Altitude & Temperature

All jetting recommendations are based on standard jetting with an unmodified engine. The following conditions can affect the fuel mixture.

Condition	Mixture will be	Adjust to	Component affected
Cold temperature	Lean	Richen	Main jet (jet needle stage)
Warm temperature	Rich	Lean	
Dry air	Lean	Richen	
High humidity	Rich	Lean	
High altitude	Rich	Lean	

All jetting is based on

- Standard jetting
- Unmodified Engine

Temperature	CENT.	-30°~ -17°	-18°~ -6°	-7°~ 5°	4°~ 16°	15°~ 27°	26°~ 38°	37°~ 49°
Altitude	FAHR.	-21°~ 0°	-1°~ 20°	19°~ 40°	39°~ 60°	59°~ 80°	79°~ 100°	99°~ 120°
3,050 m (10,000 ft)	PS: SJ: JN CLIP:	1 7/8 40 3rd	1 7/8 40 3rd	1 7/8 40 3rd	1 5/8 40 3rd	1 5/8 40 3rd	1 3/8 40 2nd	1 3/8 40 2nd
~ 2,300 m (7,500 ft)	JN: MJ:	NMQT 130	NMQT 128	NMQT 128	NMRT 128	NMRT 128	NMQT 125	NMQT 125
2,299 m (7,499 ft)	PS: SJ: JN CLIP:	1 7/8 40 3rd	1 7/8 40 3rd	1 7/8 40 3rd	1 7/8 40 3rd	1 5/8 40 3rd	1 5/8 40 3rd	1 3/8 40 2nd
~ 1,500 m (5,000 ft)	JN: MJ:	NMQT 130	NMQT 130	NMQT 128	NMQT 128	NMRT 128	NMRT 128	NMQT 125
1,499 m (4,999 ft)	PS: SJ: JN CLIP:	1 7/8 40 3rd	1 7/8 40 3rd	1 7/8 40 3rd	1 7/8 40 3rd	1 7/8 40 3rd	1 5/8 40 3rd	1 5/8 40 3rd
~ 750 m (2,500 ft)	JN: MJ:	NMQT 132	NMQT 130	NMQT 130	NMQT 128	NMQT 128	NMRT 128	NMRT 128
749 m (2,499 ft)	PS: SJ: JN CLIP:	1 7/8 40 3rd	1 7/8 40 3rd	1 7/8 40 3rd	1 7/8 40 3rd	1 7/8 40 3rd	1 7/8 40 3rd	1 5/8 40 3rd
~ 300 m (1,000 ft)	JN: MJ:	NMQT 132	NMQT 132	NMQT 130	NMQT 130	NMQT 128	NMQT 128	NMRT 128
299 m (999 ft)	PS: SJ: JN CLIP:	2 1/8 40 4th	1 7/8 40 3rd	1 7/8 40 3rd	1 7/8 40 3rd	STANDARD 1 7/8 JETTING 40	1 7/8 40	1 7/8 40
~ 0 m Sea level	JN: MJ:	NMRT 132	NMQT 132	NMQT 132	NMQT 130	STANDARD NMQT JETTING 130	NMQT 128	NMQT 128

Legend

PS: Pilot Screw opening from fully seated
 SJ: Slow Jet
 JN CLIP: Needle Clip position
 JN: Jet Needle
 MJ: Main Jet

Carburetor Adjustments & Tuning Tips (CM Type)

Standard Tuning Recommendations

For the following recommendations to be accurate, you must use the standard settings as a baseline. Also, don't change any of the settings until you've determined what changes are necessary.

Adjustment	Standard settings
Pilot screw opening	2 turns out
Slow jet	#38
Jet needle	NMQS
Needle clip position	3rd groove
Main jet	#138
Float level	7.0 mm (0.28 in)
Identification number	FCR08B

Adjustments for Altitude & Temperature

All jetting recommendations are based on standard jetting with an unmodified engine. The following conditions can affect the fuel mixture.

Condition	Mixture will be	Adjust to	Component affected
Cold temperature	Lean	Richen	Main jet (jet needle stage)
Warm temperature	Rich	Lean	
Dry air	Lean	Richen	
High humidity	Rich	Lean	
High altitude	Rich	Lean	

All jetting is based on

- Standard jetting
- Unmodified Engine

Temperature	CENT.	-30°~ -17°	-18°~ -6°	-7°~ 5°	4°~ 16°	15°~ 27°	26°~ 38°	37°~ 49°
Altitude	FAHR.	-21°~ 0°	-1°~ 20°	19°~ 40°	39°~ 60°	59°~ 80°	79°~ 100°	99°~ 120°
3,050 m (10,000 ft) ~ 2,300 m (7,500 ft)	PS: SJ: JN CLIP: JN: MJ:	2 38 3rd NMQS 138	2 38 3rd NMQS 135	2 38 3rd NMQS 135	1 3/4 38 3rd NMRS 135	1 3/4 38 3rd NMRS 135	1 1/2 38 2nd NMQS 132	1 1/2 38 2nd NMQS 132
2,299 m (7,499 ft) ~ 1,500 m (5,000 ft)	PS: SJ: JN CLIP: JN: MJ:	2 38 3rd NMQS 138	2 38 3rd NMQS 138	2 38 3rd NMQS 135	2 38 3rd NMQS 135	1 3/4 38 3rd NMRS 135	1 3/4 38 3rd NMRS 135	1 1/2 38 2nd NMQS 132
1,499 m (4,999 ft) ~ 750 m (2,500 ft)	PS: SJ: JN CLIP: JN: MJ:	2 38 3rd NMQS 140	2 38 3rd NMQS 138	2 38 3rd NMQS 138	2 38 3rd NMQS 135	2 38 3rd NMQS 135	1 3/4 38 3rd NMRS 135	1 3/4 38 3rd NMRS 135
749 m (2,499 ft) ~ 300 m (1,000 ft)	PS: SJ: JN CLIP: JN: MJ:	2 38 3rd NMQS 140	2 38 3rd NMQS 140	2 38 3rd NMQS 138	2 38 3rd NMQS 138	2 38 3rd NMQS 135	2 38 3rd NMQS 135	1 3/4 38 3rd NMRS 135
299 m (999 ft) ~ 0 m Sea level	PS: SJ: JN CLIP: JN: MJ:	2 1/4 38 4th NMRS 140	2 38 3rd NMQS 140	2 38 3rd NMQS 140	2 38 3rd NMQS 138	2 38 3rd NMQS 138	2 38 3rd NMQS 135	2 38 3rd NMQS 135

Legend

- PS: Pilot Screw opening from fully seated
 SJ: Slow Jet
 JN CLIP: Needle Clip position
 JN: Jet Needle
 MJ: Main Jet

Special Tuning Conditions

There are some unique atmospheric conditions or situations that may require additional adjustments.

It should not be necessary to go more than one jet size richer or leaner to fine tune your CRF. If larger jetting changes are necessary, check for air leaks, blocked or restricted exhaust or fuel systems, or a dirty air cleaner.

Condition	Main Jet Adjustment
long straights	next larger
uphill sections	
sand	
mud	
high humidity	next smaller
raining	
hotter than 45°C (113°F)	

Once you've adjusted the carburetor for temperature and altitude, it shouldn't need major readjustment unless race conditions change drastically. However, there are some unique atmospheric conditions or race day situations that may require additional adjustments. They are as follows.

To prevent engine damage, always adjust the main jet before adjusting the jet needle. Always choose the next richer jet if there is any doubt so there is a margin for safety.

Main Jet

- Go richer on the main jet, by one size, when: the track has a very long straightaway or uphill section, a high percentage of sand, or the track is muddy.
- Go leaner on the main jet, by one size, when: it is very humid or raining, or it is hotter than 45°C (113°F).

After using the chart, and making any adjustments for special conditions, it shouldn't be necessary to go more than one jet size richer or leaner to fine tune your CRF. If larger jetting changes are necessary, check for worn crankshaft seals, air leaks, blocked or restricted exhaust or fuel systems, or a dirty air cleaner.

Pre-Adjustment Checks

Before adjusting carburetor settings, check the following:

- air cleaner
- air leaks
- float level
- clogged carburetor jets
- spark plug fouling (improper heat range or other cause)
- freshness of fuel
- owner modifications (such as exhaust system, holes in the air cleaner housing, etc.)
- ignition timing
- compression

If the above check out, then, adjust the carburetor for your specific racing conditions. Engine response and appearance of the firing end of a spark plug are highly indicative of the engine condition.

Refer to the list on pages 143, 145 for the optional carburetor parts.

To prevent engine damage, always adjust the main jet before adjusting the jet needle. If there is any doubt — always choose the next richer jet so there is a margin for safety.

Carburetor Adjustments & Tuning Tips

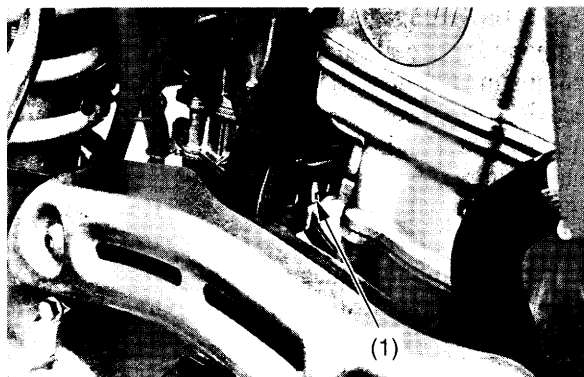
Carburetor Minor Adjustments

The standard carburetor settings are ideal for the following conditions: sea level altitude, and 20°C (68°F) air temperature. If your conditions are different, you may need to adjust the carburetor settings, using the tuning information on pages 117–119. Confirm your settings are correct before proceeding.

Minor Adjustments

1. Adjust the carburetor setting using the tuning information on pages 117–119.
2. When the engine is warm enough to run without the choke, push the choke knob in to its off position.
3. Adjust the pilot screw (1) to obtain the best off-idle performance.
 - If the engine blubbers (rich) exiting a corner, turn the pilot screw clockwise to lean the mixture.
 - If the engine surges (lean) exiting a corner, turn the pilot screw counterclockwise to richen the mixture.

The minimum to maximum range of pilot screw adjustments is 1 3/8 to 2 1/8 (ED, U type), 1 1/2 to 2 1/4 (CM type) turns out from the lightly seated position. If you exceed 2 1/8 (ED, U type), 2 1/4 (CM type) turns out, the next larger slow jet is needed. If you are under 1 3/8 (ED, U type), 1 1/2 (CM type) turns out, the next smaller slow jet is needed.



(1) pilot screw

Adjustment Procedure

1. Turn the pilot screw in until it is lightly seated and record the number of turns. Turn the pilot screw out the same number of turns.
2. Warm up the engine.
3. Adjust the engine idle speed (page 48).
4. Make two or three laps of a course with the standard setting or corrected jetting (pages 117, 118) and spark plug. Note engine acceleration and other engine conditions in relation to throttle opening. Verify carburetion by removing the spark plug and reading its firing end (page 122). It may take more than two or three laps to get a good spark plug reading with a new spark plug.
5. Change carburetor settings or select suitable carburetor jets, taking into consideration the engine conditions and factors for temperature and altitude (pages 117, 118).
6. Adjust the pilot screw as required.

⚠ WARNING

Petrol 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.

If you've determined that the main and slow jets must be changed, you must rotate the carburetor and remove the float bowl plug.

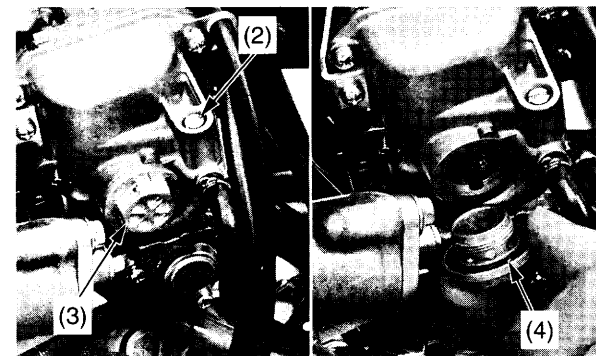
7. Turn the fuel valve OFF.
8. Drain the remaining fuel in the float bowl by loosening the drain screw (2). Then tighten the drain screw after draining the fuel.

Drain the carburetor into an approved petrol container and dispose of it in an approved manner (page 130).

NOTICE

Improper disposal of drained fluids is harmful to the environment.

9. Loosen the connecting tube clamp and insulator band screws. Rotate the carburetor.
10. Remove the float bowl plug (3). Check the float bowl plug O-ring (4) is in good condition. Replace it if necessary.



(2) drain screw
(3) float bowl plug

(4) float bowl plug O-ring

Carburetor Adjustments & Tuning Tips

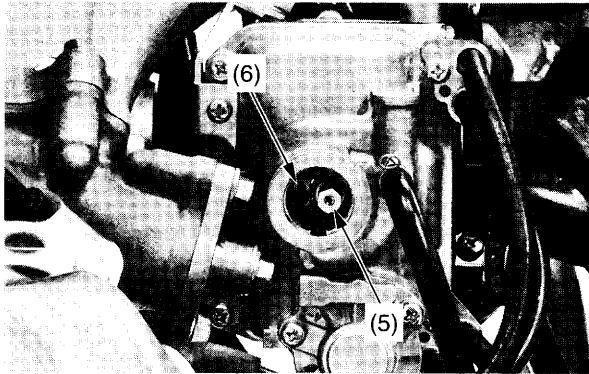
11. Change the main jet (5) and slow jet (6) as required.

Main jet:

1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)

Slow jet:

1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)



(5) main jet

(6) slow jet

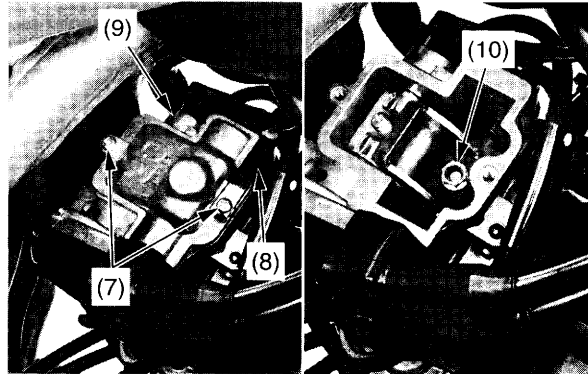
12. Reinstall the float bowl plug and tighten it to the specified torque:

4.9 N·m (0.5 kgf·m, 3.6 lbf·ft)

If you've determined that the jet needle or clip position of jet needle must be changed, you must remove the carburetor top.

13. Rotate the carburetor to the right and remove the carburetor top screws (7), cable clamp (8) and carburetor top (9).

14. Remove the jet needle/holder assembly (10).



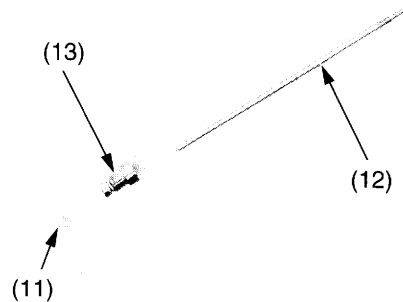
(7) carburetor top screws

(8) cable clamp

(9) carburetor top

(10) jet needle/holder assembly

15. Remove the clip (11) and jet needle (12) from the jet needle holder (13).



(11) clip

(12) jet needle

(13) jet needle holder

16. Change the clip position of jet needle or jet needle as required.

17. Reinstall the jet needle/holder assembly and tighten it to the specified torque:

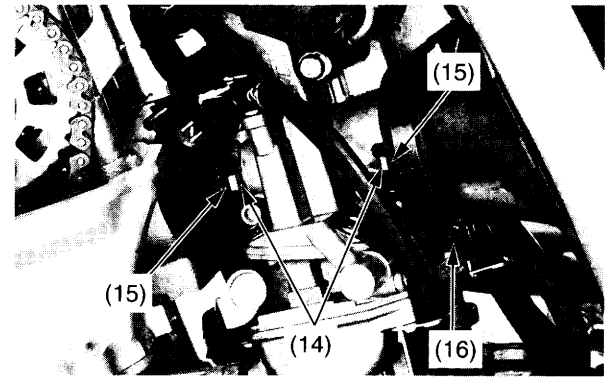
2.1 N·m (0.2 kgf·m, 1.5 lbf·ft)

18. Reinstall the carburetor top, cable clamp and carburetor top screws. Tighten the carburetor top screws to the specified torque:

2.1 N·m (0.2 kgf·m, 1.5 lbf·ft)

19. Rotate the carburetor and align the tabs (14) on the carburetor with the grooves (15) on the insulator and connecting tube.

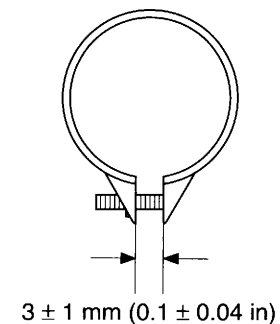
20. Tighten the connecting tube clamp screw (16) so the gap between the tabs of the clamp is 3 ± 1 mm (0.1 ± 0.04 in).



(14) tabs

(15) grooves

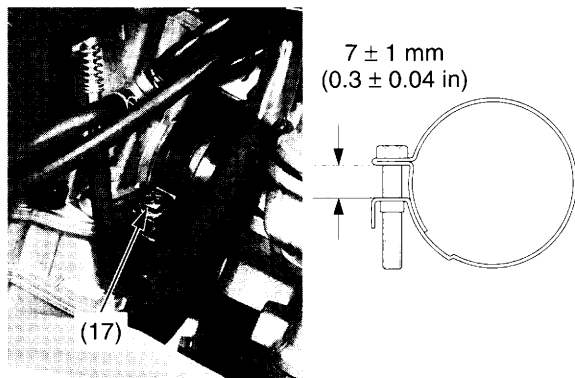
(16) connecting tube clamp screw



(cont'd)

Carburetor Adjustments & Tuning Tips

21. Tighten the insulator band screw (17) so the gap between the tabs of the clamp is 7 ± 1 mm (0.3 ± 0.04 in).



(17) insulator band screw

22. Start the engine.

If the engine idle speed is too high or too low or engine is not idling, adjust the engine idle speed (page 48).

23. Repeat steps 4 – 22 until the engine gives maximum power with the correct spark plug reading. It is always better to jet a little rich than a little lean. It is advisable to record the settings, course conditions, lap times, and climatic and barometric conditions for future reference.

Spark Plug Reading

Refer to *Spark Plug* on page 52.

Check any jetting change by reading the spark plug. The following procedure is recommended. You may not get an accurate reading if you simply turn off the engine and pull the plug for inspection.

Use a new spark plug. Inspect the plug before installing it.

NOTICE

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

Before removing the spark plug, clean the spark plug area thoroughly to prevent dirt from entering the cylinder.

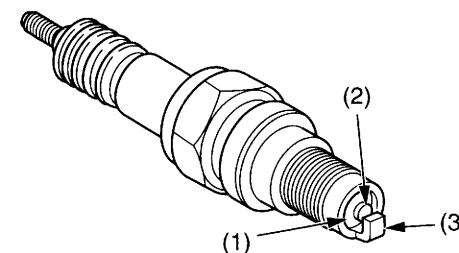
Ride for 10 – 15 minutes before taking a plug reading. A new plug will not colour immediately.

To obtain an accurate reading of a new spark plug:

1. Accelerate at full-throttle on a straight.
2. Push the engine stop button and pull the clutch lever in to release the clutch.
3. Coast to a stop.
4. Remove the spark plug.
5. Use a magnifying glass to inspect the spark plug. The porcelain insulator (1) around the centre electrode (2) should appear clean and colourless with a gray ring around the centre electrode where it exits the porcelain. Metallic specks indicate lean jetting that is removing metal from the piston. Black sooty streaks on the porcelain indicate rich jetting.

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.



(1) porcelain insulator (3) side electrode
(2) centre electrode

Spark Plug Colouring Guidelines

Condition	Spark Plug Appearance	Mixture
Normal	Dark brown to light tan colour with dry electrode	correct
Overheating (Lean)	Light gray or white colour	lean
Wet (Rich)	Wet or sooty	rich

Remember that in addition to improper jetting:

- A lean condition can be caused by air leaks in the inlet tract or exhaust system, the passage of too much air because of the use of the wrong air cleaner, use of a less-restrictive aftermarket exhaust system, or a hole or holes (deliberate or unintentional) in the air cleaner housing.
- A rich condition can be caused by a plugged or dirty air cleaner, use of a more-restrictive aftermarket exhaust system, a clogged spark arrester, or excessive oil on the air cleaner. Excessive smoking will occur.

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 85 mm (3.3 in) of sag, you can run 80 mm (3.1 in) or 75 mm (3.0 in) 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 centre 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.

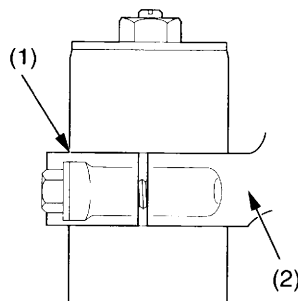
Keep the race sag adjustment (page 104) in the 85 – 105 mm (3.3 – 4.1 in) range.

Fork Height/Angle

The position of the fork tubes in the clamps is not adjustable. Align the groove in the outer tube with the top surface of the upper fork clamp.

Standard Position

Align the groove (1) in the outer tube with the top surface of the upper fork clamp (2).



(1) groove

(2) upper fork clamp

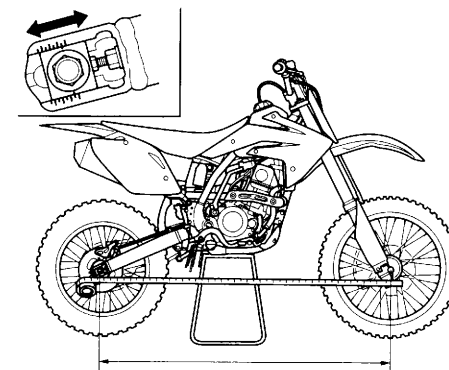
Wheelbase

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 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 rear 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 three optional aluminum driven sprockets. For muddy or sandy courses, standard steel driven sprocket is a more durable. Like the optional springs, these sprockets are listed in the Optional Parts List section of this manual.

Unless you have the required mechanical knowhow, tools, and an official Honda Shop Manual, sprocket changing should be done by your Honda 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 gearing 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.

Choosing the correct tyre tread pattern and rubber compound can affect your placing in competition. The tyres 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 tyres developed for specific terrain conditions. If you do switch, stay with the factory recommended sizes. Other tyres may affect handling or acceleration.

Be aware that tyre sizes (width and aspect ratio) do vary from manufacturer to manufacturer or even among tyres made by the same manufacturer. Variations in tyres, especially the sidewall profile, can change the attitude of your CRF and its handling. Tyre variations that raise or lower the rear of your CRF have a more significant effect on handling than variations in front tyres which, generally, don't vary as much. Often, you can see or feel the change in tyre size. Another way to check is to measure the rolling circumference of the old and new tyres. A higher profile tyre will have a larger rolling circumference.

If you do switch to tyres designed for special terrain use, remember they will be less acceptable in other circumstances. For example, an aggressive mud tyre will give excellent grip on wet, loamy terrain, but less impressive grip on a hard surface.

If you choose a tyre 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 tyre manufacturer representatives and dealers.

Some general recommendations for specific terrain follow:

Hard, Slick Soil

Use tyres 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 tyres tend to wear more quickly than standard tyres 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 tyre that is similar in construction to those needed for tacky soil and mud, but with a few more knobs.

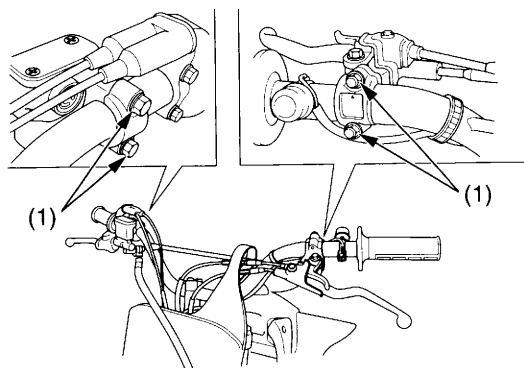
Personal Fit Adjustments

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.

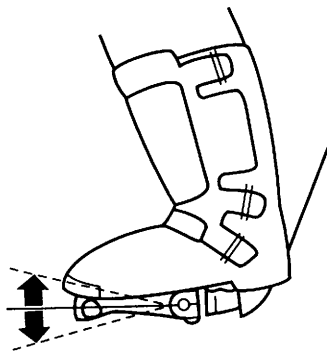
Apply Honda Thread Lock or an equivalent to the threads of these bolts prior to adjustment to help ensure the correct torque is retained. Tighten the top bolts first.



(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.

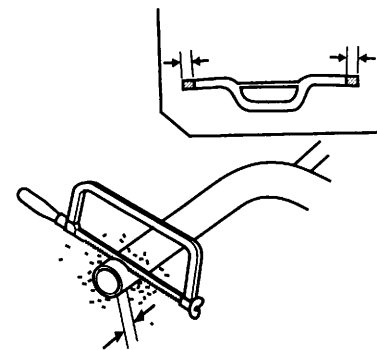
- Position the shift lever and brake pedal so they are close to your boot for rapid access, but not so close that either is depressed when sitting or standing comfortably on your CRF.



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.
- 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 cut off 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.

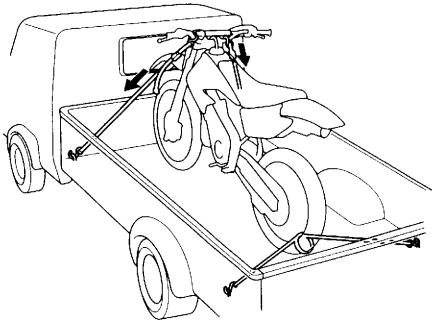
Here's helpful advice on how to transport and store your Honda, as well as three troubleshooting flow charts.

Transporting Your Motorcycle	128
Storing Your Honda.....	129
Preparation for Storage.....	129
Removal from Storage.....	129
You & the Environment	130
Troubleshooting.....	131

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 petrol 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 37).
3. Replace the transmission oil (page 40).
4. Drain the fuel tank and carburetor into an approved petrol container.
Turn the fuel valve OFF and loosen the carburetor drain screw. Drain petrol into an approved container. Retighten the drain screw.

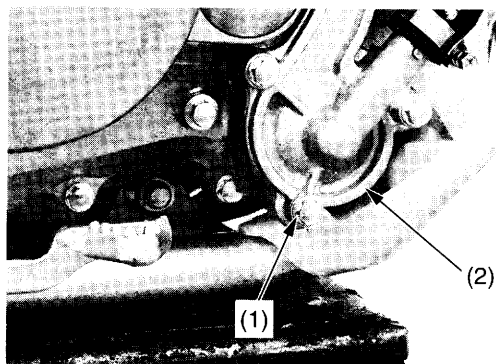
⚠ WARNING

Petrol 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 radiator cap and coolant drain bolt/sealing washer (1) at the water pump (2) to drain coolant.

After the coolant has been completely drained, ensure that the drain bolt sealing washer is in good condition and install the drain bolt/sealing washer and radiator cap.
Coolant drain bolt:
10 N·m (1.0 kgf·m, 7 lbf·ft)



(1) coolant drain bolt/sealing washer
(2) water pump

6. Lubricate the drive chain.
7. Inflate the tyres to their recommended pressures.
8. Place your CRF on an optional workstand or equivalent to raise both tyres off the ground.
9. Stuff a rag into the muffler outlet. Then tie a plastic bag over the end of the muffler to prevent moisture from entering.
10. Store your CRF in an unheated area, free of dampness, away from sunlight, with a minimum of daily temperature variation.
11. 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.
2. Uncover the end of the muffler and remove the rag from the muffler outlet.
3. Fill the fuel tank with recommended fuel (page 34).
4. Pour a fresh recommended coolant mixture (page 41) slowly into the radiator filler hole up to the filler neck.
Capacity:
0.76 ℓ (0.80 US qt, 0.67 Imp qt)
after disassembly

Lean your CRF slightly right and left several times to bleed trapped air in the cooling system.

If the coolant level lowers, add coolant and repeat the above procedure.

Install the radiator cap securely.

5. Perform all maintenance checks (page 21).

You & the Environment

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.

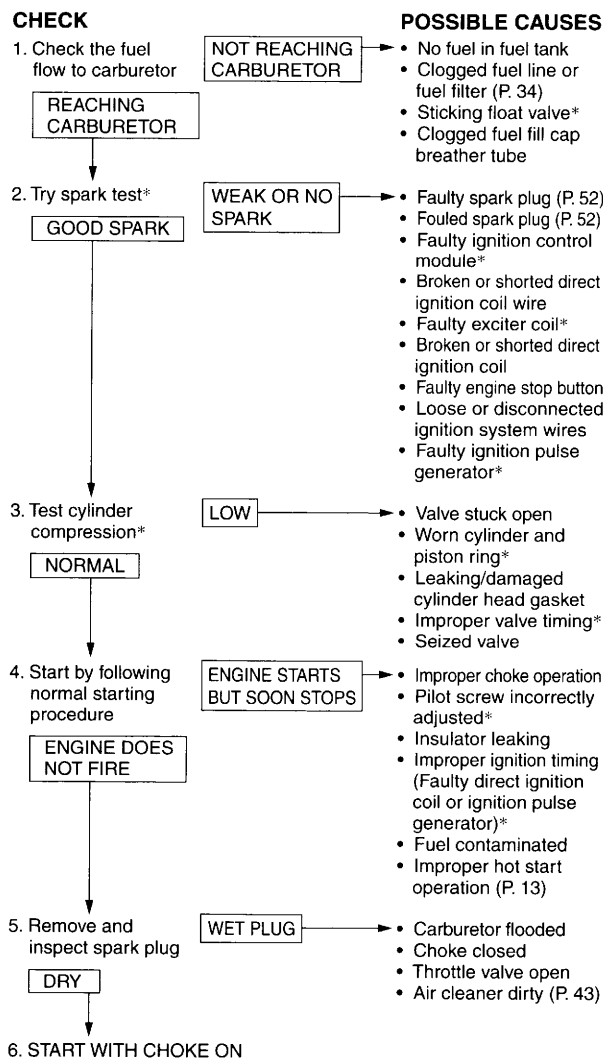
- **Choose Sensible Cleaners.** Use a biodegradable detergent when you wash your CRF. Avoid aerosol spray cleaners that contain chlorofluorocarbons (CFCs) which damage the atmosphere's protective ozone layer. Don't throw cleaning solvents away; see the following guidelines for proper disposal.
- **Recycle Wastes.** It's illegal and thoughtless to put used engine oil in the trash, down a drain, or on the ground. Used oil, petrol, 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 centre. Call your local of public works or environmental services to find a recycling centre in your area and get instructions on how to dispose of nonrecyclable wastes.

NOTICE

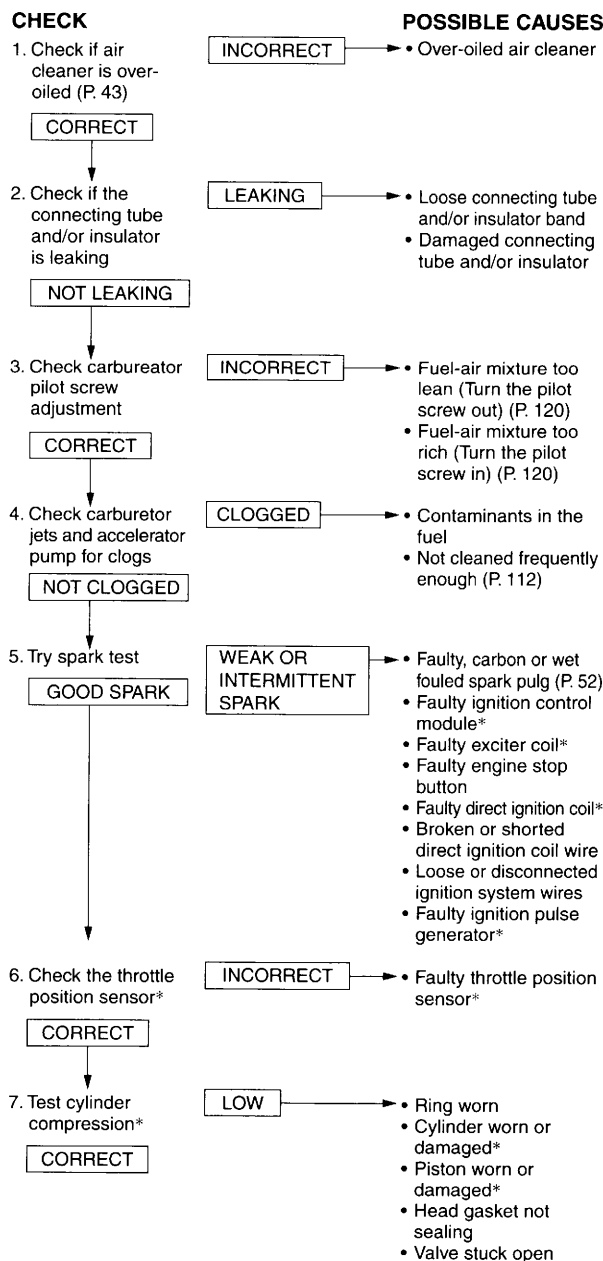
Improper disposal of drained fluids is harmful to the environment.

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 Shop Manual are followed by an asterisk (*).

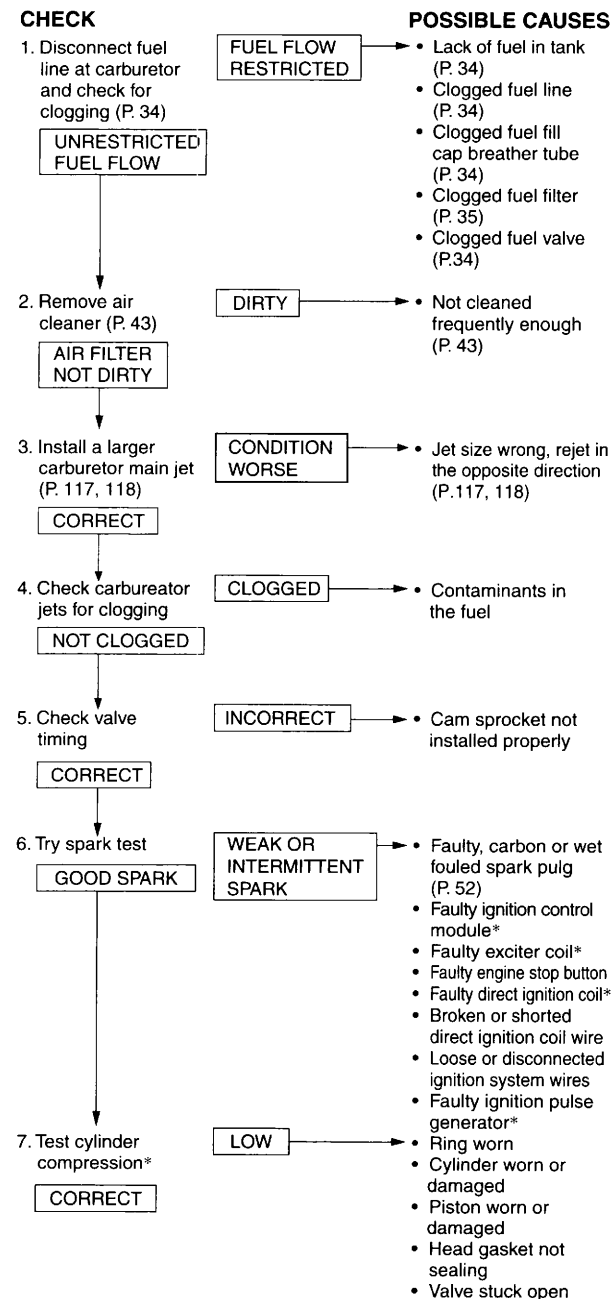
ENGINE DOES NOT START OR IS HARD TO START



POOR PERFORMANCE AT LOW AND UNSTABLE IDLE SPEED



POOR PERFORMANCE AT HIGH SPEED



This section contains dimensions, capacities, and other technical data.

Vehicle Identification	134
Specifications	135
Torque Specifications	137
Petrol Containing Alcohol.....	140
Competition Logbook	141
Optional Parts List.....	143
Spare Parts & Equipment.....	147
Wiring Diagram.....	148

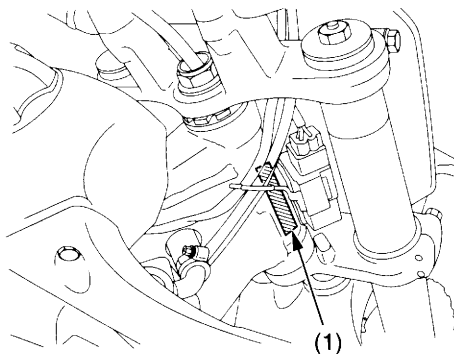
Vehicle Identification

Serial Numbers

The VIN and engine serial number are required when you register your CRF. They may also be required when ordering replacement parts.

The VIN (vehicle identification number) (1) is stamped on the right side of the steering head.

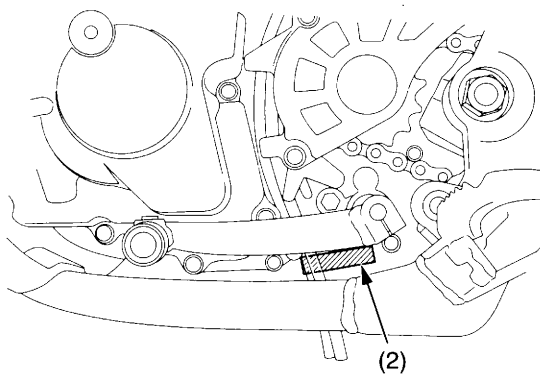
RIGHT SIDE



(1) VIN

The engine number (2) is stamped on the left crankcase.

LEFT SIDE



(2) engine number

CRF150R

Item	Metric	English
Dimension		
Overall length	1,832 mm	72.1 in
Overall width	770 mm	30.3 in
Overall height	1,133 mm	44.6 in
Wheelbase	1,260 mm	49.6 in
Seat height	832 mm	32.8 in
Footpeg height	379 mm	14.9 in
Ground clearance	301 mm	11.9 in
Frame		
Type	Semi double cradle	
F. suspension	Telescopic fork travel 241.3 mm (9.50 in) stroke 275 mm (10.8 in)	
R. suspension	Pro-link travel 272.4 mm (10.72 in)	
Front tyre	ED, CM	70/100 – 17 40M
		BRIDGESTONE M23
	U	70/100 – 17 40M
		IRC M6B
Rear tyre	ED, CM	90/100 – 14 49M
		BRIDGESTONE M22
	U	90/100 – 14 49M
		IRC M5C
Tyre type	bias-ply, tube	
Tyre pressure, front (cold)	100 kPa (1.0 kgf/cm ² , 15 psi)	
Tyre pressure, rear (cold)	100 kPa (1.0 kgf/cm ² , 15 psi)	
F. brake, swept area	Single disc brake 358.1 cm ² (55.5 in ²)	
R. brake, swept area	Single disc brake 300.7 cm ² (46.6 in ²)	
Fuel recommendation	unleaded petrol, research octane number of 95 or higher	
Fuel capacity	4.3 ℓ	1.14 US gal 0.95 Imp gal
Caster angle	27°2'	
Trail length	78 mm	3.1 in
Fork oil capacity	357.0 cm ³	12.07 US oz 12.57 Imp oz

Item	Metric	English
Engine		
Type	Liquid cooled, 4-stroke	
Cylinder arrangement	Single 19° inclined from vertical	
Bore and stroke	66.0 x 43.7 mm	2.60 x 1.72 in
Displacement	149.7 cm ³	9.13 cu-in
Compression ratio	11.7 : 1	
Valve clearance	Intake: 0.16 ± 0.03 mm (0.006 ± 0.001 in) Exhaust: 0.26 ± 0.03 mm (0.010 ± 0.001 in)	
Engine oil capacity	0.56 ℓ	0.59 US qt
After draining		0.49 Imp qt
After draining and oil filter change		0.62 US qt 0.52 Imp qt
After disassembly	0.70 ℓ	0.74 US qt 0.62 Imp qt
Transmission oil capacity	0.57 ℓ	0.60 US qt
After draining		0.50 Imp qt
After disassembly	0.65 ℓ	0.69 US qt 0.57 Imp qt
Carburetor (CM Type)		
Type	Piston valve	
Identification number	FCR08B	
Main jet (standard)	# 138	
Jet needle (standard)	NMQS	
Needle clip position (standard)	3rd groove	
Slow jet (standard)	# 38	
Pilot screw opening	2 turns out	
Float level	7.0 mm	0.28 in
Idle speed	2,100 ± 100 min ⁻¹ (rpm)	

Item	Metric	English
Carburetor (ED, U Type)		
Type	Piston valve	
Identification number	FCR15A	
Main jet (standard)	# 130	
Jet needle (standard)	NMQT	
Needle clip position (standard)	3rd groove	
Slow jet (standard)	# 40	
Pilot screw opening	1 7/8 turns out	
Float level	7.0 mm	0.28 in
Idle speed	2,100 ± 100 min ⁻¹ (rpm)	
Cooling System		
Coolant capacity After disassembly	0.76 ℓ	0.80 US qt 0.67 Imp qt
Drive train		
Clutch type	Wet, multi-plate type	
Transmission	5-speed, constant mesh	
Primary reduction	4.117	
Gear ratio I	2.214	
Gear ratio II	1.647	
Gear ratio III	1.318	
Gear ratio IV	1.105	
Gear ratio V	0.956	
Final reduction	3.333	
Gear shift pattern	Left foot-operated return system 1-N-2-3-4-5	
Electrical		
Ignition	ICM	
Starting system	Kickstarter	
Spark plug: Standard	NGK CR8EH-9 DENSO U24FER9	
Optional	NGK CR9EH-9 DENSO U27FER9	
Spark plug gap	0.8 – 0.9 mm (0.031 – 0.035 in)	

Specifications

CRF150RB

Item	Metric	English
Dimension		
Overall length	1,900 mm	74.8 in
Overall width	770 mm	30.3 in
Overall height	1,171 mm	46.1 in
Wheelbase	1,285 mm	50.6 in
Seat height	866 mm	34.1 in
Footpeg height	413 mm	16.3 in
Ground clearance	336 mm	13.2 in
Frame		
Type	Semi double cradle	
F. suspension	Telescopic fork travel 241.3 mm (9.50 in) stroke 275 mm (10.8 in)	
R. suspension	Pro-link travel 282.1 mm (11.11 in)	
Front tyre	70/100 – 19 42M	
	BRIDGESTONE	M61
Rear tyre	90/100 – 16 52M	
	BRIDGESTONE	M58
Tyre type	bias-ply, tube	
Tyre pressure, front (cold)	100 kPa (1.0 kgf/cm ² , 15 psi)	
Tyre pressure, rear (cold)	100 kPa (1.0 kgf/cm ² , 15 psi)	
F. brake, swept area	Single disc brake 358.1 cm ² (55.5 in ²)	
R. brake, swept area	Single disc brake 300.7 cm ² (46.6 in ²)	
Fuel recommendation	unleaded petrol, research octane number of 95 or higher	
Fuel capacity	4.3 ℓ	1.14 US gal 0.95 Imp gal
Caster angle	27°48'	
Trail length	96 mm	3.8 in
Fork oil capacity	342.0 cm ³	11.57 US oz 12.04 Imp oz

Item	Metric	English
Engine		
Type	Liquid cooled, 4-stroke	
Cylinder arrangement	Single 19° inclined from vertical	
Bore and stroke	66.0 x 43.7 mm	2.60 x 1.72 in
Displacement	149.7 cm ³	9.13 cu-in
Compression ratio	11.7 : 1	
Valve clearance	Intake: 0.16 ± 0.03 mm (0.006 ± 0.001 in) Exhaust: 0.26 ± 0.03 mm (0.010 ± 0.001 in)	
Engine oil capacity After draining	0.56 ℓ	0.59 US qt 0.49 Imp qt
After draining and oil filter change	0.59 ℓ	0.62 US qt 0.52 Imp qt
After disassembly	0.70 ℓ	0.74 US qt 0.62 Imp qt
Transmission oil capacity After draining	0.57 ℓ	0.60 US qt 0.50 Imp qt
After disassembly	0.65 ℓ	0.69 US qt 0.57 Imp qt
Carburetor (CM Type)		
Type	Piston valve	
Identification number	FCR08B	
Main jet (standard)	# 138	
Jet needle (standard)	NMQS	
Needle clip position (standard)	3rd groove	
Slow jet (standard)	# 38	
Pilot screw opening	2 turns out	
Float level	7.0 mm	0.28 in
Idle speed	2,100 ± 100 min ⁻¹ (rpm)	

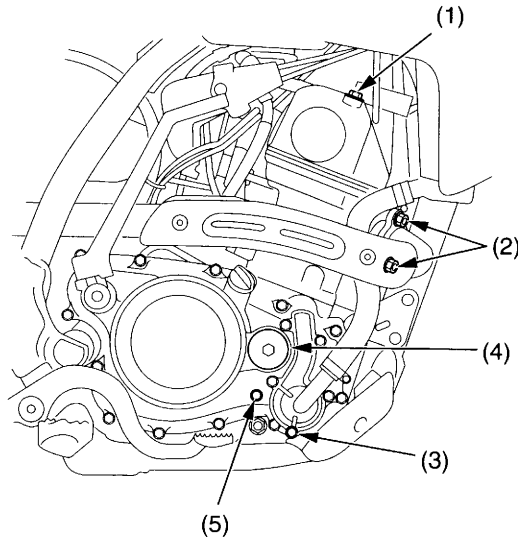
Item	Metric	English
Carburetor (ED, U Type)		
Type	Piston valve	
Identification number	FCR15A	
Main jet (standard)	# 130	
Jet needle (standard)	NMQT	
Needle clip position (standard)	3rd groove	
Slow jet (standard)	# 40	
Pilot screw opening	1 7/8 turns out	
Float level	7.0 mm	0.28 in
Idle speed	2,100 ± 100 min ⁻¹ (rpm)	
Cooling System		
Coolant capacity After disassembly	0.76 ℓ	0.80 US qt 0.67 Imp qt
Drive train		
Clutch type	Wet, multi-plate type	
Transmission	5-speed, constant mesh	
Primary reduction	4.117	
Gear ratio I	2.214	
Gear ratio II	1.647	
Gear ratio III	1.318	
Gear ratio IV	1.105	
Gear ratio V	0.956	
Final reduction	3.733	
Gear shift pattern	Left foot-operated return system 1-N-2-3-4-5	
Electrical		
Ignition	ICM	
Starting system	Kickstarter	
Spark plug: Standard	NGK CR8EH-9 DENSO U24FER9	
Optional	NGK CR9EH-9 DENSO U27FER9	
Spark plug gap	0.8 – 0.9 mm (0.031 – 0.035 in)	

Nuts, Bolts, Fasteners

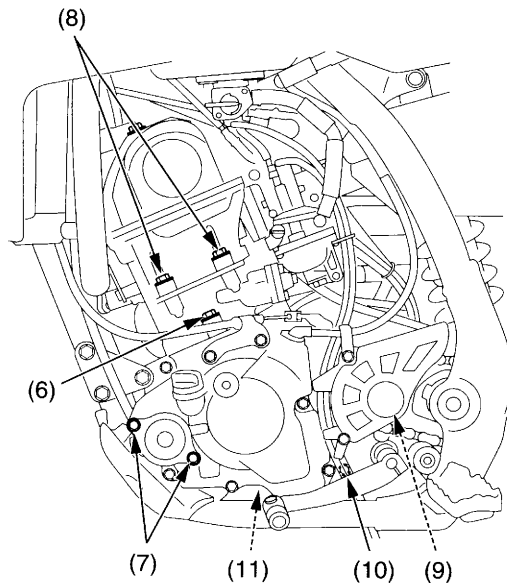
Check and tighten nuts, bolts, and fasteners before every outing.

Engine

RIGHT SIDE



LEFT SIDE



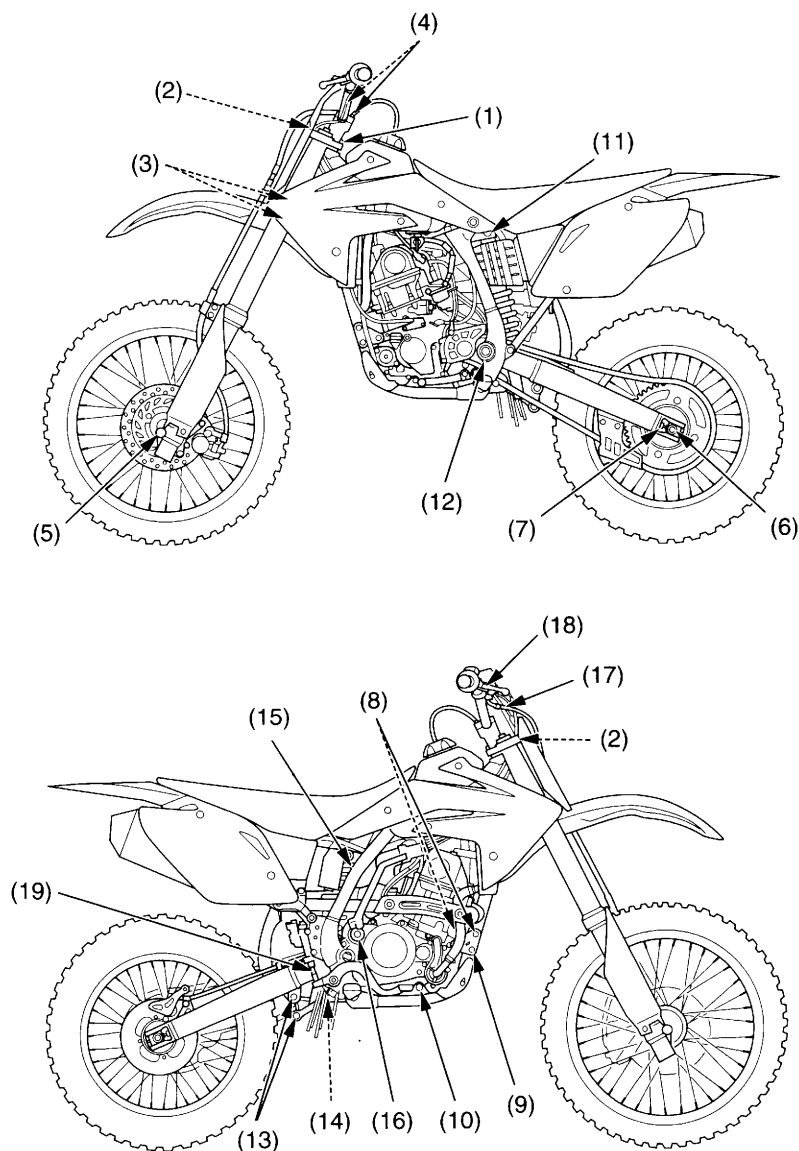
ENGINE

Item		Torque			Remarks
		N•m	kgf•m	lbf•ft	
1	Cylinder head cover bolts	10	1.0	7	
2	Exhaust pipe joint nuts	11	1.1	8	
3	Coolant drain bolt	10	1.0	7	
4	Crankshaft hole cap	15	1.5	11	NOTE 5
5	Transmission oil check bolt	10	1.0	7	
6	Cylinder bolt	10	1.0	7	
7	Oil filter cover bolts	10	1.0	7	
8	Cylinder head bolts	10	1.0	7	
9	Drive sprocket bolt	13	1.3	10	
10	Transmission oil drain bolt	22	2.2	16	NOTE 3
11	Engine oil drain bolt	22	2.2	16	NOTE 3

- NOTES:
1. U-nut.
 2. UBS nut.
 3. Apply oil to the threads and seating surface.
 4. Alock bolt.
 5. Apply grease to the threads.
 6. Apply locking agent to the threads.

Torque Specifications

Frame

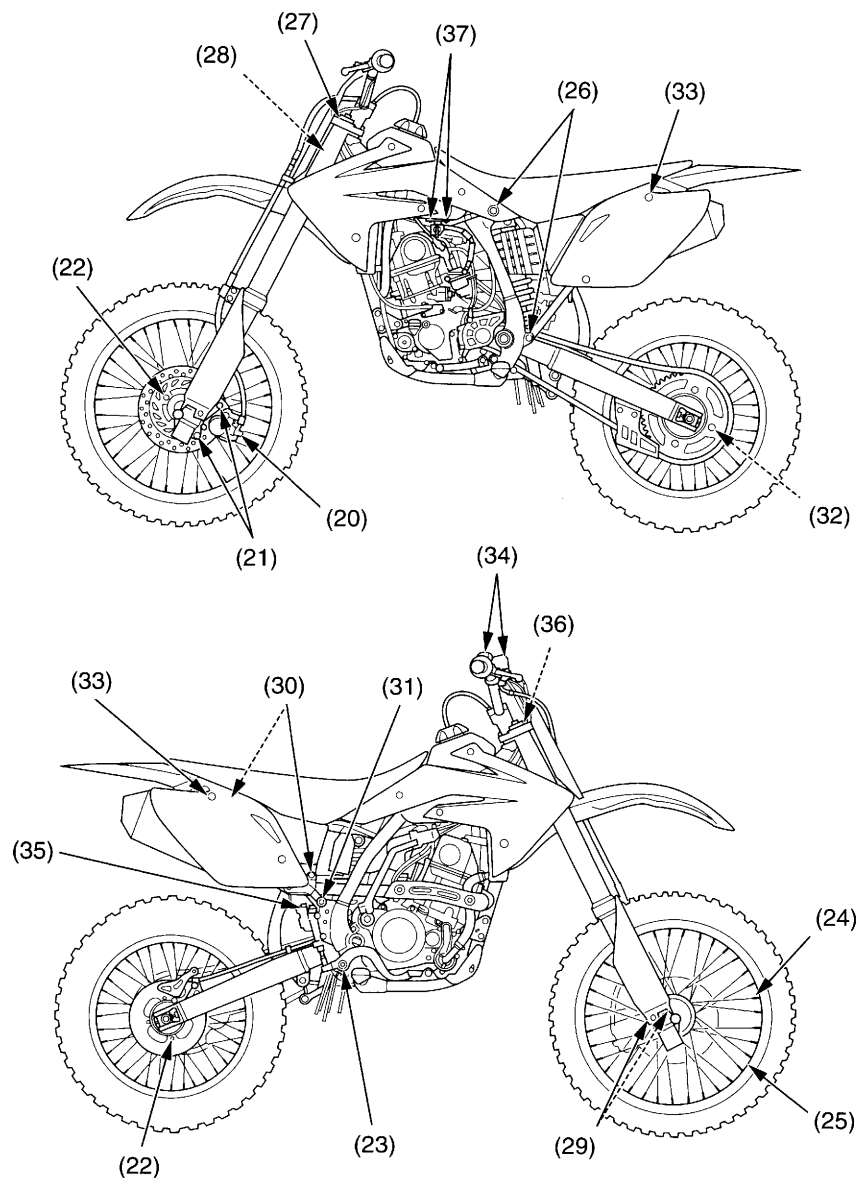


FRAME

Item	Torque			Remarks
	N•m	kgf•m	lbf•ft	
1 Steering stem nut	128	13.1	94	
2 Fork bridge upper pinch bolts	22	2.2	16	
3 Fork bridge lower pinch bolts	22	2.2	16	
4 Handlebar upper holder bolts	22	2.2	16	
5 Front axle nut	69	7.0	51	NOTE 1
6 Rear axle nut	88	9.0	65	NOTE 1
7 Chain adjuster lock nuts	27	2.8	20	NOTE 2
8 Front engine hanger bracket nuts (10 mm)	64	6.5	47	
9 Front engine hanger bracket nut (8 mm)	34	3.5	25	
10 Middle engine mounting nut	64	6.5	47	
11 Shock absorber	44	4.5	32	NOTE 1
12 Swingarm pivot nut	83	8.5	61	
13 Rear shock arm nuts (swingarm side)	44	4.5	32	NOTE 1
	44	4.5	32	NOTE 1
14 Rear shock link nuts (frame side)	44	4.5	32	NOTE 1
15 Shock spring lock nut	88	9.0	65	
16 Kickstarter arm bolt	38	3.9	28	
17 Throttle cable adjuster lock nut	4.0	0.4	3.0	
18 Brake lever adjuster lock nut	5.9	0.6	4.4	
19 Brake pedal adjuster lock nut	5.9	0.6	4.4	

- NOTES:
1. U-nut.
 2. UBS nut.
 3. Apply oil to the threads and flange surface.
 4. Alock bolt.
 5. Apply grease to the threads.
 6. Apply locking agent to the threads.

Frame



FRAME

Item	Torque			Remarks
	N•m	kgf•m	lbf•ft	
20 Brake hose bolts	34	3.5	25	
21 Brake caliper mounting bolts	30	3.1	22	NOTE 4
22 Brake disc bolts	20	2.0	15	NOTE 4
23 Brake pedal pivot bolt	32	3.3	24	
24 Spokes	3.7	0.4	2.7	
25 Rim locks	12.4	1.3	9	
26 Subframe upper/lower mounting bolts	30	3.1	22	
27 Fork cap	34	3.5	25	
28 Fork cap lock nut	19.7	2.0	15	
29 Fork protector bolts	7.0	0.7	5.2	NOTE 4
30 Muffler mounting bolts	32	3.3	24	
31 Muffler clamp bolt	21	2.1	15	
32 Driven sprocket nuts	32	3.3	24	NOTE 1
33 Seat mounting bolts	26	2.7	19	
34 Front brake reservoir cap screws	1.5	0.2	1.1	
35 Rear brake reservoir cap bolts	1.5	0.2	1.1	
36 Fork air pressure release screw	1.3	0.1	1.0	
37 Fuel valve bolts	10	1.0	7	

- NOTES:
1. U-nut.
 2. UBS nut.
 3. Apply oil to the threads and flange surface.
 4. Lock bolt.
 5. Apply grease to the threads.
 6. Apply locking agent to the threads.

Petrol Containing Alcohol

If you decide to use a petrol containing alcohol (gasohol), be sure its octane rating is at least as high as that recommended above.

There are two types of gasohol: One contains ethanol, and the other contains methanol. Do not use gasohol that contains more than 10% ethanol. Do not use gasohol that contains methanol (methyl or wood alcohol) unless it also contains cosolvents and corrosion inhibitors for methanol. Never use petrol containing more than 5% methanol, even if it has cosolvents and corrosion inhibitors.

Engine performance problems resulting from the use of fuels that contain alcohol are not covered under the warranty. Honda cannot endorse the use of fuels containing methanol since evidence of their suitability is not yet complete.

Before buying fuel from an unfamiliar station, try to find out if the fuel contains alcohol. If it does, confirm the type and percentage of alcohol used. If you notice any undesirable operating symptoms while using a petrol that contains alcohol, or one that you think contains alcohol, switch to a petrol that you know does not contain alcohol.

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, carburetor adjustments, gearing, and tyre 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 colour pens or pencils to record important information on specific subjects. For example, record results in black, jetting changes in red, suspension/chassis settings in blue, and gearing selections in green. Colour 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
- carburetion changes
- suspension settings
- chassis adjustments tested and selected
- gearing
- tyre selection
- air pressure

Competition Records

- your placings
- thoughts to improve performance next time: both yours and your CRF
- 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 races or every-so-many hours of running.

Because all races are not the same, 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 heat 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, sprocket, chain guide and slider replacements
- Coolant changes and related component replacements
- Spark plug, brake pad 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.


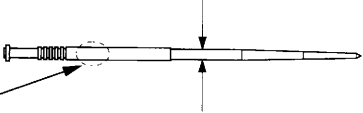
Competition Logbook

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Optional Parts List (ED, U Type)




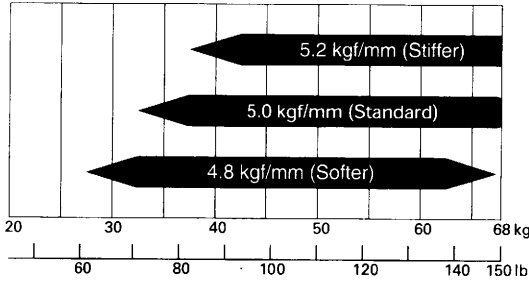
These parts and tools may be ordered from your authorized Honda dealer.

CARBURETOR	Remarks	
Main jet (Standard: #130)	#120 – #140 (in increments of 2 or 3) (9 sizes)	 Size
Slow jet (Standard: #40)	#35 – 45 (in increments of 2 or 3)	
Jet Needle Standard needle: NMQT Straight diameter: ø2.775 mm  MARK		
Specific flow characteristics at 1/16 to 1/4 throttle	Jet needle number (standard series)	Jet needle number (1/2 clip position leaner than standard at 1/8 to 3/4 throttle)
Rich ↑ ↓ Lean	NMQR ø2.755 mm	NMRR ø2.755 mm
	NMQS ø2.765 mm	NMRS ø2.765 mm
	(standard needle) NMQT ø2.775 mm	NMRT ø2.775 mm
	NMQU ø2.785 mm	NMRU ø2.785 mm
	NMQV ø2.795 mm	NMRV ø2.795 mm





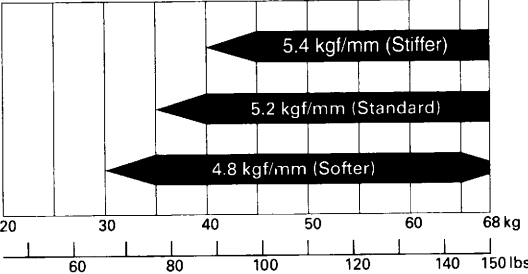
CARBURETOR	Remarks
Accelerator pump diaphragm	#30 (standard) #25
Fuel flow amount ↓ increase	Leak jet number #60 (standard) #55 #50







FRAME	Remarks
Driven sprocket	CRF150R < >: Drive chain links 49T, Aluminum <120> 50T, steel <120> (standard) 50T, Aluminum <120> 51T, Aluminum <120>
	CRF150RB < >: Drive chain links 55T, Aluminum <126> 56T, steel <126> (standard) 56T, Aluminum <126> 57T, Aluminum <126>
Drive chain	Standard DID420DS3: 120 Links (CRF150R) 126 Links (CRF150RB)
	Optional DID420DS3: 130 Links

TOOLS	Remarks
Workstand	For maintenance
Pin spanner A	To adjust spring pre-load
Pin spanner B	To torque the shock spring lock nut

FRAME	Remarks
Shock springs	CRF150R Softer ↑ Standard ↓ Stiffer 4.8 kgf/mm (268.8 lbf/in)  Red mark 5.0 kgf/mm (280.0 lbf/in)  White mark 5.2 kgf/mm (291.2 lbf/in)  No mark
Rider Weight  The maximum load capacity is 68 kg (150 lbs). Rider weight must not exceed this limit.	

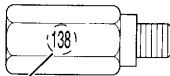
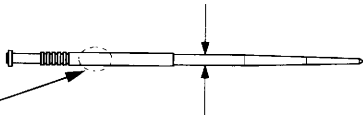


Optional Parts List (ED, U Type)

FRAME		Remarks
Shock springs	CRF150RB	
	Softer	4.8 kgf/mm (268.8 lbf/in) <div>  Red mark </div>
		5.0 kgf/mm (280.0 lbf/in) <div>  White mark </div>
	Standard	5.2 kgf/mm (291.2 lbf/in) <div>  No mark </div>
	Stiffer	5.4 kgf/mm (302.4 lbf/in) <div>  Black mark </div>
<div> <div>Rider Weight</div>  <p>The maximum load capacity is 68 kg (150 lbs). Rider weight must not exceed this limit.</p> </div>		

FRAME		Remarks
Fork springs	CRF150R	
	Softer	0.32 kgf/mm (17.9 lbf/in) <div>  2 coils at one end; 1 coil at other end </div>
	Standard	0.34 kgf/mm (19.0 lbf/in) <div>  1 coil at both ends </div>
	Stiffer	0.36 kgf/mm (20.2 lbf/in) <div>  1 scribe mark </div>
	CRF150RB	
	Softer	0.34 kgf/mm (19.0 lbf/in) <div>  1 coil at both ends </div>
	Standard	0.36 kgf/mm (20.2 lbf/in) <div>  1 scribe mark </div>
	Stiffer	0.38 kgf/mm (21.3 lbf/in) <div>  2 scribe mark </div>

Optional Parts List (CM Type)




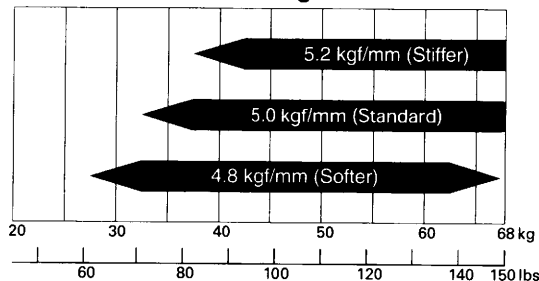
These parts and tools may be ordered from your authorized Honda dealer.

CARBURETOR	Remarks	
Main jet (Standard: #138)	#128 – #148 (in increments of 2 or 3) (9 sizes) <div> Size</div>	
Slow jet (Standard: #38)	#35 – 42 (in increments of 2 or 3)	
Jet Needle Standard needle: NMQS Straight diameter: $\varnothing 2.765$ mm <div> MARK</div>		
characteristics at 1/16 to 1/4 throttle	Jet needle number (standard series)	Jet needle number (1/2 clip position leaner than standard at 1/8 to 3/4 throttle)
Rich   Lean	NMQQ $\varnothing 2.745$ mm	NMRQ $\varnothing 2.745$ mm
	NMQR $\varnothing 2.755$ mm	NMRR $\varnothing 2.755$ mm
	(standard needle) NMQS $\varnothing 2.765$ mm	NMRS $\varnothing 2.765$ mm
	NMQT $\varnothing 2.775$ mm	NMRT $\varnothing 2.775$ mm
	NMQU $\varnothing 2.785$ mm	NMRU $\varnothing 2.785$ mm





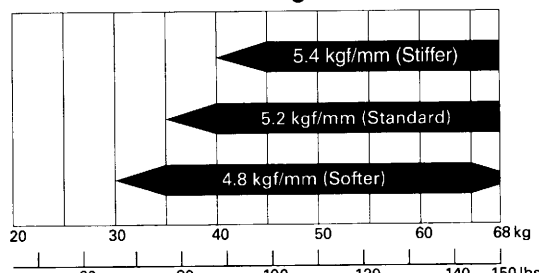
CARBURETOR	Remarks
Accelerator pump diaphragm	#25 (standard) #20
Fuel flow amount ↓ increase	Leak jet number #58 (standard) #52 #48

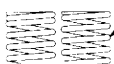





FRAME		Remarks
Driven sprocket	CRF150R	< >: Drive chain links 49T, Aluminum <120> 50T, steel <120> (standard) 50T, Aluminum <120> 51T, Aluminum <120>
	CRF150RB	< >: Drive chain links 55T, Aluminum <126> 56T, steel <126> (standard) 56T, Aluminum <126> 57T, Aluminum <126>
Drive chain	Standard	DID420DS3: 120 Links (CRF150R) 126 Links (CRF150RB)
	Optional	DID420DS3: 130 Links

TOOLS	Remarks
Workstand	For maintenance
Pin spanner A	To adjust spring pre-load
Pin spanner B	To torque the shock spring lock nut

FRAME		Remarks
Shock springs	CRF150R	
	Softer ↑	4.8 kgf/mm (268.8 lbf/in)  Red mark
	Standard ↓	5.0 kgf/mm (280.0 lbf/in)  White mark
	Stiffer ↓	5.2 kgf/mm (291.2 lbf/in)  No mark
Rider Weight  <p>The maximum load capacity is 68 kg (150 lbs). Rider weight must not exceed this limit.</p>		

Optional Parts List (CM Type)

FRAME		Remarks
Shock springs	CRF150RB	
	Softer	4.8 kgf/mm (268.8 lbf/in)  Red mark
	↑	5.0 kgf/mm (280.0 lbf/in)  White mark
	Standard	5.2 kgf/mm (291.2 lbf/in)  No mark
	↓	5.4 kgf/mm (302.4 lbf/in)  Black mark
<p>Rider Weight</p>  <p>The maximum load capacity is 68 kg (150 lbs). Rider weight must not exceed this limit.</p>		

FRAME		Remarks
Fork springs	CRF150R	
	Softer	0.32 kgf/mm (17.9 lbf/in)  2 coils at one end; 1 coil at other end
	Standard	0.34 kgf/mm (19.0 lbf/in)  1 coil at both ends
	Stiffer	0.36 kgf/mm (20.2 lbf/in)  1 scribe mark
	CRF150RB	
	Softer	0.34 kgf/mm (19.0 lbf/in)  1 coil at both ends
	Standard	0.36 kgf/mm (20.2 lbf/in)  1 scribe mark
	Stiffer	0.38 kgf/mm (21.3 lbf/in)  2 scribe marks

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
air cleaner (clean & oiled, sealed in a plastic bag)
optional carburetor jets/needles
chain & masterlinks
chain guide slider
chain guide
chain rollers
inner tubes (front & rear)
fenders
footpegs
number plate & 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 (larger & smaller than standard, for gearing changes & collision damage replacement)
assorted nuts, bolts, washers, screws, cotter pins

Additional Spares

front brake assembly
rear brake assembly
wheels & tyres (front & rear, mounted)
clutch disc 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
tyre pressure gauge
tyre irons
tyre pump or air tank
feeler gauge set
vernier caliper (metric)
pressure/vacuum testing equipment

Honda Special Tools

Any special tools for your CRF purchased from your Honda dealer.

• Spoke Wrench	07701-0020300
• Tensioner Stopper	070MG-0010100

Chemical Products

Honda 4-STROKE MOTORCYCLE OIL
(Engine and transmission oil)
SAE 80 or 90 gear oil
Honda ULTRA CUSHION OIL SPECIAL 5W
DOT 4 Brake Fluid
Chain Lube
Honda Foam Air Filter Oil
Honda Dielectric Grease
Hand Grip Cement
Honda Thread Lock
Molybdenum Disulfide Grease (containing more than 3% molybdenum disulfide additive)
Honda White Lithium Grease
Multi-purpose Grease
Rust-inhibiting Oil
Cable lubricant
High quality ethylene glycol antifreeze containing corrosion protection inhibitors
Urea based multi-purpose grease with extreme pressure (example: EXCELITE EP2 manufactured by KYODO YUSHI, Japan or Shell Stamina EP2 or equivalent)

Other Products

safety wire
mechanic's wire
plastic tie-wraps
hose clamps
drop light
electrical tape
Scotch-Brite Hand Pad #7447 (maroon)
Teflon tape

Wiring Diagram

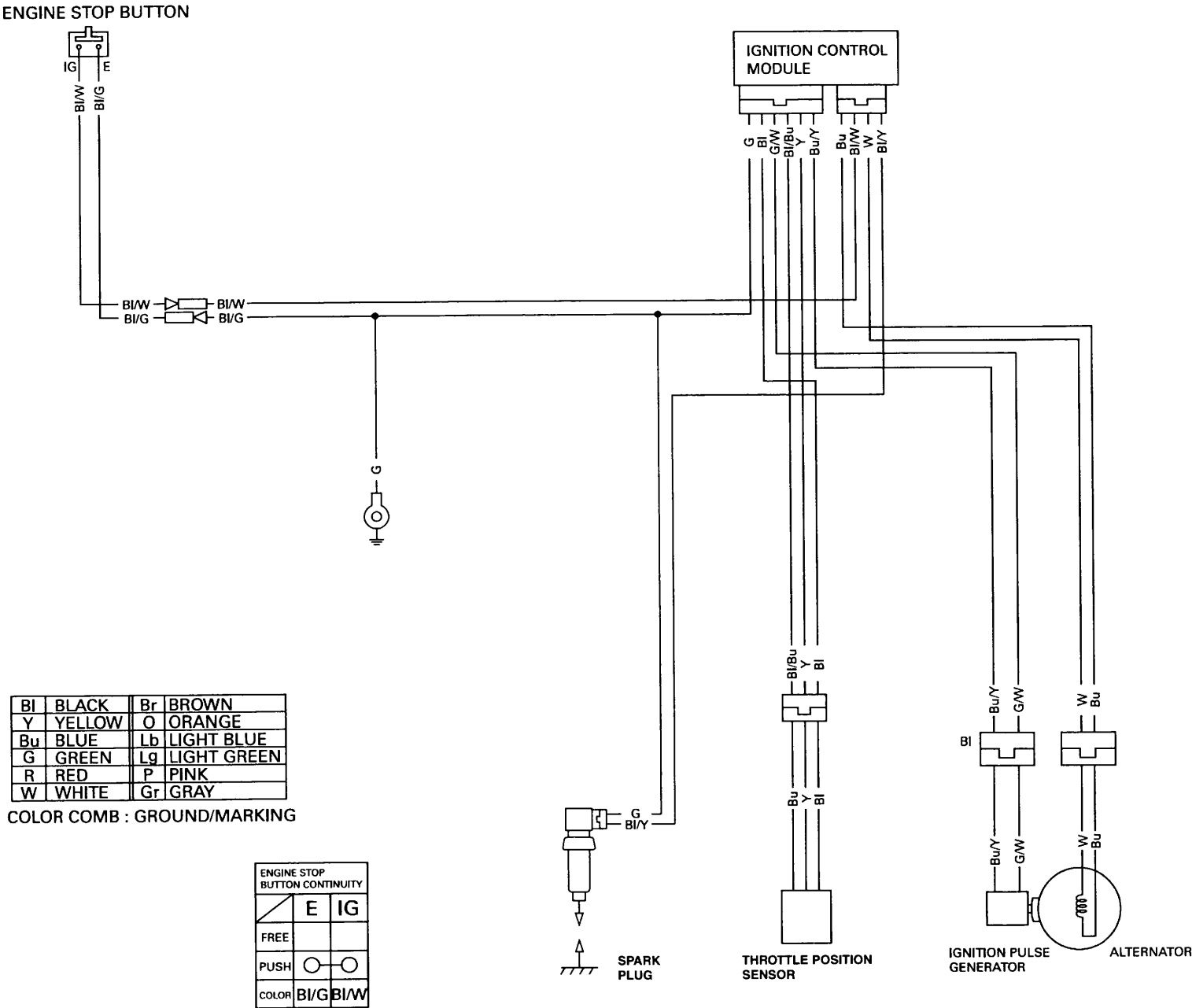


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