COMPETITION HANDBOOK

2025 CRF450R/RX/RWE/R-S

Introduction

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

Congratulations on choosing your Honda CRF off-road racing 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 off-road racing technology and is intended for competition use in sanctioned, closed-course events by experienced riders only.

Be aware that off-road racing 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.

You should also read the owner's manual before you ride. It's full of facts, instructions, safety information, and helpful tips.

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

An official Honda Service Manual for your CRF is available.
If you plan to do any service on your CRF beyond the standard maintenance procedures in this manual, you will find an official Honda Service Manual a valuable reference.

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

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

Happy riding!

How To Use This Manual

This manual describes the service procedures for the CRF450R/RX/RWE.

Follow the Maintenance Schedule recommendations to ensure that the motorcycle is in peak operating condition.
Performing the first scheduled maintenance is very important. It compensates for the initial wear that occurs during the break-in period.

Find the section you want on this page, then turn to the table of contents on the first page of the section.

Most sections start with an assembly or system illustration, service information and troubleshooting for the section. The subsequent pages give detailed procedure.

Your safety and the safety of others, is very important. To help you make informed decisions we have provided safety messages and other information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this motorcycle.
You must use your own good judgment.
You will find important safety information in a variety of forms including:

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

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

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

⚠CAUTION You CAN be HURT if you don't follow instructions.

- Instructions – how to service this motorcycle correctly and safely.

As you read this manual, you will find information that is preceded by a **NOTICE** symbol. The purpose of this message is to help prevent damage to your motorcycle, other property, or the environment.

SERVICE PUBLICATION OFFICE

Date of Issue: March, 2024

SYMBOLS

The symbols used throughout this manual show specific service procedures. If supplementary information is required pertaining to these symbols, it would be explained specifically in the text without the use of the symbols.

	Replace the part(s) with new one(s) before assembly.
	Use the recommend engine oil, unless otherwise specified.
	Use molybdenum oil solution (mixture of the engine oil and molybdenum grease in a ratio of 1:1).
	Use multi-purpose grease (lithium based multi-purpose grease NLGI #2 or equivalent).
	Use molybdenum disulfide grease (containing more than 3% molybdenum disulfide, NLGI #2 or equivalent). Example: • Molykote® BR-2 plus manufactured by Dow Corning U.S.A.
	Use molybdenum disulfide paste (containing more than 40% molybdenum disulfide, NLGI #2 or equivalent). Example: • Molykote® G-n Paste manufactured by Dow Corning U.S.A. • Pro Honda M-77 Assembly Paste (Moly) (U.S.A. only) • Rocol ASP manufactured by Rocol Limited, U.K. • Moly Paste 500 manufactured by Sumico Lubricant, Japan
	Use silicone grease.
	Apply a locking agent. Use a medium strength locking agent unless otherwise specified.
	Apply sealant.
	Use DOT 4 brake fluid. Use the recommended brake fluid unless otherwise specified.
	Use fork or suspension fluid.

CONTENTS

MEMO

SERVICE INFORMATION

GENERAL

- This section covers removal and installation of the body panels, rear frame and exhaust system.
- Always replace the exhaust pipe gaskets after removing the exhaust pipe from the engine.
- When installing the exhaust system, loosely install all of the exhaust system fasteners. Always tighten the exhaust pipe joint nuts first, then tighten the muffler mounting fasteners. If you tighten the mounting fasteners first, the exhaust pipe may not seat properly.
- Always inspect the exhaust system for leaks after installation.

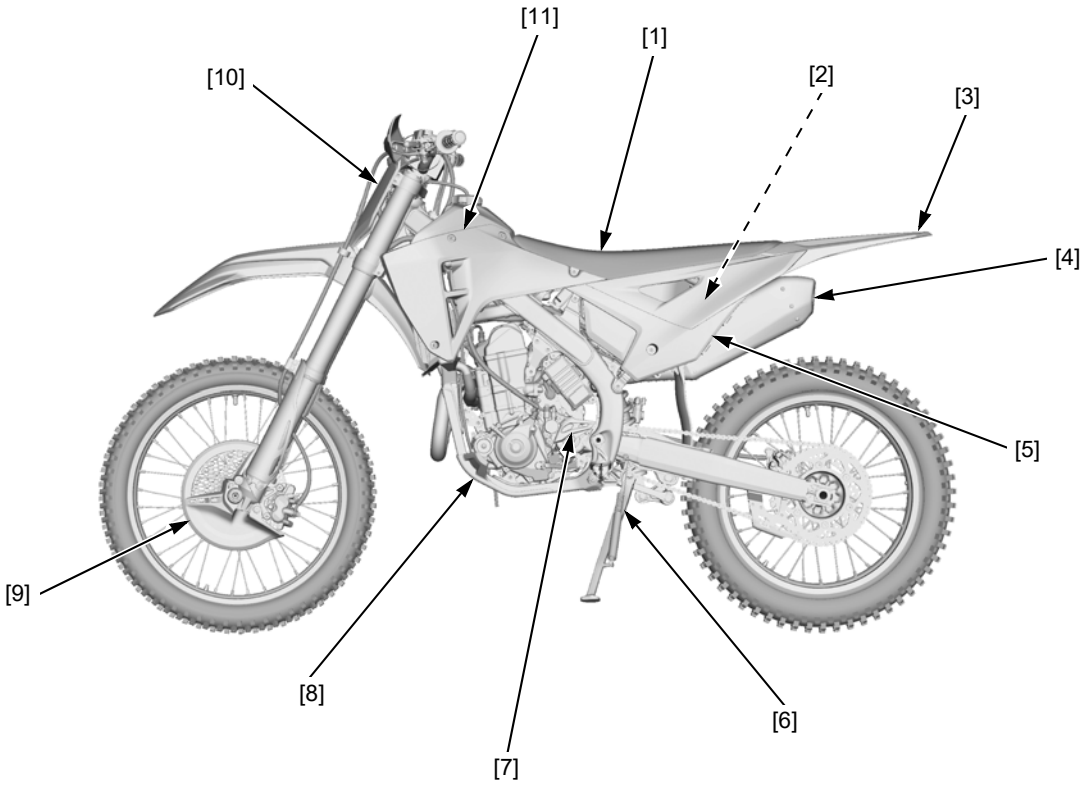
TROUBLESHOOTING

Excessive exhaust noise
- Broken exhaust system
- Exhaust gas leak

Poor performance
- Deformed exhaust system
- Exhaust gas leak
- Clogged muffler

BODY PANEL LOCATIONS

CRF450RX shown:



[1] Seat ➔1-4
[2] Rear frame ➔1-7
[3] Rear fender ➔1-6
[4] Exhaust pipe/muffler ➔1-10
[5] Side cover ➔1-5
[6] Sidestand (CRF450RX) ➔1-9
[7] Drive sprocket cover ➔1-7
[8] Engine guard ➔1-7
[9] Front disc cover ➔1-6
[10] Front number plate ➔1-5
[11] Radiator shroud ➔1-4

SEAT

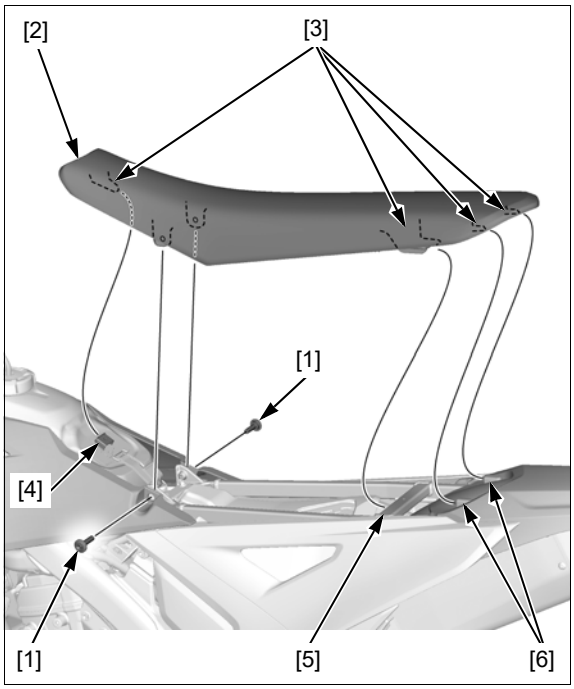
REMOVAL/INSTALLATION

Remove the seat mounting bolts [1].
Remove the seat [2] by sliding it forward.

Installation is in the reverse order of removal.

TORQUE:
Seat mounting bolt:
10 N·m (1.0 kgf·m, 7 lbf·ft)

NOTE:
- Align the seat hooks [3] with the slot [4] on the fuel tank, rear frame [5], and grooves [6] of the rear fender.



RADIATOR SHROUD

REMOVAL/INSTALLATION

CRF450R/RWE

Remove the seat ➔1-4.

Remove the following:

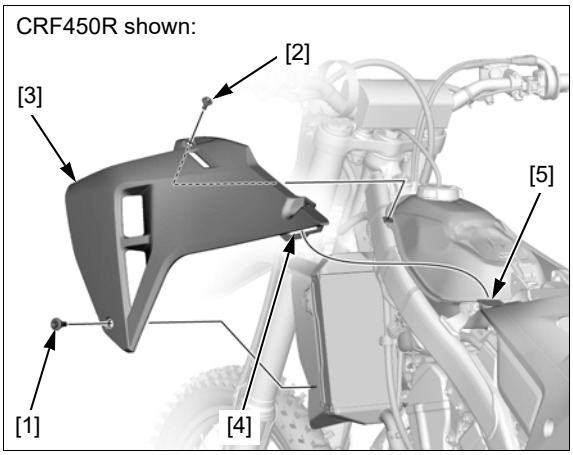
– Radiator shroud lower bolt [1]
– Radiator shroud upper bolt [2]

Remove the radiator shroud [3].

Installation is in the reverse order of removal.

TORQUE:
Radiator shroud lower bolt:
10 N·m (1.0 kgf·m, 7 lbf·ft)
Radiator shroud upper bolt:
5.2 N·m (0.5 kgf·m, 3.8 lbf·ft)

NOTE:
- Align the slot [4] of the radiator shroud with the tab [5] of the side cover.



CRF450RX

Remove the seat ➔1-4.

Remove the following:

– Radiator shroud lower bolt [1]
– Radiator shroud upper bolts [2]

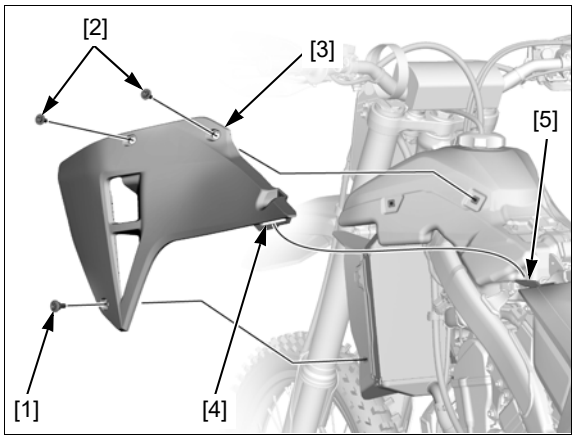
Remove the radiator shroud [3].

Installation is in the reverse order of removal.

TORQUE:
Radiator shroud lower bolt:
10 N·m (1.0 kgf·m, 7 lbf·ft)
Radiator shroud upper bolt:
5.2 N·m (0.5 kgf·m, 3.8 lbf·ft)

NOTE:

- Align the slot [4] of the radiator shroud with the tab [5] of the side cover.



SIDE COVER

REMOVAL/INSTALLATION

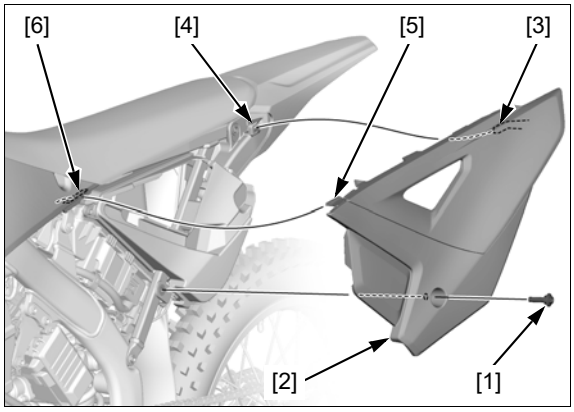
Remove the side cover bolt [1].
Remove the side cover [2] by sliding it rearwards.

Installation is in the reverse order of removal.

TORQUE:
Side cover bolt:
10 N·m (1.0 kgf·m, 7 lbf·ft)

NOTE:

- Align the hook [3] of the side cover with the groove [4] of the rear fender.
- Align the tab [5] of the side cover with the slot [6] of the radiator shroud.

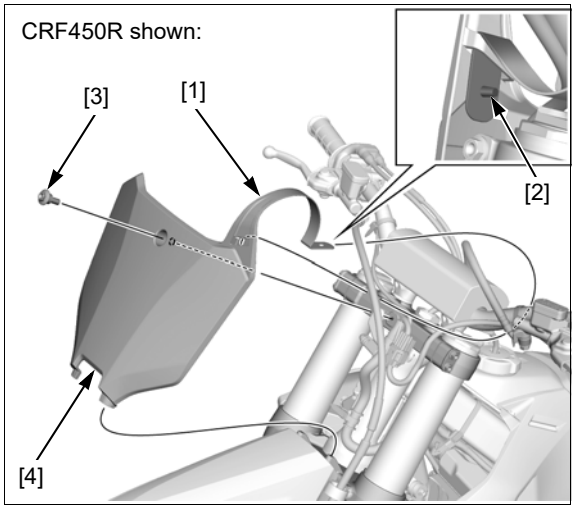


FRONT NUMBER PLATE

REMOVAL/INSTALLATION

Release the band [1] of the front number plate by pulling it off from the boss [2].

Remove the front number plate bolt [3] and front number plate [4].

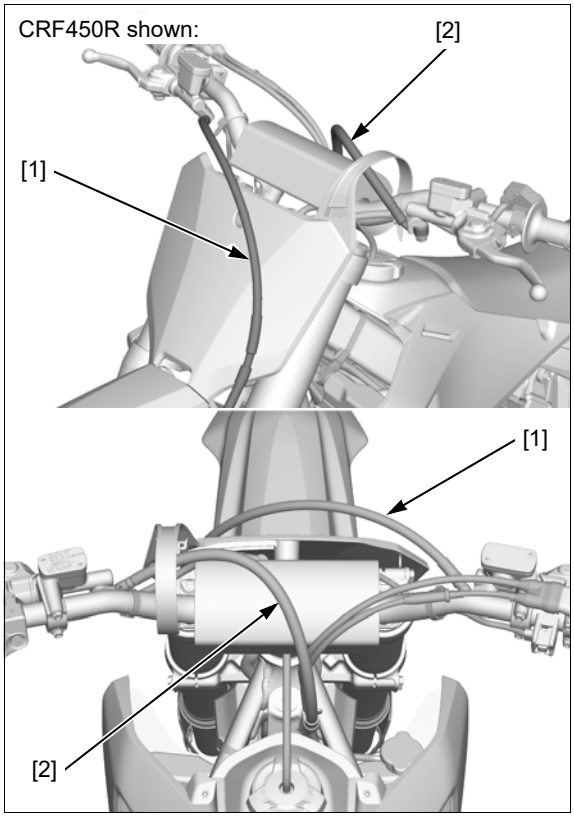


Installation is in the reverse order of removal.

TORQUE:
Front number plate bolt:
10 N·m (1.0 kgf·m, 7 lbf·ft)

NOTE:

- Route the brake hose [1] and clutch hose [2] properly as shown.



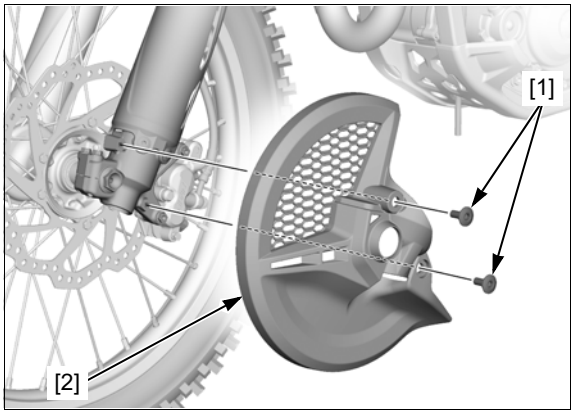
FRONT DISC COVER

REMOVAL/INSTALLATION

Remove the front disc cover bolts [1] and front disc cover [2].

Installation is in the reverse order of removal.

TORQUE:
Front disc cover bolt:
13 N·m (1.3 kgf·m, 10 lbf·ft)



REAR FENDER

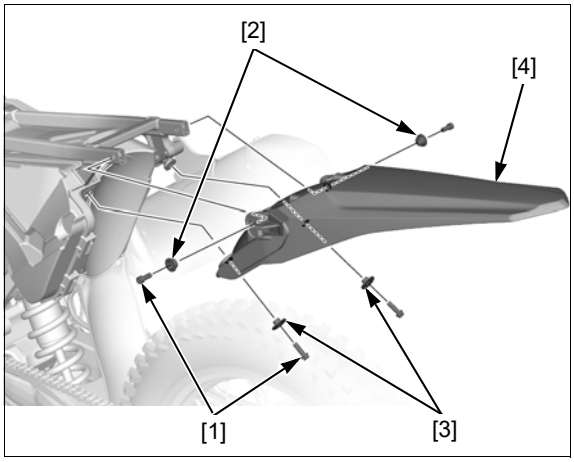
REMOVAL/INSTALLATION

Remove the following:

– Seat ➔1-4
– Side covers ➔1-5
– Bolts [1]
– Collars (small) [2]
– Collars (large) [3]

Remove the rear fender [4].

Installation is in the reverse order of removal.



DRIVE SPROCKET COVER

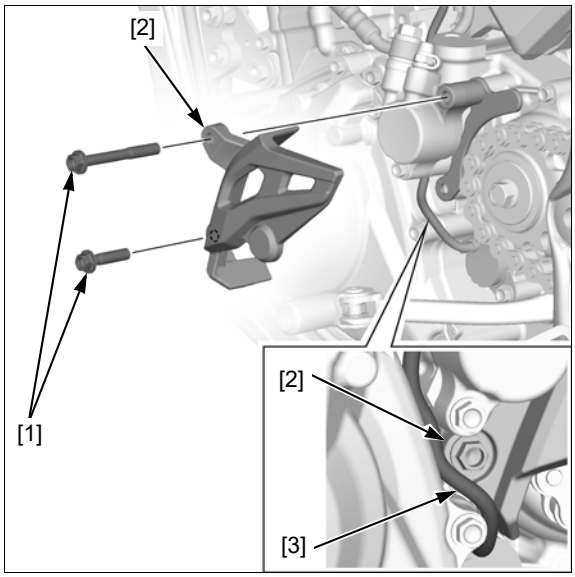
REMOVAL/INSTALLATION

Remove the bolts [1] and drive sprocket cover [2].

Installation is in the reverse order of removal.

NOTE:

- Route the gear position switch wire [3] over the drive sprocket cover as shown.



ENGINE GUARD

REMOVAL/INSTALLATION

Remove the engine guard bolts [1] and engine guard [2].

Installation is in the reverse order of removal.

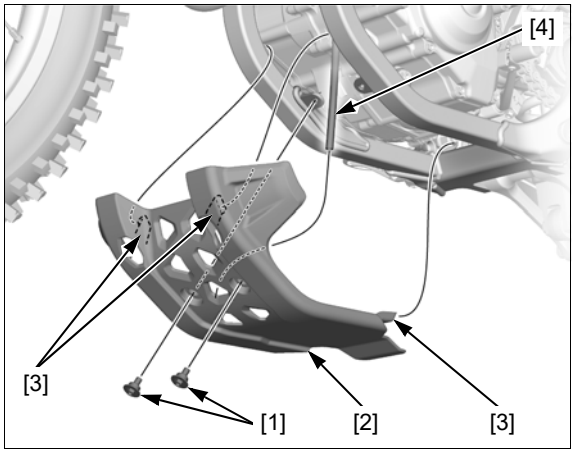
TORQUE:

Engine guard bolt:

10 N·m (1.0 kgf·m, 7 lbf·ft)

NOTE:

- Hook the tabs [3] of the engine guard to the frame as shown.
- Route the radiator overflow hose [4] properly.



REAR FRAME

REMOVAL/INSTALLATION

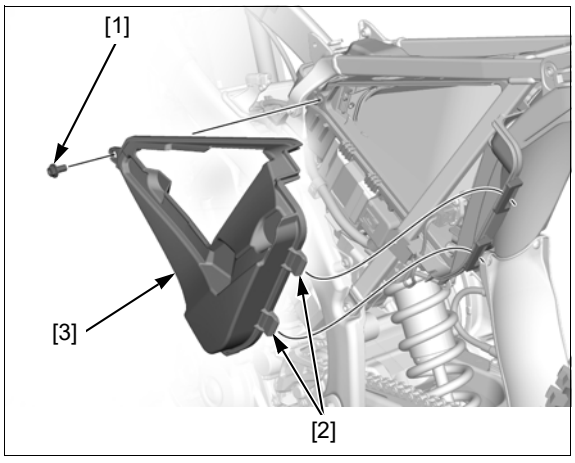
Remove the following:

– Seat ➔1-4
– Side covers ➔1-5
– Muffler ➔1-10

Hang the fuel tank to the left side of the frame ➔2-11.

Remove the air cleaner lid bolt [1].

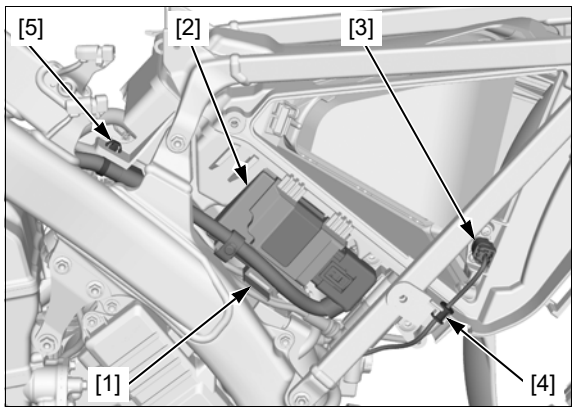
Unhook the tabs [2] and remove the air cleaner lid [3].



Pull the tab [1] of the ECM suspension and remove the ECM [2] from the air cleaner housing.

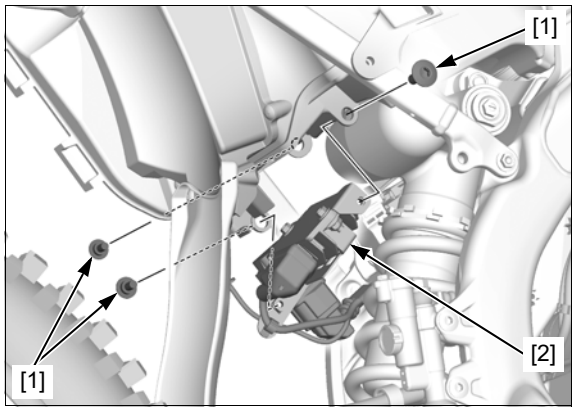
Disconnect the IAT sensor 2P (Black) connector [3], and release the IAT sensor wire protector [4] from the air cleaner housing.

Release the wire clip [5] from the air cleaner housing.



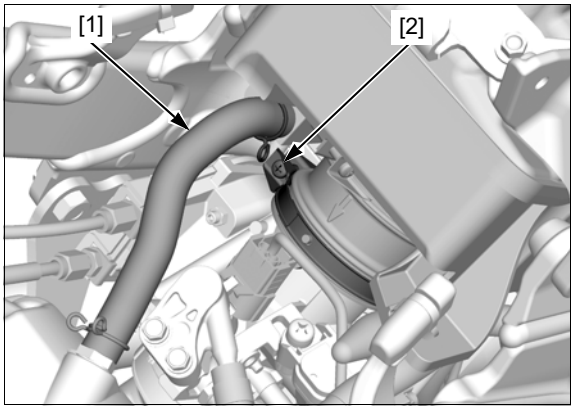
Remove the following:

– Bolts [1]
– Regulator/rectifier and starter/main relay assembly [2]



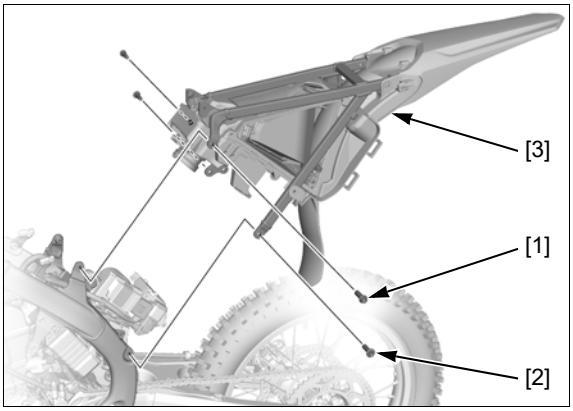
Disconnect the crankcase breather hose [1] from the air cleaner housing.

Loosen the air cleaner connecting tube band screw (throttle body side) [2].



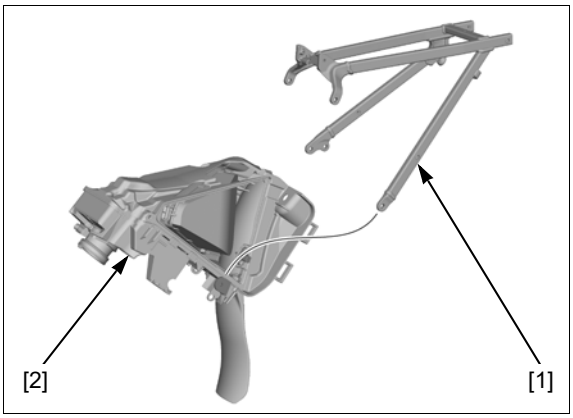
Remove the rear frame upper bolts [1] and rear frame lower bolts [2].

Disconnect the air cleaner connecting tube from the throttle body and remove the rear frame/air cleaner housing assembly [3].



Remove the rear fender ➔1-6.

Remove the rear frame [1] from the air cleaner housing [2].

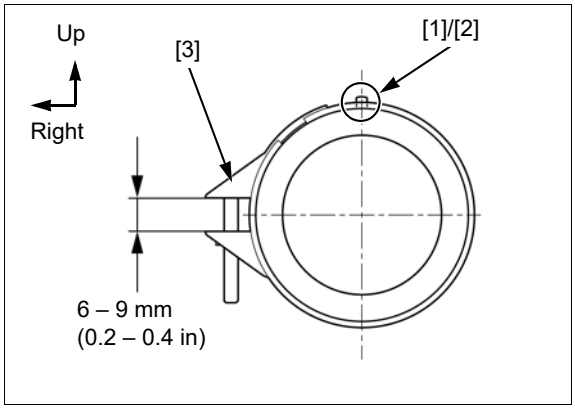


Installation is in the reverse order of removal.

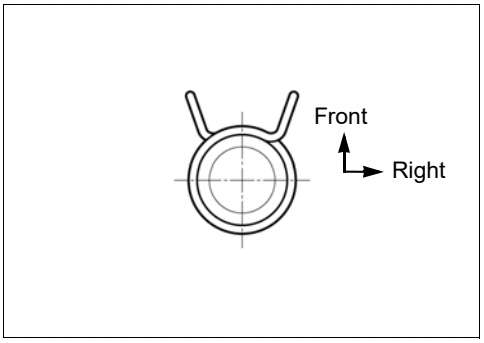
TORQUE:
Rear frame upper bolt:
32 N·m (3.3 kgf·m, 24 lbf·ft)
Rear frame lower bolt:
44 N·m (4.5 kgf·m, 32 lbf·ft)

NOTE:

- Tighten the rear frame upper bolts first.
- Align the hole [1] of the air cleaner connecting tube band screw with the lug [2] of the air cleaner connecting tube.
- Tighten the air cleaner connecting tube band screw (throttle body side) [3] to the specified dimension as shown.



- Install the crankcase breather hose clip (air cleaner housing side) in the specified direction as shown.



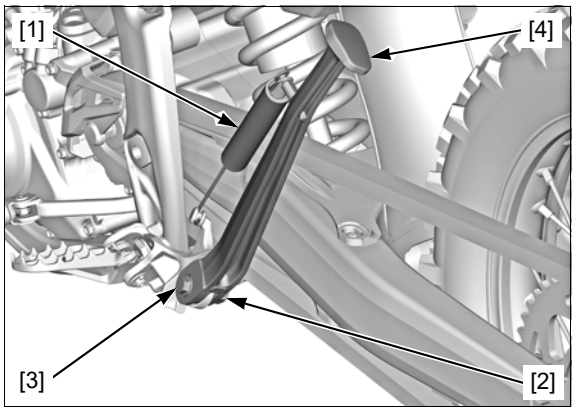
SIDESTAND (CRF450RX)

REMOVAL

Raise the motorcycle off the ground by placing a workstand or equivalent under the engine.

Remove the spring [1].

Remove the sidestand pivot nut [2], sidestand pivot bolt [3], and sidestand [4].



INSTALLATION

Apply 1.0 g (0.04 oz) of the molybdenum disulfide grease to the sidestand sliding surface.

Install the sidestand [1] and sidestand pivot bolt [2], and tighten the pivot bolt to the specified torque.

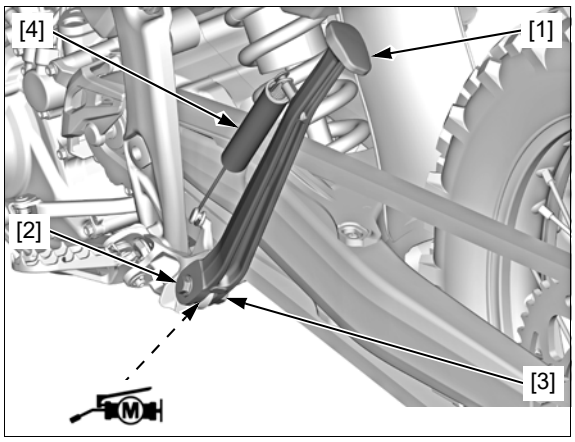
TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

After tightening the pivot bolt, loosen it 45° – 90°.

Install the sidestand pivot nut [3].
Tighten the sidestand pivot nut to the specified torque while holding the sidestand pivot bolt.

TORQUE: 39 N·m (4.0 kgf·m, 29 lbf·ft)

Install the spring [4].



EXHAUST PIPE/MUFFLER

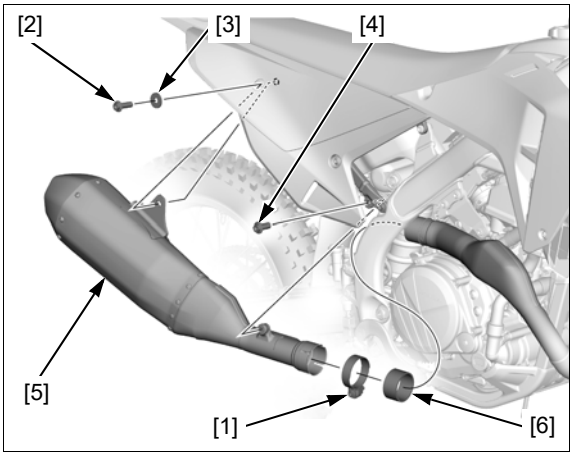
MUFFLER REMOVAL

CRF450R/RX

Loosen the muffler joint band bolt [1].

Remove the following:

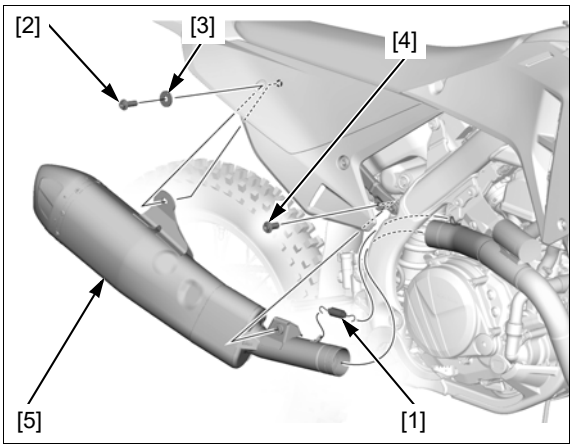
– Muffler mounting bolt B [2] and washer [3]
– Muffler mounting bolt A [4]
– Muffler [5]
– Gasket [6]



CRF450RWE

Remove the following:

– Exhaust spring B [1]
– Muffler mounting bolt B [2] and washer [3]
– Muffler mounting bolt A [4]
– Muffler [5]



MUFFLER INSTALLATION

CRF450R/RX

Install the muffler joint band [1] onto the muffler.

NOTE:

• Align the tab [2] of the muffler joint band with the cut-out of the muffler.

Install a new gasket [3] onto the exhaust pipe.

Install the muffler onto the exhaust pipe.

Loosely install the muffler mounting bolt A [4], washer [5], and muffler mounting bolt B [6].

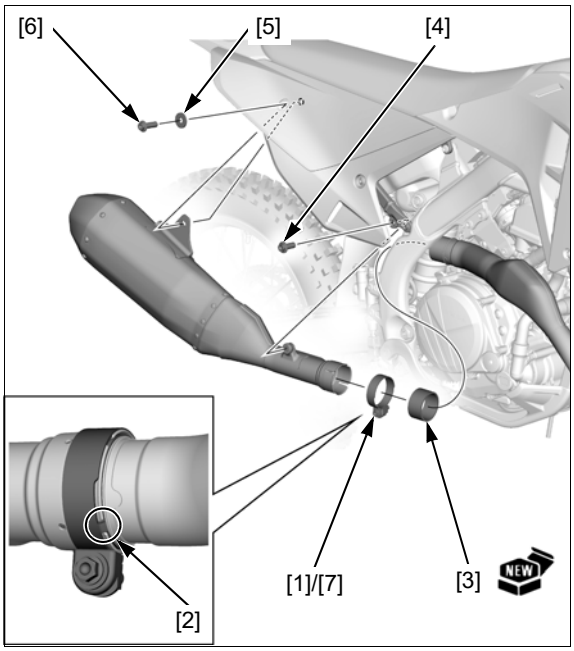
Tighten the muffler mounting bolt A first, then muffler mounting bolt B securely.

Tighten the muffler joint band bolt [7] to the specified torque.

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)

NOTE:

• Always inspect the exhaust system for leaks after installation.



CRF450RWE

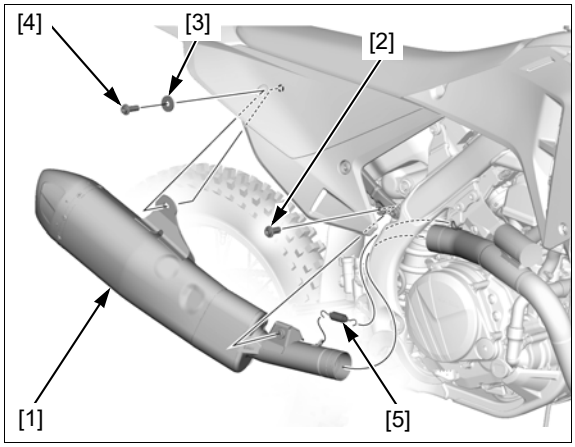
Install the following:

– Muffler [1]
– Muffler mounting bolt A [2]
– Washer [3] and muffler mounting bolt B [4]
– Exhaust spring B [5]

Tighten the muffler mounting bolt A first, then muffler mounting bolt B securely.

NOTE:

• Always inspect the exhaust system for leaks after installation.

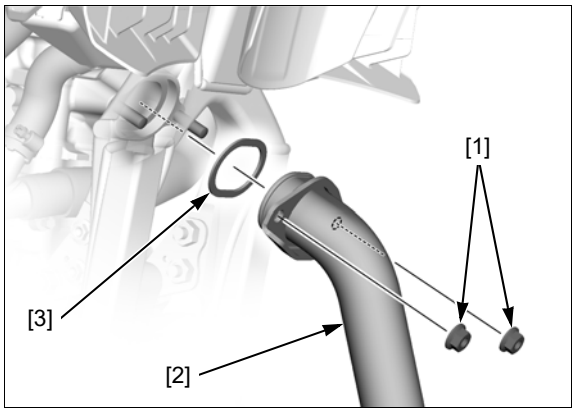


EXHAUST PIPE REMOVAL

CRF450R/RX

Remove the muffler ➔1-10.

Remove the exhaust pipe joint nuts [1], exhaust pipe [2], and gasket [3].

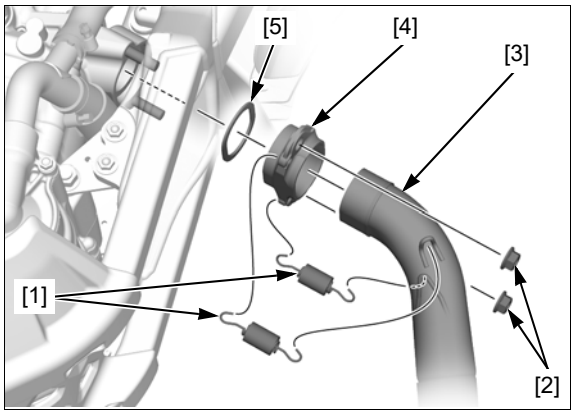


CRF450RWE

Remove the muffler ➔1-10.

Remove the following:

– Exhaust springs A [1]
– Exhaust pipe joint nuts [2]
– Exhaust pipe [3]
– Exhaust pipe flange [4]
– Gasket [5]



EXHAUST PIPE INSTALLATION

CRF450R/RX

Install a new gasket [1] to the exhaust port of the cylinder head.

Install the exhaust pipe [2] and loosely install the exhaust pipe joint nuts [3].

Loosely install the muffler ➔1-10.

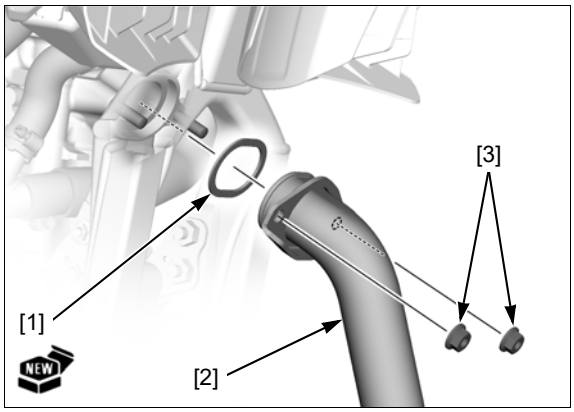
Tighten the exhaust pipe joint nuts to the specified torque.

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)

Tighten the muffler mounting bolts first, then muffler joint band bolt ➔1-10.

NOTE:

• Inspect the exhaust system for leaks after installation.



CRF450RWE

Install the exhaust pipe flange [1] to the exhaust pipe [2].
Install a new gasket [3], exhaust pipe and exhaust pipe joint nuts [4].
But do not tighten the exhaust pipe joint nuts yet.
Set the exhaust springs A [5].

Install the muffler, muffler mounting bolts and washer ➔1-10.
But do not tighten the muffler mounting bolt yet.

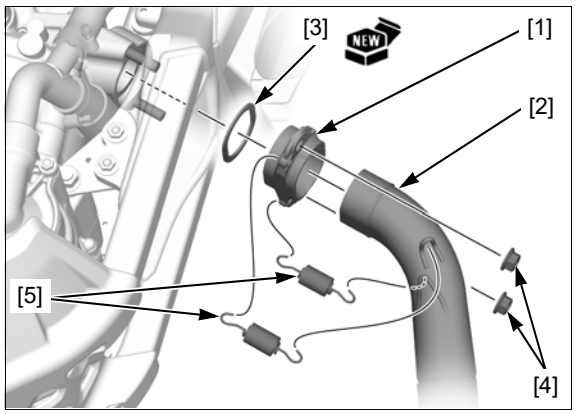
Tighten the exhaust pipe joint nuts to the specified torque.

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)

Tighten the muffler mounting bolts first, and install the exhaust spring B ➔1-10.

NOTE:

- Inspect the exhaust system for leaks after installation.



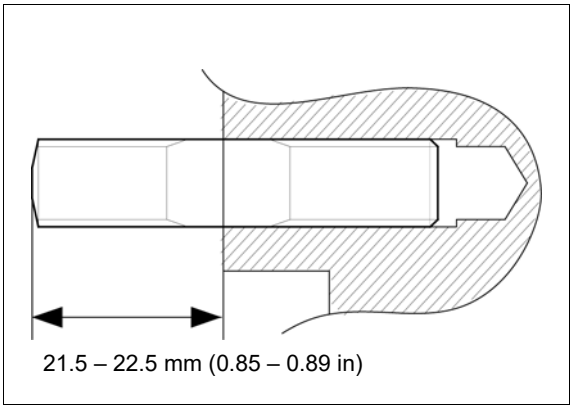
CYLINDER HEAD EXHAUST PIPE STUD BOLT REPLACEMENT

Remove the exhaust pipe ➔1-10.

Thread two nuts onto the stud and tighten them together, then use a wrench on them to turn the stud bolt out.

Install new stud bolts into the cylinder head as shown.

After installing the stud bolts, check that the length from the bolt head to the cylinder head surface is within specification.

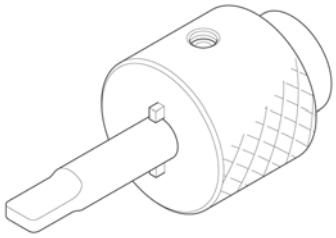
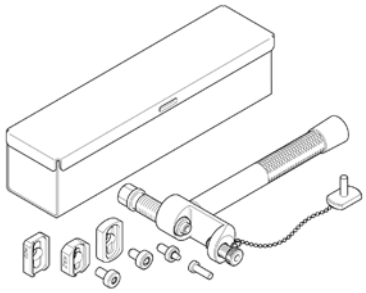
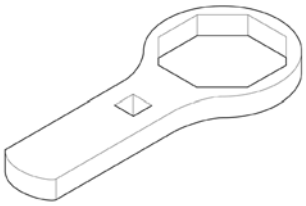
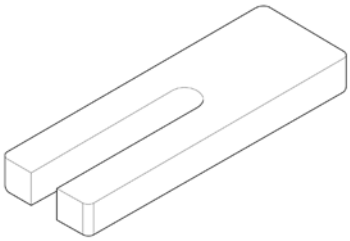
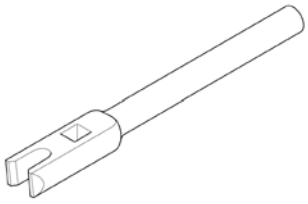
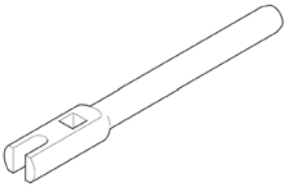


SERVICE INFORMATION

GENERAL

- Place the motorcycle on a level surface before starting any work.
- The CRF450R/RWE is equipped with a titanium fuel tank. Since the fuel tank has not been painted, it might become discolored with mud and dust.
  To remove mud or dust, use a sponge or soft cloth and a stainless steel kitchen detergent, then rinse with clean water. After washing, rinse with plenty of water and dry with a clean cloth.

TOOLS

Stopper Tensioner 070MG-0010100  or 07AMG-001A100 (U.S.A. only)	Chain Tool Set 07HMH-MR10105  or equivalent commercially available in U.S.A.	Locknut Wrench 50 (octagon) 07WMA-KZ30100 
Piston Base 11.5 07958-2500001  or 07AMB-KZ3A100 (U.S.A. only)	Spoke Wrench 6.1 07JMA-MR60100  or equivalent commercially available in U.S.A.	Nipple Wrench 6.6 mm 070MA-KZ30100  or equivalent commercially available in U.S.A.
Fork Bolt Wrench 36mm 070MA-K950100 		

TORQUE VALUES

STANDARD TORQUE VALUES

FASTENER TYPE	TORQUE N·m (kgf·m, lbf·ft)	FASTENER TYPE	TORQUE N·m (kgf·m, lbf·ft)
5 mm bolt and nut	5.2 (0.5, 3.8)	5 mm screw	4.2 (0.4, 3.1)
6 mm bolt and nut (Includes SH flange bolt)	10 (1.0, 7)	6 mm screw	9.0 (0.9, 6.6)
		6 mm flange bolt (8 mm head, large flange)	12 (1.2, 9)
8 mm bolt and nut	22 (2.2, 16)		
10 mm bolt and nut	34 (3.5, 25)	8 mm flange bolt and nut	27 (2.8, 20)
12 mm bolt and nut	54 (5.5, 40)	10 mm flange bolt and nut	39 (4.0, 29)

ENGINE & FRAME TORQUE VALUES

- Torque specifications listed below are for specified fasteners.
- Others should be tightened to standard torque values listed above.

Frame/Body Panels

ITEM		Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Seat mounting bolt		2	6	10 (1.0, 7)	
Radiator shroud lower bolt		2	6	10 (1.0, 7)	
Radiator shroud upper bolt	CRF450R/RWE	2	5	5.2 (0.5, 3.8)	
	CRF450RX	4	5	5.2 (0.5, 3.8)	
Side cover bolt		2	6	10 (1.0, 7)	
Front number plate bolt		1	6	10 (1.0, 7)	
Front disc cover bolt		2	6	13 (1.3, 10)	
Engine guard bolt		2	6	10 (1.0, 7)	
Rear frame upper bolt		2	8	32 (3.3, 24)	
Rear frame lower bolt		2	8	44 (4.5, 32)	
Air cleaner connecting tube band screw (throttle body side)		1	4	–	➔1-7
Sidestand pivot bolt (CRF450RX)		1	10	10 (1.0, 7)	➔1-9
Sidestand pivot nut (CRF450RX)		1	10	39 (4.0, 29)	Self-lock nut ➔1-9
Muffler joint band bolt (CRF450R/RX)		1	8	20 (2.0, 15)	
Exhaust pipe joint nut		2	8	20 (2.0, 15)	
Exhaust pipe stud bolt		2	8	–	➔1-10

Maintenance

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Battery terminal bolt	2	5	2.0 (0.2, 1.5)	
Battery box lid bolt	2	5	5.2 (0.5, 3.8)	
Fuel pump unit mounting nut (CRF450R/RWE)	4	6	11 (1.1, 8)	For tightening sequence; ➔2-15
Fuel pump unit mounting bolt (CRF450RX)	6	6	11 (1.1, 8)	For tightening sequence; ➔2-18
Throttle cable adjuster lock nut	1	6	4.0 (0.4, 3.0)	
Spark plug	1	10	22 (2.2, 16)	
Crankshaft hole cap	1	30	15 (1.5, 11)	Apply grease to the threads.
Cylinder head cover bolt	2	6	10 (1.0, 7)	
Camshaft holder mounting bolt	4	7	15 (1.5, 11)	Apply engine oil to the threads and seating surface.
Engine oil drain bolt	1	30	18 (1.8, 13)	Apply engine oil to the threads and seating surface.
Cylinder head bolt	4	10	50 (5.1, 37)	Apply engine oil to the threads and seating surface.
Cylinder head hanger bolt	2	10	54 (5.5, 40)	

ITEM		Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Cylinder head hanger plate bolt		4	8	32 (3.3, 24)	
Radiator shroud upper bolt	CRF450R/RWE	2	5	5.2 (0.5, 3.8)	
	CRF450RX	4	5	5.2 (0.5, 3.8)	
Rear axle nut		1	22	128 (13.1, 94)	Self-lock nut
Drive chain adjuster lock nut		2	8	27 (2.8, 20)	UBS nut
Upper drive chain roller bolt		1	8	12 (1.2, 9)	Replace with a new one.
Lower drive chain roller nut		1	6	12 (1.2, 9)	Self-lock nut
Drive sprocket bolt		1	8	31 (3.2, 23)	UBS bolt
Driven sprocket nut		6	8	40 (4.1, 30)	Self-lock nut
Front brake master cylinder reservoir cover screw		2	4	1.0 (0.1, 0.7)	
Rear brake master cylinder reservoir cover bolt		2	4	1.0 (0.1, 0.7)	
Brake hose oil bolt		4	10	34 (3.5, 25)	
Brake lever adjuster lock nut		1	5	5.9 (0.6, 4.4)	
Rear brake master cylinder push rod lock nut		1	6	5.9 (0.6, 4.4)	
Clutch master cylinder reservoir cover screws		2	4	1.0 (0.1, 0.7)	
Clutch hose oil bolt		2	10	34 (3.5, 25)	
Clutch lever adjuster lock nut		1	5	5.9 (0.6, 4.4)	
Clutch spring bolt/washer		6	6	12 (1.2, 9)	
Starter switch screw		1	4	1.5 (0.2, 1.1)	
Exhaust pipe joint nut		2	8	20 (2.0, 15)	
Muffler joint band bolt (CRF450R/RX)		1	8	20 (2.0, 15)	
Fork plug bolt		2	5	1.3 (0.1, 1.0)	
Fork center bolt lock nut		2	14	28 (2.9, 21)	
Fork center bolt		2	24	69 (7.0, 51)	Apply locking agent to the threads.
Fork bottom bridge pinch bolt		4	8	20 (2.0, 15)	
Fork damper		2	51	76 (7.7, 56)	➔2-81
Fork bolt		2	44	30 (3.1, 22)	
Fork top bridge pinch bolt		4	8	22 (2.2, 16)	
Fork protector bolt		6	6	7.0 (0.7, 5.2)	Replace with new ones.
Front axle bolt		1	14	78 (8.0, 58)	
Axle holder pinch bolt		4	8	20 (2.0, 15)	
Front brake caliper mounting bolt		2	8	30 (3.1, 22)	Apply locking agent to the threads.
Handlebar lower holder nut		2	10	44 (4.5, 32)	Self-lock nut
Front spoke		36	BC3.5	3.7 (0.4, 2.7)	
Rear spoke		32	4.5	3.7 (0.4, 2.7)	
Front/rear rim lock		2	8	12 (1.2, 9)	
Sidestand pivot bolt (CRF450RX)		1	10	10 (1.0, 7)	➔1-9
Sidestand pivot nut (CRF450RX)		1	10	39 (4.0, 29)	Self-lock nut ➔1-9

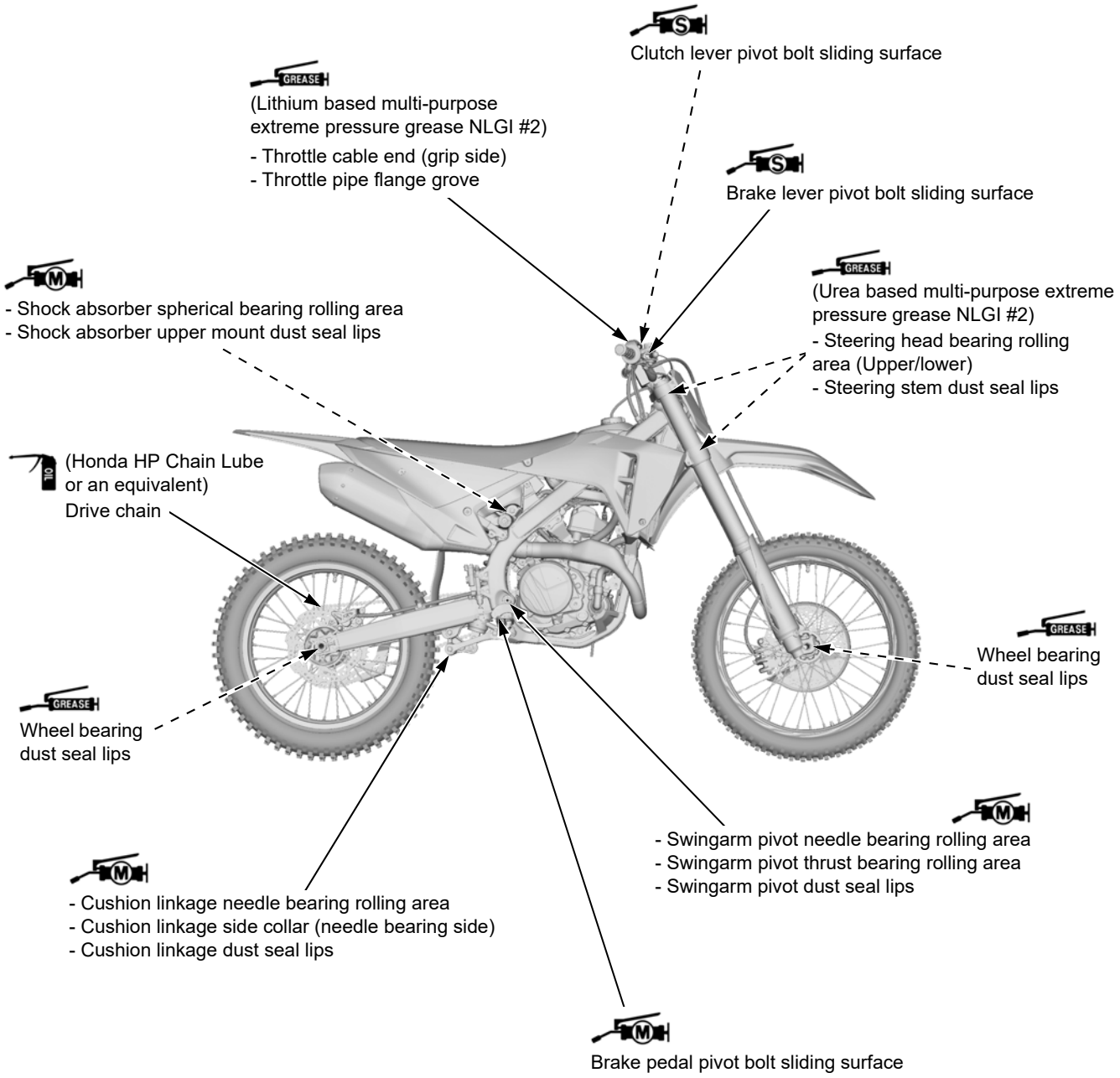
Setting Information

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Handlebar lower holder nut	2	10	44 (4.5, 32)	Self-lock nut
Handlebar upper holder bolt	4	8	22 (2.2, 16)	
Fork plug bolt	2	5	1.3 (0.1, 1.0)	
Step bracket bolt (CRF450RX)	2	12	54 (5.5, 40)	
Step bracket socket bolt (CRF450RX)	2	8	29 (3.0, 21)	
Cushion connecting rod nut (frame side)	1	12	52 (5.3, 38)	Self-lock nut Apply molybdenum oil solution to the threads and seating surfaces.
Shock absorber spring adjuster lock nut	1	60	44 (4.5, 32)	
Shock absorber mounting nut	2	10	44 (4.5, 32)	Self-lock nut

LUBRICATION POINTS

Applying oil or grease to other movable parts not displayed here prevents the generation of abnormal noise and improves the durability.

CRF450R shown:



LUBRICATION & SEAL POINTS

ENGINE

MATERIAL	LOCATION	REMARKS
Molybdenum oil solution (mixture of the engine oil and molybdenum paste)	Piston pin outer surface	
	Connecting rod big end plates	
	Connecting rod small end inner surface	
	Decompressor shaft sliding area	
	Decompressor plunger sliding area	
	Camshaft cam lobes	
	Intake rocker arm inner surface, cam slipper area, and shim slipper surfaces	
	Exhaust rocker arm inner surface and shim slipper surfaces	
	Valve stem (valve guide sliding surface)	
	Valve stem end sliding surface	
	Clutch outer guide sliding surface	
	Mainshaft spline area and transmission gear sliding surfaces	
	Countershaft spline area and transmission gear sliding surfaces	
	Shift fork claws and guide pins	
	Shift fork shafts outer surface	
	Starter clutch needle bearing whole surface	
	Starter reduction gear shaft whole surface	
	Starter idle gear shaft whole surface	
	Each gear sliding surface	
Engine oil	Cylinder bore	
	Plug hole seal ring outer surface	
	Piston outer surface and piston pin hole	
	Piston rings whole surface	
	Crankshaft bearing oil seal contact surface	
	Oil pump rotor sliding area	
	Oil pump shaft sliding area	
	Clutch outer sliding area	
	Clutch friction disc lining surfaces	
	Clutch lifter piece bearing contact surface	
	Gearshift drum guide grooves	
	Gearshift spindle serration area	
	Starter one-way clutch whole surface	
	Cam chain tensioner lifter slit surface of shaft	Apply more than 2.0 cm^3 (0.07 US oz, 0.07 Imp oz).
	Each bearing rolling contact area	
	Each O-ring (except water seal)	
Lithium based multi-purpose grease NLGI #2 or equivalent	Each oil seal lips	
	Countershaft seal ring	
	Oil filter spring (oil filter contact area)	
Sealant (TB1207B manufactured by ThreeBond or an equivalent)	Cylinder head cover breather plate contact area	
Sealant (TB1141G manufactured by ThreeBond or an equivalent)	Cylinder mating surface of the crankcase	➔2-34

FRAME

MATERIAL	LOCATION	REMARKS
Lithium based multi-purpose grease NLGI #2 or equivalent	Right wheel bearing dust seal lips	
	Left wheel bearing dust seal lips	
	Gearshift pedal pin sliding area	
	Air cleaner housing-to-air cleaner element contacting area	Apply 1.5 – 5.5 g (0.05 – 0.19 oz).
	Each wheel bearing cavity	
	Axle outer surface	
	Swingarm pivot bolt outer surface	
Molybdenum disulfide grease (containing more than 3% molybdenum disulfide, NLGI #2 or equivalent)	Swingarm pivot needle bearing rolling area	Filling up.
	Swingarm pivot thrust bearing rolling area	Filling up.
	Swingarm pivot dust seal lips	
	Cushion linkage needle bearing rolling area	Filling up.
	Cushion linkage side collar (needle bearing side)	
	Cushion linkage dust seal lips	
	Shock absorber upper mount dust seal lips	
	Brake pedal pivot bolt sliding surface	
	Swingarm left end piece (left swingarm washer contact areas)	
	Sidestand sliding area (CRF450RX)	Apply 1.0 g (0.04 oz).
	Shock absorber spherical bearing rolling area	
Lithium based multi-purpose extreme pressure grease NLGI #2 or an equivalent	Throttle cable end (grip side)	
	Throttle pipe flange groove	
Urea based multi-purpose extreme pressure grease NLGI #2 (EXCELITE EP2 manufactured by KYODO YUSHI CO., LTD. or equivalent)	Steering head upper bearing rolling area	Apply 3 – 5 g (0.1 – 0.2 oz).
	Steering head lower bearing rolling area	Apply 3 – 5 g (0.1 – 0.2 oz).
	Steering stem upper/lower dust seal lips	
	Brake pedal dust seal lips	
Silicone grease	Front/rear brake caliper pin bolt sliding area	Apply 0.4 g (0.01 oz) minimum.
	Front/rear brake caliper bracket pin sliding area	Apply 0.4 g (0.01 oz) minimum.
	Front/rear brake caliper pad pin stopper ring	
	Brake/clutch lever pivot bolt sliding surface	Apply 0.1 g (0.004 oz).
	Brake lever spring both ends	Apply 0.1 g (0.004 oz).
	Front brake/clutch master cylinder push rod contact area	Apply 0.1 g (0.004 oz).
	Rear brake master cylinder push rod round surface and boot fitting area	Apply 0.1 g (0.004 oz).
Engine oil	Fuel pump unit O-rings	
Honda DOT 4 brake fluid	Front/rear brake caliper piston sliding surface	
	Front brake/clutch master cylinder inner surface	Apply 0.04 – 0.16 g (0.001 – 0.006 oz).
	Front brake/clutch master cylinder piston sliding surface	
	Rear brake master cylinder inner surface	
	Rear brake master cylinder piston sliding surface	
Fork Fluid (Viscosity: 5W)	Fork dust seal lips	
	Fork oil seal lips	
	Fork slider bushing sliding surface	
	Fork guide bushing whole surface	
	Fork damper piston rod sliding surface	
	Fork bolt assembly slider bushing whole surface	
	Fork spring seat collar slider bushing	
	Fork each O-rings	

MATERIAL	LOCATION	REMARKS
Pro Honda HP Shock Oil SS-25	Damper piston ring and O-rings	
	Damper rod sliding surface	
	Rod guide case O-ring, rebound rubber, oil seal lips, dust seal lips	
	Damper case inner surface	
	Bladder lips	
	Compression damping adjuster O-rings	
Honda HP Chain Lube or an equivalent	Drive chain	
Pro Honda Foam Air Filter Oil or an equivalent	Air cleaner element inside	Apply 50 cm^3 (1.7 US oz, 1.8 Imp oz).
Muffler sealant (high-temperature silicone, for example HSSK-316CVT manufactured by JAPAN BEST PARTNERS CO., LTD. or equivalent)	Muffler body contact area (front pipe and end cover)	Apply 5.0 g (0.18 oz). Except CRF450RWE
Honda Bond A or Pro Honda Handgrip Cement (U.S.A. only)	Throttle grip rubber inner surface	Except CRF450RWE
	Left handlebar grip rubber inner surface	Except CRF450RWE
	Front/rear brake pad retainer seating surface	

MAINTENANCE SCHEDULE

CRF450R/RWE

Perform the Pre-ride inspection in the Owner's Manual 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	Every 12 races or about 30.0 hours	Refer to page
FUEL LINE	(NOTE 6)	I				R	➔2-11
FUEL PUMP FILTER	(NOTE 6)					R	➔2-15
THROTTLE OPERATION		I					➔2-21
AIR FILTER	(NOTE 1)	C					➔2-22
CRANKCASE BREATHER		I					➔2-24
SPARK PLUG		I					➔2-24
VALVE CLEARANCE/ DECOMPRESSOR SYSTEM	(NOTE 4)			I			➔2-25
ENGINE OIL	(NOTE 3) (NOTE 5)	I		R			➔2-32
ENGINE OIL FILTER	(NOTE 3)			R			➔2-33
ENGINE IDLE SPEED		I					➔2-33
PISTON AND PISTON RINGS				R			➔2-34
PISTON PIN				R			
RADIATOR COOLANT	(NOTE 2)	I					➔2-44
COOLING SYSTEM		I					➔2-45
DRIVE CHAIN		I, L	R				➔2-47
DRIVE CHAIN SLIDER		I					➔2-53
DRIVE CHAIN ROLLER		I					➔2-54
DRIVE SPROCKET		I					➔2-54
DRIVEN SPROCKET		I					
BRAKE FLUID	(NOTE 2)	I					➔2-55
BRAKE PADS WEAR		I					➔2-56
BRAKE SYSTEM		I					➔2-57
CLUTCH FLUID	(NOTE 2)	I					➔2-58
CLUTCH SYSTEM	(NOTE 5)	I					➔2-58
CONTROL CABLES		I, L					➔2-62
EXHAUST PIPE/MUFFLER		I					➔2-63
SUSPENSION		I					➔2-64
SWINGARM/SHOCK LINKAGE			L				➔2-64
FORK OIL	(NOTE 3)				R		➔2-65
NUTS, BOLTS, FASTENERS		I					➔2-83
WHEELS/TIRES		I					➔2-84
STEERING HEAD BEARINGS					I		➔2-84

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

NOTES:

1. Clean after every moto for dusty riding condition.
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 engine oil, if the clutch discs and plates are replaced.
6. Replace every year.

CRF450RX

Perform the Pre-ride inspection in the Owner's Manual 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 3.5 hours	Every 2 races or about 7.5 hours	Every 4 races or about 15.0 hours	Every 6 races or about 22.5 hours	Every 8 races or about 30.0 hours	Refer to page
FUEL LINE	(NOTE 6)	I				R	➔2-11
FUEL PUMP FILTER	(NOTE 6)					R	➔2-18
THROTTLE OPERATION		I					➔2-21
AIR FILTER	(NOTE 1)	C					➔2-22
CRANKCASE BREATHER		I					➔2-24
SPARK PLUG		I					➔2-24
VALVE CLEARANCE/ DECOMPRESSOR SYSTEM	(NOTE 4)			I			➔2-25
ENGINE OIL	(NOTE 3) (NOTE 5)	I		R			➔2-32
ENGINE OIL FILTER	(NOTE 3)			R			➔2-33
ENGINE IDLE SPEED		I					➔2-33
PISTON AND PISTON RINGS				R			➔2-34
PISTON PIN				R			
RADIATOR COOLANT	(NOTE 2)	I					➔2-44
COOLING SYSTEM		I					➔2-45
DRIVE CHAIN		I, L	R				➔2-47
DRIVE CHAIN SLIDER		I					➔2-50
DRIVE CHAIN ROLLER		I					➔2-54
DRIVE SPROCKET		I					➔2-54
DRIVEN SPROCKET		I					
BRAKE FLUID	(NOTE 2)	I					➔2-55
BRAKE PADS WEAR		I					➔2-56
BRAKE SYSTEM		I					➔2-57
CLUTCH FLUID	(NOTE 2)	I					➔2-58
CLUTCH SYSTEM	(NOTE 5)	I					➔2-58
CONTROL CABLES		I, L					➔2-62
EXHAUST PIPE/MUFFLER		I					➔2-63
SUSPENSION		I					➔2-64
SWINGARM/SHOCK LINKAGE			L				➔2-64
FORK OIL	(NOTE 3)				R		➔2-65
NUTS, BOLTS, FASTENERS		I					➔2-83
WHEELS/TIRES		I					➔2-84
STEERING HEAD BEARINGS					I		➔2-84
SIDESTAND		I					➔2-84

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

NOTES:

1. Clean after every moto for dusty riding condition.
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 engine oil, if the clutch discs and plates are replaced.
6. Replace every year.

FUEL LINE

FUEL TANK HANGING

CRF450R/RWE

Remove the following:

– Seat ➔1-4
– Radiator shrouds ➔1-4

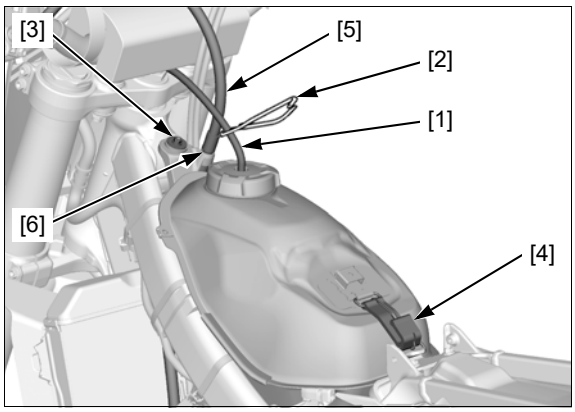
Pinch the fuel tank breather hose [1] with the hose clamp [2].

Release the fuel tank breather hose from the steering stem.

Remove the following:

– Bolt [3]
– Tank rear band [4]

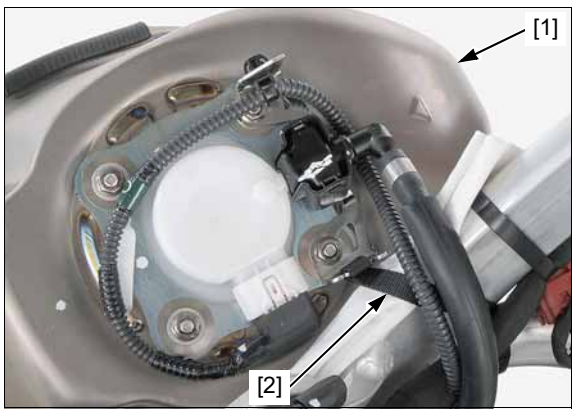
Remove the clutch hose [5] from the guide [6].



Slowly lift the fuel tank [1] and hang it to the left side of the frame.

NOTE:

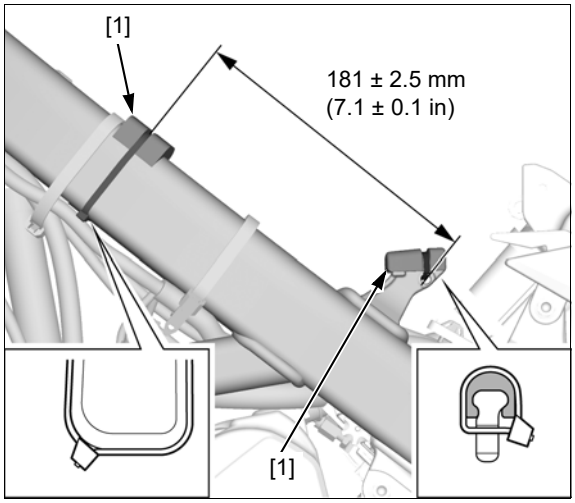
- Do not hang the fuel tank from the fuel feed hose.
- Cover the frame with a shop towel to prevent damage to the frame.
- Make sure that the fuel tank strap [2] is installed to the frame and stay of the fuel tank. Check that the strap is not damaged.



Installation is in the reverse order of hanging.

NOTE:

- Make sure that the cushion rubbers [1] are installed in position as shown in the figure before riding.
- Do not ride the motorcycle if the cushion rubber has been removed. It may cause the fuel to leak.
- Be careful not to twist or bend the fuel feed hose.



CRF450RX

Remove the following:

– Seat ➔1-4
– Radiator shrouds ➔1-4

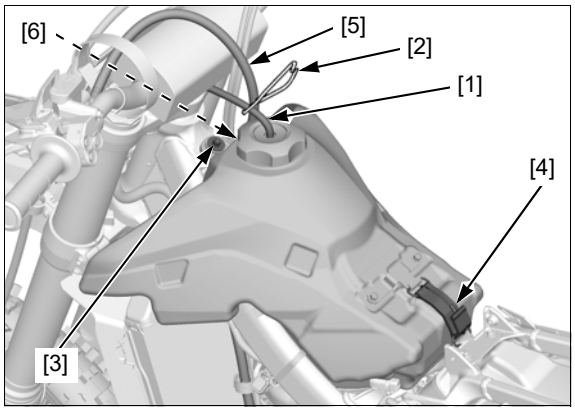
Pinch the fuel tank breather hose [1] with the hose clamp [2].

Release the fuel tank breather hose from the steering stem.

Remove the following:

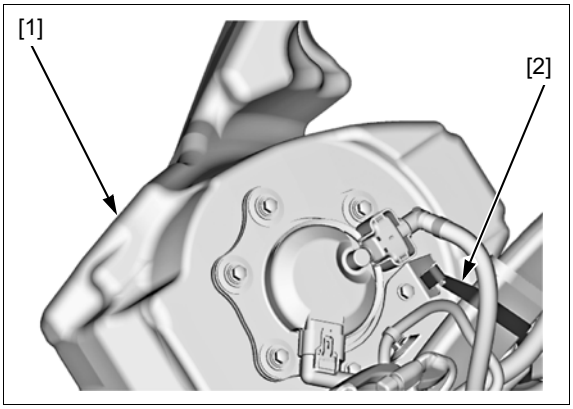
– Bolt [3]
– Tank rear band [4]

Remove the clutch hose [5] from the guide [6].



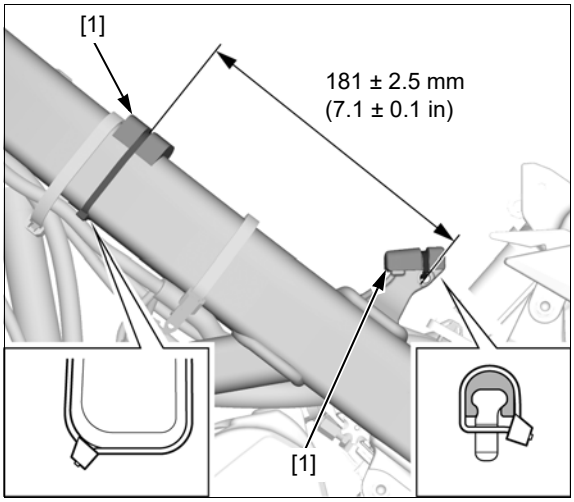
Slowly lift the fuel tank [1] and hang it to the left side of the frame.

NOTE:
- Do not hang the fuel tank from the fuel feed hose.
- Cover the frame with a shop towel to prevent damage to the frame.
- Make sure that the fuel tank strap [2] is installed to the frame and stay of the fuel tank. Check that the strap is not damaged.



Installation is in the reverse order of hanging.

NOTE:
- Make sure that the cushion rubbers [1] are installed in position as shown in the figure before riding.
- Do not ride the motorcycle if the cushion rubber has been removed. It may cause the fuel to leak.
- Be careful not to twist or bend the fuel feed hose.



INSPECTION

Hang the fuel tank to the left side of the frame ➔2-11.

Check the quick connect fitting cover [1] for deterioration, damage or installation condition.

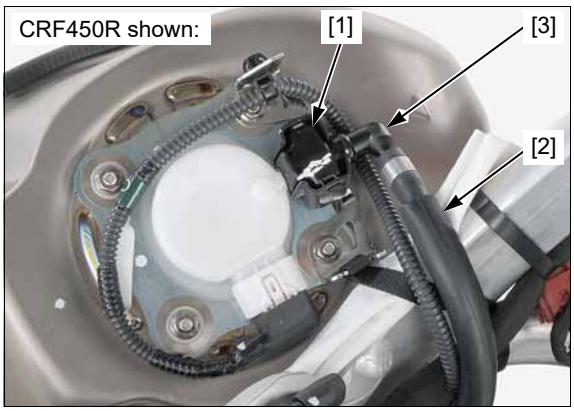
Remove the quick connect fitting cover.

Lightly move the fuel feed hose [2] back and forth, and check that its freeplay is 1 – 2 mm (0.04 – 0.08 in) and the quick connect fitting [3] is connected securely.

Clean the quick connect fitting and its surroundings if they are dirty.

Check the fuel feed hose for deterioration, damage, or leakage and replace it if necessary.

Refer to an official Honda Service Manual or see your dealer to replace the fuel injector joint/fuel feed hose assembly.



FUEL PRESSURE RELIEVING

NOTE:
- Before disconnecting the fuel feed hose, relieve pressure from the system as follows.

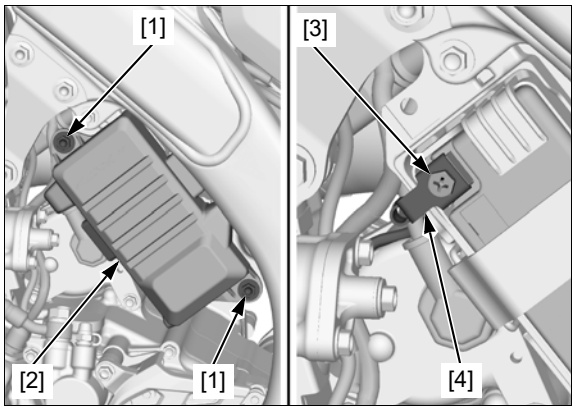
1. Hang the fuel tank to the left side of the frame ➔2-11.
2. Disconnect the fuel pump unit 5P connector [1].
3. Start the engine and let it idle until the engine stalls to relieve the fuel pressure in the fuel feed hose.

QUICK CONNECT FITTING REMOVAL

NOTE:

- Clean around the quick connect fitting before disconnecting the fuel feed hose, and be sure that no dirt is allowed to enter into the fuel system.
- Do not bend or twist the fuel feed hose. It may cause the fuel to leak.

1. Relieve the fuel pressure ➔2-12.
2. Remove the battery box lid bolts [1] and battery box lid [2].
3. Remove the battery terminal bolt [3].
   Disconnect the battery negative (–) cable [4].

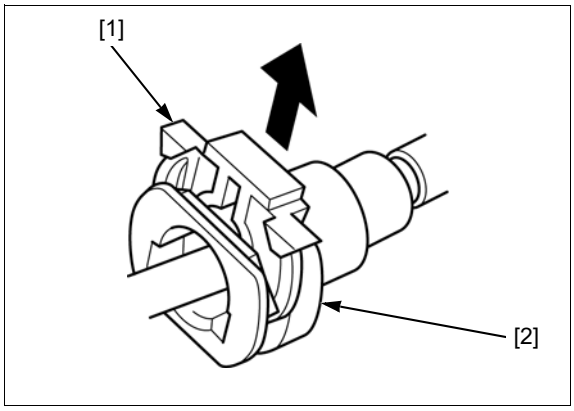


4. Remove the quick connect fitting cover [1].
5. Place a shop towel over the quick connect fitting.

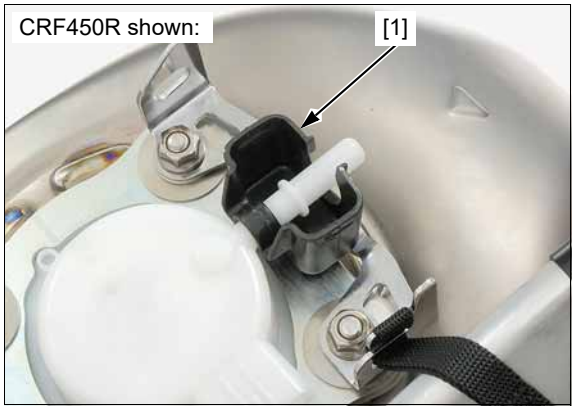
6. Unlock the slide retainer [1] by completely pulling it up.
7. Disconnect the quick connect fitting from the fuel joint while holding the connector housing [2].

NOTE:

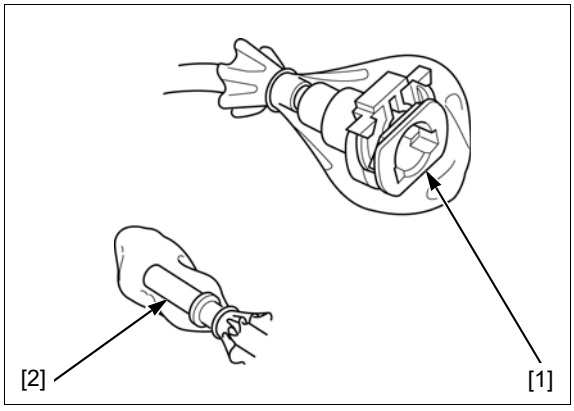
- Drain the remaining fuel in the fuel feed hose into a suitable container.
- Wipe up any spilled fuel immediately.
- Be careful not to damage the slide retainer and hose.
- Do not use tools.



8. Remove the connect fitting rubber [1].



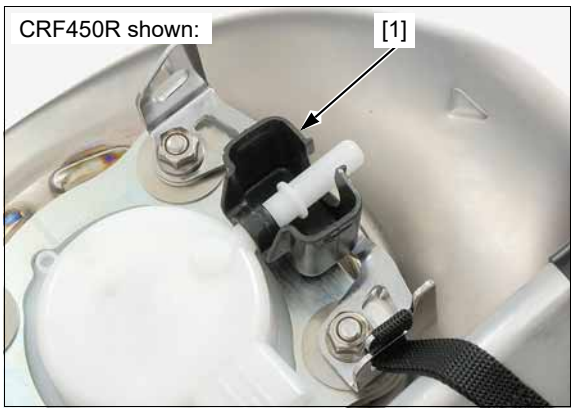
9. To prevent damage and keep foreign matter out, cover the disconnected connector [1] and fuel joint end [2] with plastic bags.



QUICK CONNECT FITTING INSTALLATION

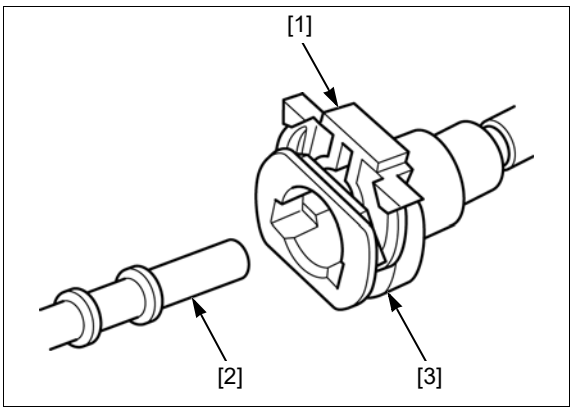
NOTE:
- Do not bend or twist the fuel feed hose. It may cause the fuel to leak.
- Do not reuse a kinked or damaged fuel feed hose.
- Do not use gloves or a shop towel while installing the quick connect fitting.

1. Install the connect fitting rubber [1].

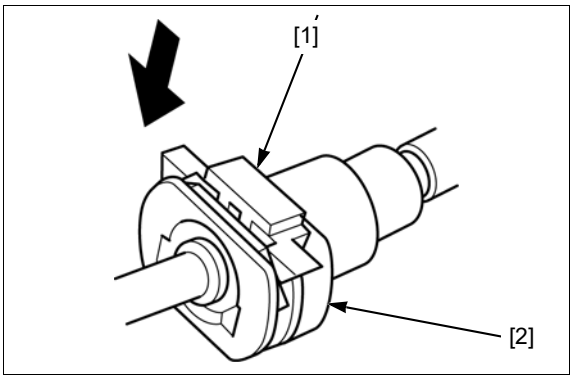


2. Be sure that the slide retainer [1] is completely pulled up.
   Clean the fuel joint [2].
   Connect the quick connect fitting to the fuel joint until you hear the “CLICK” while holding the connector housing [3].

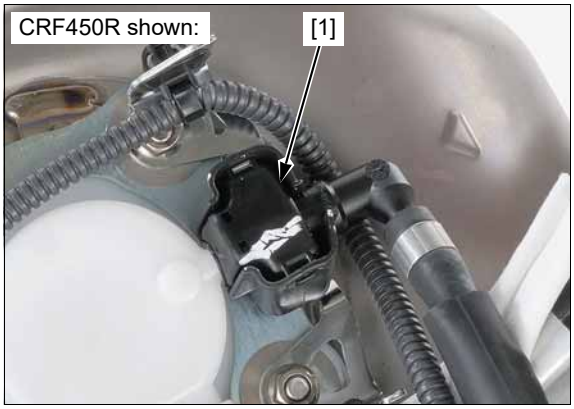
NOTE:
- Be careful not to damage the slide retainer and fuel feed hose.
- Do not use tools.
- If it is hard to connect, put a small amount of engine oil on the fuel joint end.



3. Lock the slide retainer [1] by pushing it until you hear the “CLICK”.
   Make sure the connection is secure and that the slide retainer is firmly locked into place; check visually and by pulling the connector housing [2].



4. Install the quick connect fitting cover [1] securely.

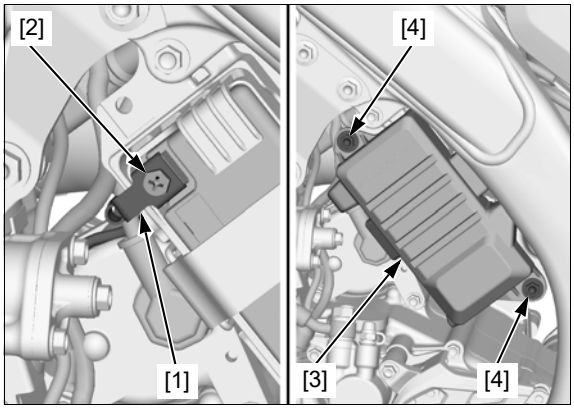


5. Connect the battery negative (–) cable [1].
   Install and tighten the battery terminal bolt [2] to the specified torque.

   TORQUE: 2.0 N·m (0.2 kgf·m, 1.5 lbf·ft)

6. Install the battery box lid [3] and battery box lid bolts [4] and tighten the bolts to the specified torque.

   TORQUE: 5.2 N·m (0.5 kgf·m, 3.8 lbf·ft)



7. Increase the fuel pressure ➔2-15.

INCREASING FUEL PRESSURE

1. Connect the fuel pump 5P connector [1].
2. Temporarily install the fuel tank onto the frame.
3. With the throttle fully closed, pull the clutch lever all the way in, and depress the starter switch.
   The engine will start up by increasing the fuel pressure.
4. Stop the engine.
   Check that there is no leakage in the fuel line ➔2-12.

FUEL PUMP FILTER (CRF450R/RWE)

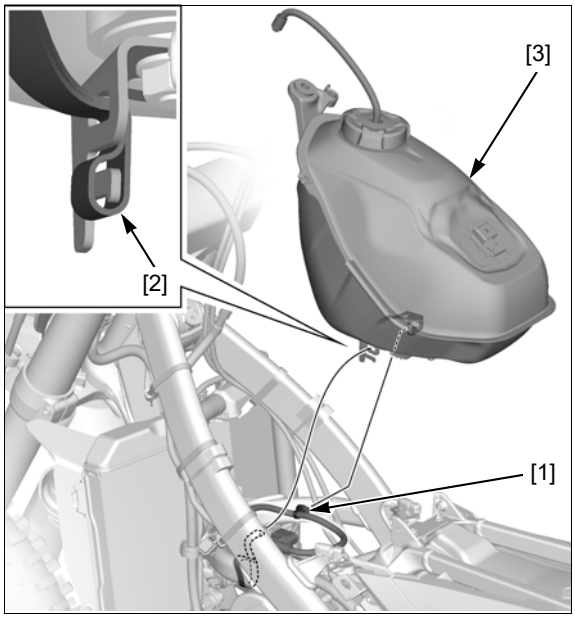
REMOVAL

Disconnect the quick connect fitting ➔2-13.

Release the following:

– Fuel pump unit wire clip [1]
– Fuel tank strap [2]

Remove the fuel tank [3].



Loosen the fuel pump unit mounting nuts [1] in a crisscross pattern in two or three steps.

Remove the following:

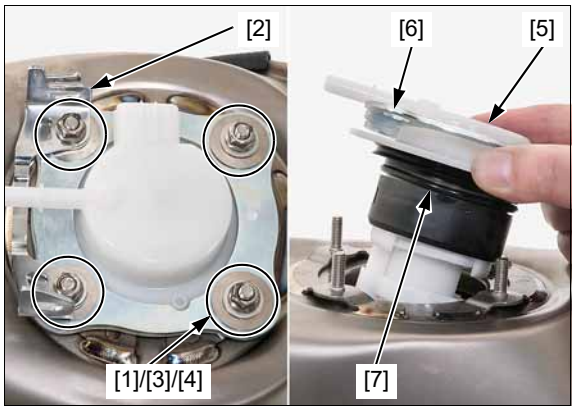
– Fuel pump unit mounting nuts
– Fuel joint guard [2]
– Collars [3]
– Conical spring washers [4]

Remove the fuel pump unit [5].

NOTE:

- Be careful not to damage the fuel pump unit.
- Drain the remaining fuel in the fuel pump unit into a suitable container.
- Wipe up any spilled fuel immediately.

Remove the fuel pump plate [6] and O-ring [7] from the fuel pump unit.



DISASSEMBLY/INSPECTION/ ASSEMBLY

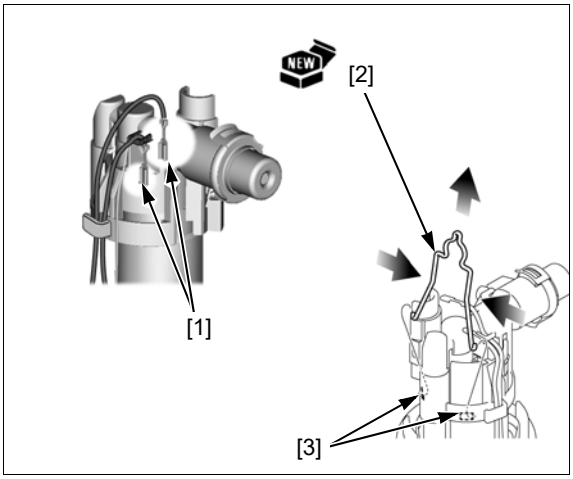
Remove the fuel pump unit ➔2-15.

Disconnect the fuel pomp motor connectors [1].

Remove the clips [2] as shown.

NOTE:

- Install the clip in the fuel pomp unit through the holes [3].



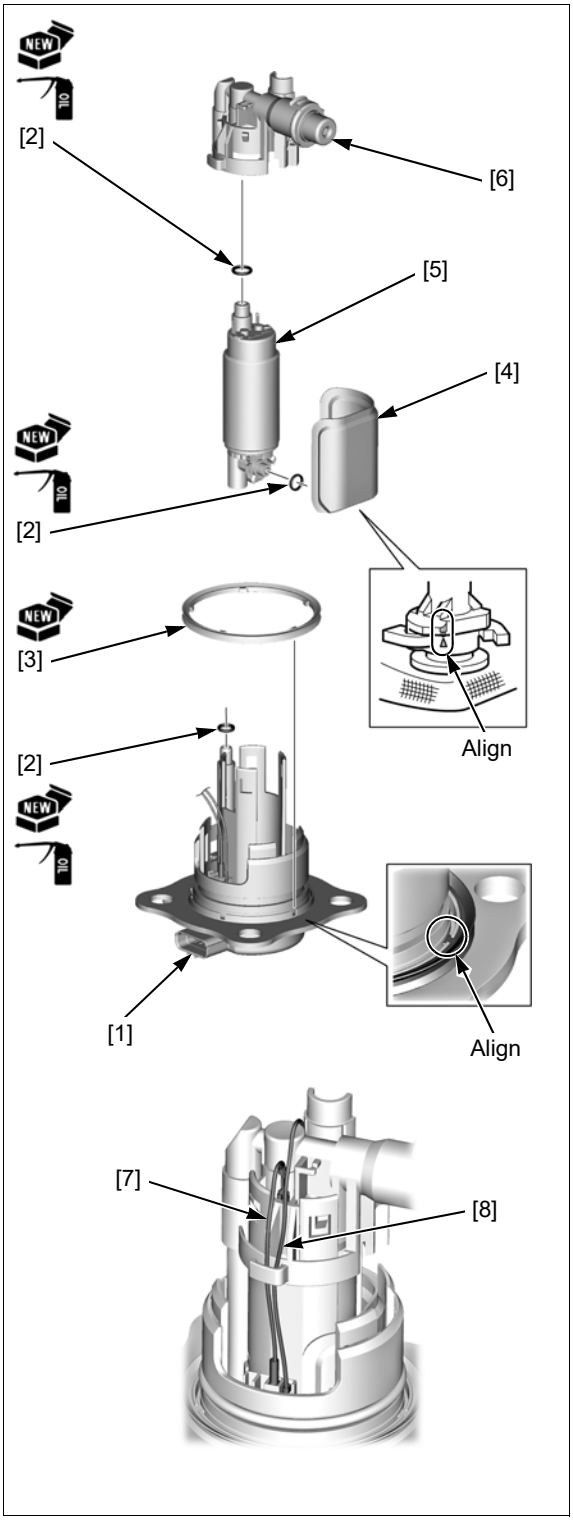
Disassemble the fuel pump unit as following illustration.

– Fuel pump base [1]
– O-rings [2]
– Dust seal [3]
– Fuel filter [4]
– Fuel pump [5]
– Fuel pump unit holder [6]

NOTE:

- Check the fuel filter for clog, damage or deterioration and replace if necessary.
- Align the "△" mark of the fuel filter with the index mark of the fuel pump.
- Route the Yellow wire [7] and Green wire [8] properly.
- Align the dust seal tabs with the fuel pump unit grooves securely.

Assembly is in the reverse order of disassembly.



INSTALLATION

Apply engine oil to a new O-ring.
Install the O-ring [1].

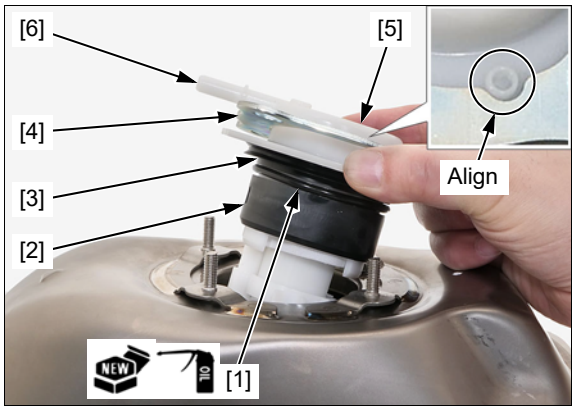
NOTE:
- Make sure that the O-ring is between the upper collar [2] and lower collar [3].

Install the fuel pump plate [4] onto the fuel pump unit [5].

NOTE:
- Align the fuel pump plate groove with the fuel pump unit lug.

Install the fuel pump unit with the fuel joint [6] facing forward.

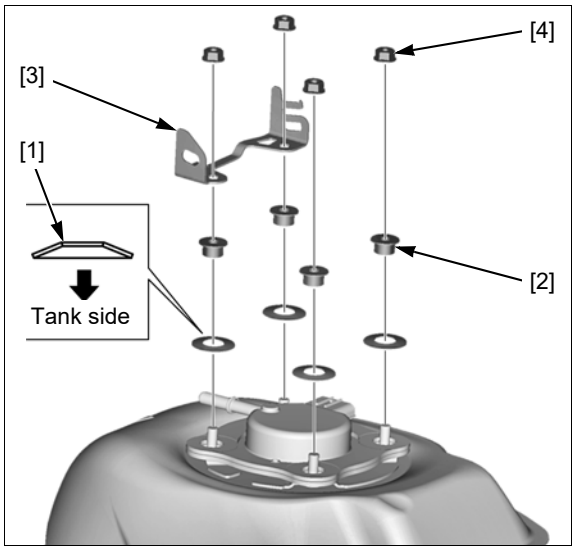
NOTE:
- Be careful not to damage the fuel pump unit.



Install the following:

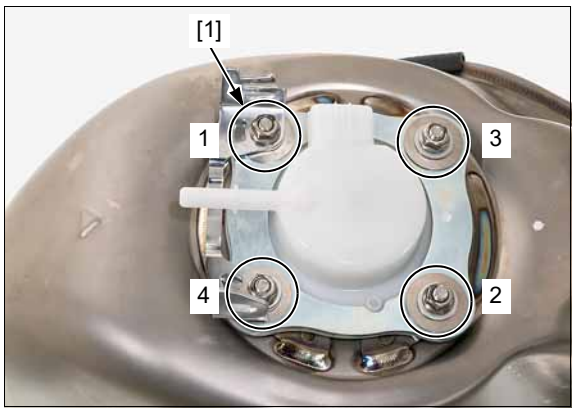
– Conical spring washers [1]
– Collars [2]
– Fuel joint guard [3]
– Fuel pump unit mounting nuts [4]

NOTE:
- Install the conical spring washers in the direction as shown.



Tighten the fuel pump unit mounting nuts [1] to the specified torque in the sequence as shown.

TORQUE: 11 N·m (1.1 kgf·m, 8 lbf·ft)



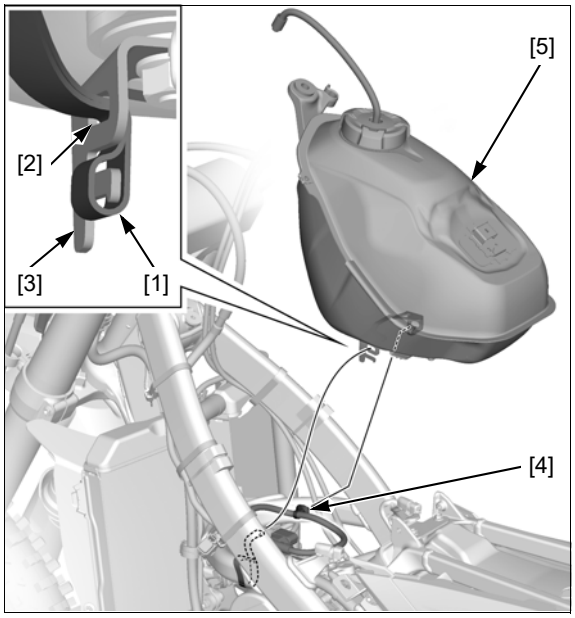
Route the fuel tank strap [1] in the slot [2] of the fuel joint guard [3].

Hook the fuel tank strap to the fuel joint guard.

Install the fuel pump unit wire clip [4].

Hang the fuel tank [5] to the left side of the frame.

Connect the quick connect fitting ➔2-14.



FUEL PUMP FILTER (CRF450RX)

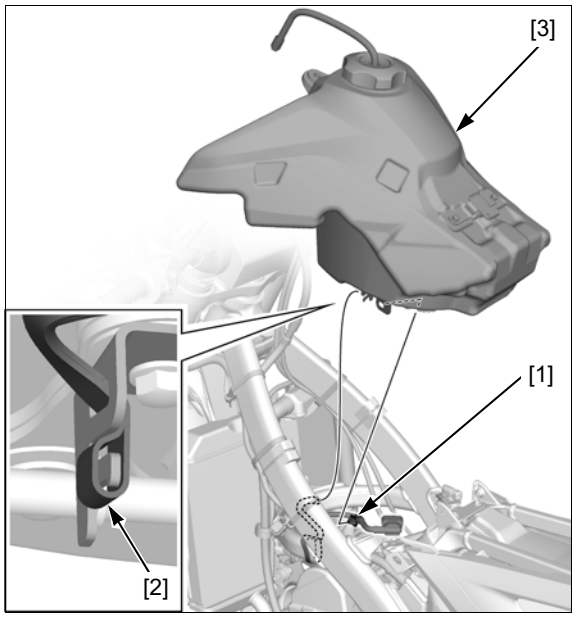
REMOVAL

Disconnect the quick connect fitting ➔2-13.

Release the following:

– Fuel pump unit wire clip [1]
– Fuel tank strap [2]

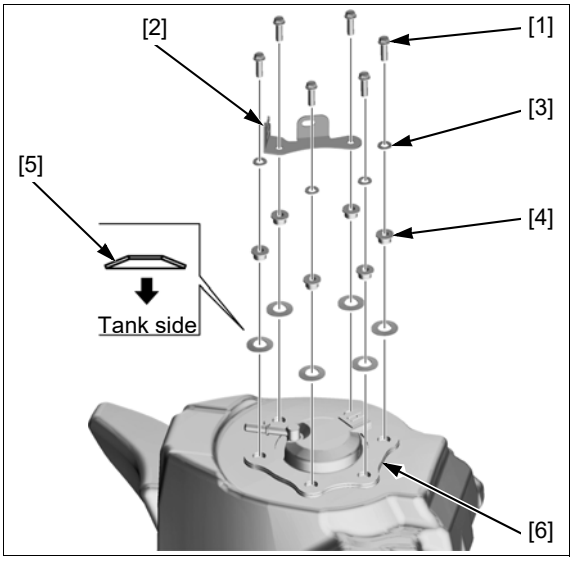
Remove the fuel tank [3].



Loosen the fuel pump unit mounting bolts [1] in a crisscross pattern in two or three steps.

Remove the following:

– Fuel pump unit mounting bolts
– Fuel joint guard [2]
– Washers [3]
– Collars [4]
– Conical spring washers [5]
– Fuel pump plate [6]

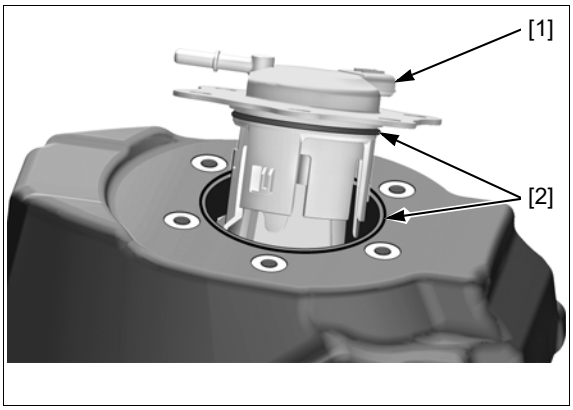


Remove the fuel pump unit [1].

NOTE:

- Be careful not to damage the fuel pump unit.
- Drain the remaining fuel in the fuel pump unit into a suitable container.
- Wipe up any spilled fuel immediately.

Remove the O-rings [2].



DISASSEMBLY/INSPECTION/ ASSEMBLY

Remove the fuel pump unit ➔2-18.

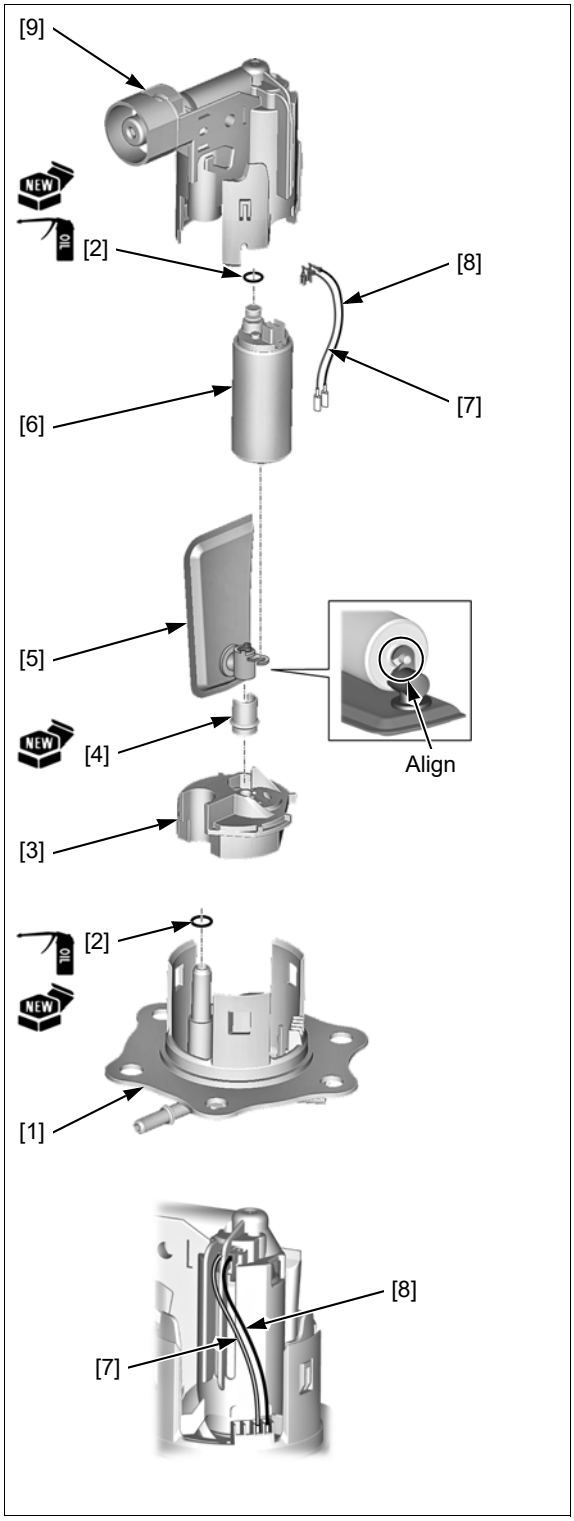
Disassemble the fuel pump unit as following illustration.

– Fuel pump base [1]
– O-rings [2]
– Fuel pump stopper [3]
– Damper rubber [4]
– Fuel filter [5]
– Fuel pump [6]
– Red wire [7]
– Black wire [8]
– Fuel pump unit holder [9]

NOTE:

- Check the fuel filter for clog, damage or deterioration and replace if necessary.
- Align the hook of the fuel filter with the joint boss of the fuel pump completely.
- Route the Red and Black wires properly.

Assembly is in the reverse order of disassembly.



INSTALLATION

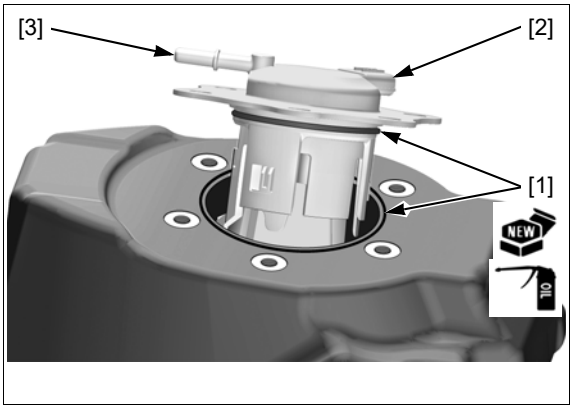
Coat a new O-rings with engine oil.

Install the O-rings [1].

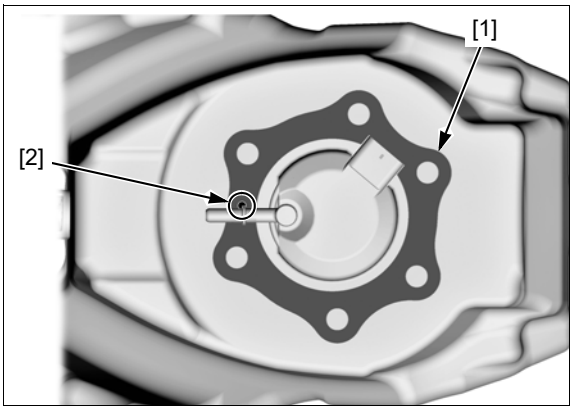
Install the fuel pump unit [2] into the fuel tank with the fuel joint [3] facing forward.

NOTE:

- Be careful not to damage the fuel pump unit.



Install the fuel pump plate [1] with the identification mark [2] facing forward.

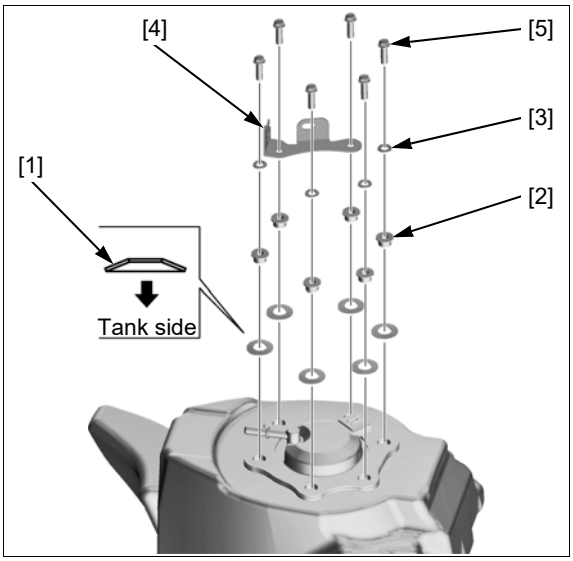


Install the following:

– Conical spring washers [1]
– Collars [2]
– Washers [3]
– Fuel joint guard [4]
– Fuel pump unit mounting bolts [5]

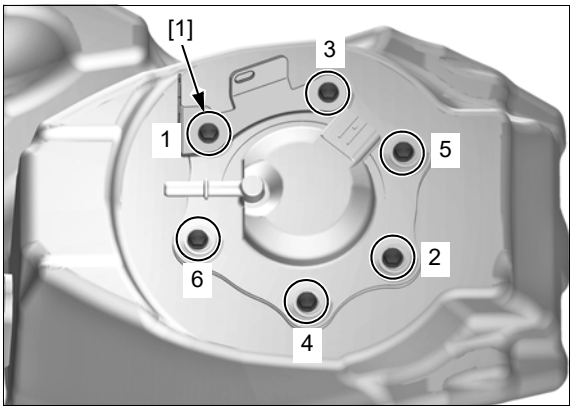
NOTE:

- Install the conical spring washers in the direction as shown.



Tighten the fuel pump unit mounting bolts [1] to the specified torque in the sequence as shown.

TORQUE: 11 N·m (1.1 kgf·m, 8 lbf·ft)



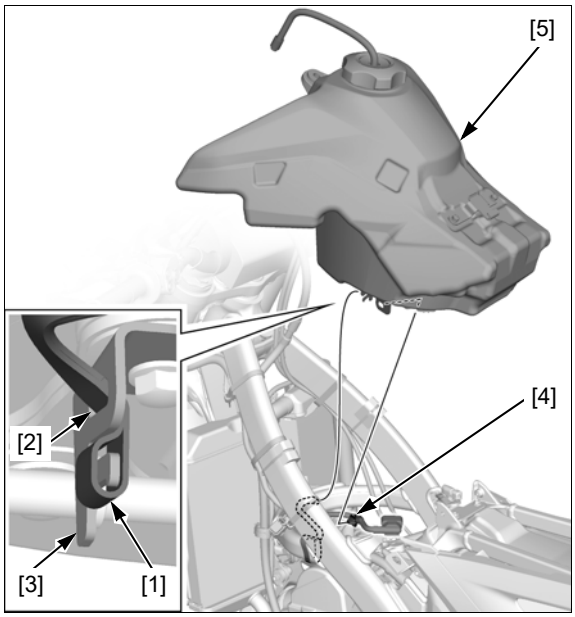
Route the fuel tank strap [1] in the slot [2] of the fuel joint guard [3].

Hook the fuel tank strap to the fuel joint guard.

Install the fuel pump unit wire clip [4].

Hang the fuel tank [5] to the left side of the frame.

Connect the quick connect fitting ➔2-14.



THROTTLE OPERATION

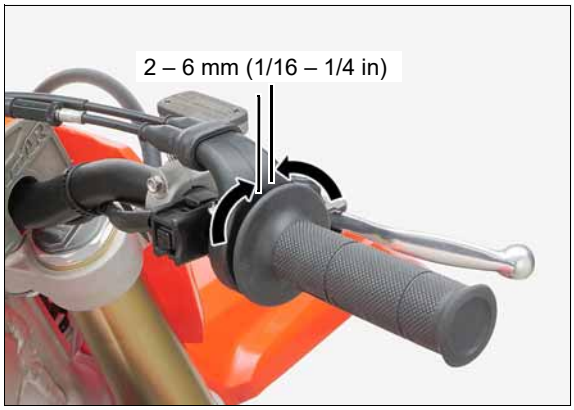
Check the throttle cables for deterioration, damage or kinking.

Operate the throttle grip and check that the throttle opens smoothly and automatically closes in any steering position.

If the throttle grip does not operate smoothly check that the throttle cables are routed properly, the throttle housing is cleaned and lubricated with grease, and the throttle drum operation is normal. If there is no abnormality but the throttle operation is not smooth, replace the throttle cables.

Measure the freeplay at the throttle grip flange.

FREEPLAY: 2 – 6 mm (1/16 – 1/4 in)



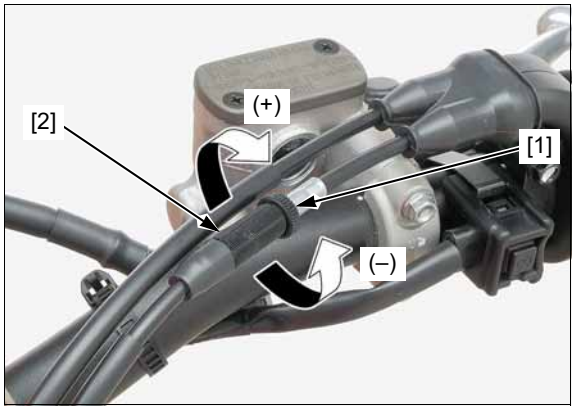
Minor adjustment is made at the throttle housing side.

Loosen the lock nut [1] and turn the adjuster [2].

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

After adjustment, tighten the lock nut securely while holding the adjuster.

If the correct freeplay cannot be obtained even when the adjuster is turned all the way, return it in direction (+) until it contacts lightly and turn it in direction (–) one turn, then perform the major adjustment.



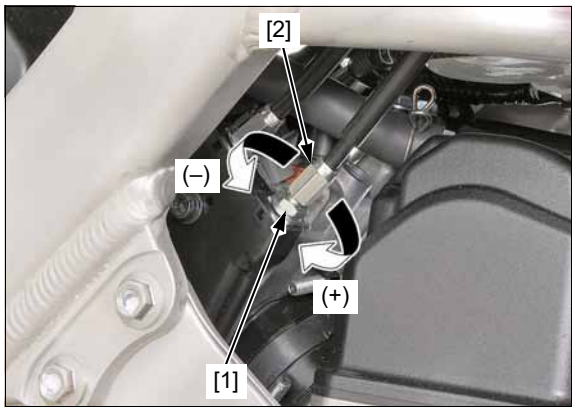
Major adjustment is made at the throttle body side.

Loosen the throttle cable adjuster lock nut [1] and turn the adjuster [2] in direction (–) to decrease freeplay, and in direction (+) to increase freeplay.

After adjustment, tighten the throttle cable adjuster lock nut to the specified torque while holding the adjuster.

TORQUE: 4.0 N·m (0.4 kgf·m, 3.0 lbf·ft)

Recheck the throttle grip operation.

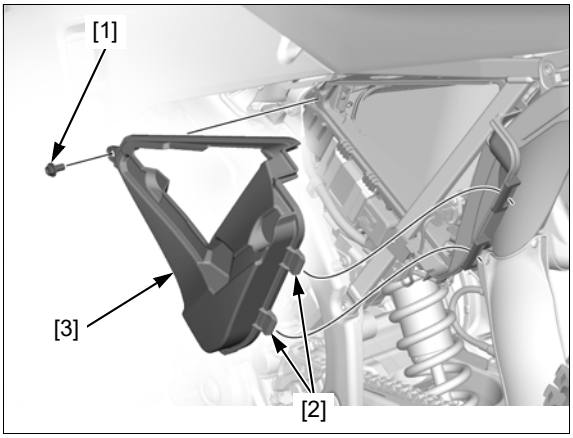


AIR FILTER

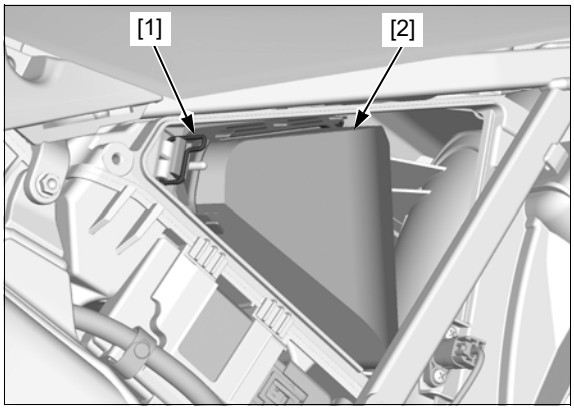
Remove the left side cover ➔1-5.

Remove the air cleaner lid bolt [1].

Unhook the tabs [2] and remove the air cleaner lid [3].



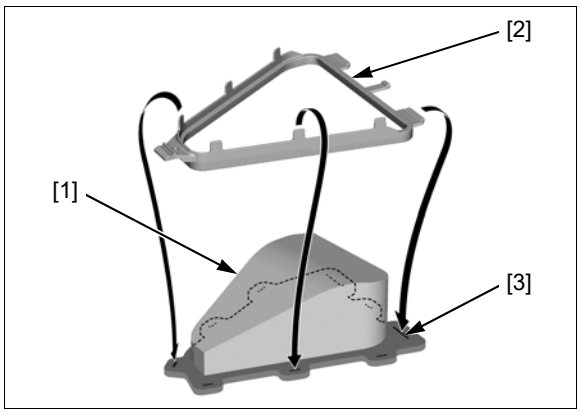
Release the element hook [1] and remove the air cleaner element assembly [2] from the air cleaner housing.



Remove the air cleaner element [1] from the element base [2].

NOTE:

- Be careful not to break the air cleaner element slots [3].



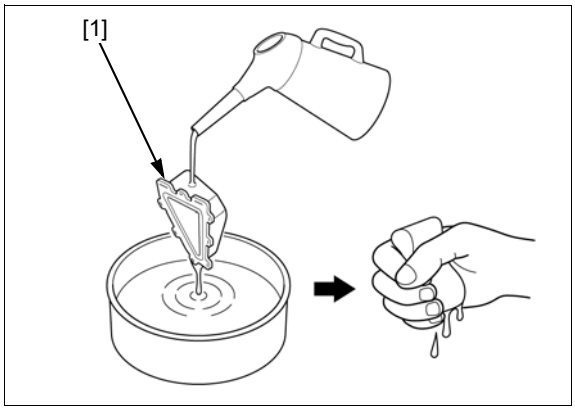
Thoroughly wash the air cleaner element [1] in cleaning solvent, then wash it in a solution of hot water and dishwashing liquid soap.

Be sure there is no dirt or dust trapped in the air cleaner element and wash it again if necessary.

After washing, squeeze out the air cleaner element and allow it to dry thoroughly.

NOTE:

- Because a gasoline or low-flash point solvent is very flammable, do not use it to wash the air cleaner element.

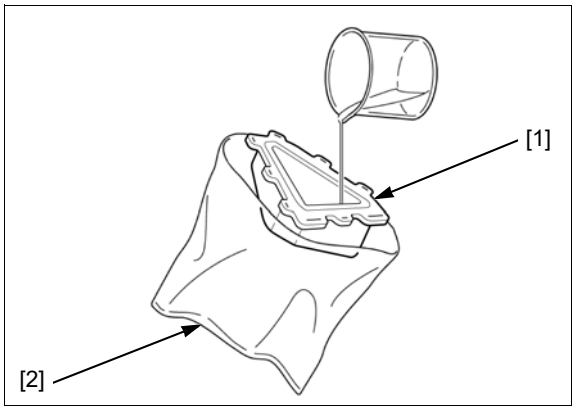


Apply 50 cm^3 (1.7 US oz, 1.8 Imp oz) of Pro Honda Foam Air Filter Oil or an equivalent to the inside of the element.

Place the filter element [1] into a plastic bag [2], completely saturate the element with foam filter oil, work the foam filter oil throughout the element and squeeze out excess.

NOTE:

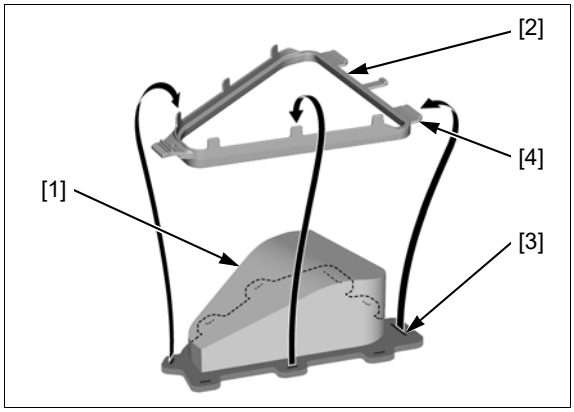
- Do not twist the air cleaner element when squeezing out excess oil.
- Do not use engine oil as a foam filter lubricant.
- Regarding the RWE type, follow TwinAir® for the oiling penetration procedure and which oil to use.



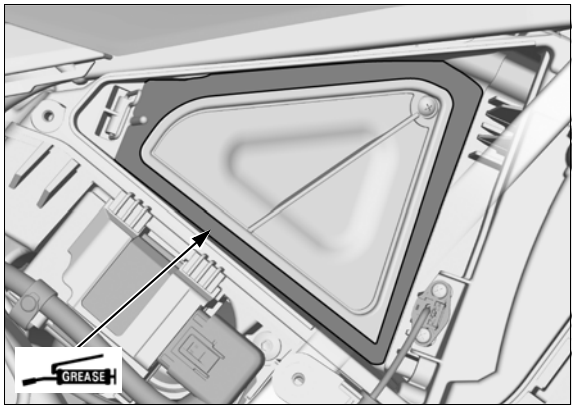
Install the air cleaner element [1] to the element base [2].

NOTE:

- Hook the air cleaner element slots [3] onto the base tabs [4] as shown.
- Be careful not to break the air cleaner element slots.



Apply 1.5 – 5.5 g (0.05 – 0.19 oz) of grease to the air cleaner element contacting area of the air cleaner housing as shown.



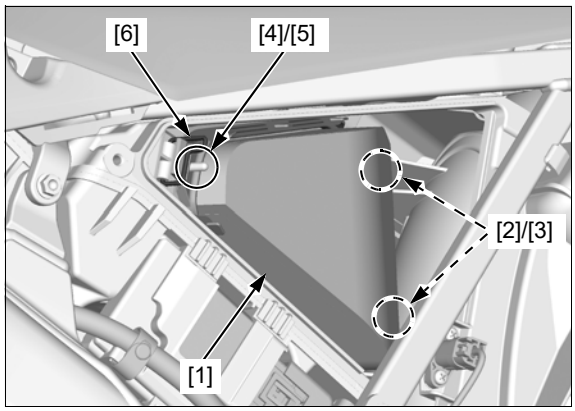
Install the air cleaner element [1].

NOTE:
- Align the tabs [2] of the element base with the slots [3] of the air cleaner housing.
- Align the hole [4] of the element base with the projection [5] of the air cleaner housing.

Lock the element hook [6] completely.

NOTE:
- If the air cleaner assembly is not installed correctly, dirt and dust may enter the engine, resulting in wear of the cylinder and lowering engine output. It also adversely affect the engine durability.
- Be sure to clean the air cleaner housing and apply oil to the air cleaner element before every practice and race.

Install the air cleaner lid ➔2-22.
Install the left side cover ➔1-5.

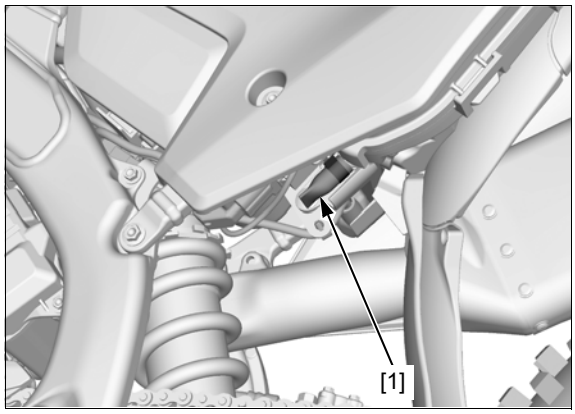


CRANKCASE BREATHER

Remove the drain tube [1], then drain any fluid or dirt into a proper container from the air cleaner housing.

Reinstall the drain tube.

NOTE:
- Service more frequently after riding in rain or at full throttle as evaporated water and mist-like oil can easily accumulate.



SPARK PLUG

REMOVAL/INSTALLATION

Hang the fuel tank to the left side of the frame ➔2-11.

Clean around the spark plug base with compressed air before removing and be sure that no debris is allowed to enter the combustion chamber.

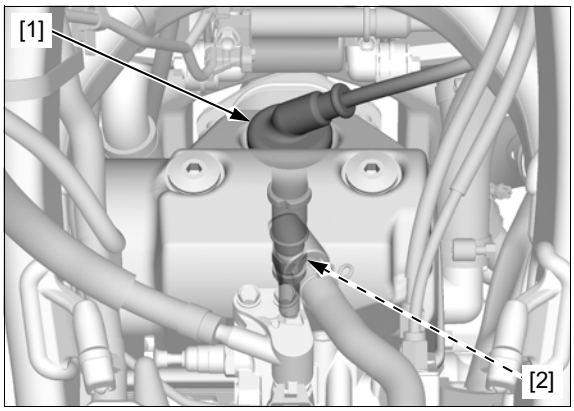
Disconnect the spark plug cap [1].

Remove the spark plug [2].

Installation is in the reverse order of removal.

TORQUE:
Spark plug:
22 N·m (2.2 kgf·m, 16 lbf·ft)

NOTE:
- When installing the spark plug, hand tighten it first, then tighten it to the specified torque using the plug wrench.
- Inspect or replace as described in the maintenance schedule ➔2-9.



INSPECTION

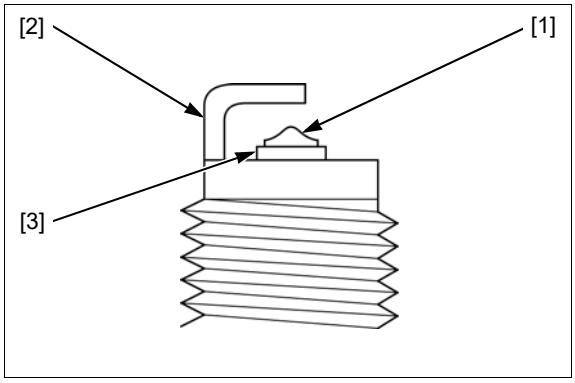
Check the following and replace the spark plug if necessary.

- Center electrode [1] is wear as shown.
- Carbon deposits and dirt are visible on the center electrode and side electrode [2].
- Insulator [3] for damage
- Coloration or burning condition

SPECIFIED SPARK PLUG:
SILMAR9A-9S (NGK)

NOTE:

- To prevent damaging the iridium center electrode, do not clean the electrodes. Replace the spark plug with a new one.
- Always use specified spark plug.



Check the gap between the center and side electrodes with a wire type feeler gauge [1].

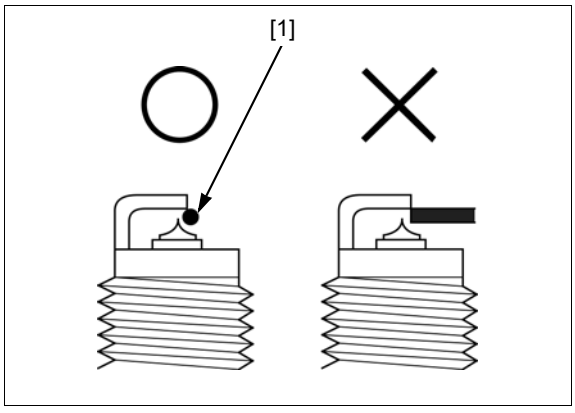
NOTE:

- To prevent damaging the iridium center electrode, use a wire type feeler gauge to check the spark plug gap.

Make sure that the Φ 1.0 mm (0.04 in) plug gauge can not be inserted between the gap. If the gauge can be inserted into the gap, replace the plug with a new one.

NOTE:

- Do not adjust the spark plug gap. If the gap is out of specification, replace it with a new one.



VALVE CLEARANCE/ DECOMPRESSOR SYSTEM

NOTE:

- Inspect and adjust the valve clearance while the engine is cold (below 35°C/95°F).

INSPECTION

Hang the fuel tank to the left side of the frame ➔2-11.

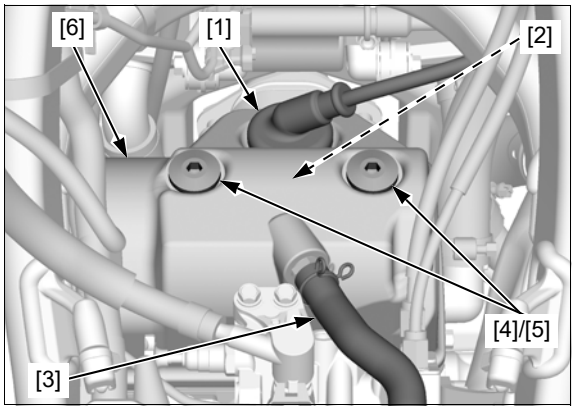
Clean around the spark plug base with compressed air before removing and be sure that no debris is allowed to enter the combustion chamber.

Disconnect the spark plug cap [1].

Remove the spark plug [2].

Disconnect the crankcase breather hose [3].

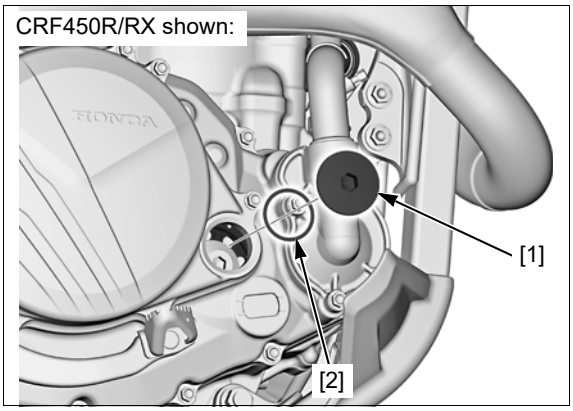
Remove the cylinder head cover bolts [4], mounting rubbers [5], and cylinder head cover [6].



Remove head cover gasket [1] from the cylinder head cover.

Remove the crankshaft hole cap [1].

Remove the O-ring [2] from the crankshaft hole cap.



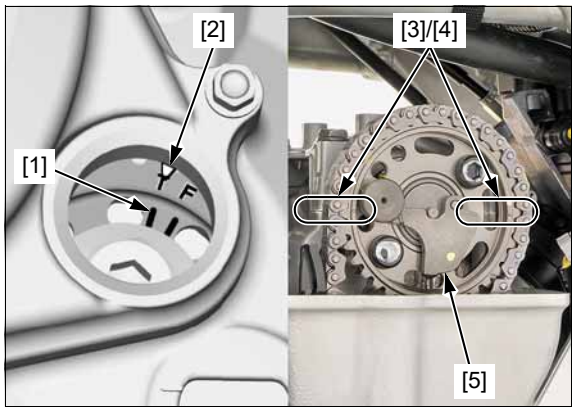
Turn the crankshaft clockwise to align the “T” mark [1] on the primary drive gear with the index mark [2] on the right crankcase cover.

Make sure that the index lines [3] on the cam sprocket align with the camshaft holder mating surfaces [4].

Check the decompressor weight [5] position.

If the weight is positioned as shown, the piston is TDC (Top Dead Center) on the compression stroke.

If the weight is positioned in the opposite side, the piston is TDC on the exhaust stroke. Rotate the crankshaft clockwise one full turn and align the “T” mark with the index mark again.



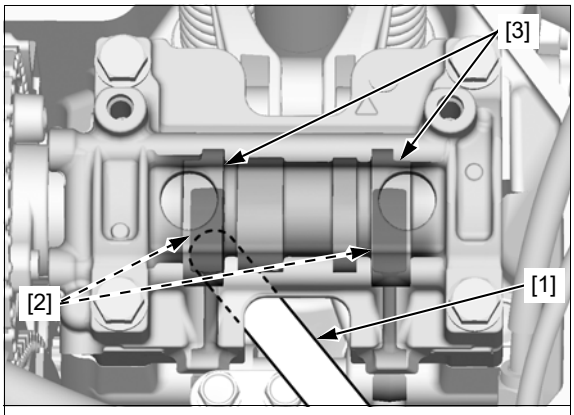
Insert a feeler gauge [1] between the intake rocker arms [2] and cam lobes [3], and measure and record the intake valve clearances.

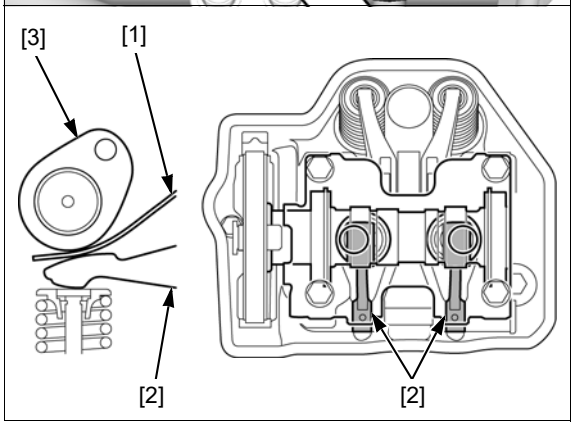
INTAKE VALVE CLEARANCE:
0.13 ± 0.03 mm (0.005 ± 0.001 in)

NOTE:

- Be careful not to damage the intake rocker arms.

If the clearance is out of specification, adjust the valve clearance ➔2-28.

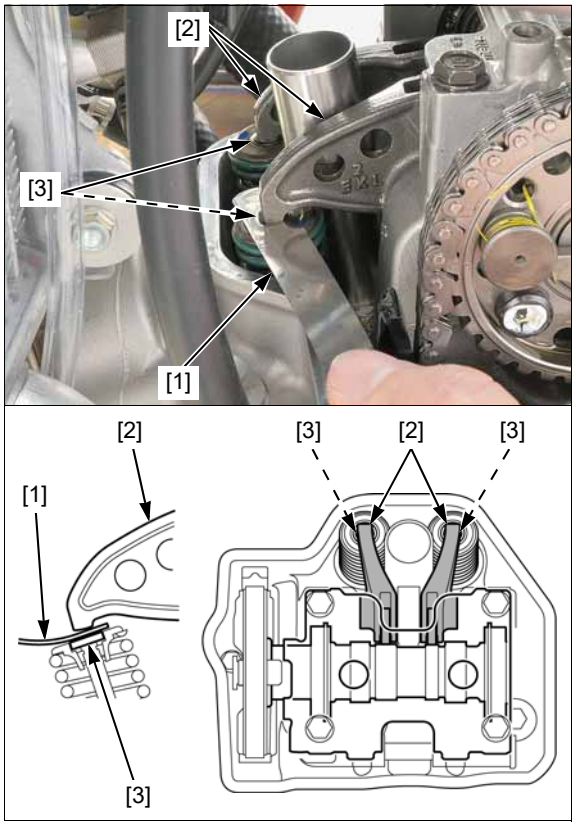




Insert a feeler gauge [1] between the exhaust rocker arms [2] and shims [3], and measure and record the exhaust valve clearance.

EXHAUST VALVE CLEARANCE:
0.28 ± 0.03 mm (0.011 ± 0.001 in)

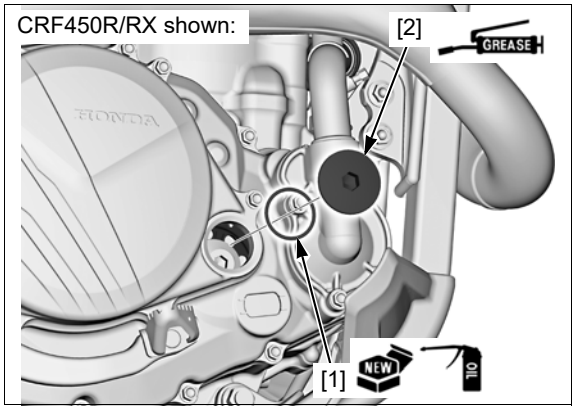
If the clearance is out of specification, adjust the valve clearance ➔2-28.



Apply engine oil to a new O-ring [1].
Install the O-ring to the crankshaft hole cap [2].

Apply grease to the crankshaft hole cap threads.
Install the crankshaft hole cap and tighten it to the specified torque.

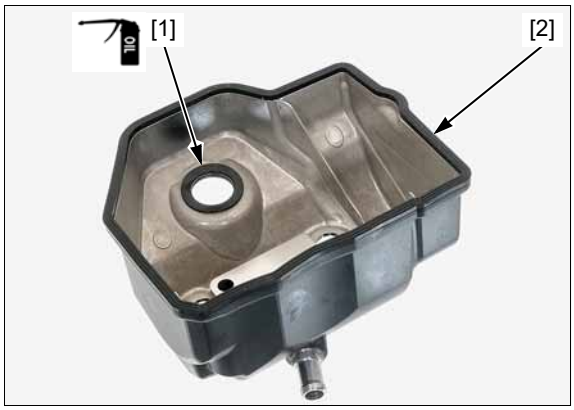
TORQUE: 15 N·m (1.5 kgf·m, 11 lbf·ft)



Check the plug hole seal ring [1] and head cover gasket [2] for damage or deterioration and replace them if necessary.

Apply engine oil to the plug hole seal ring.

Install the head cover gasket to the cylinder head cover.



Install the cylinder head cover [1].

NOTE:

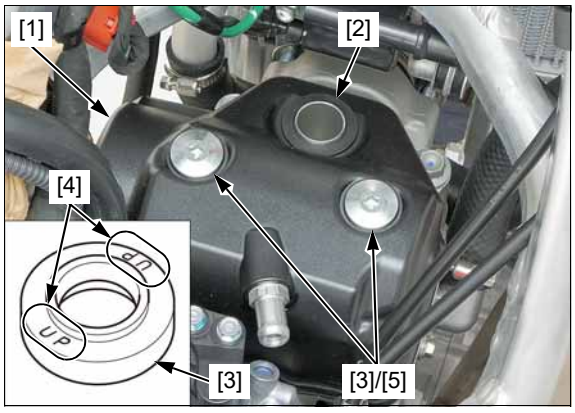
- Make sure that the plug hole seal ring [2] is installed properly.

Check the mounting rubbers [3] for scoring or damage and replace them if necessary.

Install the mounting rubbers onto the cylinder head cover with the “UP” marks [4] facing up.

Install the cylinder head cover bolts [5] and tighten them to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)



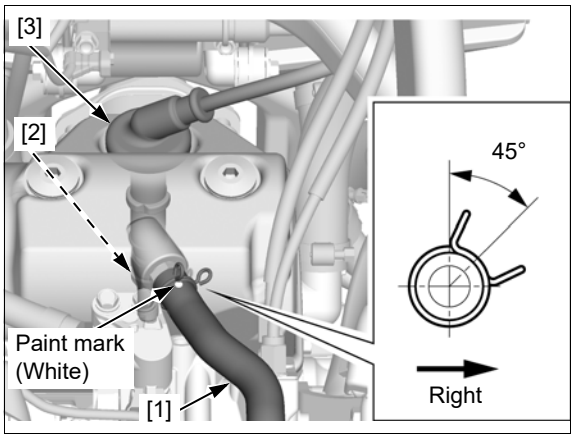
Connect the crankcase breather hose [1] with the paint mark (white) facing up.

Install the spark plug [2] and hand tighten it first, then tighten it to the specified torque using the plug wrench.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

Install the spark plug cap [3].

Install the fuel tank ➔2-11.

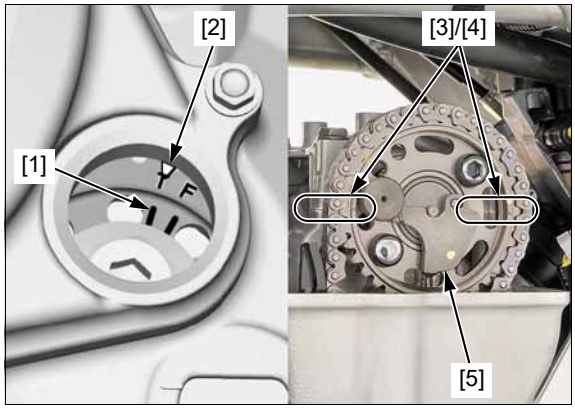


ADJUSTMENT

Check the following:

– Align the “T” mark [1] on the primary drive gear with the index mark [2] on the right crankcase cover
– Align the index lines [3] on the cam sprocket with the camshaft holder mating surfaces [4].
– The decompressor weight [5] is positioned as shown

If the weight is positioned in opposite side, rotate the crankshaft clockwise one full turn and align the “T” mark on the primary drive gear with the index mark on the right crankcase cover again.



Remove the cam chain tensioner lifter bolt [1] and sealing washer [2].

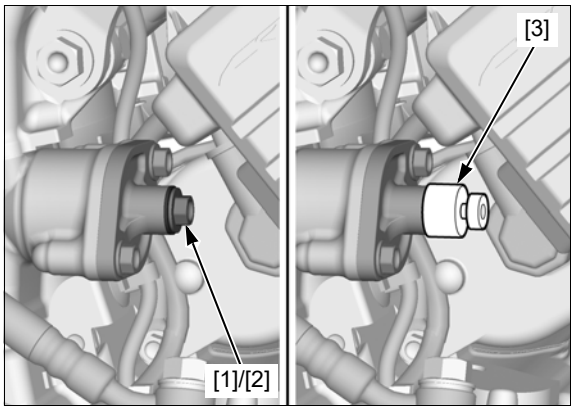
Install the special tool into the cam chain tensioner lifter hole and turn the tool clockwise until it stops.

Hold the tensioner lifter by pushing the tool while aligning the tabs of the tool with the grooves of the tensioner lifter.

TOOL:

Stopper Tensioner [3]	**070MG-0010100 or 07AMG-001A100 (U.S.A. only)**

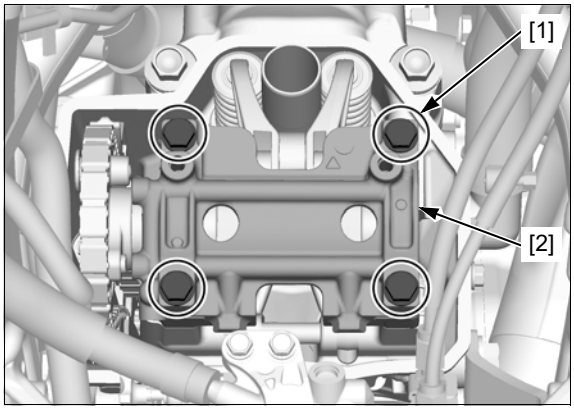
Turn the stopper tensioner clockwise fully and lock the cam chain tensioner lifter by pushing the handle.



Remove the camshaft holder bolts [1].
Remove the camshaft holder [2].

NOTE:

- Be careful not to drop the set rings into the crankcase.



Remove the set rings [1].

NOTE:

- Be careful not to drop the set rings into the crankcase.

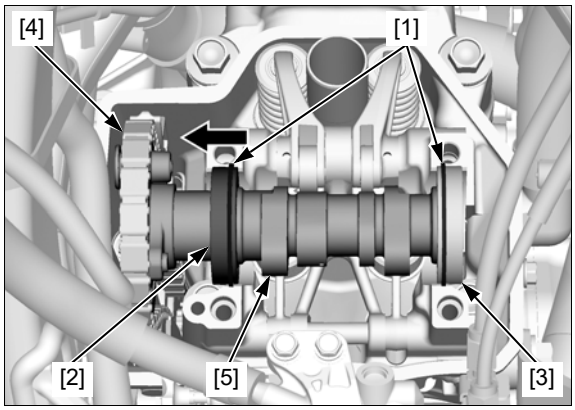
Slide the left camshaft bearing [2] until it contacts with the cam sprocket.

Remove the right camshaft bearing [3].

Remove cam chain [4] from the cam sprocket, then remove the camshaft [5].

NOTE:

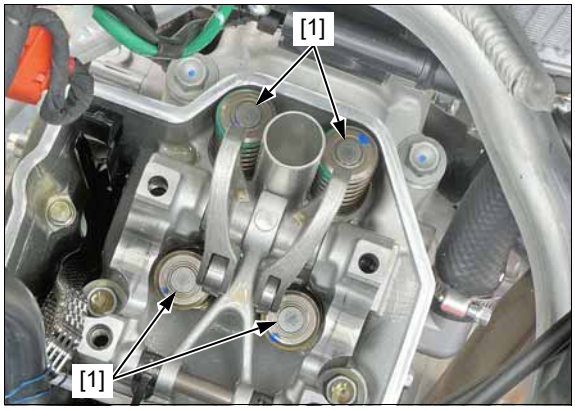
- Hang the cam chain with a piece of wire to prevent it from falling into the crankcase.



Remove the shims [1].

NOTE:

- Be careful not to damage the intake rocker arms.
- Mark all valve shims to ensure correct reassembly in their original locations.
- The shims can be easily removed with tweezers or a magnet.



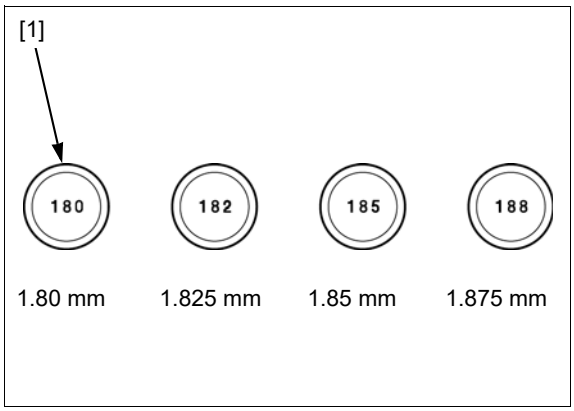
Wipe the oil off the shim [1] and measure the shim thickness with a micrometer and record it.

Calculate the new shim [1] thickness using the equation below.

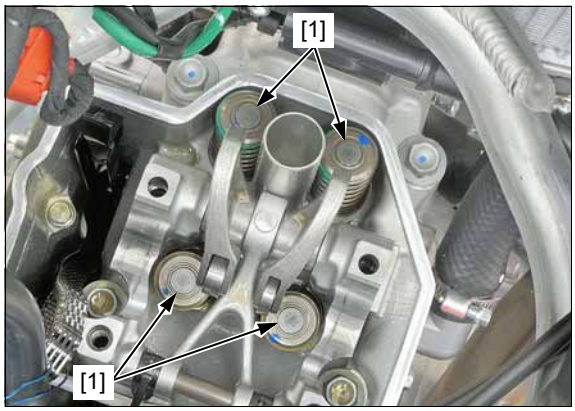
A = (B – C) + D

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

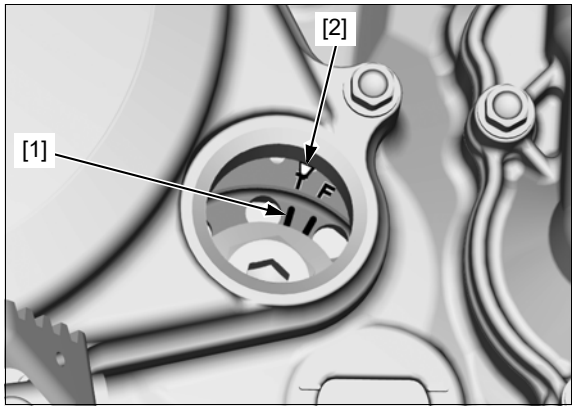
- Make sure of the correct shim thickness by measuring the shim using a micrometer.
- Different thickness shims are available from 1.200 mm to 3.000 mm in increments of 0.025 mm.
- Reface the valve seat if carbon deposits result in a calculated dimension of over 3.000 mm.



Install the newly selected shims [1].



Check for aligning the “T” mark [1] on the primary drive gear with the index mark [2] on the right crankcase cover.



Inspect the decompressor operation as follows:

1. Move the decompressor weight [1] with your finger and check the spring for fatigue.
2. Release the decompressor weight.
   The decompressor weight should returns to the original position automatically.

If the decompressor weight operation is abnormal, refer to an official Honda Service Manual or see your dealer to disassemble and inspect the decompressor system.

Apply molybdenum oil solution to the camshaft cam lobes.

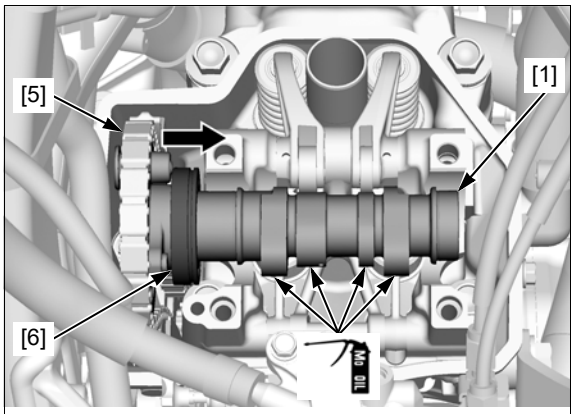
Install the camshaft [1] with the intake cam lobes facing up as shown.

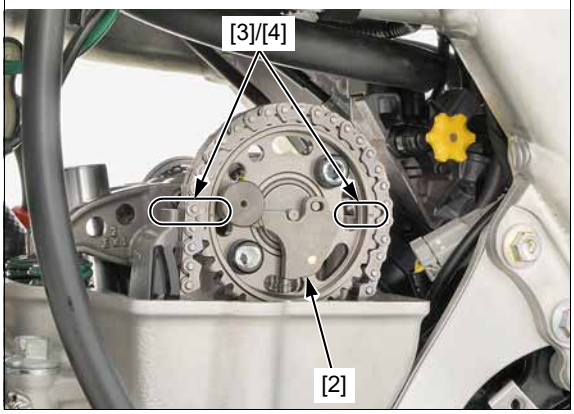
NOTE:

- Position the decompressor weight [2] as shown.

Align the index lines [3] on the cam sprocket with the camshaft holder mating surface [4] and install the cam chain [5] onto the cam sprocket.

Slide the left camshaft bearing [6] until it is fully seated onto the camshaft rib.





Install the right camshaft bearing [1].

Install the set rings [2] into the left and right camshaft bearing grooves.

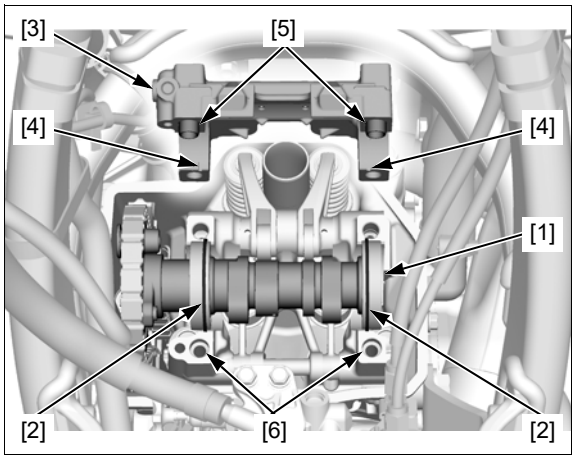
NOTE:

- Be careful not to drop the set rings into the crankcase.

Install the camshaft holder [3].

NOTE:

- Align the camshaft holder grooves [4] with the set rings.
- Align the camshaft holder dowel pins [5] with the cylinder head holes [6].



Align the intake and exhaust rocker arm shaft cut-outs [1] with the camshaft holder bolt holes.

Apply engine oil to the camshaft holder mounting bolt threads and seating surfaces.

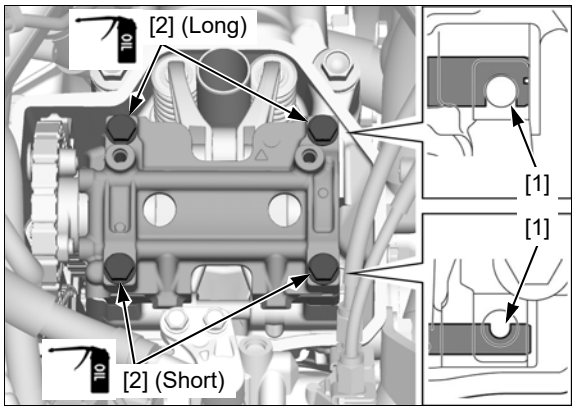
Install the camshaft holder mounting bolts [2].

NOTE:

- The exhaust side camshaft holder mounting bolts are longer than the intake side bolts.

Tighten the camshaft holder mounting bolts to the specified torque.

TORQUE: 15 N·m (1.5 kgf·m, 11 lbf·ft)



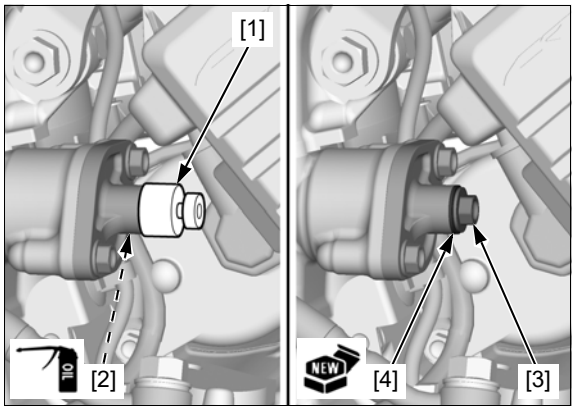
Remove the special tool [1].

Through the bolt hole, apply more than 2.0 cm^3 (0.07 US oz, 0.07 Imp oz) of engine oil to the slit surface of the tensioner shaft [2].

Install the cam chain tensioner bolt [3] with a new sealing washer [4].

Tighten the cam chain tensioner lifter bolt securely.

After seating the shims by rotating the crankshaft clockwise several times, recheck the valve clearance ➔2-25.



ENGINE OIL

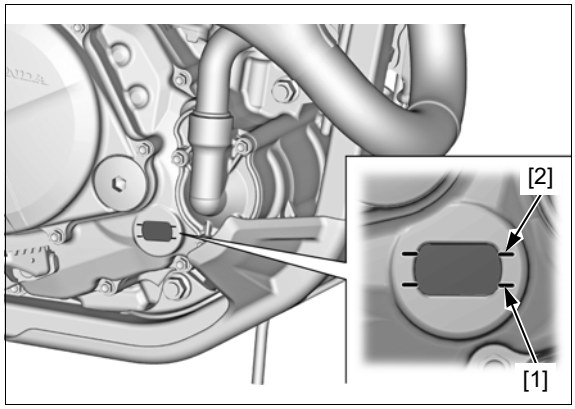
OIL LEVEL INSPECTION

Start the engine and let it idle for 3 minutes.

Stop the engine, wait 3 minutes and support the motorcycle upright on a level surface.

Check the oil level through the inspection window.

If the oil level is below or near the lower level line [1], add the recommended engine oil to the upper level line [2] ➔2-32.



ENGINE OIL CHANGE

Remove the engine guard ➔1-7.

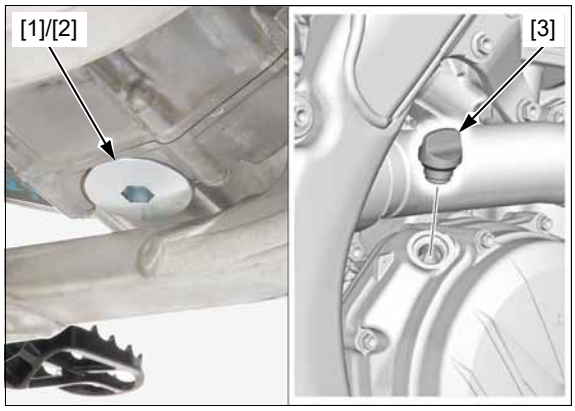
Start the engine and let it idle for 3 minutes.

Stop the engine and support the motorcycle upright on a level surface.

Place an oil pan under the engine to catch the engine oil, then remove the engine oil drain bolt [1] and O-ring [2].

Remove the oil filler cap [3].

Drain the engine oil.



Apply engine oil to the engine oil drain bolt threads and seating surface.
Apply engine oil to a new O-ring.
Install the O-ring [1] on the engine oil drain bolt [2].

After completely draining the oil, install the engine oil drain bolt and tighten it to the specified torque.

TORQUE: 18 N·m (1.8 kgf·m, 13 lbf·ft)

Fill the engine with the recommended engine oil.

RECOMMENDED ENGINE OIL:
Pro Honda GN4 4-stroke oil (U.S.A. & Canada) or equivalent motorcycle oil
API service classification: SJ or higher
JASO T903 standard: MA
Viscosity: SAE 10W-30

NOTE:

- The API classification specifies the quality and performance rating of engine oils. Use SJ or higher oils, excluding oils marked as “Energy Conserving” or “Resource Conserving” on the circular API service symbol.

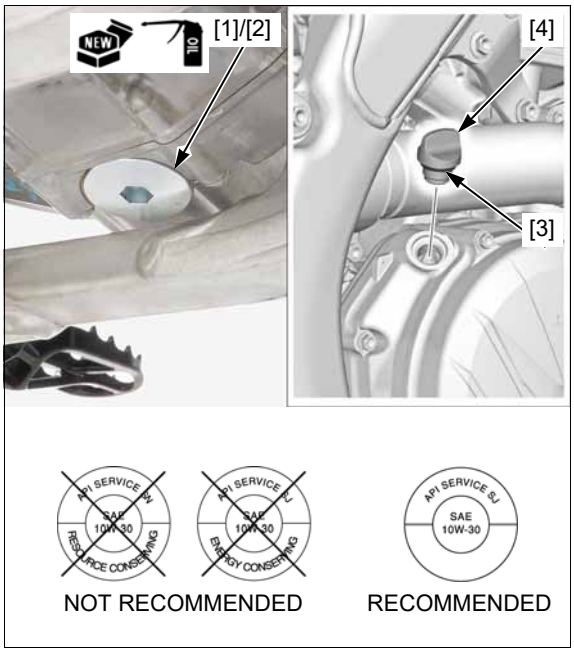
ENGINE OIL CAPACITY:
1.00 liter (1.06 US qt, 0.88 Imp qt) at draining
1.04 liters (1.10 US qt, 0.92 Imp qt) at oil filter change
1.35 liters (1.43 US qt, 1.19 Imp qt) at disassembly

Recheck the oil level ➔2-32.

Make sure there are no oil leaks.

Check the O-ring [3] on the oil filler cap [4] and replace it with a new one if it is deteriorated or damaged.
Install the oil filler cap.

Install the engine guard ➔1-7.



ENGINE OIL FILTER

ENGINE OIL FILTER CHANGE

Drain the engine oil ➔2-32.

Remove the following:

– Bolts [1]
– Oil filter cover [2]
– O-ring [3]
– Oil filter [4]
– Spring [5]

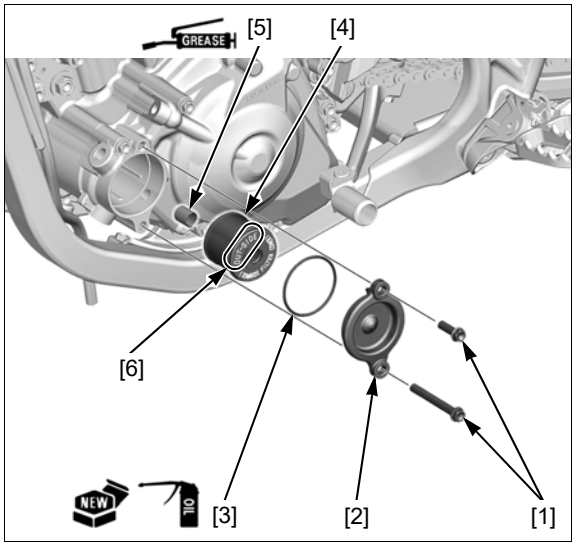
Apply grease to the oil filter contact area of the spring and install it into a new oil filter.
Install the oil filter with the “OUT-SIDE” mark [6] facing out.

NOTE:

- Installing the oil filter backwards will result in severe engine damage.

Apply engine oil to a new O-ring and install it on the oil filter cover.
Install the oil filter cover and bolts, and tighten the bolts securely.

Fill the engine with the recommended engine oil ➔2-32.



ENGINE IDLE SPEED

NOTE:

- The engine must be warm for accurate idle speed inspection.
- When inspecting the engine idle speed, make sure that the fast idle knob is pushed fully in.
- Use a tachometer with graduations of 50 rpm or smaller that will accurately indicate a 50 rpm change.

Shift the transmission into neutral and support the motorcycle securely.

Start the engine and warm it up.

Stop the engine and connect a tachometer according to the tachometer manufacturer’s operating instructions.

Start the engine and let it idle.

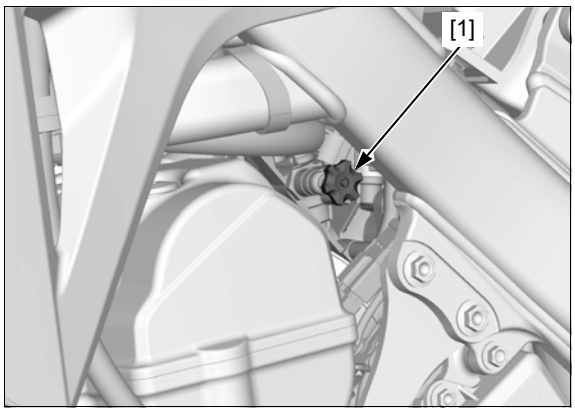
Check the engine idle speed and adjust it by turning the fast idle knob [1] if necessary.

IDLE SPEED: 2,000 ± 100 rpm

Turning the fast idle knob counterclockwise results in a faster/higher idle speed.

Turning the fast idle knob clockwise results in a slower/lower idle speed.

If engine idle speed can not adjust, refer to an official Honda Service Manual or see your dealer to check the fast idle knob.



PISTON/PISTON RINGS/ PISTON PIN

REMOVAL

Support the motorcycle upright on a level surface.

Remove the drain bolt [1] and sealing washer [2].

Remove the radiator shroud upper bolt [3] and radiator cap [4] slowly.

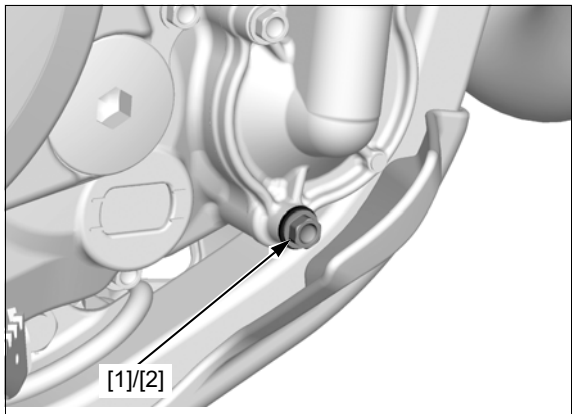
⚠WARNING

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

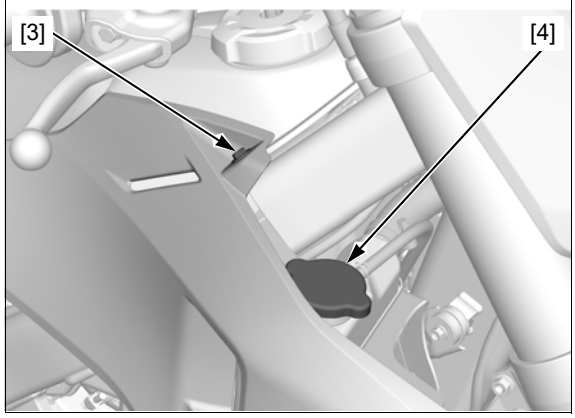
Drain the coolant from the system by leaning the machine to the right and left several times.

Remove the following:

– Exhaust pipe ➔1-10
– Rear frame ➔1-7
– Shims ➔2-25



CRF450R shown:

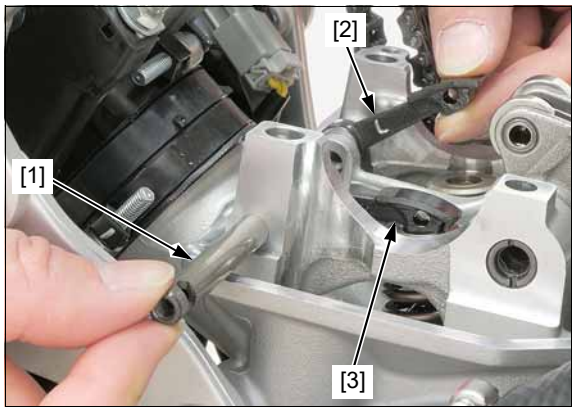


Pull out the intake rocker arm shaft [1].

Remove the left intake rocker arm [2] and right intake rocker arm [3].

NOTE:

- Be careful not to damage the intake rocker arms.

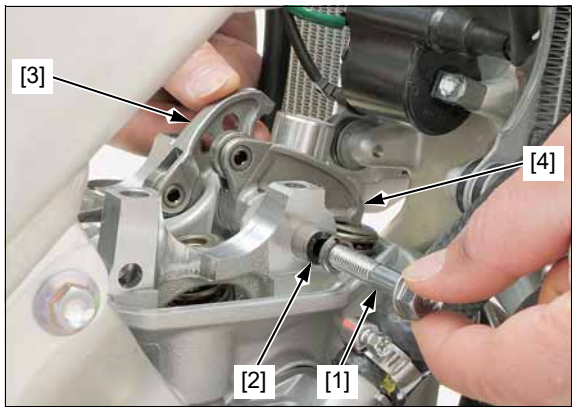


Temporarily install a suitable 8 mm bolt [1] to the exhaust rocker arm shaft [2].

Pull out the exhaust rocker arm shaft.

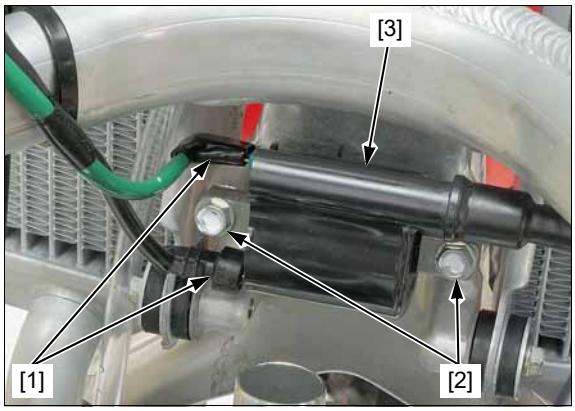
Remove the left exhaust rocker arm [3] and right exhaust rocker arm [4].

Remove the 8 mm bolt.



Disconnect the primary wire connectors [1].

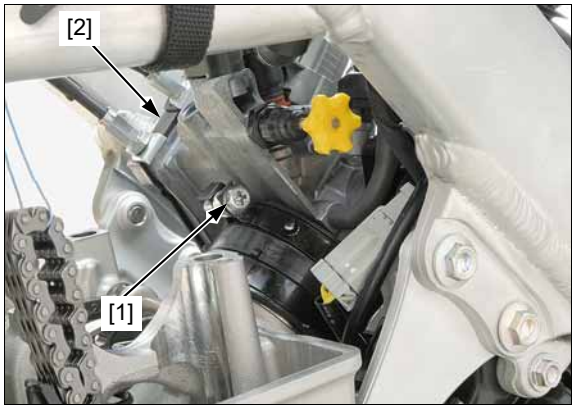
Remove the bolts [2] and ignition coil [3].



Loosen the insulator band screw [1] and pull the throttle body [2] out from the insulator.

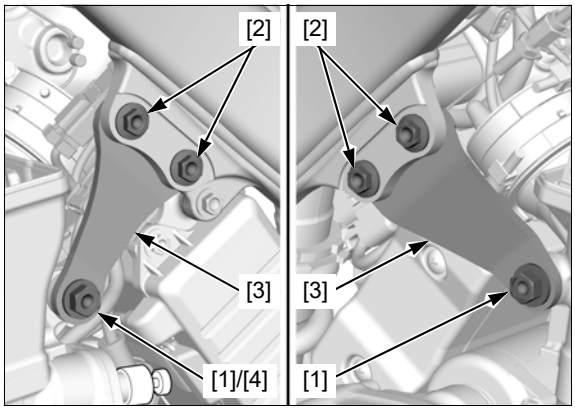
NOTE:

- Do not let the throttle body hang from the cables or hoses.

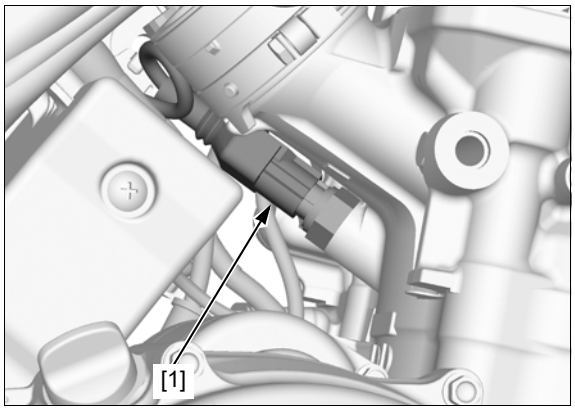


Remove the cylinder head hanger bolts [1].

Remove the cylinder head hanger plate bolts [2], cylinder head hanger plates [3], and cylinder head hanger collar [4].



Disconnect the ECT sensor 2P (Black) connector [1].



Loosen the hose band screw [1] and disconnect the radiator hose A [2].

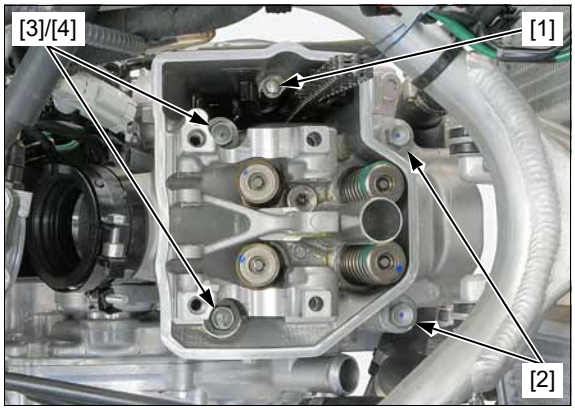
Remove the cylinder head 6 mm bolt [1].

Loosen the front cylinder head bolts [2] and rear cylinder head bolts [3] in a crisscross pattern in two or three steps.

Remove the rear cylinder head bolts and washers [4].

NOTE:

- Be careful not to drop the washers into the crankcase.



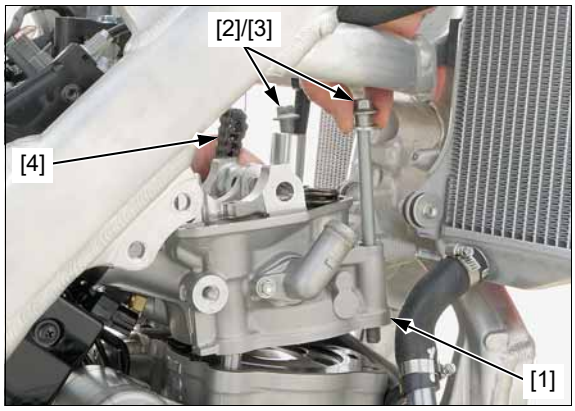
Lift the cylinder head [1].

Remove the front cylinder head bolts [2] and washers [3].

Remove the cylinder head.

NOTE:

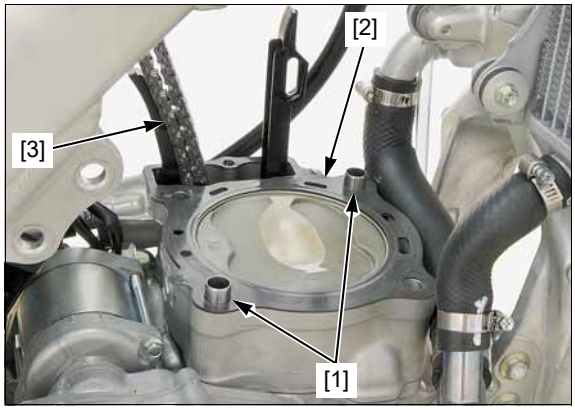
- Be careful not to drop the washers and cam chain [4] into the crankcase.



Remove the dowel pins [1] and gasket [2].

NOTE:

- Be careful not to drop the cam chain [3] and dowel pins into the crankcase.



Remove the cam chain guide [1].

Remove the cylinder [1] while holding the piston [2].

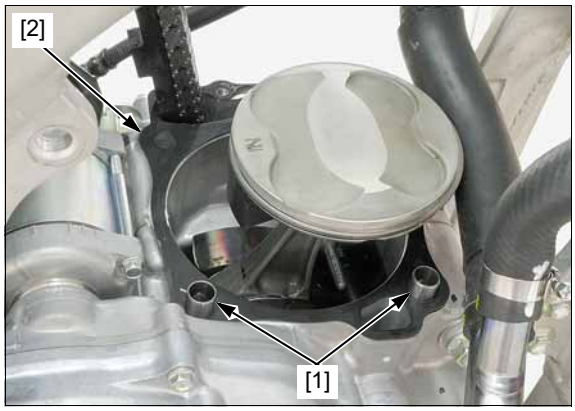
NOTE:

- Be careful not to drop the cam chain [3] into the crankcase.

Remove the dowel pins [1] and gasket [2].

NOTE:

- Be careful not to drop the dowel pins into the crankcase.



Place a shop towel over the cylinder opening to prevent the piston pin clip from dropping into the crankcase.

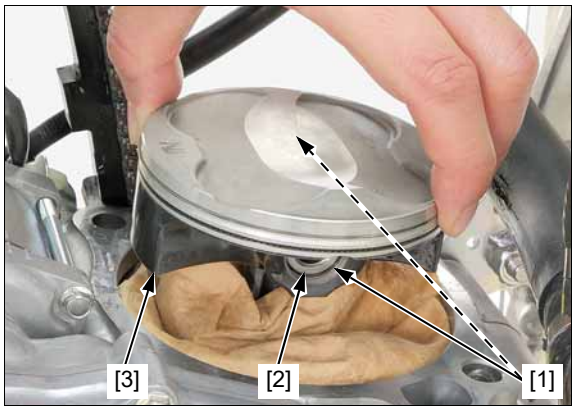
Remove the piston pin clips [1].

Press the piston pin [2] out of the piston [3] and connecting rod.

Remove the piston.

NOTE:

- Be careful not to damage the piston pin.



Spread the piston rings and remove them by lifting up at a point just opposite the gap.

NOTE:

- Be careful not to damage the piston rings by spreading the ends too far.

INSPECTION

Inspect the following parts for scratches, damage, abnormal wear and deformation.

– Cylinder
– Piston
– Piston rings
– Piston pin
– Connecting rod small end

Measure each part and calculate the clearance according to CYLINDER/PISTON SPECIFICATIONS.

Replace any part if it is out of service limit.

NOTE:

- Do not polish the piston pin, it may cause engine damage.

CYLINDER/PISTON SPECIFICATIONS

CYLINDER:
I.D.:
STANDARD: **96.000 – 96.015 mm (3.7795 – 3.7801 in)**
SERVICE LIMIT: **96.100 mm (3.7835 in)**
Warpage:
SERVICE LIMIT: **0.10 mm (0.004 in)**
PISTON, PISTON PIN, PISTON RING:
Piston O.D. at 5.0 mm (0.20 in) from the bottom of skirt:
STANDARD: **95.97 – 95.98 mm (3.778 – 3.779 in)**
SERVICE LIMIT: **95.88 mm (3.775 in)**
Piston pin bore I.D.:
STANDARD: **19.002 – 19.008 mm (0.7481 – 0.7483 in)**
SERVICE LIMIT: **19.02 mm (0.749 in)**
Piston pin O.D.:
STANDARD: **18.994 – 19.000 mm (0.7478 – 0.7480 in)**
SERVICE LIMIT: **18.98 mm (0.747 in)**
Top ring end gap:
STANDARD: **0.25 – 0.31 mm (0.010 – 0.012 in)**
SERVICE LIMIT: **0.41 mm (0.016 in)**
Oil ring (side rail) end gap:
STANDARD: **0.10 – 0.35 mm (0.004 – 0.014 in)**
SERVICE LIMIT: **0.55 mm (0.022 in)**
Top ring-to-piston ring groove clearance:
STANDARD: **0.030 – 0.065 mm (0.0012 – 0.0026 in)**
Connecting rod small end I.D.:
STANDARD: **19.010 – 19.022 mm (0.7484 – 0.7489 in)**
SERVICE LIMIT: **19.032 mm (0.7493 in)**

INSTALLATION

Clean the piston ring grooves thoroughly.

NOTE:

- Be careful not to damage the piston when cleaning the piston ring grooves.

Apply engine oil to each piston ring entire surface.

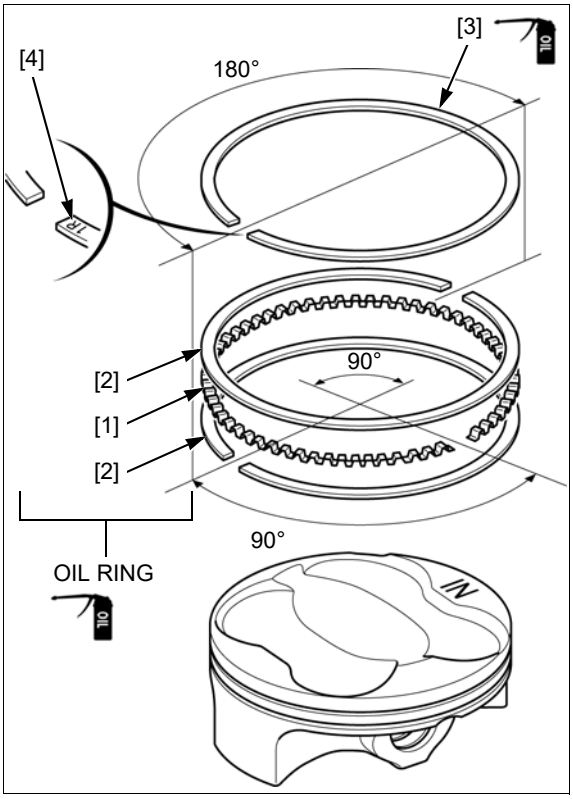
Install the spacer [1] first, then install the side rails [2] on the piston.

Install the top ring [3] on the piston with the mark [4] side facing up.

NOTE:

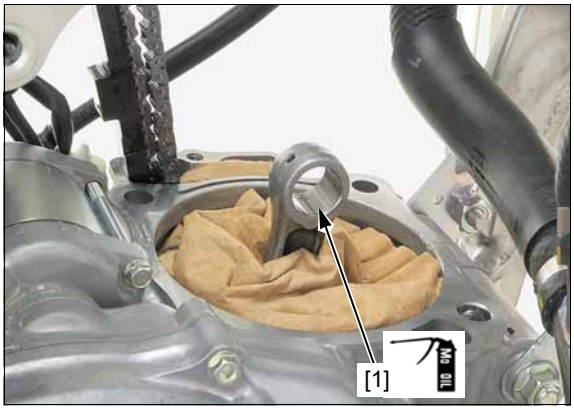
- Do not damage the piston ring by spreading the ends too far.
- Be careful not to damage the piston during piston ring installation.
- Space the end gaps 180° apart between the top ring and upper side rail.
- Space each oil ring end gaps 90° apart.

After installation, check that the rings rotate freely without sticking.



Place a shop towel over the cylinder opening to prevent the piston pin clip from dropping into the crankcase.

Apply molybdenum oil solution to the connecting rod small end inner surface [1].



Apply molybdenum oil solution to the piston pin outer surface.

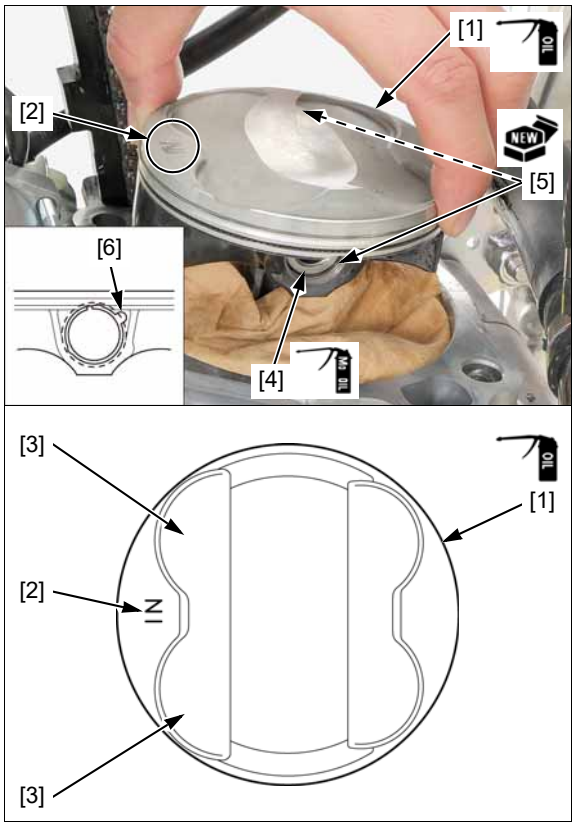
Apply engine oil to the piston outer surface and piston pin hole.

Install the piston [1] with the “IN” mark [2] and/or large valve recesses [3] facing the intake side, and install the piston pin [4].

Install new piston pin clips [5].

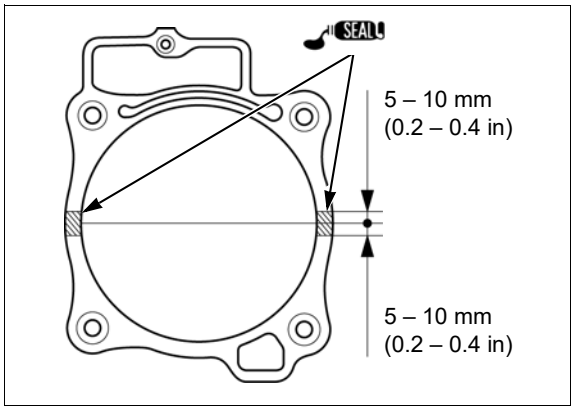
NOTE:

- Be careful not to damage the piston pin.
- Always replace piston pin clips with new ones.
- Be careful not to drop the piston pin clips into the crankcase.
- Do not align the piston pin clip end gap with the piston cut-out [6].
- Make sure that the piston pin clips are firmly seated in the grooves.



Clean any gasket material from the cylinder mating surfaces of the crankcase.

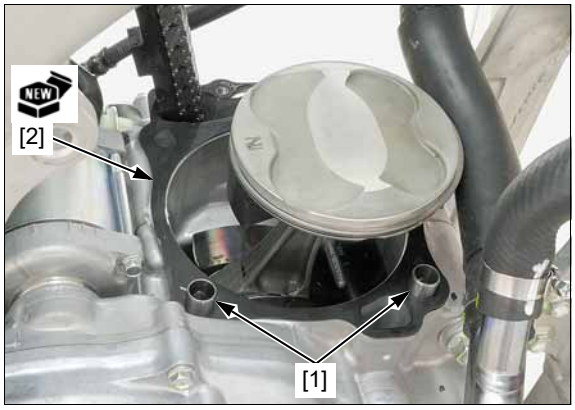
Apply liquid sealant (TB1141G manufactured by ThreeBond or equivalent) to the cylinder mating surface of the crankcase side as shown.



Install the dowel pins [1] and a new gasket [2].

NOTE:

- Be careful not to drop the dowel pins into the crankcase.



Apply engine oil to the cylinder bore, piston outer surface, and piston rings whole surface.

Route the cam chain [1] and cam chain tensioner [2] through the cylinder [3].

Insert the piston [4] into the cylinder while compressing the piston rings [5].

NOTE:

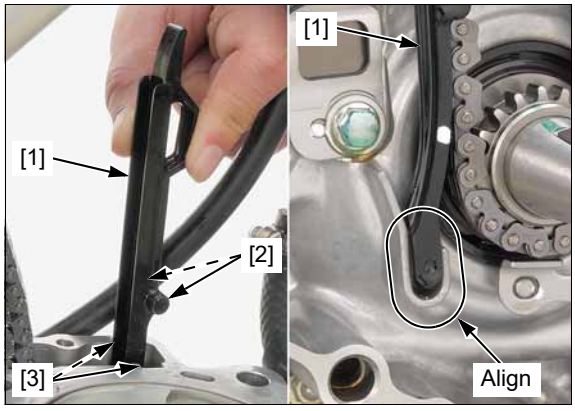
- Be careful not to damage the piston ring and cylinder wall.

Inspect the slipper of the cam chain guide for wear or damage, and replace it if necessary.

Install the cam chain guide [1].

NOTE:

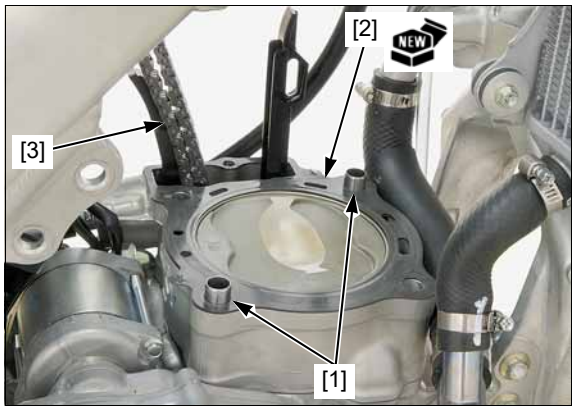
- Align the cam chain guide tabs [2] with the cylinder grooves [3].
- Align the cam chain guide end with the crankcase groove.



Install the dowel pins [1] and a new gasket [2].

NOTE:

- Be careful not to drop the dowel pins and cam chain [3] into the crankcase.



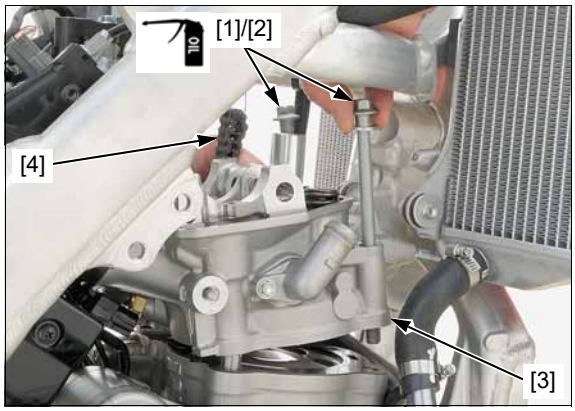
Apply engine oil to the front cylinder head bolt threads and seating surface.

Install the washers [1] and front cylinder head bolts [2] into the cylinder head [3].

Install the cylinder head onto the cylinder.

NOTE:

- Be careful not to drop the washers and cam chain [4] into the crankcase.



Apply engine oil to the rear cylinder head bolt threads and seating surface.

Install the washers [1] and rear cylinder head bolts [2].

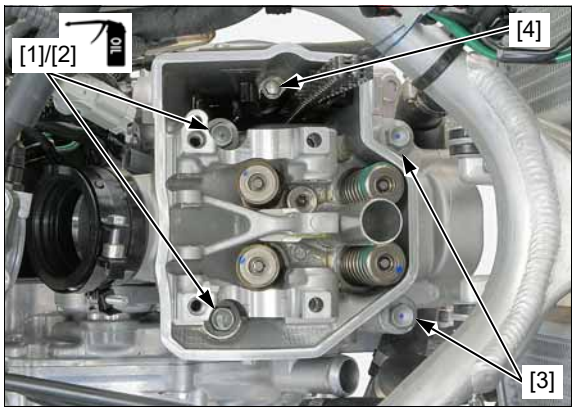
NOTE:

- Be careful not to drop the washers into the crankcase.

Tighten the front cylinder head bolts [3] and rear cylinder head bolts in a crisscross pattern in two or three steps to the specified torque.

TORQUE: 50 N·m (5.1 kgf·m, 37 lbf·ft)

Install the cylinder head 6 mm bolt [4] and tighten it securely.

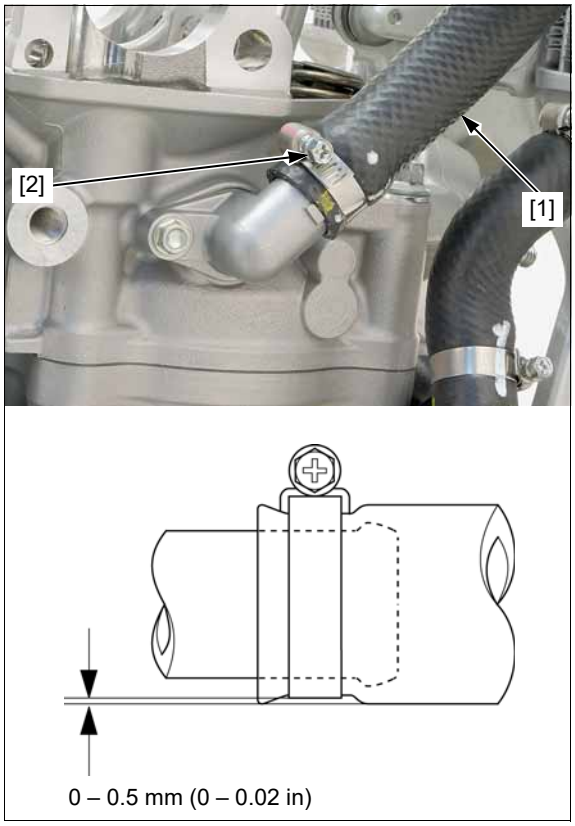


Connect the radiator hose A [1].

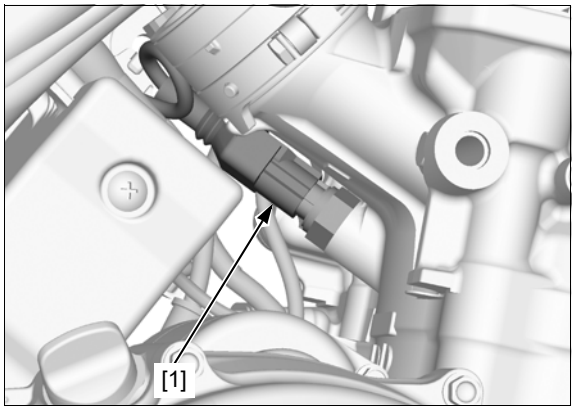
Tighten the hose band screw [2] to the specified range as shown.

NOTE:

- Inadequately tightening the bands may cause coolant to leak if too loose, or collapse of the radiator hose if too tight, which may result in overheating and engine damage.



Connect the ECT sensor 2P (Black) connector [1].



Install the following:

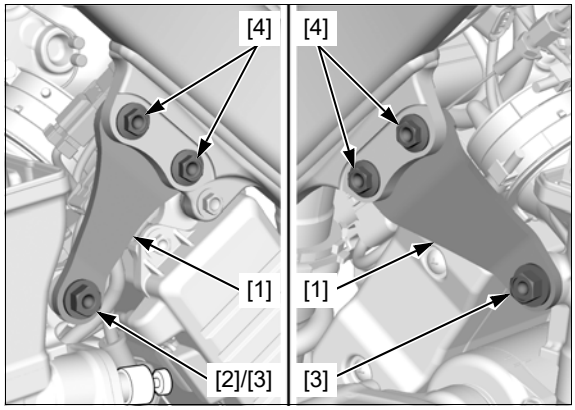
– Cylinder head hanger plates [1]
– Cylinder head hanger collar [2]
– Cylinder head hanger bolts [3]
– Cylinder head hanger plate bolts [4]

Tighten the cylinder head hanger bolts to the specified torque.

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)

Tighten the cylinder head hanger plate bolts to the specified torque.

TORQUE: 32 N·m (3.3 kgf·m, 24 lbf·ft)



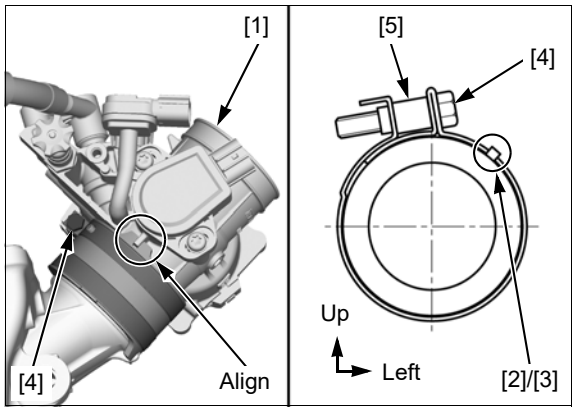
Install the throttle body [1].

NOTE:

• Align the throttle body lug with the insulator groove.

Align the insulator band hole [2] with the locating boss [3] of the insulator.

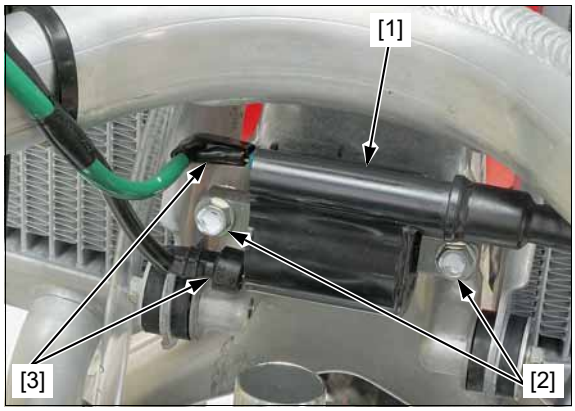
Tighten the insulator band screw [4] until the band ends are completely seated on the collar [5].



Install the ignition coil [1] and bolts [2].

Tighten the bolts securely.

Connect the primary wire connectors [3].



Apply molybdenum oil solution to the inner surface and shim slipper surface of the exhaust rocker arms.

Install the left exhaust rocker arm [1] and right exhaust rocker arm [2] onto the cylinder head.

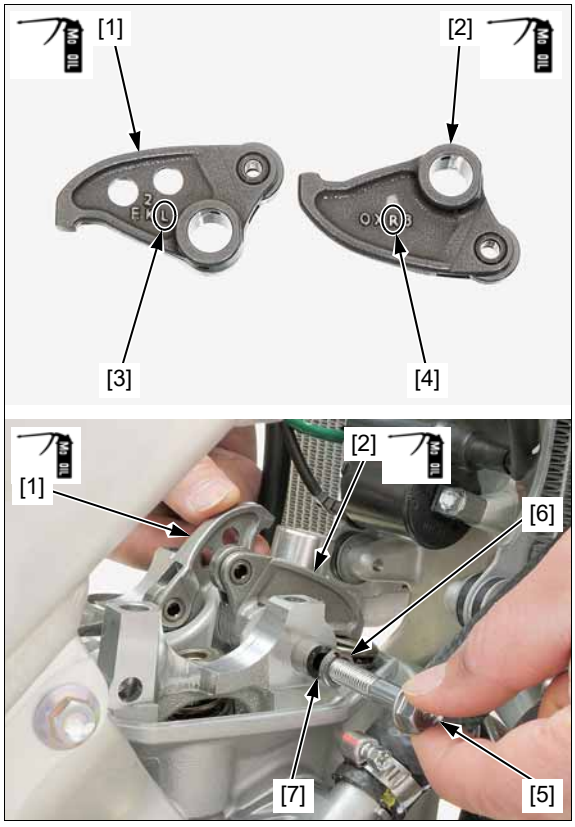
NOTE:

- The exhaust rocker arms have the following identification marks:
  – "L" mark [3]: Left exhaust rocker arm
  – "R" mark [4]: Right exhaust rocker arm
- Install the rocker arms with the identification marks facing outside.

Temporarily install a suitable 8 mm bolt [5] to the exhaust rocker arm shaft [6].

Install the exhaust rocker arm shaft with its cut-out [7] facing the direction as shown.

Remove the 8 mm bolt from the shaft.



Apply molybdenum oil solution to the inner surface, cam slipper area, and shim slipper surface of the intake rocker arms.

Install the left intake rocker arm [1] and right intake rocker arm [2].

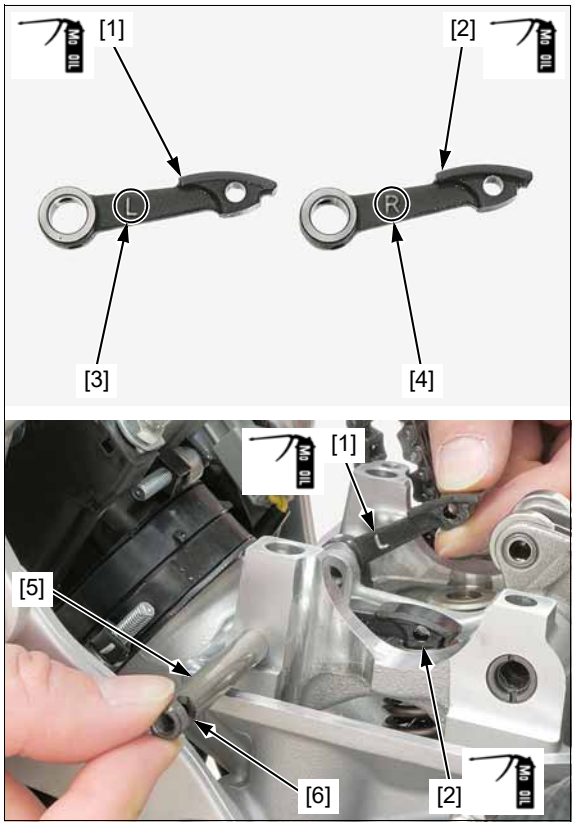
NOTE:

- Be careful not to damage the intake rocker arms.
- The intake rocker arms have the following identification marks:
  – "L" mark [3]: Left intake rocker arm
  – "R" mark [4]: Right intake rocker arm
- Install the rocker arms with the identification marks facing right side.
- Be careful not to install the rocker arms upside down.

Install the intake rocker arm shaft [5] with its cut-out [6] facing the direction as shown.

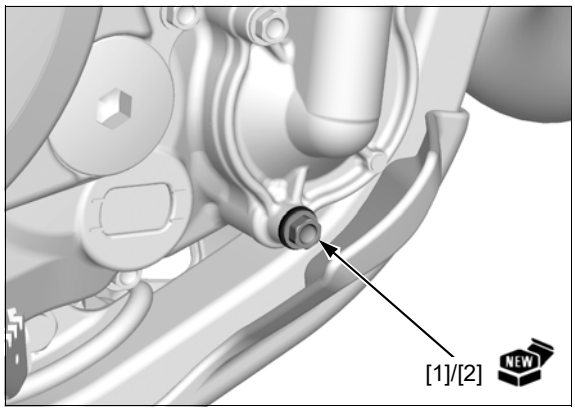
Install the following:

– Exhaust pipe ➔1-10
– Rear frame ➔1-7
– Shims ➔2-25



Support the motorcycle upright on a level surface.

Install the drain bolt [1] with a new sealing washer [2] and tighten it securely.



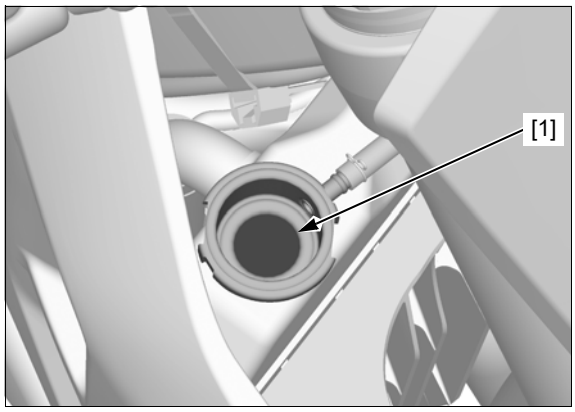
Fill the system with the recommended coolant through the filler opening up to the filler neck [1].

RECOMMENDED ANTIFREEZE:
Pro Honda HP Coolant or an equivalent high quality ethylene glycol antifreeze containing corrosion protection inhibitors
STANDARD COOLANT CONCENTRATION:
1:1 mixture with distilled water

CAPACITY:
at change:
1.08 liters (1.14 US qt, 0.95 Imp qt)
at disassembly:
1.14 liters (1.20 US qt, 1.00 Imp qt)

Lean the machine approximately 20° to the right and left several times to bleed any air trapped in the cooling system.

If the coolant level drops, add more coolant and repeat the air bleeding procedure.

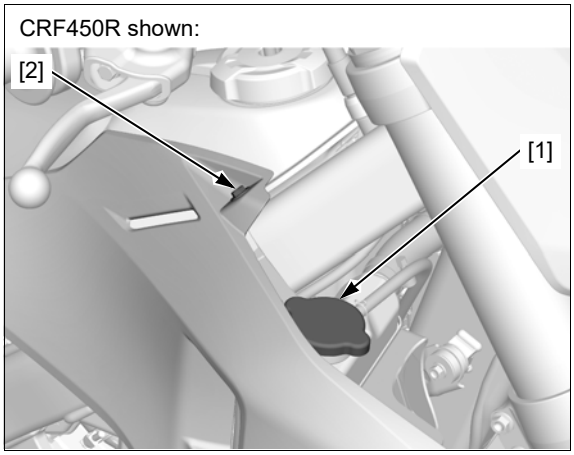


Install the radiator cap [1] securely.

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

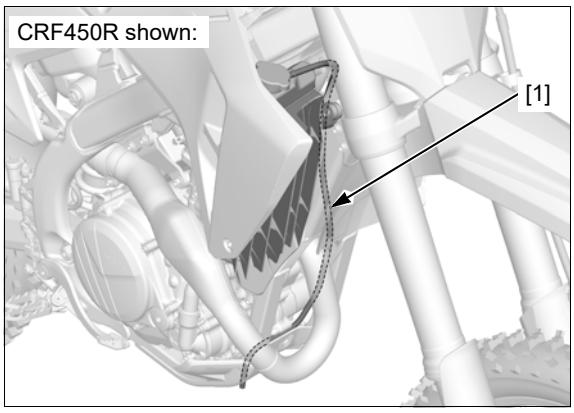
Install the radiator shroud upper bolt [2] and tighten it to the specified torque.

TORQUE: 5.2 N·m (0.5 kgf·m, 3.8 lbf·ft)



RADIATOR COOLANT

NOTE:
- A coolant loss of 20 – 60 cm^3 (0.7 – 2.0 US oz, 0.7 – 2.1 Imp oz) through the radiator overflow hose [1] is normal. If coolant loss is more than this, inspect the cooling system.
- Follow the precautions described on the coolant container.
- When replenishing coolant at a race track, etc. use high quality soft water such as drinking water if coolant is not available and water is used. In this case, replace the water with coolant as soon as possible.
- When the motorcycle is not used for a long period in winter and in cold region, remove the drain bolt on the water pump cover and drain the coolant.



Remove the radiator shroud upper bolt [1] and radiator cap [2].

⚠WARNING

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

Check that the coolant is filled up to the filler neck [3].

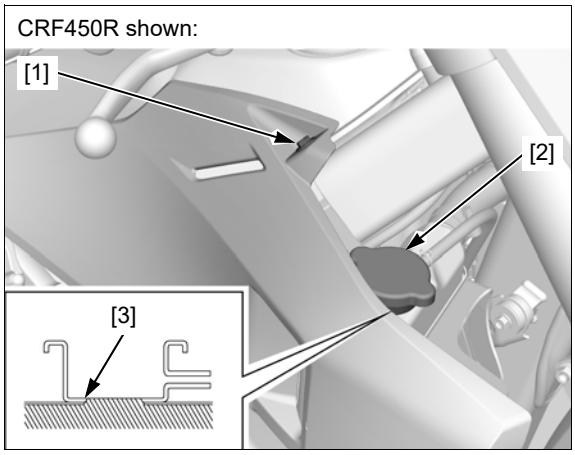
If the coolant level is low, add the recommended coolant up to the filler neck as required.

RECOMMENDED ANTIFREEZE:
Pro Honda HP Coolant or an equivalent high quality ethylene glycol antifreeze containing corrosion protection inhibitors
STANDARD COOLANT CONCENTRATION:
1:1 mixture with distilled water

Install the radiator cap securely.

Install the radiator shroud upper bolt and tighten it to the specified torque.

TORQUE: 5.2 N·m (0.5 kgf·m, 3.8 lbf·ft)



COOLING SYSTEM

Before race and practice, check the following:

– Coolant leakage
– Hoses for damage or deterioration
  If the hose band is loose, replace or retighten it.
– Radiator installation condition

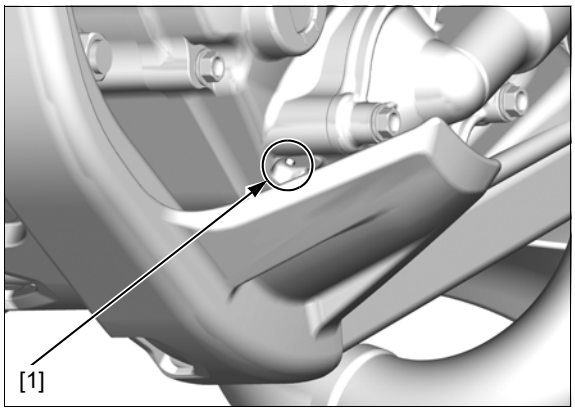
Check the bleed hole [1] of the water pump for signs of coolant leakage.

If water leaks through the bleed hole, replace the mechanical seal.
Refer to an official Honda Service Manual or see your dealer to replace the mechanical seal.

If oil leaks through the bleed hole, replace the oil seal.
Refer to an official Honda Service Manual or see your dealer to replace the oil seal.

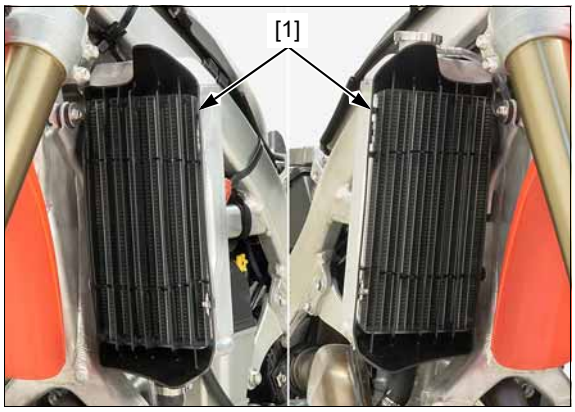
Make sure that there is no continuous coolant leakage from the bleed hole while operating the engine.

NOTE:
• A small amount of coolant weeping from the bleed hole is normal.



Remove the radiator grills [1].

NOTE:
• Be careful not to damage the radiator core.

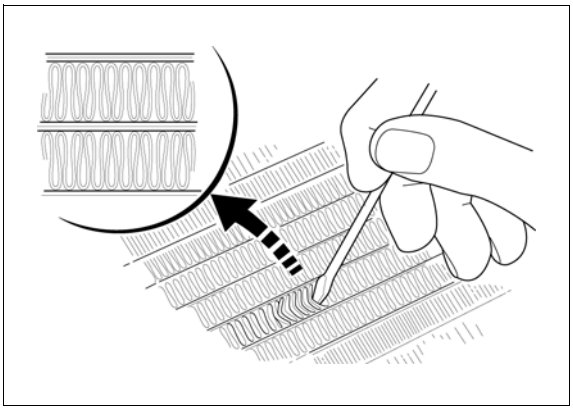


Check the radiator air passages for clogging or damage.

Straighten bent fins and remove insects, mud or other obstructions with compressed air or low water pressure.

Replace the radiator if the air flow is restricted over more than 20% of the radiating surface.

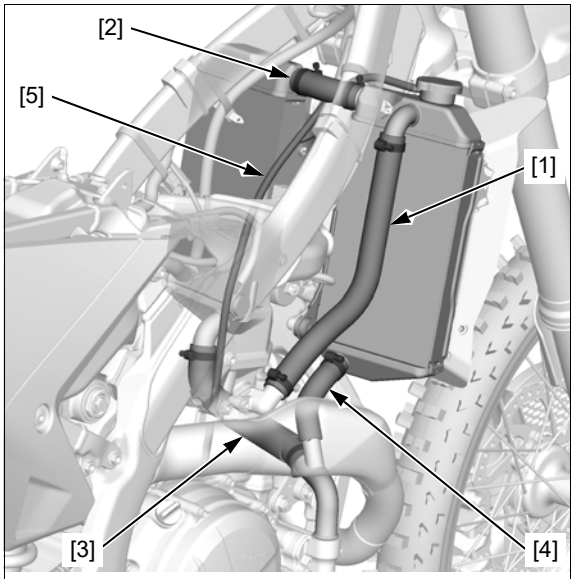
Refer to an official Honda Service Manual or see your dealer to replace the radiator.

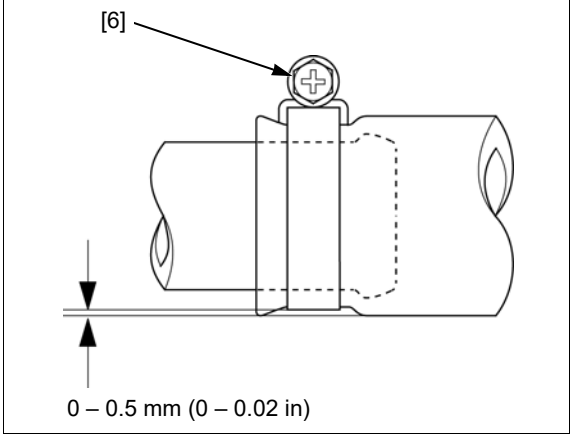


Inspect the radiator hoses for cracks and deterioration.

– Radiator hose A [1]
– Radiator hose B [2]
– Radiator hose C [3]
– Radiator hose D [4]
– Radiator overflow hose [5]

Check and tighten the hose band screws [6] in the specified range as shown, if necessary.





DRIVE CHAIN (CRF450R/RWE)

⚠WARNING

Amputation hazard. Never inspect or adjust the drive chain while the engine is running.

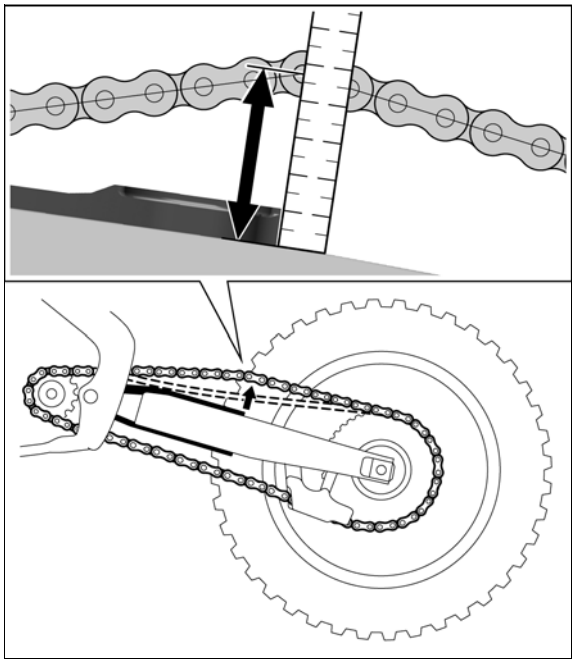
DRIVE CHAIN SLACK INSPECTION

Raise the rear wheel off the ground by placing a workstand under the engine.

Lift the drive chain at the position shown and measure the distance from the upper surface of the swingarm to the chain pins center.

STANDARD: 65 – 70 mm (2 1/2 – 2 3/4 in)

If the measurement is out of the standard, adjust the drive chain ➔2-47.



ADJUSTMENT

NOTE:

- The scale (index lines) for the drive chain adjustment is provided on the swingarm. The index marks on the left and right adjusting plates must be aligned at the same positions. If they are not aligned, the wheels are misaligned and the handlebar may pull to one side.

Loosen the rear axle nut [1].

Loosen the drive chain adjuster lock nuts [2] and turn the adjuster [3] to adjust the drive chain slack.

Check that the index marks [4] are aligned at the same positions on the scales.

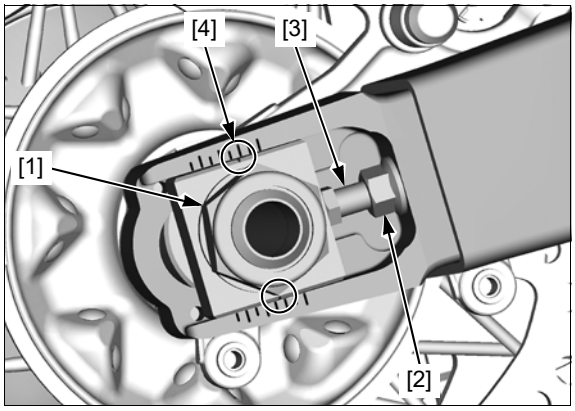
Tighten the rear axle nut to the specified torque.

TORQUE: 128 N·m (13.1 kgf·m, 94 lbf·ft)

Recheck the drive chain slack and make sure that the rear wheel turns smoothly.

Seat the adjuster snugly against the adjusting plates and tighten the drive chain adjuster lock nuts to the specified torque.

TORQUE: 27 N·m (2.8 kgf·m, 20 lbf·ft)



INSPECTION, CLEANING, AND LUBRICATION

NOTE:

- For maximum service life, the drive chain should be cleaned and lubricated after every ride.

Remove the drive sprocket cover ➔1-7.

Carefully remove the master link clip [1].

Remove the link plate [2], master link [3], and disconnect the drive chain.

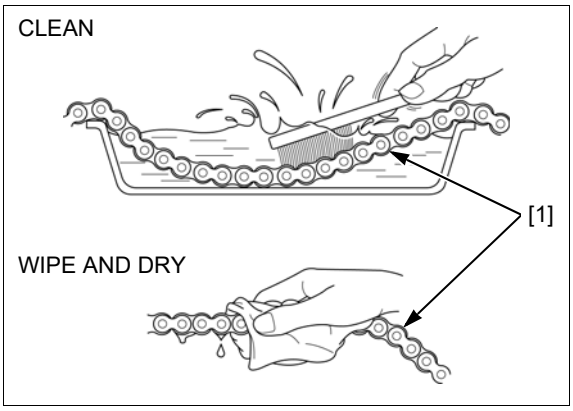
Check the master link clip is in good condition and replace it if necessary.

Remove the drive chain.

Check the sprockets for wear or damage and replace them if necessary ➔2-54.

Clean the drive chain [1] with non-flammable or high flash point solvent and wipe it dry.
Be sure the chain has dried completely before lubricating.

Inspect the drive chain for possible damage or wear.
Replace any drive chain that has damaged rollers, loose fitting links, or otherwise appears unserviceable ➔2-49.



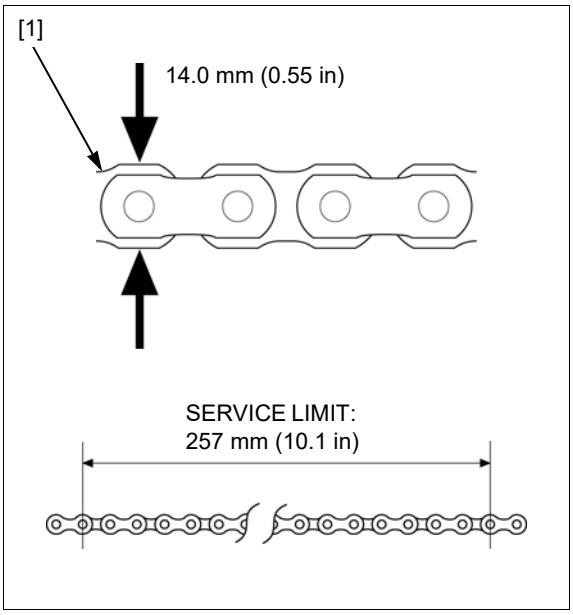
Measure the height of the drive chain (inner plate) [1].

SERVICE LIMIT: 14.0 mm (0.55 in)

Measure the distance between a span of 17 pins (16 pitches) from pin center to pin center with the chain held taut and any kinked joint straightened.

SERVICE LIMIT: 257 mm (10.1 in)

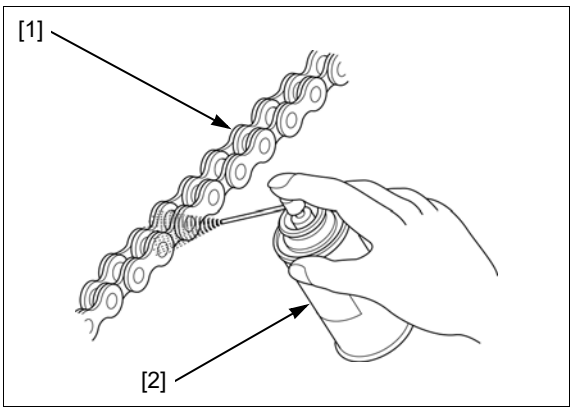
If the measurement exceeds the service limit, replace the drive chain ➔2-49.



Lubricate the drive chain [1] with drive chain lubricant [2].

RECOMMENDED LUBRICANT:
Honda HP Chain Lube or an equivalent

Wipe off any excess oil or chain lubricant.



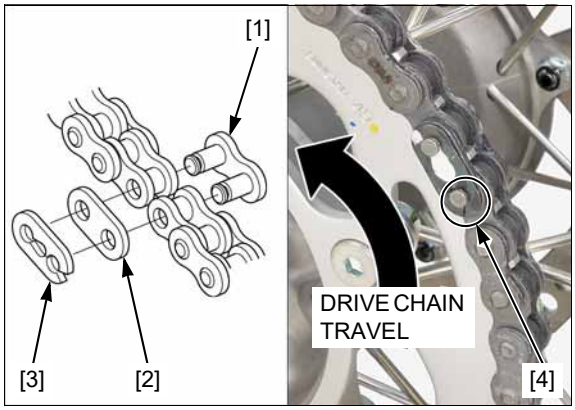
Install the drive chain onto the sprockets.

Install the master link [1] and link plate [2].

Install the master link clip [3] with its open end [4] facing opposite side of the drive chain travel.

Install the drive sprocket cover ➔1-7.

Adjust the drive chain slack ➔2-47.



DRIVE CHAIN REPLACEMENT

Remove the drive sprocket cover ➔1-7.

Remove the master link clip [1].

NOTE:

- Be careful not to damage the master link clip.

Remove the link plate [2] and master link [3].
Disconnect the drive chain.
Remove the drive chain.

Except CRF450RWE: Remove the excess drive chain links from a new drive chain with a special tool.

TOOL:

Chain Tool Set	**07HMH-MR10105 or equivalent commercially available in U.S.A.**

NOTE:

- When using the special tool, follow the manufacturer's instruction.

STANDARD LINKS: 114 LINKS

REPLACEMENT CHAIN

CRF450R: DID 520DM2-120RB
CRF450RWE: DID 520DM2 G&B-114RB

NOTE:

- Never use a new drive chain on worn sprockets.
  Both sprockets must be in good condition or the new replacement chain will wear rapidly.
  When the drive chain is to be replaced, also check the sprockets ➔2-54

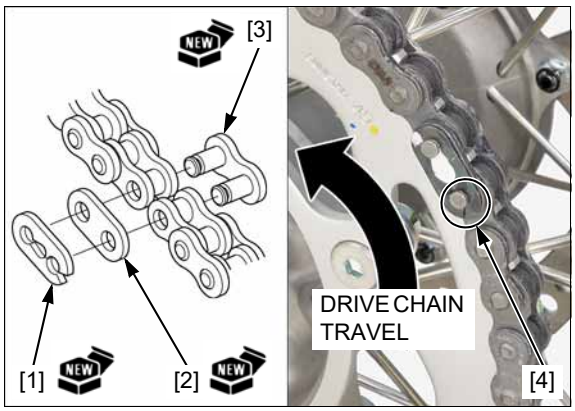
Install the drive chain onto the sprockets.

Install a new master link and link plate.

Install a new master link clip with its open end [4] facing opposite side of the drive chain travel.

Install the drive sprocket cover ➔1-7.

Adjust the drive chain slack ➔2-47.



DRIVE CHAIN (CRF450RX)

⚠WARNING

Amputation hazard. Never inspect or adjust the drive chain while the engine is running.

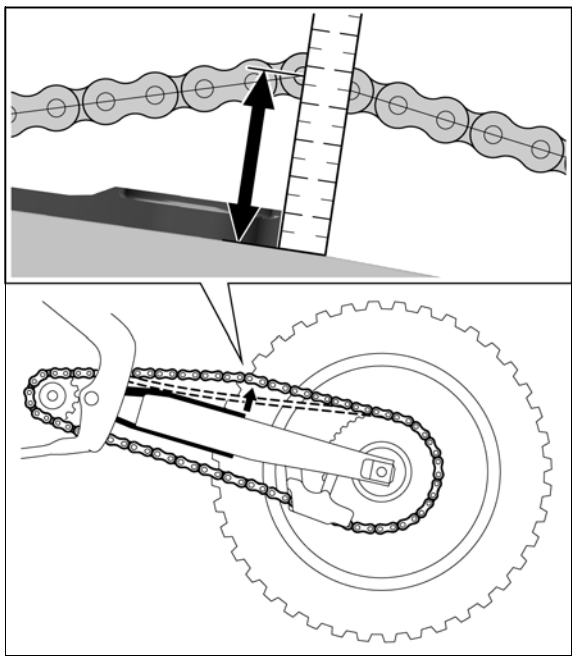
DRIVE CHAIN SLACK INSPECTION

Raise the rear wheel off the ground by placing a workstand under the engine.

Lift the drive chain at the position shown and measure the distance from the upper surface of the swingarm to the chain pins center.

STANDARD: 65 – 70 mm (2 1/2 – 2 3/4 in)

If the measurement is out of the standard, adjust the drive chain ➔2-50.



ADJUSTMENT

NOTE:

- The scale (index lines) for the drive chain adjustment is provided on the swingarm. The index marks on the left and right adjusting plates must be aligned at the same positions. If they are not aligned, the wheels are misaligned and the handlebar may pull to one side.

Loosen the rear axle nut [1].

Loosen the drive chain adjuster lock nuts [2] and turn the adjuster [3] to adjust the drive chain slack.

Check that the index marks [4] are aligned at the same positions on the scales.

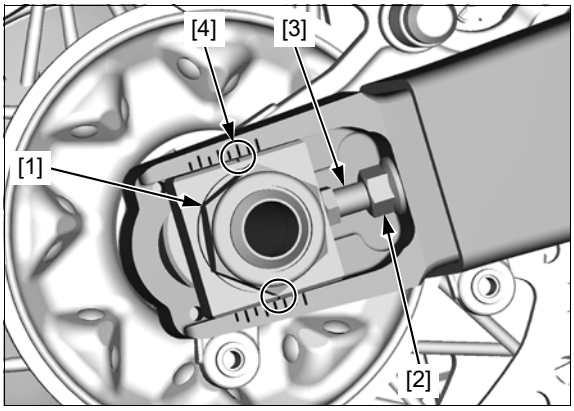
Tighten the rear axle nut to the specified torque.

TORQUE: 128 N·m (13.1 kgf·m, 94 lbf·ft)

Recheck the drive chain slack and make sure that the rear wheel turns smoothly.

Seat the adjuster snugly against the adjusting plates and tighten the drive chain adjuster lock nuts to the specified torque.

TORQUE: 27 N·m (2.8 kgf·m, 20 lbf·ft)



INSPECTION, CLEANING, AND LUBRICATION

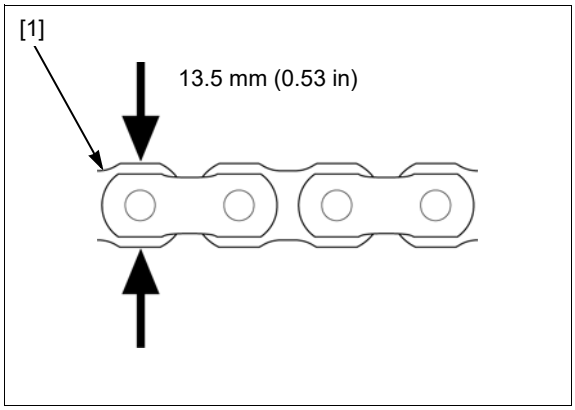
NOTE:

- For maximum service life, the drive chain should be cleaned and lubricated after every ride.

Measure the height of the drive chain (inner plate) [1].

SERVICE LIMIT: 13.5 mm (0.53 in)

If the measurement exceeds the service limit, replace the chain ➔2-52.



Clean the drive chain [1] with a chain cleaner designed specifically for O-ring chains. Use a soft brush if the drive chain is dirty.

NOTICE

Do not use a steam cleaner, high pressure cleaner, wire brush, volatile solvent such as gasoline and benzene, abrasive cleaner or a chain cleaner NOT designed specifically for O-ring chains to clean the drive chain.

Inspect the drive chain for possible damage or wear.

Replace any drive chain that has damaged rollers, loose fitting links, or otherwise appears unserviceable ➔2-52.

Be sure the drive chain has dried completely before lubricating.

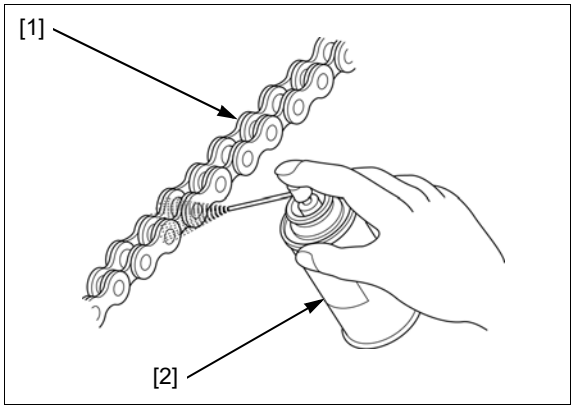
Lubricate the drive chain with drive chain lubricant [2].

RECOMMENDED LUBRICANT:
Honda HP Chain Lube or an equivalent

NOTICE

Do not use a chain lubricant NOT designed specifically for use with O-ring chains to lubricate the drive chain.

Wipe off the excess oil or drive chain lubricant.



DRIVE CHAIN REPLACEMENT

This motorcycle uses a drive chain with a staked master link.

Fully slacken the drive chain ➔2-50.

Remove the drive chain with a special tool.

TOOL:

Chain Tool Set	**07HMH-MR10105 or equivalent commercially available in U.S.A.**

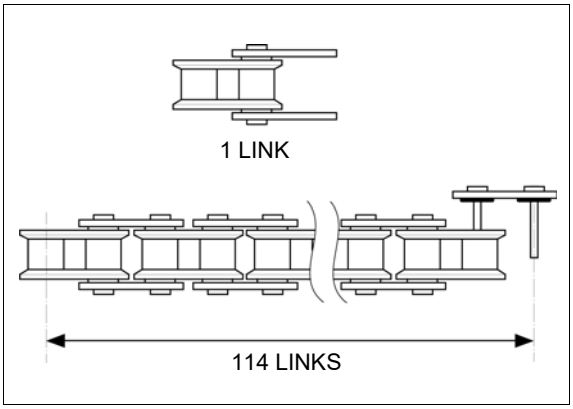
NOTE:

- When using the special tool, follow the manufacturer's instruction.

Remove the excess drive chain links from a new drive chain with a special tool.

STANDARD LINKS: 114 LINKS

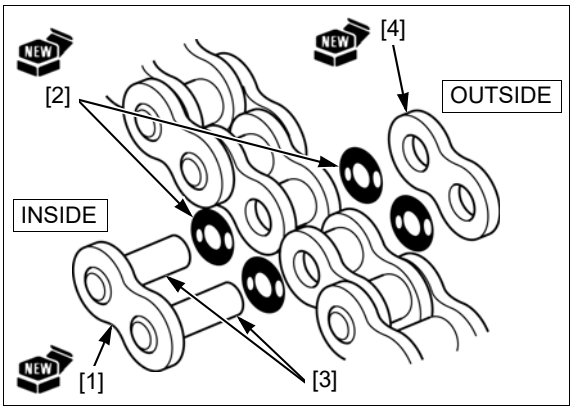
REPLACEMENT CHAIN
RK520EXU-120-LJFZ



Insert a new master link [1] with new O-rings [2] from the inside of the drive chain.
Put new O-rings on the master link pins [3].
Put a new link plate [4] on the master link pins with the identification mark facing outside.

NOTE:

- Never reuse the old drive chain, master link, link plate, and O-rings.
- Never use a new drive chain on worn sprockets.
  Both sprockets must be in good condition or the new replacement chain will wear rapidly.
  When the drive chain is to be replaced, also check the sprockets ➔2-54



Install the link plate [1] to the master link pin [2] with a special tool.

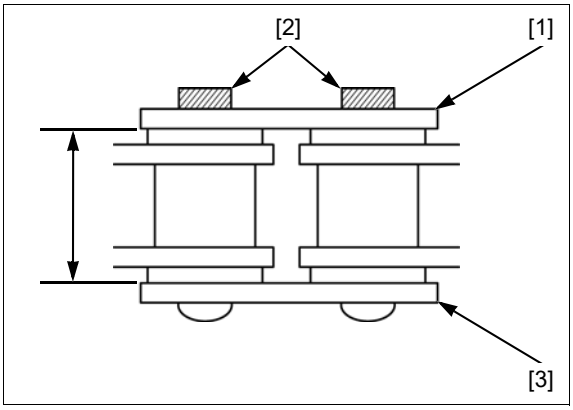
TOOL:

Chain Tool Set	**07HMH-MR10105 or equivalent commercially available in U.S.A.**

Make sure that the master link pins are installed properly. Measure the length between the master link [3] and link plate.

STANDARD LENGTH: 11.3 – 11.5 mm (0.44 – 0.45 in)

Stake the master link pins with a special tool.

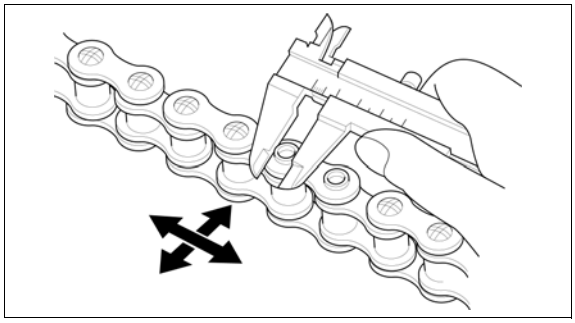


Make sure that the pins are staked properly by measuring the diameter of the staked area.

DIAMETER OF THE STAKED AREA:
5.30 – 5.70 mm (0.209 – 0.224 in)

After staking, check the staked area of the master link for cracks.

If there is any cracking, replace the master link, O-rings, and link plate.



DRIVE CHAIN SLIDER

DRIVE CHAIN SLIDER

Inspect the drive chain slider for excessive wear.

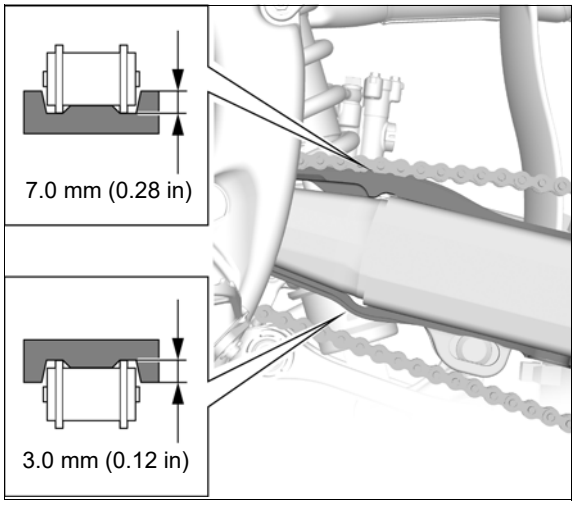
SERVICE LIMIT: **Upper side: 7.0 mm (0.28 in)**
Lower side: 3.0 mm (0.12 in)

NOTICE

If the chain slider becomes worn through to the swingarm, the chain will wear against the swingarm, damaging the chain and swingarm.

Replace the drive chain slider if necessary.

Refer to an official Honda Service Manual or see your dealer to replace the drive chain slider.



DRIVE CHAIN GUIDE SLIDER

Check the drive chain guide [1] for deformation or damage.

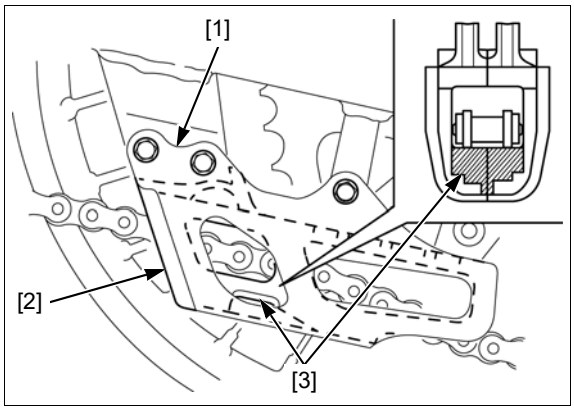
NOTE:

- If the drive chain guide is deformed, it will hit the drive chain, causing the drive chain to come off, wear, or have abnormal noise.

Check the drive chain guide sliders [2] for wear.

Replace the drive chain guide sliders if the slider is worn to the bottom of the wear limit indicator [3].

Refer to an official Honda Service Manual or see your dealer to replace the drive chain guide/drive chain guide sliders.



DRIVE CHAIN ROLLER

Inspect the upper drive chain roller (Green) [1] and lower drive chain roller (Black) [2] for excessive wear or binding.
Replace them if necessary.

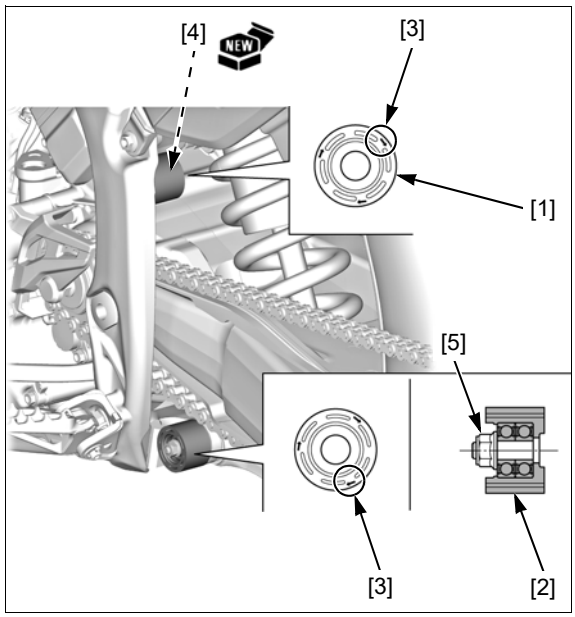
SERVICE LIMIT:
Upper: 31 mm (1.2 in) and below
Lower: 31 mm (1.2 in) and below

NOTE:

- Install the drive chain roller with the "⟶" mark [3] side facing out.
- Always replace the upper drive chain roller bolt with a new one when it is removed.

Check the drive chain roller bolt and nut are tightened to their correct torque values.
Tighten them if necessary.

TORQUE:
Upper drive chain roller bolt [4]:
12 N·m (1.2 kgf·m, 9 lbf·ft)
Lower drive chain roller nut [5]:
12 N·m (1.2 kgf·m, 9 lbf·ft)



DRIVE/DRIVEN SPROCKET

Remove the drive sprocket cover ➔1-7.

Inspect the drive and driven sprocket teeth for wear or damage, replace them if necessary.

Refer to an official Honda Service Manual or see your dealer to replace the drive and driven sprocket.

Never use a new drive chain on worn sprockets.

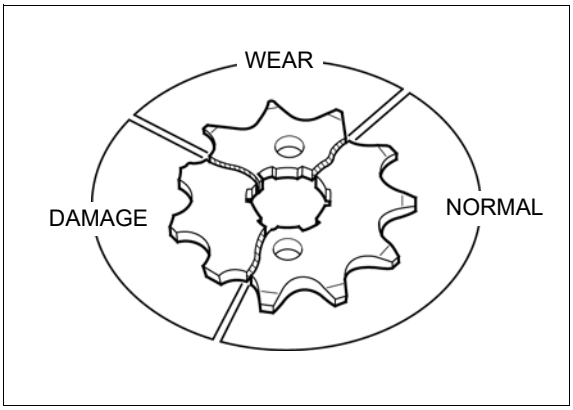
Both sprockets must be in good condition or the new replacement chain will wear rapidly.

Check the bolts and nuts on the drive and driven sprockets.

If any are loose, torque them.

TORQUE:
Drive sprocket bolt: 31 N·m (3.2 kgf·m, 23 lbf·ft)
Driven sprocket nut: 40 N·m (4.1 kgf·m, 30 lbf·ft)

Install the drive sprocket cover ➔1-7.



BRAKE FLUID

NOTICE

Spilled brake fluid can damage painted, plastic, or rubber parts. Place a rag over these parts whenever the system is serviced.

NOTE:

- Do not mix different types of brake fluid, as they are not compatible with each other.
- Do not allow foreign material to enter the system when filling the reservoir.

FLUID LEVEL INSPECTION

With the rear brake master cylinder reservoir level, check the brake fluid level.

If the level is near the lower level line [1], check the brake pad wear ➔2-56.

If the brake pads are not worn and the fluid level is low, check the entire system for leaks, then fill the reservoir with the brake fluid ➔2-55.

FLUID FILLING

FRONT:

Remove the front brake master cylinder reservoir cover screws [1], reservoir cover [2], and diaphragm [3].

Fill the reservoir with recommended brake fluid to the upper level line [4].

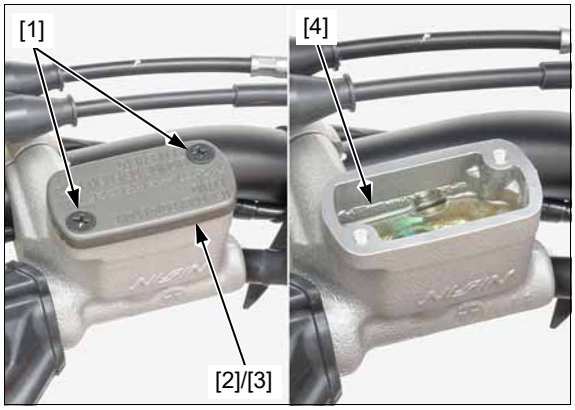
RECOMMENDED BRAKE FLUID:
Honda DOT 4 brake fluid

Install the diaphragm and reservoir cover.

Install and tighten the front brake master cylinder reservoir cover screws to the specified torque.

TORQUE: 1.0 N·m (0.1 kgf·m, 0.7 lbf·ft)

Check the front brake hydraulic system for leaks.



REAR:

Remove the rear brake master cylinder reservoir cover bolts [1], reservoir cover [2], set plate [3], and diaphragm [4].

Fill the reservoir with recommended brake fluid to the upper level line [5].

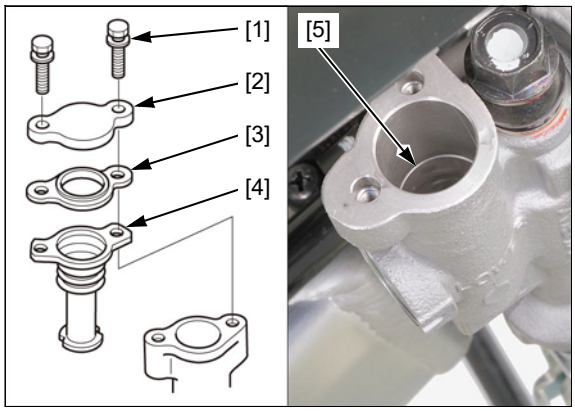
RECOMMENDED BRAKE FLUID:
Honda DOT 4 brake fluid

Install the diaphragm, set plate, and cover.

Install and tighten the rear brake master cylinder reservoir cover bolts to the specified torque.

TORQUE: 1.0 N·m (0.1 kgf·m, 0.7 lbf·ft)

Check the rear brake hydraulic system for leaks.



BRAKE PADS WEAR

Inspect the pads.

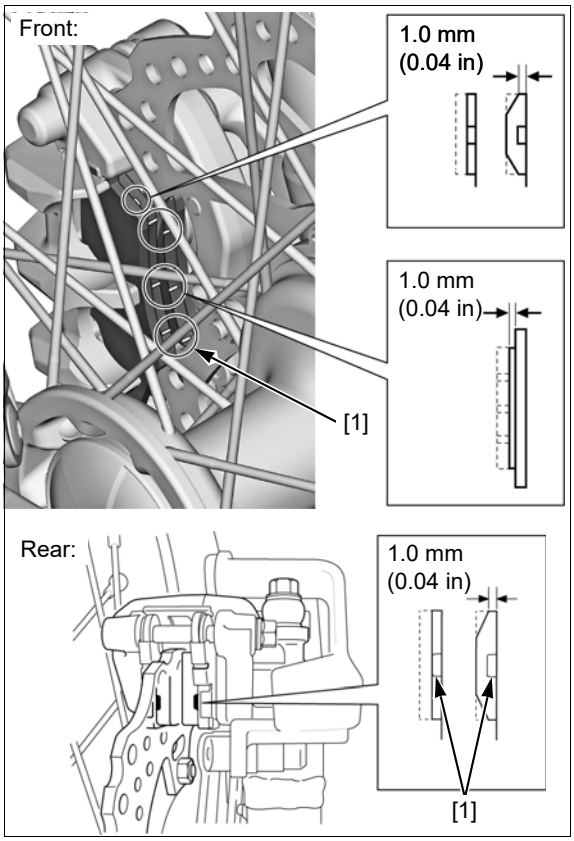
If either pad is worn anywhere to a thickness of 1.0 mm (0.04 in), both pads must be replaced.

NOTE:

- The width of wear indicator [1] is 1.0 mm (0.04 in).

Replace the brake pad if it is wear to the service limit.

Refer to an official Honda Service Manual or see your dealer to replace the brake pads.



BRAKE SYSTEM

HYDRAULIC SYSTEM INSPECTION

Firmly apply the brake lever or pedal, and check that no air has entered the system.

If the lever or pedal feels soft or spongy when operated, bleed the air from the system.

Refer to an official Honda Service Manual or see your dealer to have the air bled from the system.

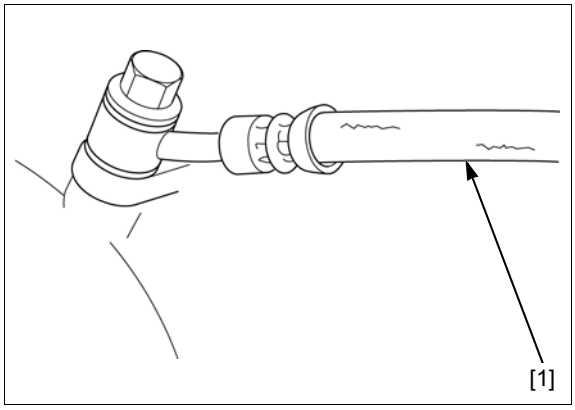
Inspect the brake hoses [1] and fittings for deterioration, cracks, and signs of leakage.

Tighten any loose fittings to the specified torque.

TORQUE:
Brake hose oil bolt:
34 N·m (3.5 kgf·m, 25 lbf·ft)

Replace hoses and fittings as required.

Refer to an official Honda Service Manual or see your dealer to replace the brake hose, brake hose oil bolt, and sealing washer.



BRAKE LEVER POSITION

The brake lever position can be adjusted by turning the adjuster.

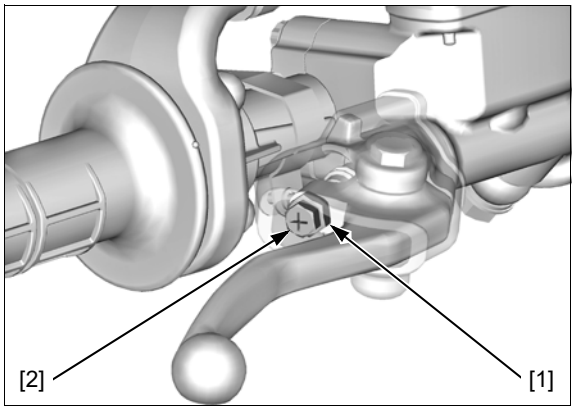
Loosen the brake lever adjuster lock nut [1].

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.

After adjustment, tighten the brake lever adjuster lock nut to the specified torque while holding the adjuster.

TORQUE: 5.9 N·m (0.6 kgf·m, 4.4 lbf·ft)



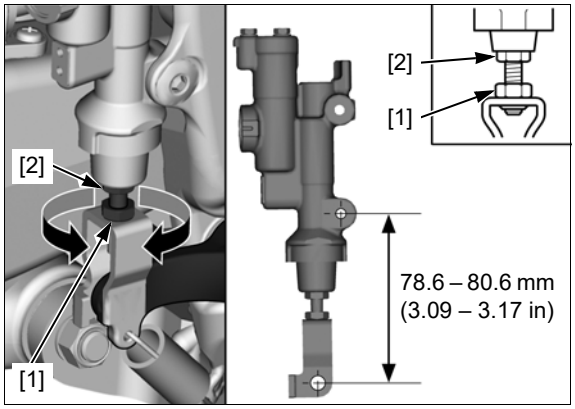
BRAKE PEDAL HEIGHT

Adjust the brake pedal to the desired height by loosening the rear brake master cylinder push rod lock nut [1] and turning the push rod [2] within the specified length.

STANDARD LENGTH: 78.6 – 80.6 mm (3.09 – 3.17 in)

Tighten the rear brake master cylinder push rod lock nut to the specified torque.

TORQUE: 5.9 N·m (0.6 kgf·m, 4.4 lbf·ft)



CLUTCH FLUID

NOTICE

Spilled clutch fluid can damage painted, plastic, or rubber parts. Place a rag over these parts whenever the system is serviced.

NOTE:

- Do not mix different types of clutch fluid, as they are not compatible with each other.
- Do not allow foreign material to enter the system when filling the reservoir.

FLUID LEVEL INSPECTION/ FLUID FILLING

Turn the handlebar so that the clutch master cylinder reservoir is level surface.

Remove the following:

– Clutch master cylinder reservoir cap screws [1]
– Reservoir cover [2]
– Diaphragm [3]

Check the clutch fluid level.

- If the fluid level is higher than the fluid level line [4]:
  – Check the clutch friction discs for wear ➔2-59
- If the fluid level is lower than the fluid level line:
  – Check the clutch hydraulic system for leaks ➔2-58

Fill the reservoir with recommended clutch fluid to the fluid level line if necessary.

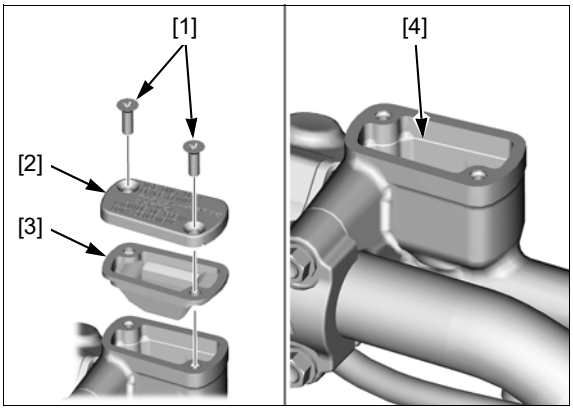
RECOMMENDED CLUTCH FLUID:
Honda DOT 4 brake fluid

If contamination is found in the clutch fluid, perform the clutch fluid replacement/air bleeding.
Refer to an official Honda Service Manual or see your dealer to replace the clutch fluid/air bleeding.

Install the diaphragm and reservoir cover.

Install and tighten the clutch master cylinder reservoir cover screws to the specified torque.

TORQUE: 1.0 N·m (0.1 kgf·m, 0.7 lbf·ft)



CLUTCH SYSTEM

HYDRAULIC SYSTEM INSPECTION

Firmly apply the clutch lever and check that no air has entered the system.

If the clutch lever feels soft or spongy when operated, bleed the air from the system.

Refer to an official Honda Service Manual or see your dealer to have the air bled from the system.

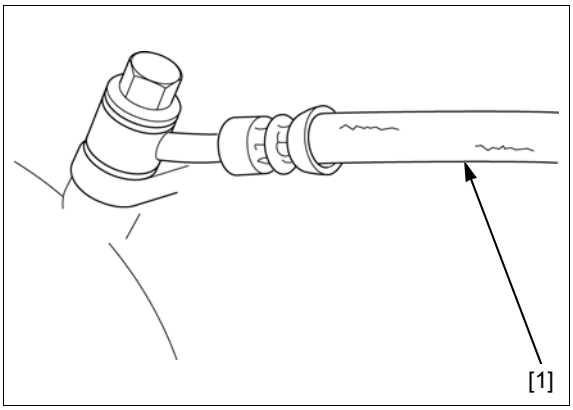
Inspect the clutch hose [1] and fittings for deterioration, cracks, and signs of leakage.

Tighten any loose fittings to the specified torque.

TORQUE:
Clutch hose oil bolt:
34 N·m (3.5 kgf·m, 25 lbf·ft)

Replace hose and fittings as required.

Refer to an official Honda Service Manual or see your dealer to replace the clutch hose, clutch hose oil bolt, and sealing washer.



CLUTCH LEVER POSITION

The clutch lever position can be adjusted by turning the adjuster.

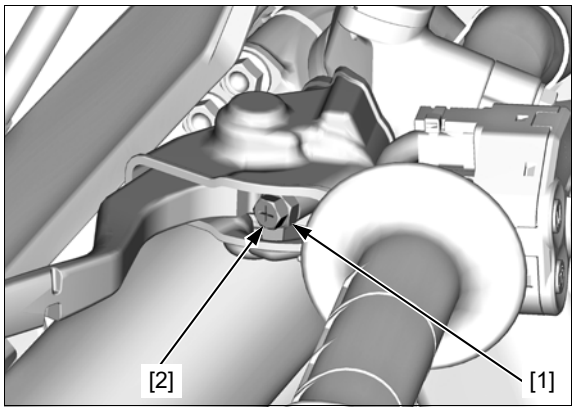
Loosen the clutch lever adjuster lock nut [1].

To position the clutch lever farther away from the handgrip, turn the adjuster [2] clockwise.

To position the clutch lever closer to the handgrip, turn the adjuster counterclockwise.

After adjustment, tighten the clutch lever adjuster lock nut to the specified torque while holding the adjuster.

TORQUE: 5.9 N·m (0.6 kgf·m, 4.4 lbf·ft)



CLUTCH INSPECTION/ REPLACEMENT

Drain the engine oil ➔2-32.

Loosen the bolts [1] in a crisscross pattern in two or three steps.

Remove the bolts and clutch cover [2].

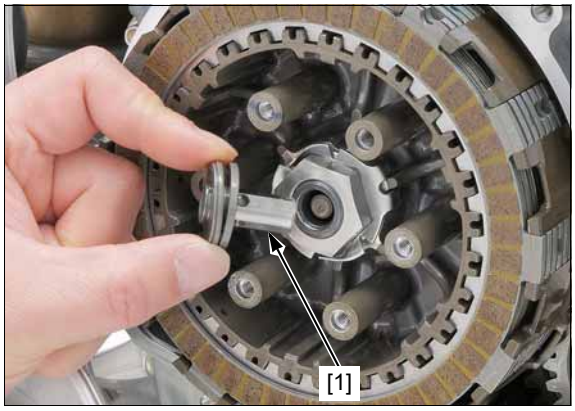
Remove the O-ring [3] from the clutch cover.

Loosen the clutch spring bolts/washers [1] in a crisscross pattern in two or three steps.

Remove the following:

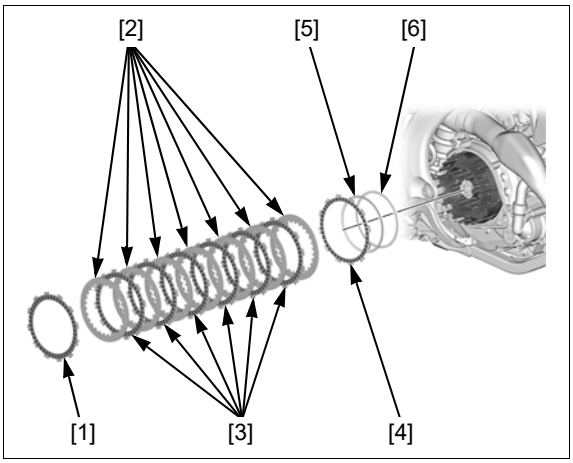
– Clutch spring bolts/washers
– Clutch springs [2]
– Clutch pressure plate [3]

Remove the clutch lifter piece [1].



Remove the following:

– Clutch friction disc C [1]
– Clutch plates [2]
– Clutch friction discs B [3]
– Clutch friction disc A [4]
– Judder spring [5]
– Spring seat [6]



Inspect the following parts for scratches, damage, abnormal wear and deformation.

– Clutch springs
– Clutch pressure plate
– Clutch lifter piece
– Clutch friction discs and clutch plates
– Judder spring
– Spring seat

Measure each part according to CLUTCH SPECIFICATIONS.

Replace any parts if it is out of service limit.

NOTE:

- Replace the clutch springs as a set.
- Replace the clutch friction discs and clutch plates as a set.

CLUTCH SPECIFICATIONS

CLUTCH:	
Clutch friction disc thickness:	
STANDARD:	**2.92 – 3.08 mm (0.115 – 0.121 in)**
SERVICE LIMIT:	**2.70 mm (0.106 in)**
Clutch plate warpage:	
SERVICE LIMIT:	**0.15 mm (0.006 in)**
Clutch spring free length:	
STANDARD:	**56.2 mm (2.21 in)**
SERVICE LIMIT:	**55.2 mm (2.17 in)**

Install the spring seat [1] and judder spring [2].

NOTE:

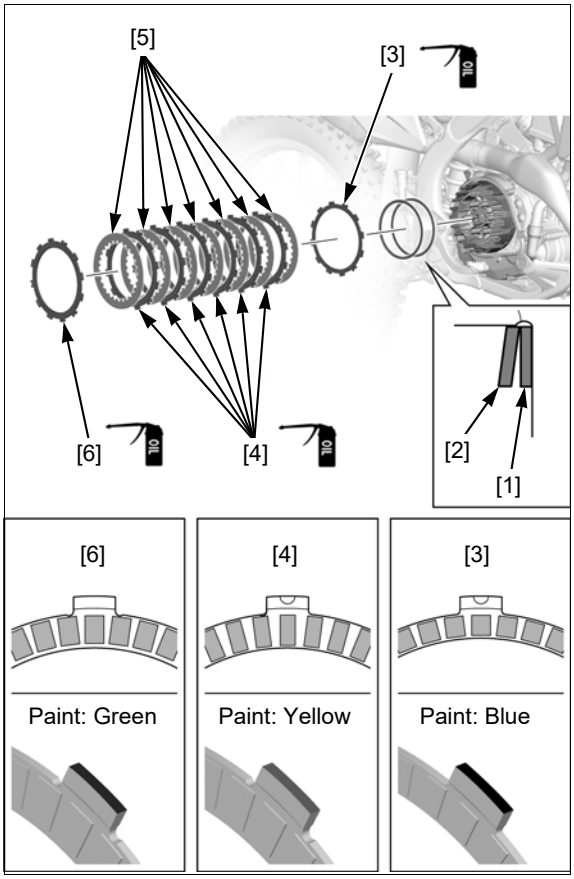
- Install the judder spring in the direction as shown.

Coat the clutch friction disc lining surfaces with engine oil.

Install the clutch friction disc A [3].

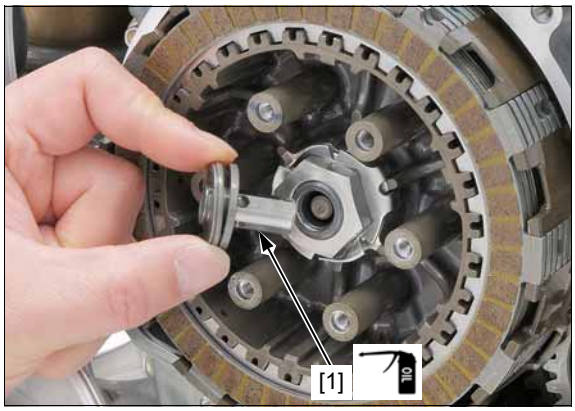
Install the clutch friction discs B [4] (6 pieces) and clutch plates [5] (7 pieces) alternately, starting with the clutch plate.

Install the clutch friction disc C [6].



Apply engine oil to the bearing contact surface of the clutch lifter piece.

Install the clutch lifter piece [1].



Install the clutch pressure plate [1].

Install the clutch springs [2] and clutch spring bolts/washers [3].

Tighten the clutch spring bolts/washers to the specified torque in a crisscross pattern in two or three steps.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Apply engine oil to a new O-ring.

Install the O-ring [1]

Install the clutch cover [2].

Install the bolts [1].

Tighten the bolts securely in a crisscross pattern in two or three steps.

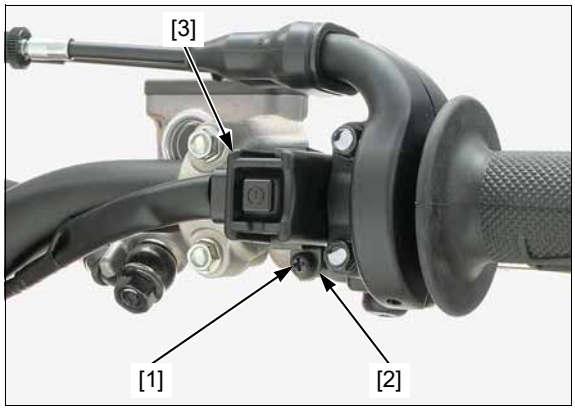
Fill the crankcase with the recommended engine oil ➔2-32.

Start the engine and that there is no oil leaks.

CONTROL CABLES

THROTTLE CABLE

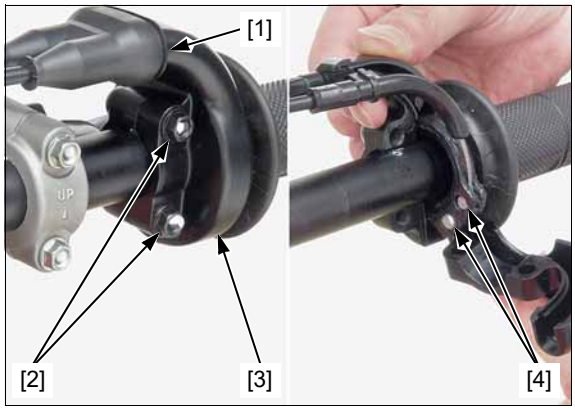
Remove the starter switch screw [1], holder [2], and starter switch [3].



Release the dust cover [1].

Remove the bolts [2] and separate the throttle housing [3] halves.

Disconnect the throttle cables [4].

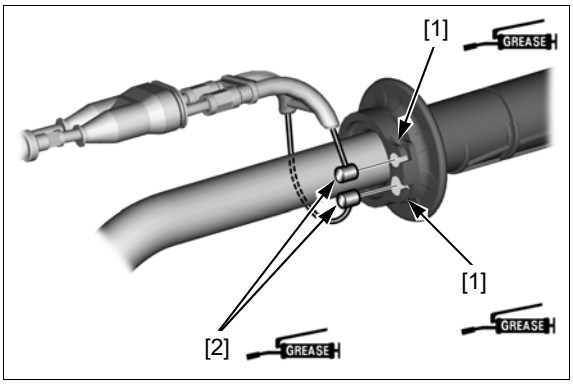


Thoroughly lubricate the throttle pipe flange grooves [1] and throttle cable ends [2] with recommended grease.

RECOMMENDED GREASE:

Lithium based multi-purpose extreme pressure grease NLGI #2 or an equivalent

Connect the throttle cable ends to the throttle pipe.



Install the wire guides [1] to the throttle housings [2].

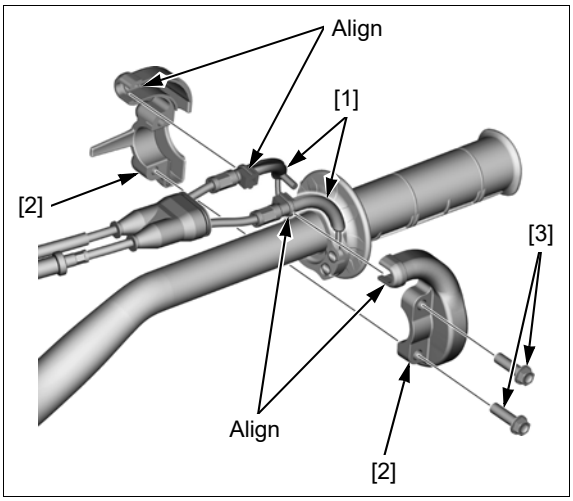
NOTE:

- Align the lug of the wire guides with the groove of the throttle housings.

Install the throttle housings and bolts [3] but do not tighten them yet.

NOTE:

- Be careful not to pinch the throttle wires by the housings.

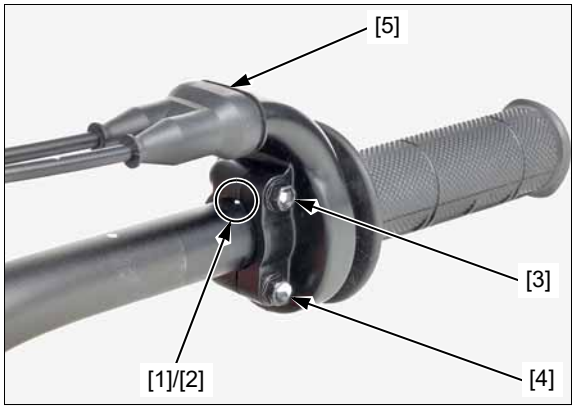


Align the mating surface [1] of the throttle housing with the paint mark [2] on the handlebar.

Tighten the upper bolt [3] first, then the lower bolt [4] securely.

Adjust the throttle grip freeplay ➔2-21.

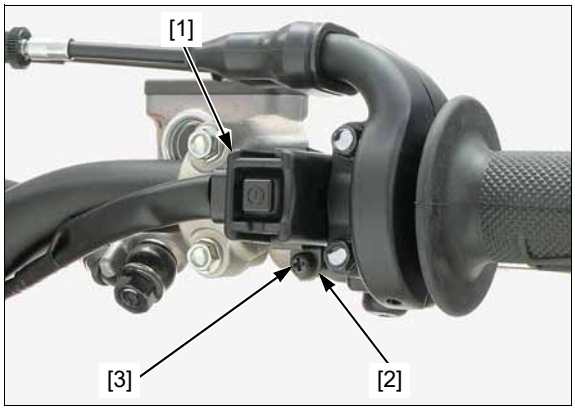
Install the dust cover [5].



Install the starter switch [1], holder [2], and starter switch screw [3].

Tighten the starter switch screw to the specified torque.

TORQUE: 1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)



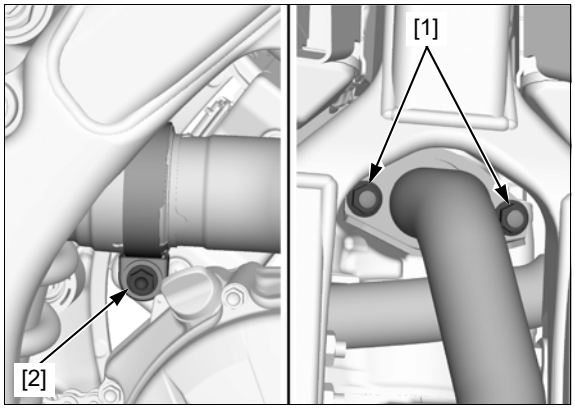
EXHAUST PIPE/MUFFLER

EXHAUST SYSTEM INSPECTION

CRF450R/RX:

Check the following bolts and nuts and tighten them to the specified torque if they are loose.

TORQUE:
Exhaust pipe joint nut [1]:
20 N·m (2.0 kgf·m, 15 lbf·ft)
Muffler joint band bolt [2]:
20 N·m (2.0 kgf·m, 15 lbf·ft)

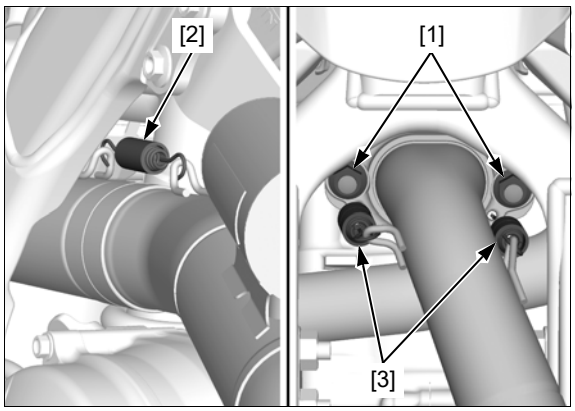


CRF450RWE:

Check the exhaust pipe joint nuts [1] and tighten them to the specified torque if they are loose.

Check the muffler joint spring [2] and exhaust pipe joint springs [3] for damage or fatigue.

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)



Check the exhaust pipe and mufflers for cracks or deformation, replace if necessary.

Check for exhaust gas leaks from the joints.

SUSPENSION

FRONT SUSPENSION INSPECTION

Check the action of the forks by operating the front brake and compressing the forks several times.

Check the entire fork assembly for signs of leaks, damage, or loose fasteners.

Check the fork protectors and dust seals are clean and not packed with mud or dirt.

Remove any dirt that has accumulated on the bottom of the fork seals.

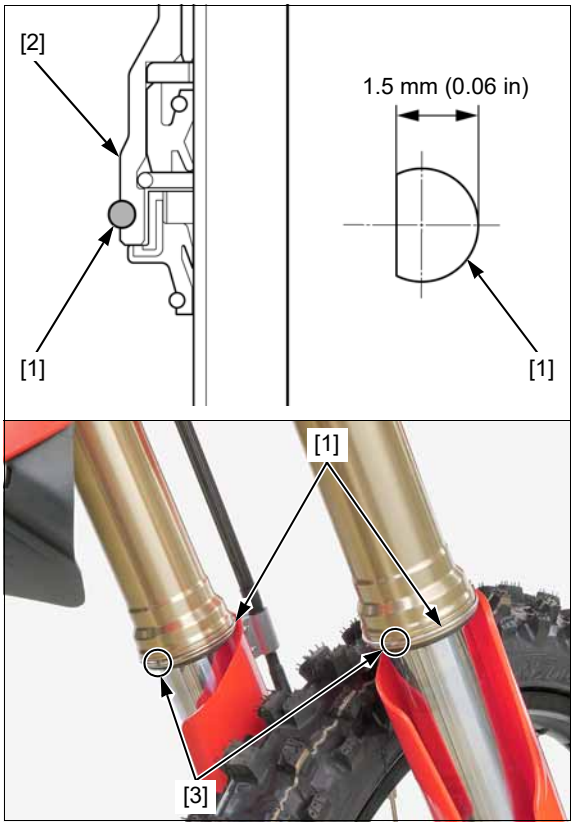
Replace damaged components which cannot be repaired.

For fork oil/spring service ➔2-65

Inspect the wear rings [1] for wear or damage.

Replace the wear ring, if it is less than 1.5 mm (0.06 in) or flat with the outer tube [2].

Make sure that the wear ring end gaps [3] are facing rearward.



REAR SUSPENSION INSPECTION

Check the action of the shock absorber by compressing it several times.

Remove the muffler ➔1-10.

Check the entire shock absorber assembly [1] for signs of leaks, damage or loose fasteners.

Replace damaged components which cannot be repaired.

For shock absorber spring adjustment ➔3-18

Install the muffler ➔1-10.

SWINGARM/SHOCK LINKAGE

Raise the rear wheel off the ground by placing a workstand or equivalent under the engine.

Check for worn swingarm bearings by grabbing the rear end of the swingarm and attempting to move the swingarm side-to-side.

Check the cushion linkage and its needle bearings.

Replace the swingarm/cushion linkage bearings if excessively worn.

Refer to an official Honda Service Manual or see your dealer to replace the bearings.

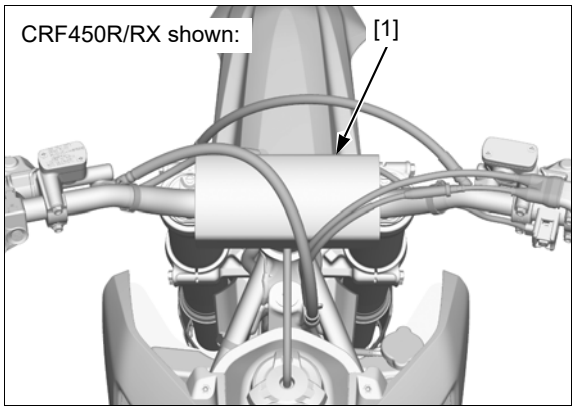
FORK OIL

FORK REMOVAL

Remove the following:

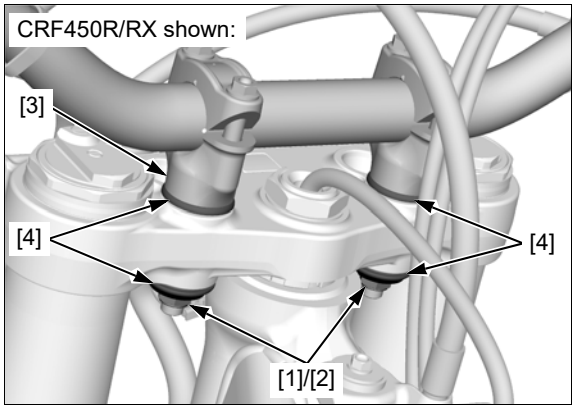
– Front number plate ➔1-5
– Front disc cover ➔1-6

Remove the handlebar pad [1] from the handlebar.



Remove the following:

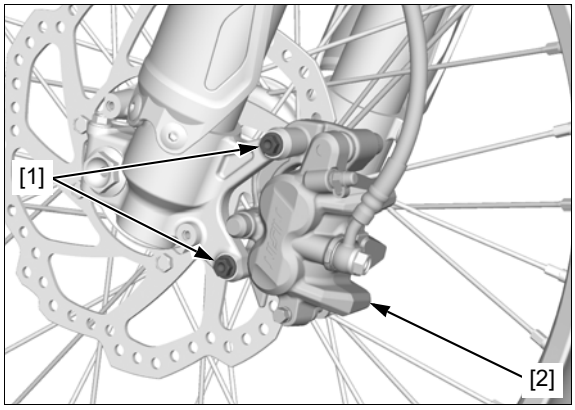
– Handlebar lower holder nuts [1]
– Washers [2]
– Handlebar assembly [3]
– Bushings [4]



Remove the front brake caliper mounting bolts [1] and front brake caliper [2].

NOTE:

- Do not hang the front brake caliper from the brake hose.
- Do not operate the brake lever after removing the front brake caliper.



Raise the front wheel off the ground by placing a workstand or equivalent under the engine.

Remove the axle bolt [1].

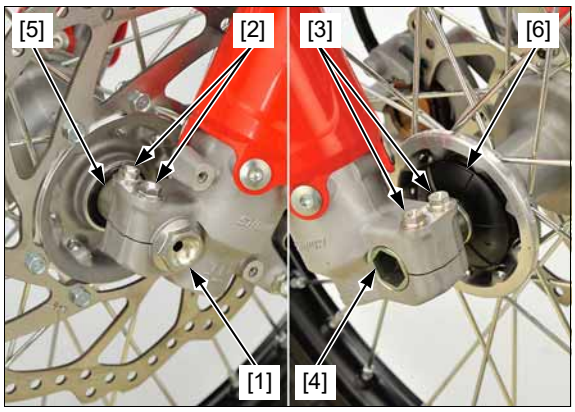
Loosen the left axle holder pinch bolts [2].

Loosen the right axle holder pinch bolts [3].

Remove the axle [4] while holding the front wheel.

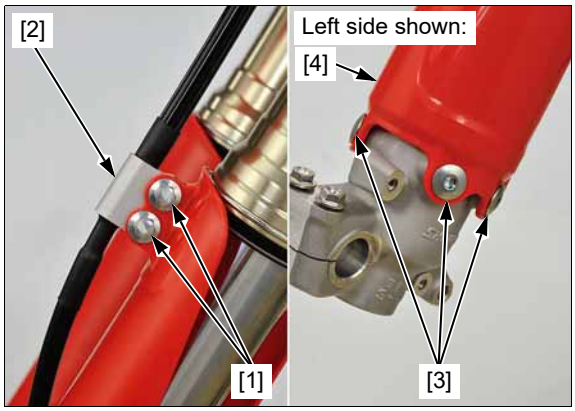
Remove the front wheel.

Remove the left side collar [5] and right side collar [6] from the front wheel.

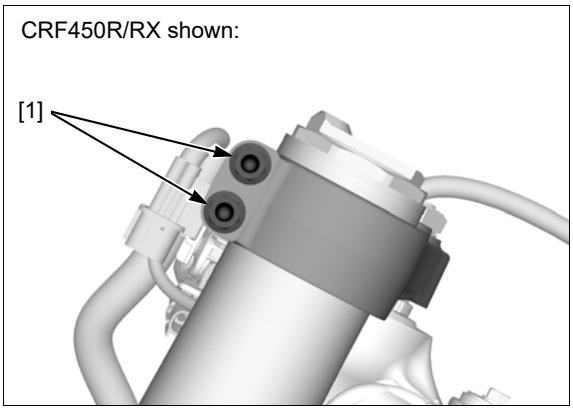


Remove the bolts [1] and brake hose clamps [2].

Remove the fork protector bolts [3] and fork protectors [4].



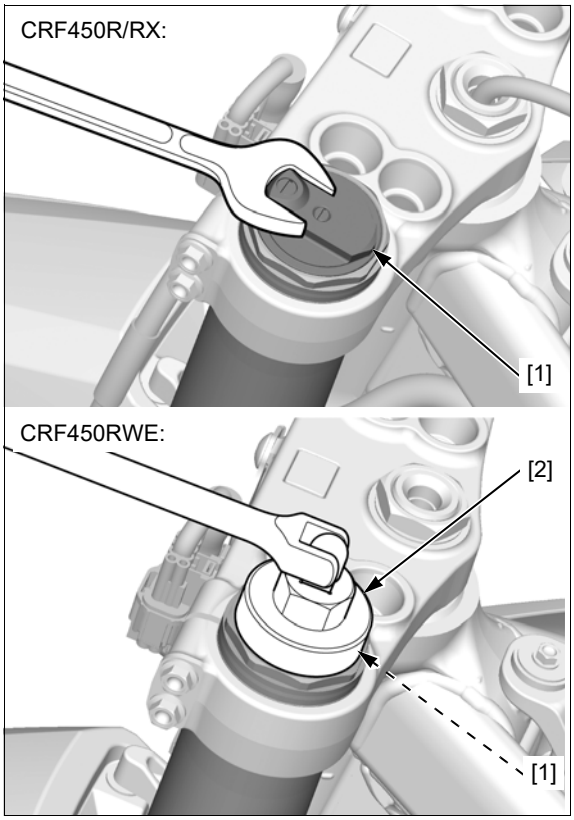
Loosen the top bridge pinch bolts [1].



If you plan to drain the fork damper oil, loosen the fork bolt assembly [1]. For loosening the fork bolt assembly of the CRF450RWE, use the special tool.

TOOL:
Fork Bolt Wrench 36mm [2] 070MA-K950100

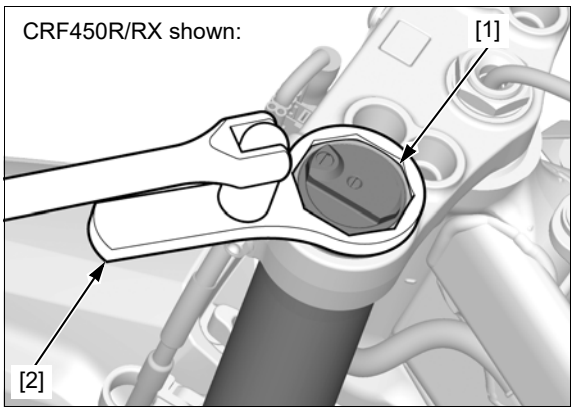
NOTE:
- Do not remove the fork bolt assembly.



Loosen the fork damper [1] using the special tool.

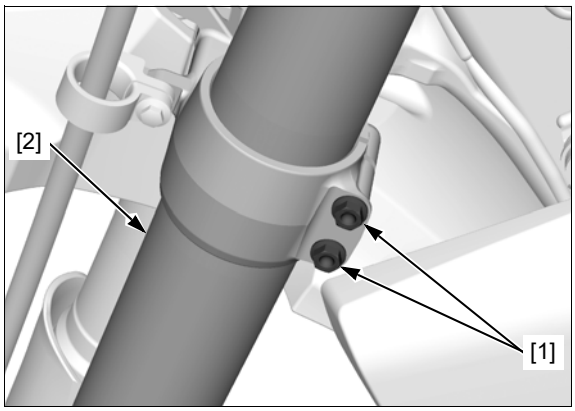
TOOL:
Locknut Wrench 50 (octagon) [2] 07WMA-KZ30100

NOTE:
- Do not remove the fork damper.



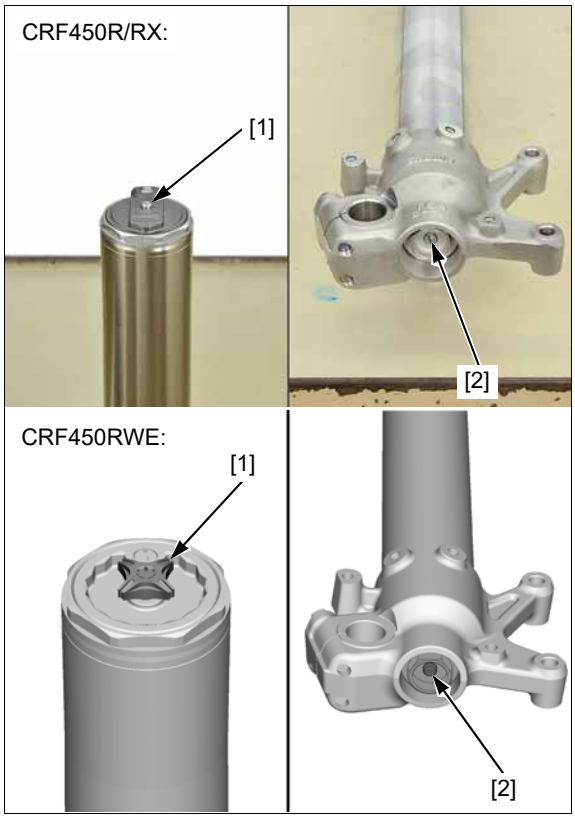
Loosen the bottom bridge pinch bolts [1] while holding the fork.

Remove the fork [2].



Record the present positions of the compression damping adjuster [1] and rebound damping adjuster [2].

Turn the compression and rebound damping adjusters counterclockwise and set them in the full soft position.



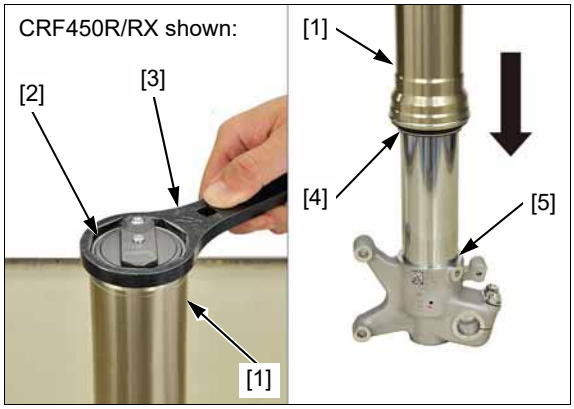
FORK OIL CHANGE

Remove the fork ➔2-65.

Hold the outer tube [1] and remove the fork damper [2] from the outer tube using the special tool.

TOOL:
Locknut Wrench 50 (octagon) [3] 07WMA-KZ30100

Slide the outer tube down slowly until the dust seal [4] is seated onto the axle holder [5].



Drain the fork oil from the inside of the outer tube [1] by pumping the outer tube several times.

Remove the O-ring [2] from the fork damper.

Place the fork [1] upside down and drain the fork oil from the outer tube.

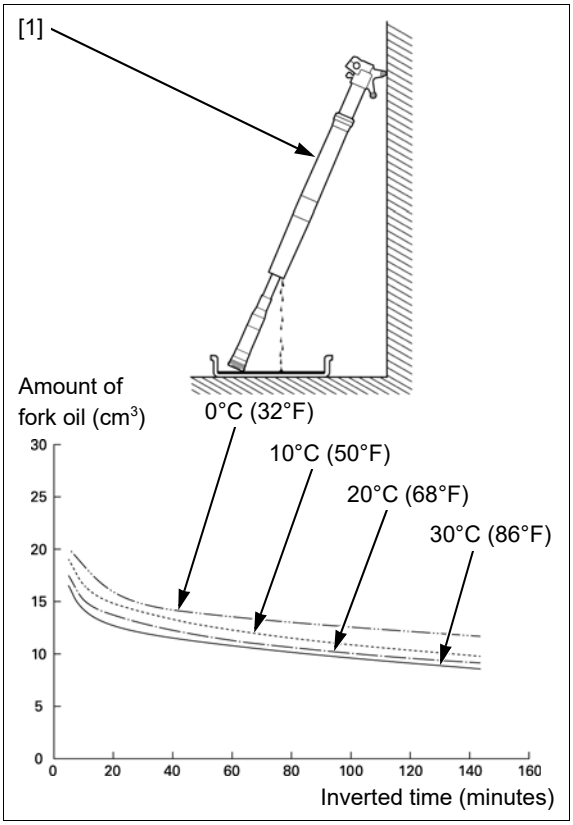
By standing time and temperature, the amount of remaining oil in the fork is varied.
Refer to the following table to determine the finally remaining oil.

Amount of remaining oil in fork
(The fork damper is not removed) unit: cm^3

		minutes						
		5	**10**	**20**	**35**	**55**	**85**	**145**
°C/°F	**30/86**	16.5	14.1	12.7	11.8	11.0	10.1	8.6
	20/68	17.4	15.0	13.7	12.6	11.5	10.5	9.1
	10/50	18.9	16.5	14.8	13.7	12.5	11.4	9.8
	0/32	20.0	18.4	15.9	14.5	13.7	13.0	11.7

NOTE:

- For example, the amount of remaining oil is 13.7 cm^3 at 20°C/ 68°F, for 20 minutes. Pour the specified amount of oil minus remaining oil.



Pour the recommended fork oil into the outer tube [1].

Refer to table of the amount of remaining oil in the fork ➔2-68, calculate the amount of remaining oil in the fork then subtract this amount from the standard fork oil capacity to determine how much fork oil to use.

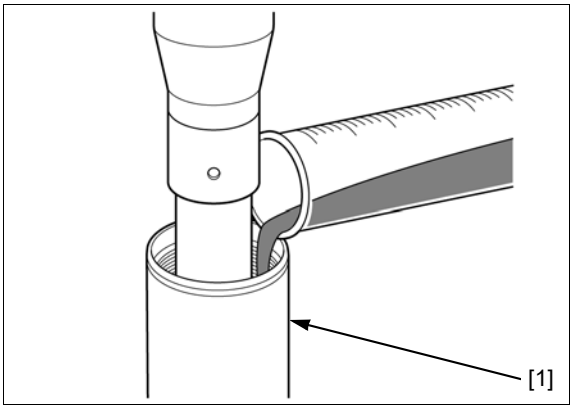
RECOMMENDED FORK OIL:
Fork Fluid (Viscosity: 5W)

STANDARD FORK OIL CAPACITY:
CRF450R: 310 cm^3 (10.5 US oz, 10.9 Imp oz)
CRF450RX: 327 cm^3 (11.1 US oz, 11.5 Imp oz)
CRF450RWE: 325 cm^3 (11.0 US oz, 11.4 Imp oz)

NOTE:

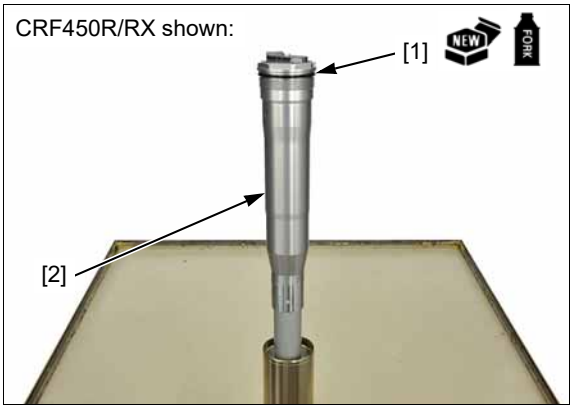
- Be sure the oil capacity should be same in both fork legs.

For adjusting the fork oil capacity ➔3-6



Apply recommended fork oil to a new O-ring [1].

Install the O-ring onto the fork damper [2].



Pull up the outer tube [1] slowly.

Temporarily tighten the fork damper [2] into the outer tube using the special tool.

TOOL:
Locknut Wrench 50 (octagon) [3] 07WMA-KZ30100

Install the fork ➔2-80.

FORK DAMPER OIL CHANGE/ FORK SPRING CHANGE

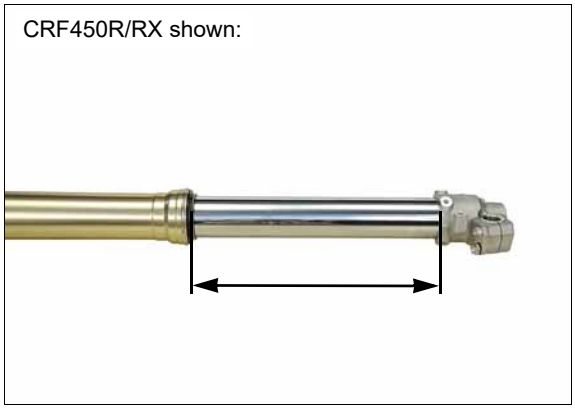
Remove the fork ➔2-65.

Clean the fork assembly (especially the sliding surface of the slide pipe and the bottom of the slider around the center bolt). Be careful not to scratch the slide pipe and not to damage the dust seal.

Measure and record the length between the axle holder and outer tube before releasing the air in the fork.

NOTE:

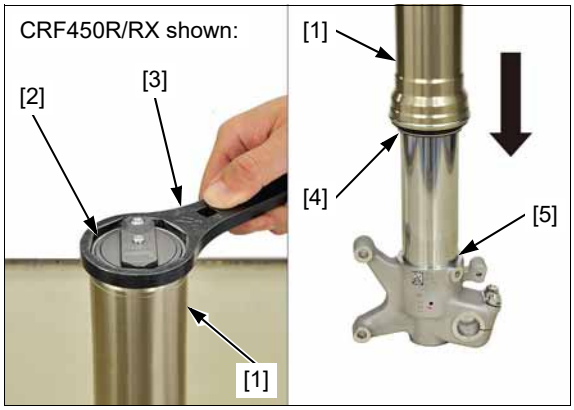
- This procedure is necessary for checking of the installation condition of the fork center bolt and lock nut when the fork assembling.



Hold the outer tube [1] and remove the fork damper [2] from the outer tube using the special tool.

TOOL:
Locknut Wrench 50 (octagon) [3] 07WMA-KZ30100

Slide the outer tube down slowly until the dust seal [4] is seated onto the axle holder [5].



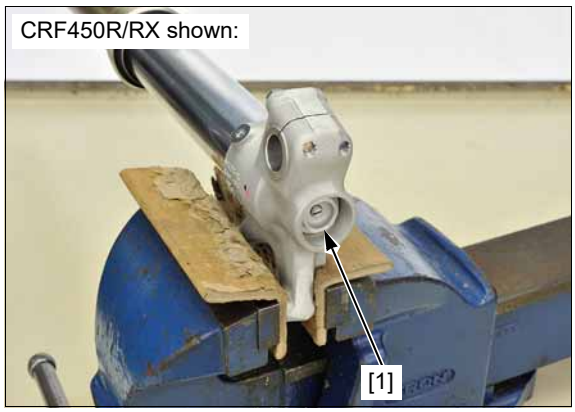
Drain the fork oil from the inside of the outer tube [1] by pumping the outer tube several times.

Remove the O-ring [2] from the fork damper.

Set the axle holder of the slide pipe in a vise with a piece of wood or soft jaws to avoid damage.

NOTE:
- Do not over-tighten the vise on the axle holder.

Loosen the fork center bolt [1].



Hold the outer tube [1] and temporarily install the fork damper [2] into the outer tube using the special tool.

TOOL:
Locknut Wrench 50 (octagon) [3] 07WMA-KZ30100

Push the outer tube until the fork center bolt lock nut [1] is fully exposed and hold them.

NOTE:
- Be careful not to damage the piston rod.

Install the special tool or mechanic's stopper tool between the axle holder [2] and fork center bolt lock nut.

TOOL:
Piston Base 11.5 [3] 07958-2500001

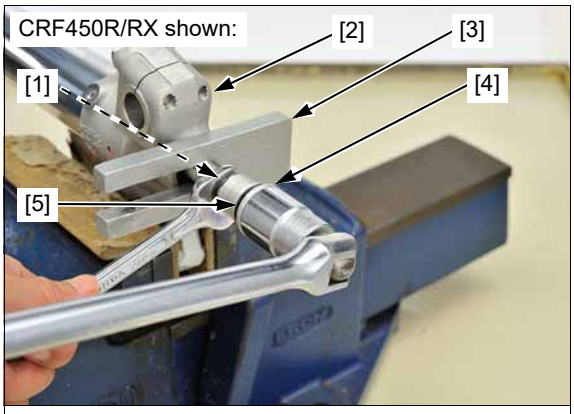
U.S.A. TOOL:
Plate Stopper 07AMB-KZ3A100

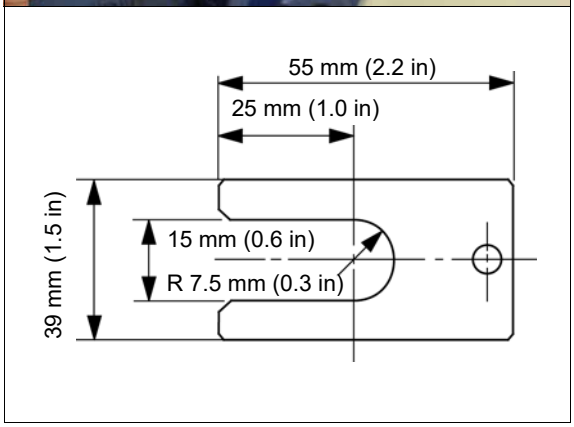
Make the mechanic's stopper tool from a thin piece of steel (2.0 mm (0.08 in) thick) as shown if you do not have a special tool.

Hold the fork center bolt lock nut using the 17 mm open end wrench and remove the fork center bolt [4] from the fork damper.

NOTE:
- Do not remove the lock nut from the fork damper piston rod. If the lock nut is removed, the piston rod will fall into the fork damper and you will not be able to reassemble the fork damper.

Remove the O-ring [5] from the fork center bolt.





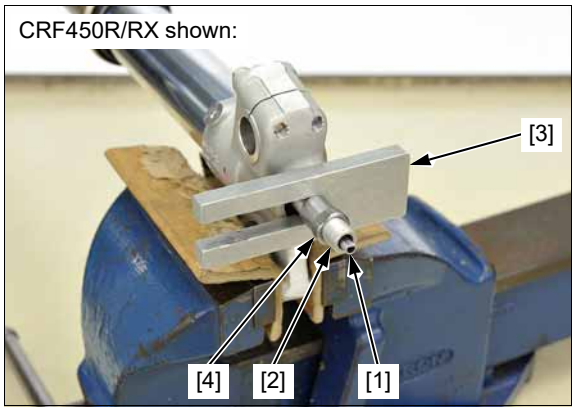
Remove the push rod [1] from the piston rod [2].

Remove the piston base [3] or mechanic's stopper tool while pushing the outer tube.

NOTE:

- The piston rod will be retracted by the fork spring force when the piston base is removed. Extend the fork slowly while holding the outer tube to prevent damaging the piston rod and fork center bolt lock nut [4].

Remove the fork assembly from the vise.

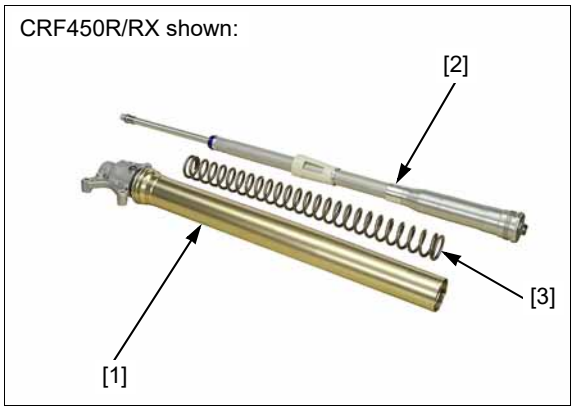


Hold the outer tube [1] and remove the fork damper [2] from the outer tube using the special tool.

TOOL:
Locknut Wrench 50 (octagon) [3] 07WMA-KZ30100

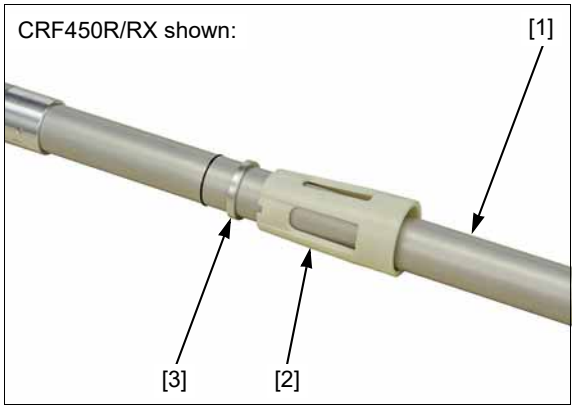
Remove the following from the fork assembly [1]:

– Fork damper assembly [2]
– Fork spring [3]



Remove the following from the fork damper [1]:

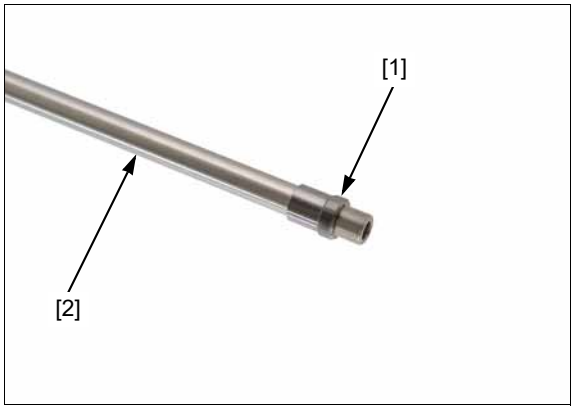
– Spring seat collar [2]
– Seat stopper [3]



Check that the fork center bolt lock nut [1] is installed on the piston rod [2] securely.

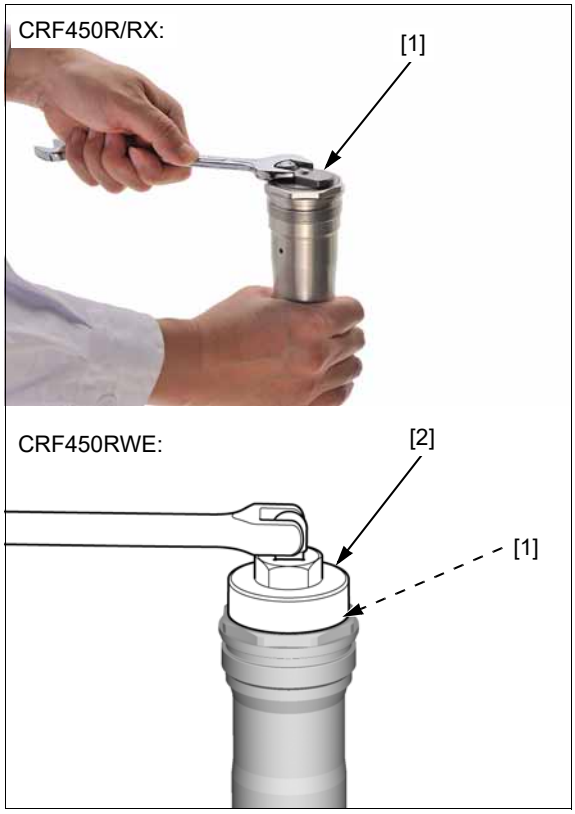
NOTE:

- If the lock nut comes off, the piston rod will fall into the fork damper and you will not be able to reassemble the fork damper.

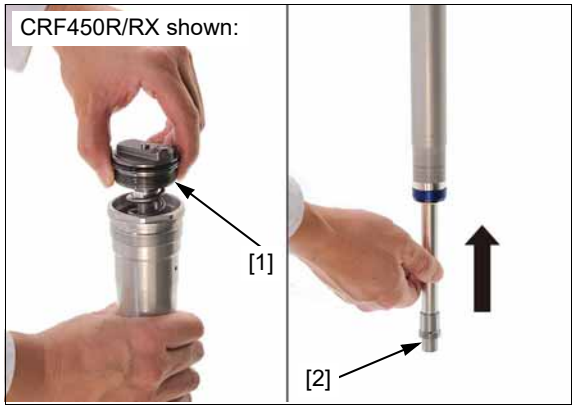


Loosen the fork bolt assembly [1]. For loosening the fork bolt assembly of the CRF450RWE, use the special tool.

TOOL:
Fork Bolt Wrench 36mm [2] **070MA-K950100**



Remove the fork bolt assembly [1] while pushing the piston rod [2] in slowly.



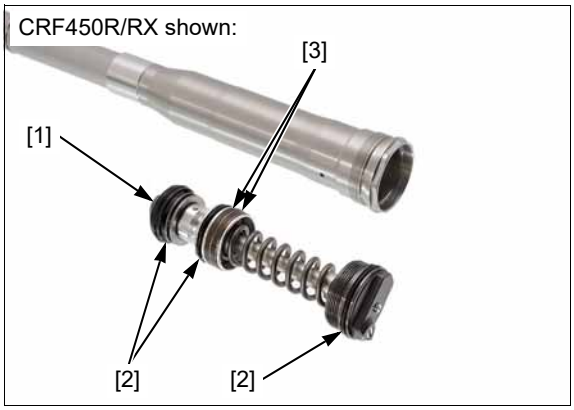
Check the following:

– Fork bolt assembly [1]
– O-rings [2]
– Slider bushings [3]

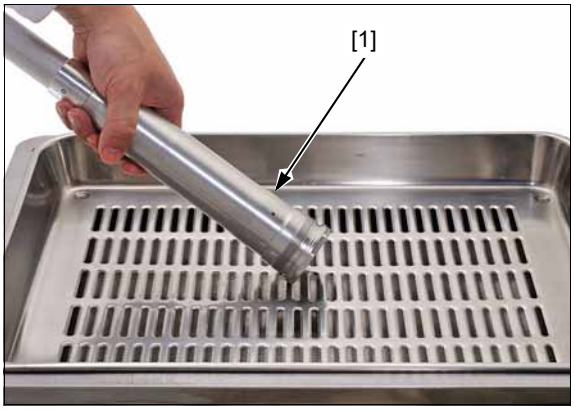
Replace the fork bolt as an assembly if necessary.

NOTE:

- Do not disassemble the fork bolt assembly. It may cause fork performance failure.
- Be careful not to damage the O-rings and slider bushings.

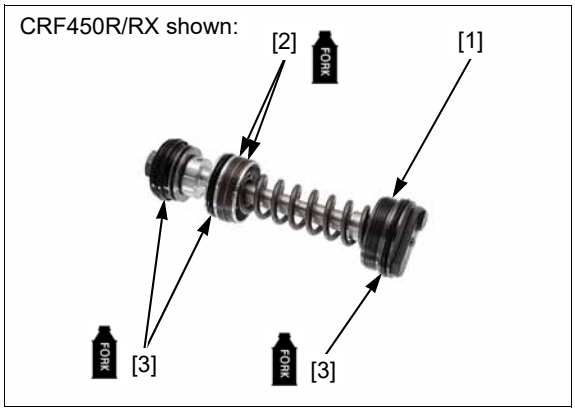


Drain the fork oil completely from the fork damper [1] by pumping the piston rod several times.



Clean the threads of the fork bolt assembly [1].

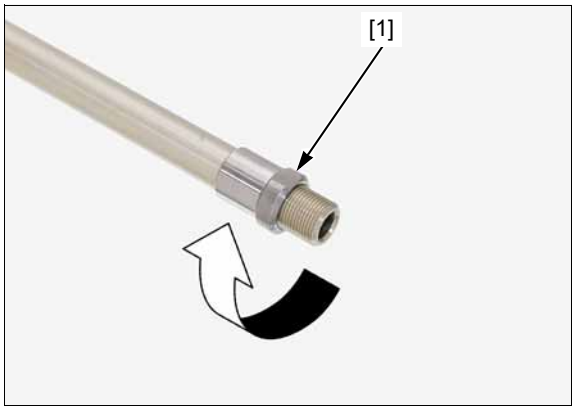
Apply recommended fork oil to slider bushings [2] and O-rings [3].



Turn the fork center bolt lock nut [1] clockwise until it is fully seated.

NOTE:

- If the lock nut comes off, the piston rod will fall into the fork damper and you will not be able to reassemble the fork damper.



Extend the piston rod [1] fully.

Pour the specified amount plus 5 cm^3 (0.2 US oz, 0.2 Imp oz) of the recommended fork oil into the fork damper [2].

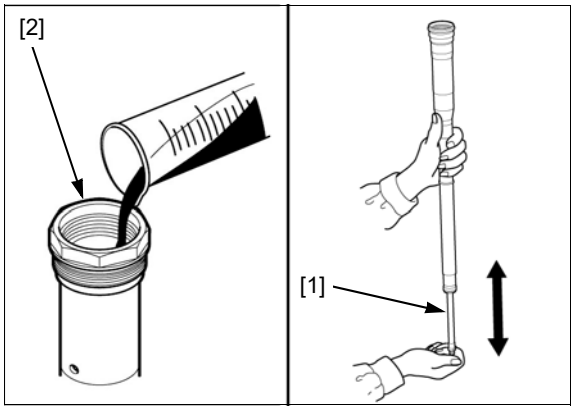
RECOMMENDED FORK OIL:
Fork Fluid (Viscosity: 5W)

FILLING OIL CAPACITY:
248 cm^3 (8.4 US oz, 8.7 Imp oz)

NOTE:

- Slightly overfill the damper as a little oil will flow out during the air bleed procedure.

Pump the piston rod slowly several times and bleed any air from the fork oil.



Clean the fork damper threads.

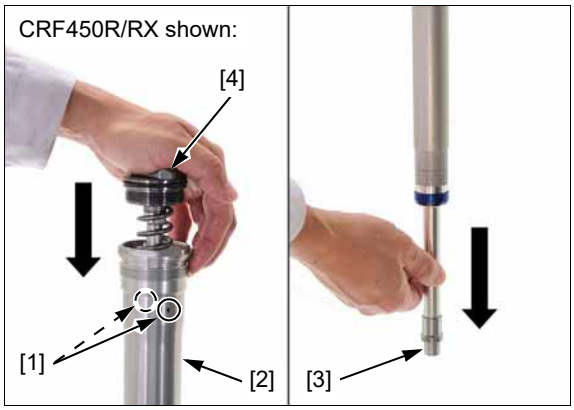
Cover the oil holes [1] of the fork damper [2] with a shop towel and compress the piston rod [3] all the way.

Pull the piston rod out about 20 mm (0.8 in) and put the fork bolt assembly [4] on the fork damper.

NOTE:

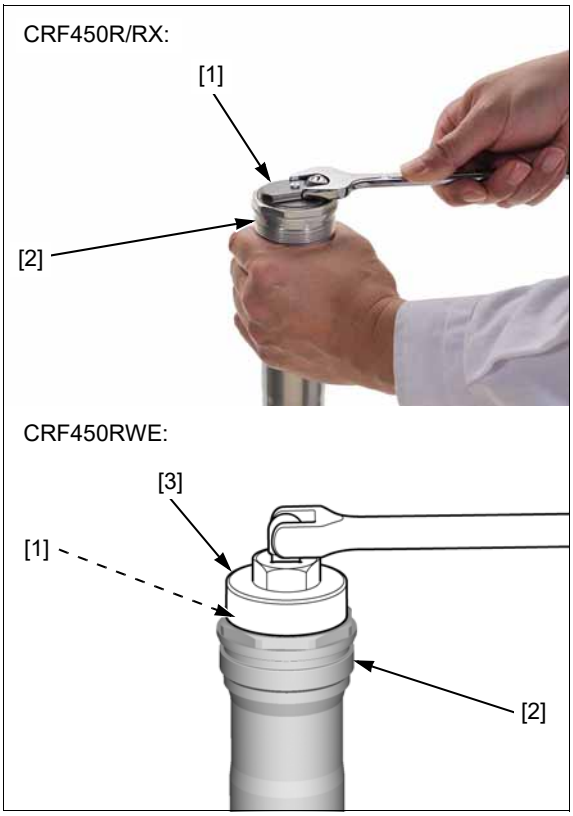
- Be careful not to damage the slider bushings.

Extend the fork bolt assembly slowly while pulling the piston rod out and install the fork bolt assembly into the fork damper using the negative pressure in the damper.

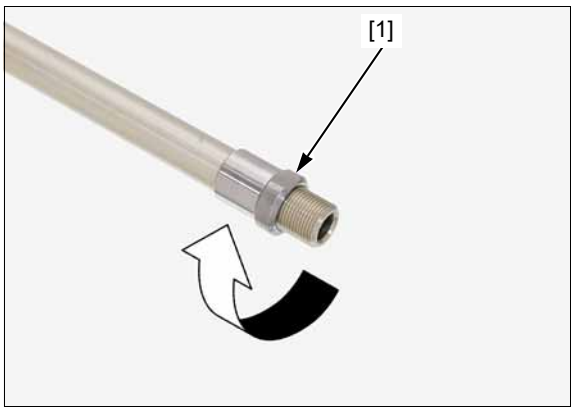


Temporarily tighten the fork bolt assembly [1] into the fork damper [2]. For tightening the fork bolt assembly of the CRF450RWE, use the special tool.

TOOL:
Fork Bolt Wrench 36mm [3] 070MA-K950100



Turn the fork center bolt lock nut [1] clockwise until it is fully seated.

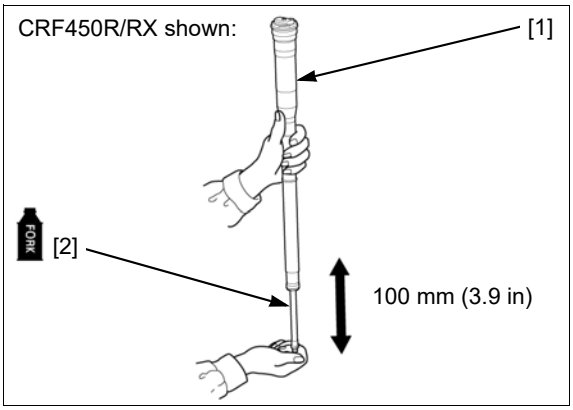


After assembling the fork damper, perform following procedure to bleed the air from the fork damper:

Make sure that the compression damping adjuster is in the full soft position.

Check that there are no scratches on the piston rod surface and apply recommended fork oil to the piston rod sliding surface.

Hold the fork damper [1] in an upright position and pump the piston rod [2] 100 mm (3.9 in) slowly, several times.



Protect the piston rod [1] end with a shop towel [2].

Cover the oil holes of the fork damper [3] with shop towel to prevent the fork oil from splashing.

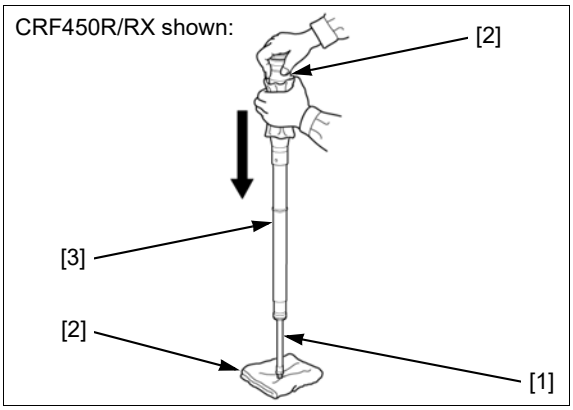
Compress the piston rod fully by pushing down the fork damper by hand and overflow any extra fork oil from the oil holes in the fork damper.
Extend the piston rod fully.

Repeat the above procedure until no extra oil is overflowed.

NOTE:

- Be careful not to deform the piston rod when stroking it.
- By doing this procedure, about 5 cm^3 (0.2 US oz, 0.2 Imp oz) of fork oil will be drained from the fork damper through the oil holes. This will cause specified amount of fork oil to be left in the fork damper.

Amount of fork oil in the fork damper:
243 cm^3 (8.2 US oz, 8.6 Imp oz)



Drain the extra fork oil remaining in the air chamber from the oil holes [1] of the fork damper [2].

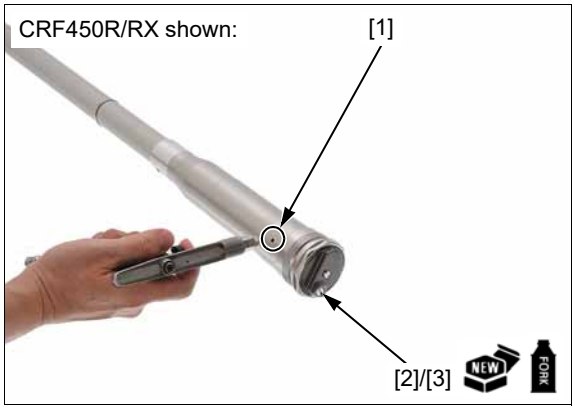
Blow out any oil remaining in the air chamber from the oil hole [1] of the inner damper using compressed air.

Wipe off the oil completely from the inner damper.

If you cannot use compressed air, remove the fork plug bolt [2], and hold the inner damper upside down for 10 minutes and drain the oil.

Apply recommended fork oil to a new O-ring.
Install the O-ring [3] onto the fork plug bolt.
Install the fork plug bolt and tighten it to the specified torque.

TORQUE: 1.3 N·m (0.1 kgf·m, 1.0 lbf·ft)



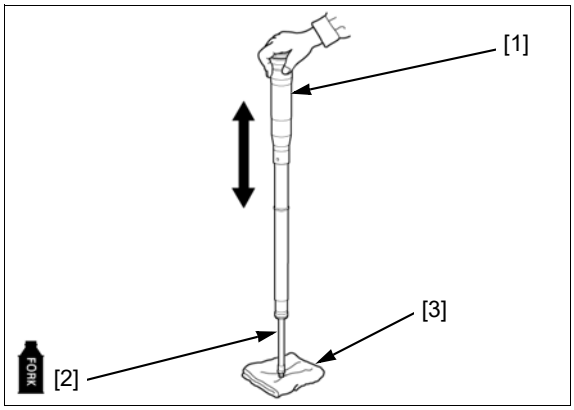
After air bleeding, perform following procedure to inspect the fork damper [1] operation:

Make sure that the compression damping adjuster is in the full soft position.
Check that there are no scratches on the piston rod [2] surface and apply recommended fork oil to the piston rod sliding surface.
Protect the piston rod end with a shop towel [3].
Compress the piston rod fully by pushing down the fork damper by hand and check that the piston rod operates smoothly.

NOTE:

- Be careful not to deform the piston rod when stroking it.

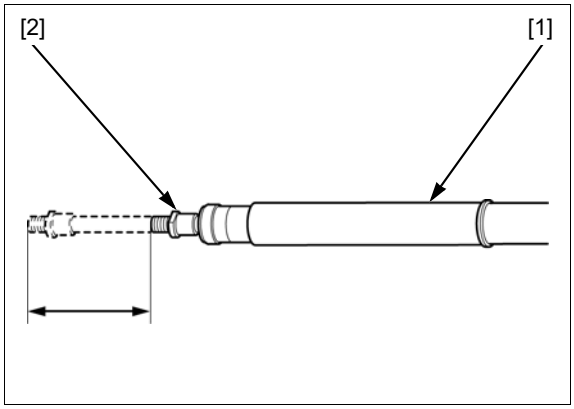
If the piston rod operation is not smooth, check the piston rod for deformation or damage.



Hold the fork damper [1] on level ground with the piston rod [2] fully compressed and release the piston rod.

Check that the piston rod returns to the fully extended position by itself.

If the piston rod does not return to the fully extended position, bleed air from the fork damper again as the air bleeding is insufficient.



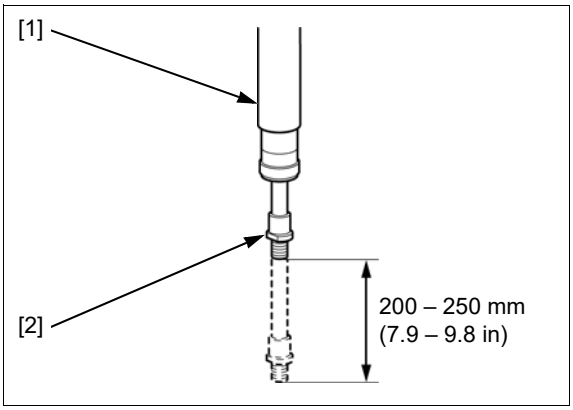
Wipe off any oil completely from the fork damper [1].

Compress the piston rod [2] 200 – 250 mm (7.9 – 9.8 in), hold the fork damper in an upright position for 10 minutes and check that there is no oil leakage from the fork damper and piston rod.

If there is oil leakage, replace the fork damper assembly.

Hold the fork damper on level ground with the piston rod fully compressed and release the piston rod. Check that the piston rod returns to the fully extended position by itself again.

If the piston rod does not return to the fully extended position, bleed air from the fork damper.



Place the fork [1] upside down and drain the fork oil from the inside of the outer tube and slide pipe.

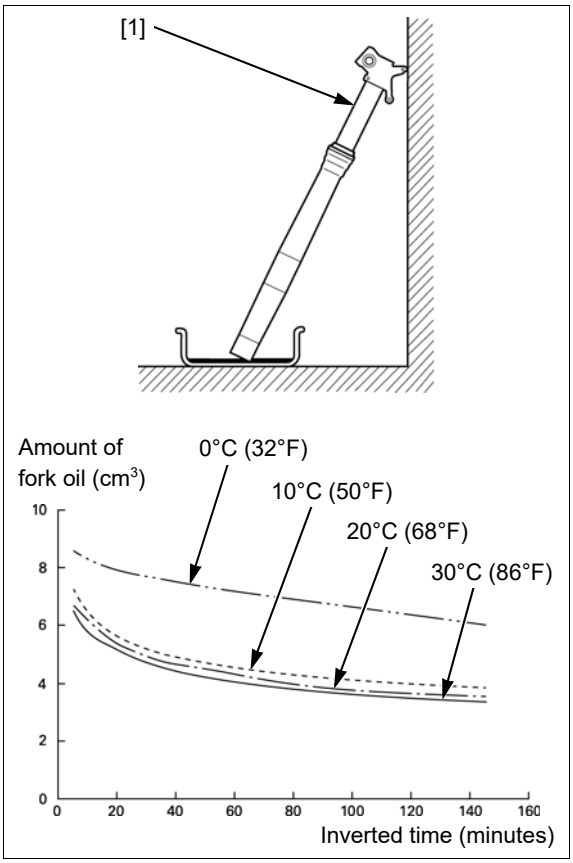
By standing time and temperature, the amount of remaining oil in the fork is varied.
Refer to the following table to determine the finally remaining oil.

Amount of remaining oil in fork
(The fork damper and spring is removed) unit: cm^3

		minutes						
		5	**10**	**20**	**35**	**55**	**85**	**145**
°C/°F	**30/86**	6.5	5.7	5.2	4.5	4.1	3.7	3.3
	20/68	6.7	6.2	5.4	4.7	4.4	3.8	3.5
	10/50	7.3	6.4	5.6	5.0	4.6	4.2	3.8
	0/32	8.6	8.2	7.9	7.6	7.3	6.8	6.0

NOTE:

- For example, the amount of remaining oil is 5.4 cm^3 at 20°C/ 68°F, for 20 minutes. Pour the specified amount of oil minus remaining oil.

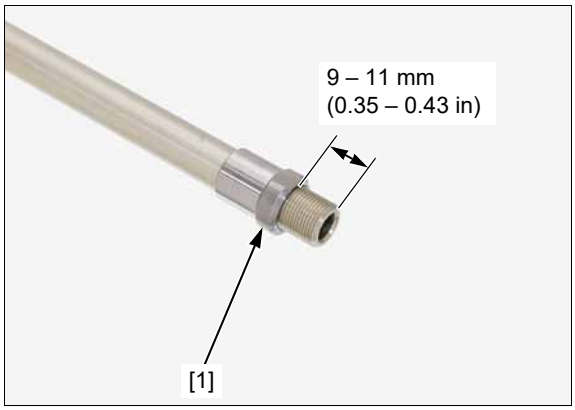


Tighten the fork center bolt lock nut [1] until it is seated.

Make sure that the length of the threaded portion is within the standard value.

STANDARD: 9 – 11 mm (0.35 – 0.43 in)

Wipe off any oil completely from the fork damper.

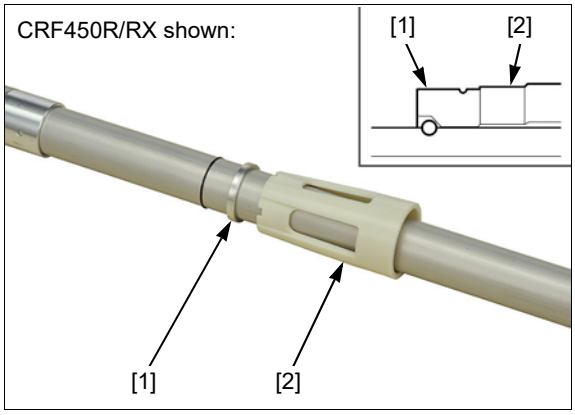


Install the following:

– Seat stopper [1]
– Spring seat collar [2]

NOTE:

• Install the seat stopper and spring seat collar in the direction as shown.

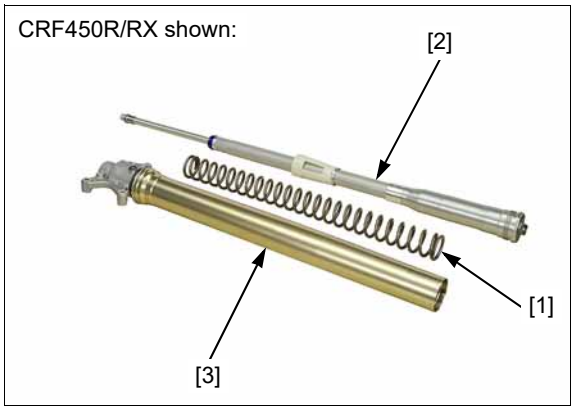


Blow out the oil off completely from the fork spring and fork damper.

Put the fork spring [1] on the fork damper [2].

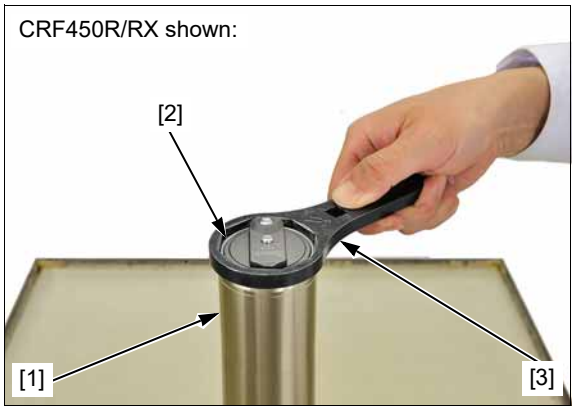
Put the fork damper and fork spring into the fork assembly [3].

For optional spring types ➔3-3



Hold the outer tube [1] and temporarily tighten the fork damper [2] into the outer tube using the special tool.

TOOL:
Locknut Wrench 50 (octagon) [3] 07WMA-KZ30100



Set the axle holder of the slide pipe in a vise with pieces of wood or soft jaws to avoid damage.

NOTE:
- Do not over-tighten the vise on the axle holder.

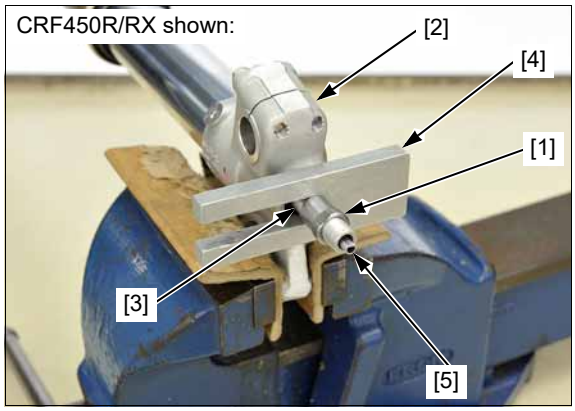
Push the outer tube until the fork center bolt lock nut [1] is fully exposed and install the piston base or mechanic's stopper tool between the axle holder [2] and lock nut.

NOTE:
- Be careful not to damage the piston rod [3].

TOOL:
Piston Base 11.5 [4] **07958-2500001**

U.S.A. TOOL:
Plate Stopper **07AMB-KZ3A100**

Install the push rod [5] into the piston rod until it stops. Check the push rod installation by turning the push rod right and left.



Recheck the length between the piston rod end [1] and fork center bolt lock nut [2].

STANDARD: 9 – 11 mm (0.35 – 0.43 in)

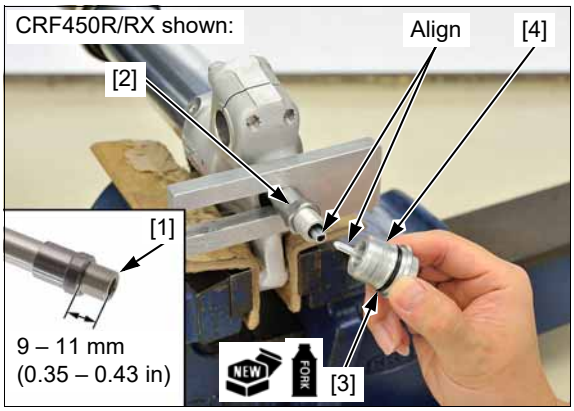
If the length is out of the standard range, tighten the lock nut until it is seated.

Apply recommended fork oil to a new O-ring [3] and install it to the fork center bolt [4].

Install the fork center bolt to the piston rod.

NOTE:
- Align the flat surfaces of the fork center bolt adjusting rod and push rod.

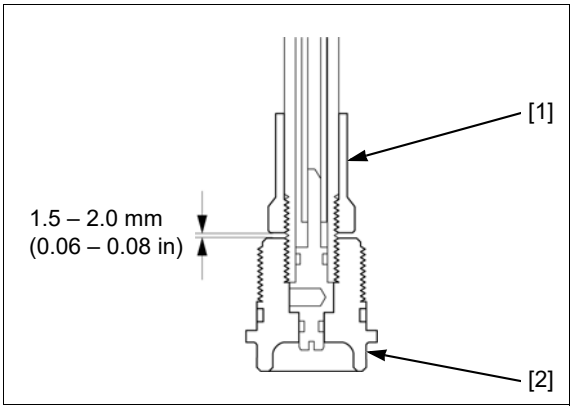
Tighten the fork center bolt fully by hand.



Measure the clearance between the fork center bolt lock nut [1] and fork center bolt [2].

STANDARD: 1.5 – 2.0 mm (0.06 – 0.08 in)

If the clearance is out of the standard range, reinstall the lock nut and center bolt.



Tighten the fork center bolt lock nut [1] by hand until it touches the fork center bolt [2].

Hold the fork center bolt lock nut and tighten the fork center bolt to the specified torque.

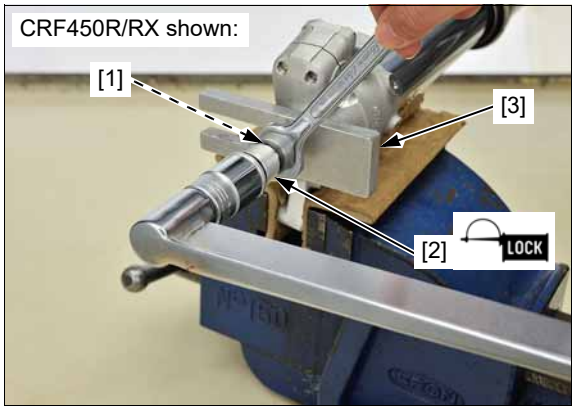
TORQUE: 28 N·m (2.9 kgf·m, 21 lbf·ft)

Clean the center bolt threads and apply locking agent to it.

Remove the piston base [3] or mechanic's stopper tool while pushing the outer tube.

NOTE:

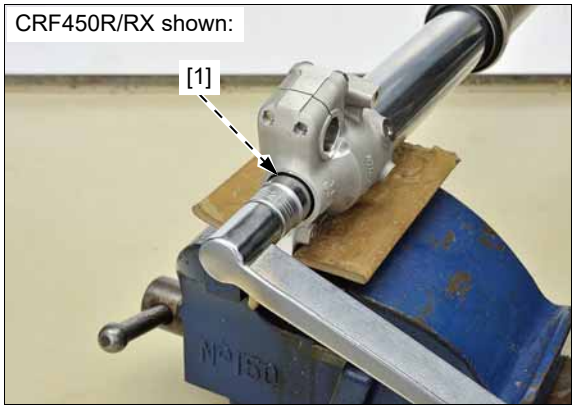
- The piston rod will be retracted by the fork spring force when the piston base is removed. Extend the fork slowly while holding the outer tube to prevent damaging the piston rod and lock nut.



Install the fork center bolt [1] into the axle holder and tighten it to the specified torque.

TORQUE: 69 N·m (7.0 kgf·m, 51 lbf·ft)

Remove the fork assembly from the vise.



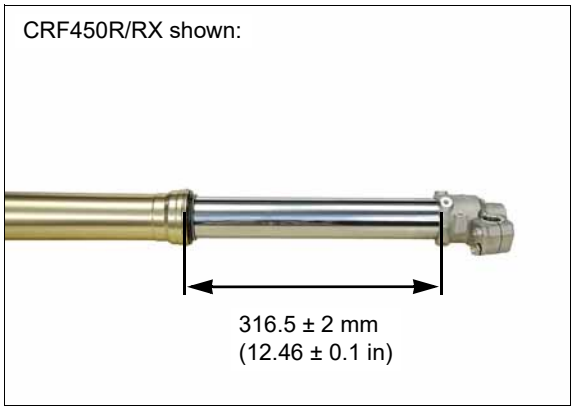
Measure the length between the axle holder and outer tube.

Compare the length at assembly and disassembly; they should be same length.

STANDARD: 316.5 ± 2 mm (12.46 ± 0.1 in)

If the length at assembly is different from that at disassembly or it is out of the standard range, the fork center bolt and lock nut may be installed improperly. Disassemble and reinstall them properly.

Remove the fork damper from the outer tube.



Hold the outer tube [1] and remove the fork damper [2] from the outer tube using the special tool.

TOOL:
Locknut Wrench 50 (octagon) [3] 07WMA-KZ30100

Pour the recommended fork oil into the outer tube [1].

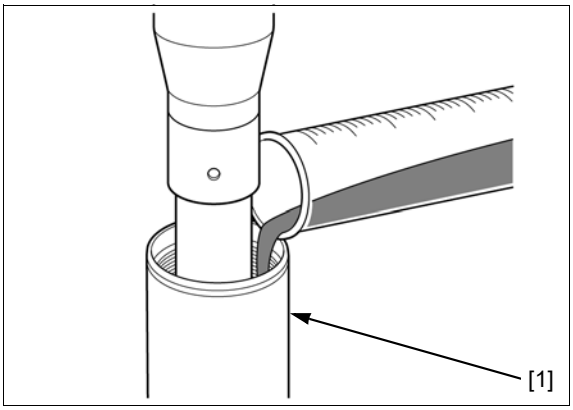
RECOMMENDED FORK OIL:
Fork Fluid (Viscosity: 5W)

STANDARD FORK OIL CAPACITY:
CRF450R: 310 cm³ (10.5 US oz, 10.9 Imp oz)
CRF450RX: 327 cm³ (11.1 US oz, 11.5 Imp oz)
CRF450RWE: 325 cm³ (11.0 US oz, 11.4 Imp oz)

NOTE:
- Be sure the oil capacity should be same in both fork legs.

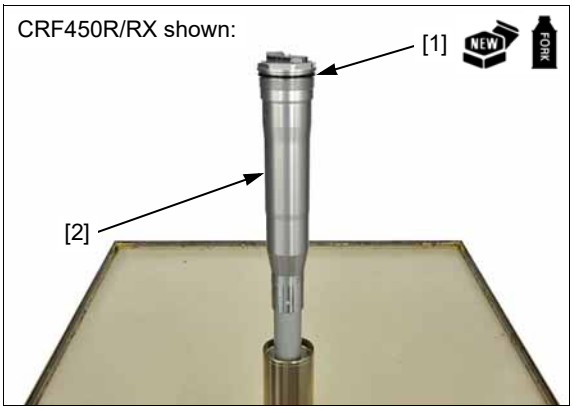
Refer to table of the amount of remaining oil in the fork ➔2-76, calculate the amount of remaining oil in the fork then subtract this amount from the standard fork oil capacity to determine how much fork oil to use.

For adjusting the fork oil capacity ➔3-6



Apply recommended fork oil to a new O-ring.

Install the O-ring [1] onto the fork damper [2].



Pull up the outer tube [1] slowly.

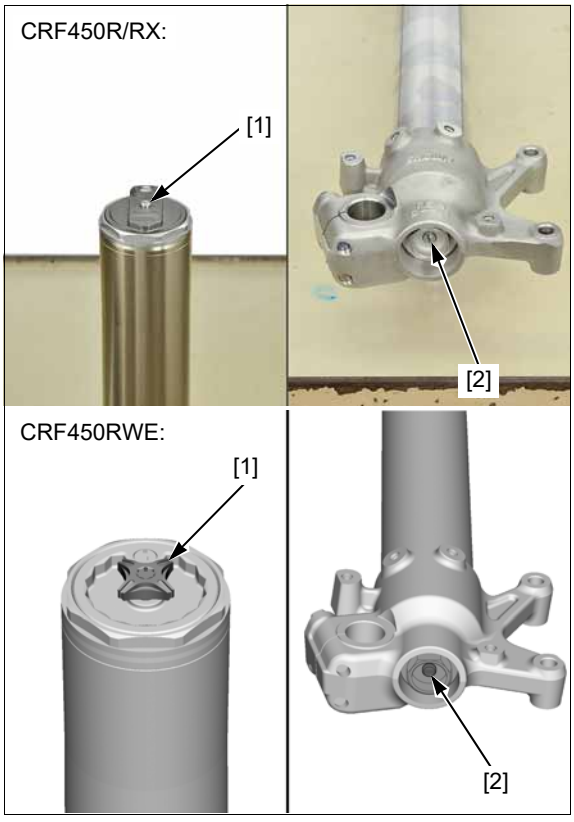
Temporarily tighten the fork damper [2] into the outer tube using the special tool.

TOOL:
Locknut Wrench 50 (octagon) [3] 07WMA-KZ30100

Install the fork ➔2-80.

FORK INSTALLATION

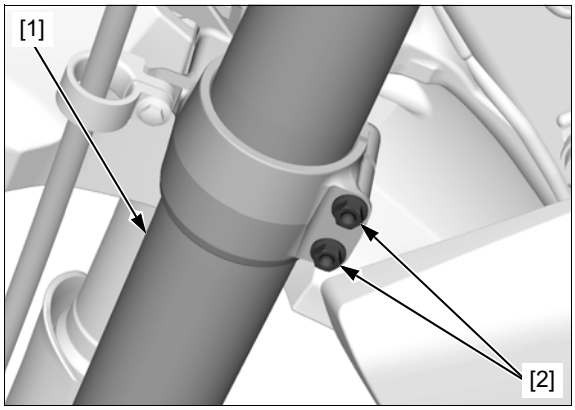
Return the compression damping adjuster [1] and rebound damping adjuster [2] to the original positions as noted during removal.



Install the fork leg [1].

Install the bottom bridge pinch bolts [2] and tighten it to the specified torque.

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)



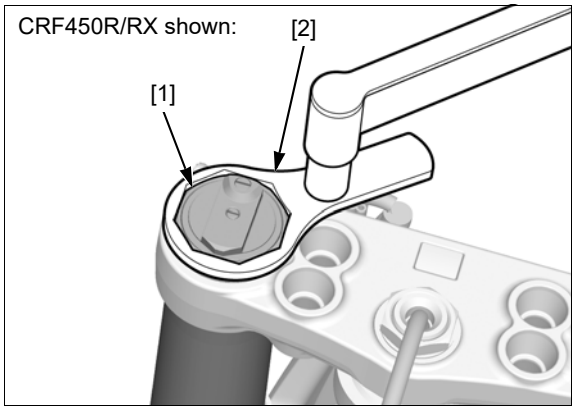
Tighten the fork damper [1] to the specified torque using the special tool.

TOOL:
Locknut Wrench 50 (octagon) [2] 07WMA-KZ30100

TORQUE:
Actual: 76 N·m (7.7 kgf·m, 56 lbf·ft)
Indicated: 69 N·m (7.0 kgf·m, 51 lbf·ft)

NOTE:

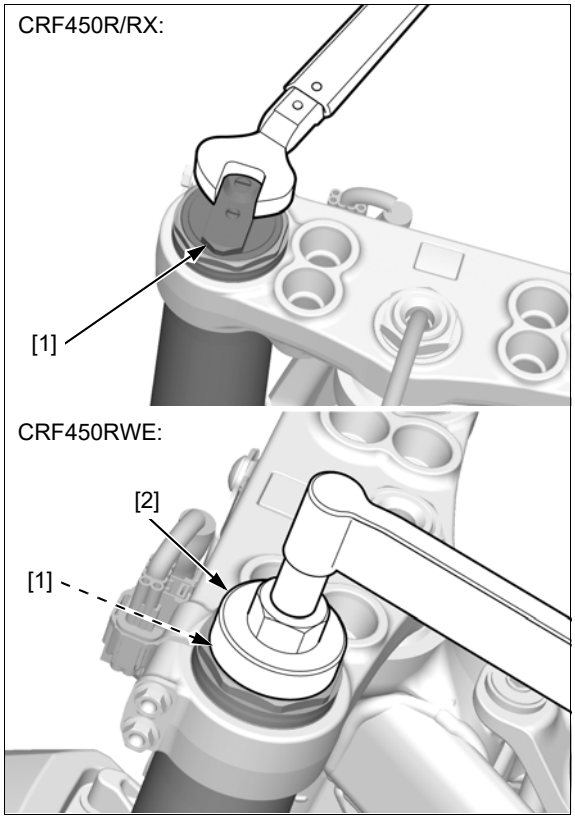
- When using the lock nut wrench, use a 500 mm (20.0 in) long deflecting beam type torque wrench.
  The lock nut wrench increases the torque wrench's leverage, so the torque wrench reading will be less than the torque actually applied to the fork damper.
  The specification given on this page is actual torque applied to the fork damper, not the reading on the torque wrench when used with the lock nut wrench.



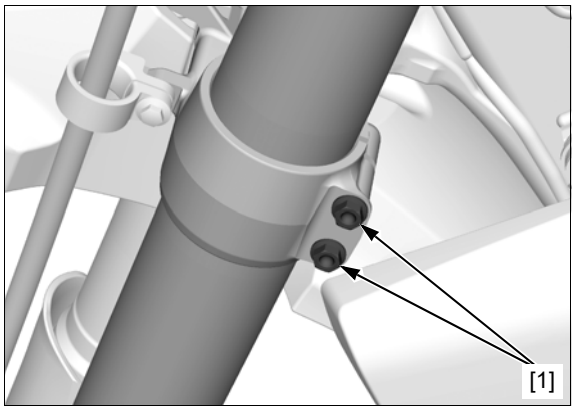
When the fork bolt assembly [1] is removed, tighten it to the specified torque. For tightening the fork bolt assembly of the CRF250RWE, use the special tool.

TOOL:
Fork Bolt Wrench 36mm [2] 070MA-K950100

TORQUE: 30 N·m (3.1 kgf·m, 22 lbf·ft)

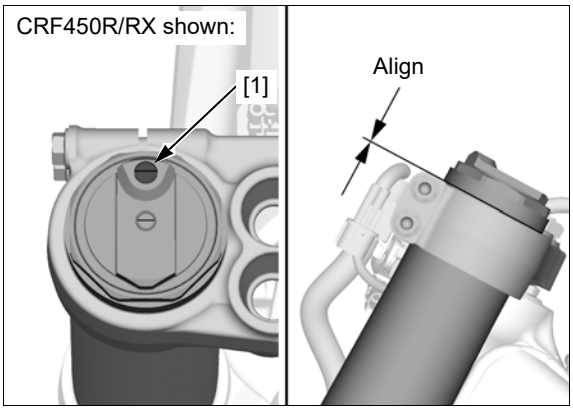


Loosen the bottom bridge pinch bolts [1].



Position the fork outer tubes with the plug bolts [1] facing forward.

Align the outer tube groove with the top surface of the top bridge.



Tighten the bottom bridge pinch bolts [1] to the specified torque.

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)

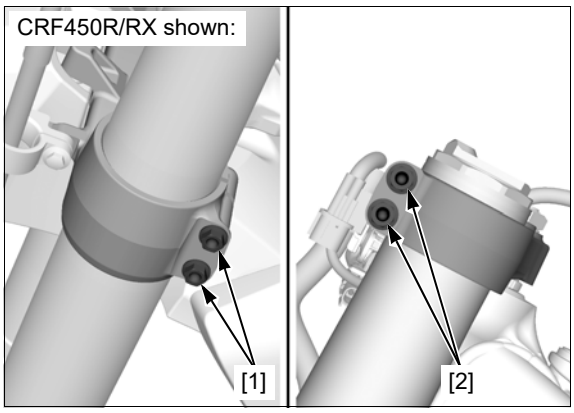
Tighten the top bridge pinch bolts [2] to the specified torque.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

NOTICE

Be careful not to over-tighten the pinch bolts. Over-tightening the pinch bolts can damage the fork.

After installing the fork, remove air plug to adjust the fork air pressure to atmospheric pressure ➔3-8.



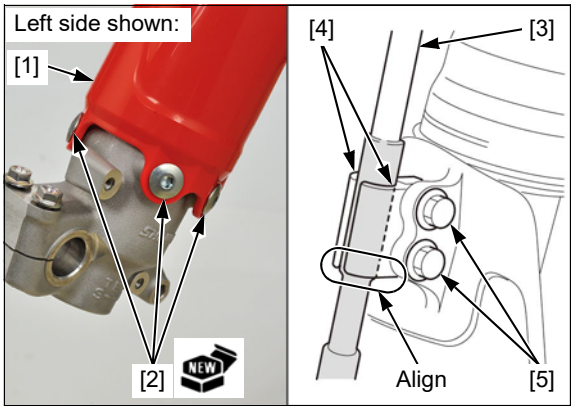
Install fork protector [1] and new fork protector bolts [2]. Tighten the fork protector bolts to the specified torque.

TORQUE: 7.0 N·m (0.7 kgf·m, 5.2 lbf·ft)

Clamp the brake hose [3] into the brake hose clamps [4]. Install the brake hose clamps onto the fork protector. Install the bolts [5] and tighten them securely.

NOTE:

- Align the lower ends of the brake hose clamps and brake hose protector.



Clean the clamping surface of the axle and axle holders.

Install the left side collar [1] and right side collar [2].

Install the front wheel between the fork legs.

Apply a thin coat of grease to the front axle [3] outer surface and insert it from the right side.

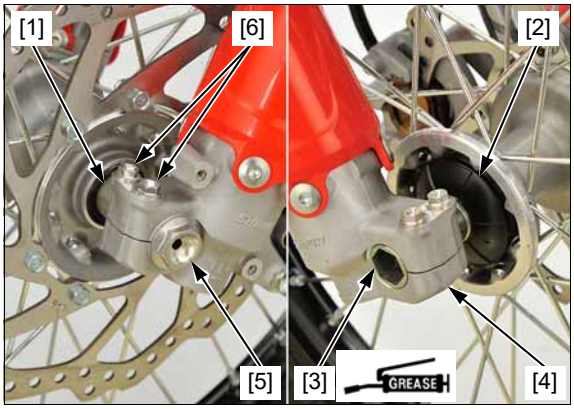
Align the surfaces of the front axle and right fork leg [4].

Install the front axle bolt [5] and tighten it to the specified torque while holding the axle.

TORQUE: 78 N·m (8.0 kgf·m, 58 lbf·ft)

Tighten the left axle holder pinch bolts [6] to the specified torque.

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)



Apply locking agent to the front brake caliper mounting bolt threads.

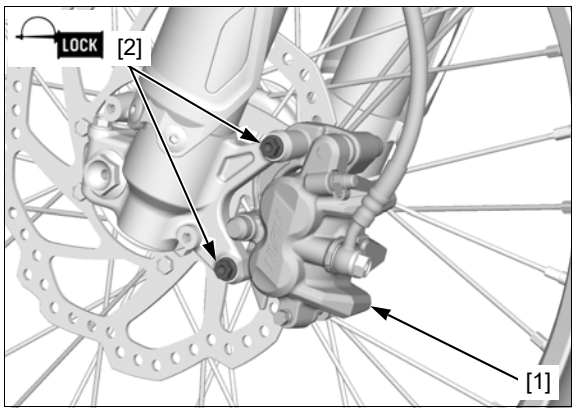
Install the front brake caliper [1] and front brake caliper mounting bolts [2].

NOTE:

- Be careful not to twist the brake hose when installing the front brake caliper.

Tighten the front brake caliper mounting bolts to the specified torque.

TORQUE: 30 N·m (3.1 kgf·m, 22 lbf·ft)

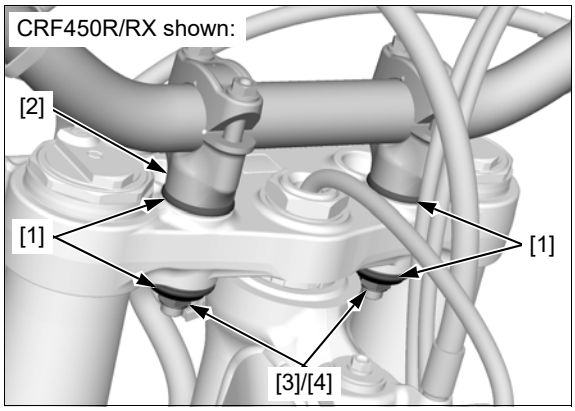


Install the following:

– Bushings [1]
– Handlebar assembly [2]
– Washers [3]
– Handlebar lower holder nuts [4]

Tighten the handlebar lower holder nuts to the specified torque.

TORQUE: 44 N·m (4.5 kgf·m, 32 lbf·ft)



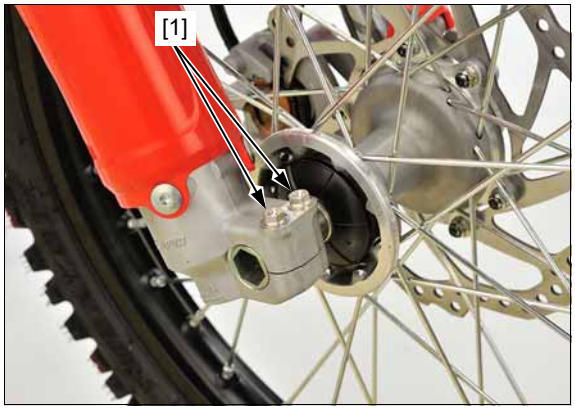
With the front brake applied, pump the front suspension up and down several times to seat the axle onto the axle holders.

Be sure the fork legs are parallel.

Tighten the right axle holder pinch bolts [1] to the specified torque.

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)

Confirm that the front axle becomes flush with the surface of the axle holder.

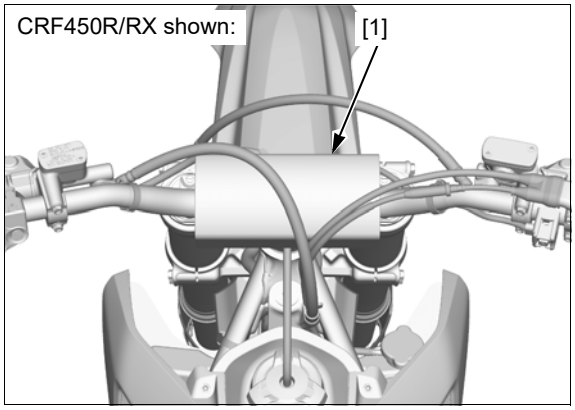


Install the handlebar pad [1] to the handlebar.

Install the following:

– Front number plate ➔1-5
– Front disc cover ➔1-6

Inspect the wear rings for wear or damage and check the installation direction ➔2-64.



NUTS, BOLTS, FASTENERS

Check that all chassis nuts and bolts are tightened to their correct torque values ➔2-3.

Refer to an official Honda Service Manual or see your dealer to other torque values that are not included in this manual.

Check that all safety clips, hose clamps and cable stays are in place and properly secured.

WHEELS/TIRES

Check the tires for cuts, embedded nails, or other damage.

Check the front wheel and rear wheel for trueness.

Check the tire pressure with a tire pressure gauge when the tires are cold.

COLD TIRE PRESSURE:
FRONT: 100 kPa (1.0 kgf/cm^2, 15 psi)
REAR: 100 kPa (1.0 kgf/cm^2, 15 psi)

Support the motorcycle securely and raise the front wheel off the ground.
Hold the fork leg and move the front wheel sideways with force to see if the wheel bearings are worn.

Support the motorcycle securely and raise the rear wheel off the ground.
Hold the swingarm and move the rear wheel sideways with force to see if the wheel bearings are worn.

Replace the front/rear wheel bearings if excessively worn.
Refer to an official Honda Service Manual or see your dealer to replace the bearings.

Inspect the wheel rims damage and runout.

WHEEL RIM RUNOUT:
SERVICE LIMIT:

FRONT:	**Radial:**	**1.0 mm (0.04 in)**
	Axial:	**1.0 mm (0.04 in)**
REAR:	**Radial:**	**1.0 mm (0.04 in)**
	Axial:	**1.0 mm (0.04 in)**

Inspect the spokes for damage.

Tighten any loose spokes to the specified torque using the spoke wrench [1].
Tighten the rim locks [2] to the specified torque.

TOOLS:

FRONT:	
Spoke Wrench 6.1	**07JMA-MR60100**
REAR:	
Nipple Wrench 6.6 mm	**070MA-KZ30100**

TORQUE:
Front/rear spoke: 3.7 N·m (0.4 kgf·m, 2.7 lbf·ft)
Front/rear rim lock: 12 N·m (1.2 kgf·m, 9 lbf·ft)

STEERING HEAD BEARINGS

Support the motorcycle securely and raise the front wheel off the ground.

Check that the handlebar moves freely from side-to-side.

Be sure the control cables do not interfere with handlebar rotation.

Move the fork back and forth to check the wear of the steering head bearing.

If there is an abnormally, check the steering top thread tightening and the steering head bearing, adjust or replace if necessary.

Refer to an official Honda Service Manual or see your dealer, to adjustment of steering top thread tightening and replace the steering head bearing.

SIDESTAND (CRF450RX)

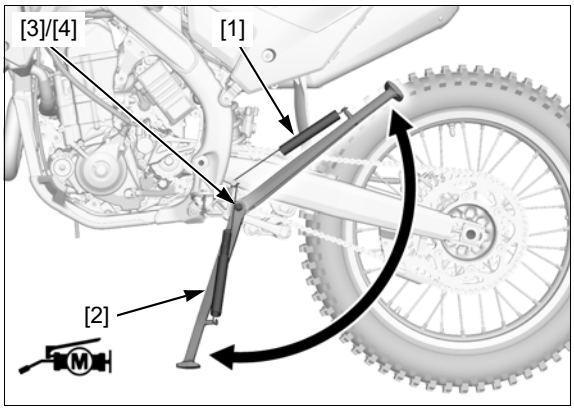
Check the sidestand spring [1] for damage or loss of tension and replace it if necessary.

Check the sidestand [2] for movement and lubricate the sidestand pivot sliding area with molybdenum disulfide grease if necessary.

Check the sidestand pivot bolt [3] and sidestand pivot nut [4] and tighten them to the specified torque if they are loose.

For sidestand REMOVAL/INSTALLATION ➔1-9

TORQUE:
Sidestand pivot bolt:
10 N·m (1.0 kgf·m, 7 lbf·ft)
Sidestand pivot nut:
39 N·m (4.0 kgf·m, 29 lbf·ft)

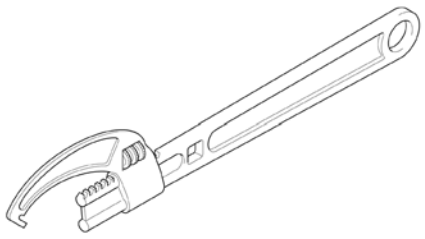


3. Setting Information

SERVICE INFORMATION

TOOL

Adjustable Pin Spanner (2 required)
07702-0020001

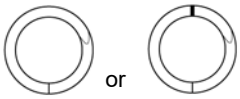


or Pin spanner A (2 required)
89201-KS6-810 (U.S.A. only)

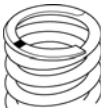
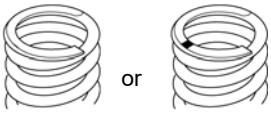
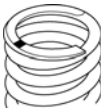
OPTIONAL PARTS

CRF450R/RWE

ITEM		REMARKS
MAINTENANCE:		
Workstand 		For maintenance
Pin spanner		Pin spanner A x 2 For shock absorber spring installed length (preload) adjustment (two required)
Air gauge		For checking tire air pressure
SPROCKET:		
Driven sprocket /chain link	Standard	49T (Aluminum)/114
	Optional	48T (Aluminum)/114, 50T (Aluminum)/114
DRIVE CHAIN:		CRF450R: DID 520DM2-120RB

FORK:			
ITEM	**TYPE**	**SPRING RATE**	**IDENTIFICATION MARK**
Spring	Soft	4.8 N/mm (27.4 lbf/in)	 No mark
	↕	5.0 N/mm (28.6 lbf/in)	 No mark (factory products) or 1 scribe mark (after market parts) [Standard spring]
	Stiff	5.2 N/mm (29.7 lbf/in)	 2 scribe marks

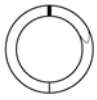
The factory-installed fork springs have no marks. Before replacing the springs, be sure to mark them so they can be distinguished from other optional springs.

SHOCK ABSORBER:			
ITEM	**TYPE**	**SPRING RATE**	**IDENTIFICATION MARK**
Spring	Soft	50 N/mm (285.5 lbf/in)	 Yellow paint
	↕	52 N/mm (296.9 lbf/in)	 No mark (factory products) or Black paint (after market parts) [Standard spring]
	Stiff	54 N/mm (308.3 lbf/in)	 Blue paint

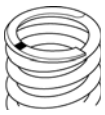
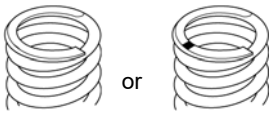
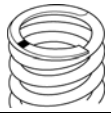
The factory-installed shock spring has no mark. Before replacing the spring, be sure to mark it so it can be distinguished from other optional springs.

CRF450RX

ITEM		REMARKS
MAINTENANCE:		
Workstand 		For maintenance
Pin spanner		Pin spanner A x 2 For shock absorber spring installed length (preload) adjustment (two required)
Air gauge		For checking tire air pressure
SPROCKET:		
Driven sprocket /chain link	Standard	50T (Aluminum)/114
	Optional	49T (Aluminum)/114, 51T (Aluminum)/116
DRIVE CHAIN:		RK 520EXU-120-LJFZ

FORK:			
ITEM	**TYPE**	**SPRING RATE**	**IDENTIFICATION MARK**
Spring	Soft	4.6 N/mm (26.3 lbf/in)	 1 scribe mark
	↕	4.8 N/mm (27.4 lbf/in)	 No mark [Standard spring]
	Stiff	5.0 N/mm (28.6 lbf/in)	 1 scribe mark

The factory-installed fork springs have no marks. Before replacing the springs, be sure to mark them so they can be distinguished from other optional springs.

SHOCK ABSORBER:			
ITEM	**TYPE**	**SPRING RATE**	**IDENTIFICATION MARK**
Spring	Soft	48 N/mm (274.1 lbf/in)	 Green paint
	↕	50 N/mm (285.5 lbf/in)	 or No mark (factory products) or Yellow paint (after market parts) [Standard spring]
	Stiff	52 N/mm (296.9 lbf/in)	 Black paint

The factory-installed shock spring has no mark. Before replacing the spring, be sure to mark it so it can be distinguished from other optional springs.

HANDLE POSITION

HOW TO CHANGE THE HANDLEBAR OPTIONAL POSITION

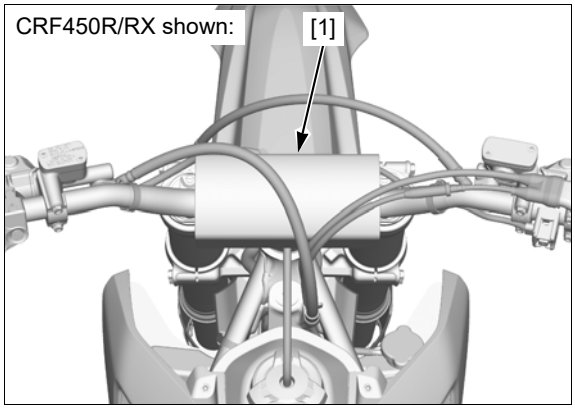
NOTE:

- The handlebar holder installation position on this motorcycle can be changed and it can be selected from the four installation positions.

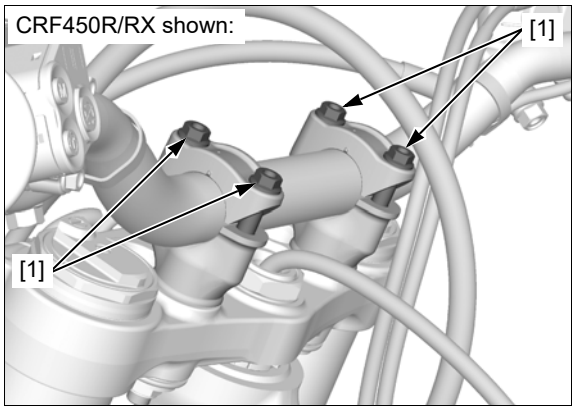
The handlebar setting position can be changed by moving the handlebar holder installation position back and forth.

The handlebar holder installation position can be changed as follows:

Remove the front number plate ➔1-5.
Remove the handlebar pad [1].

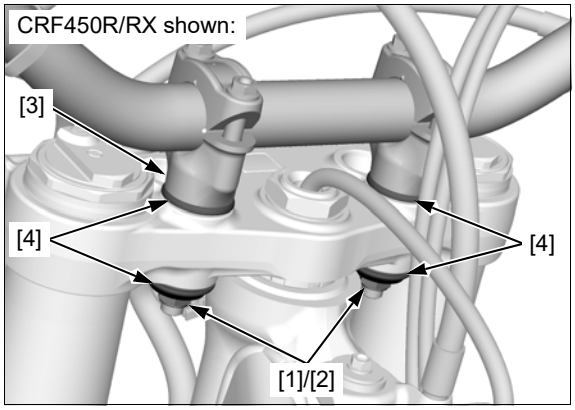


Loosen the handlebar upper holder bolts [1].



Remove the handlebar lower holder nuts [1] and washers [2].

Remove the handlebar/holder assembly [3] and bushings [4].



Install the bushings.

After adjusting the distance between the handlebar holders, install the handlebar/holder assembly in the optional installation position.

NOTE:

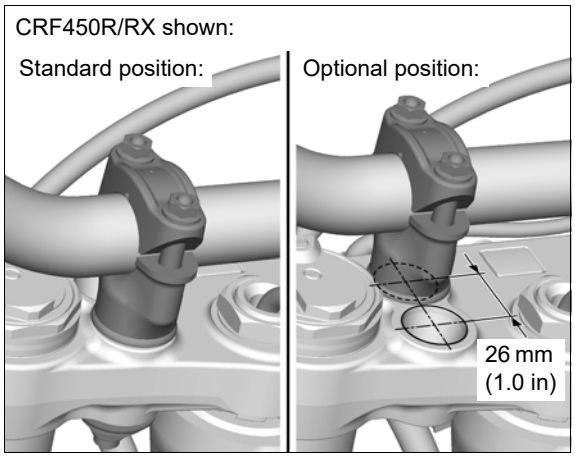
- The distance between the optional handlebar installation holes of the top bridge is narrow than that of the standard ones.
- The optional position is located 26 mm (1.0 in) ahead of the standard position.

Install the removed parts in the reverse order of removal.

TORQUE:
Handlebar lower holder nut:
44 N·m (4.5 kgf·m, 32 lbf·ft)
Handlebar upper holder bolt:
22 N·m (2.2 kgf·m, 16 lbf·ft)

NOTE:

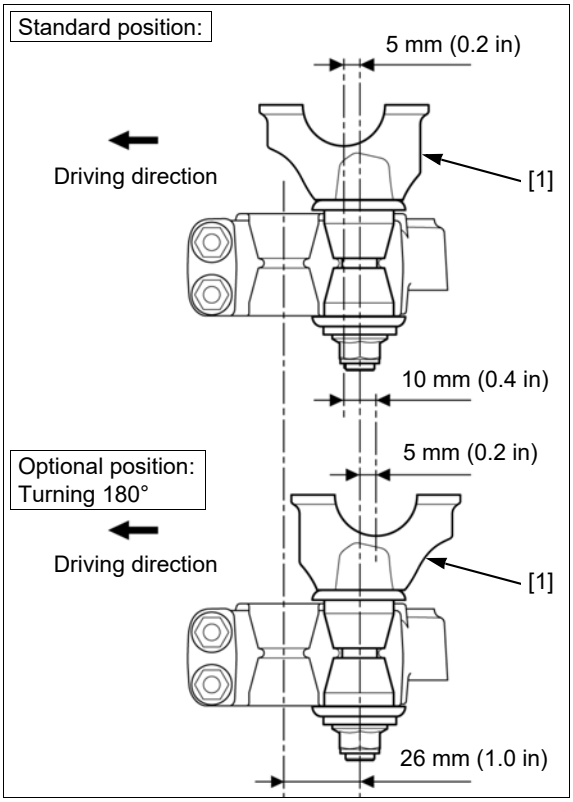
- When tightening the handlebar upper holder bolts, tighten the front bolts first, then the rear bolts to the specified torque.



The handlebar setting position can be changed by changing the directions of the handlebar lower holders [1].

NOTE:

- The handlebar setting position of the handlebar lower holder is offset 5 mm (0.2 in) from center line of the holder.
- The handlebar setting position can be offset 10 mm (0.4 in) behind the standard position by turning the handlebar lower holder 180°.



FRONT SUSPENSION SETTING

SETTING BASICS

The fork of this motorcycle can adjust compression/ rebound damping force and oil level according to rider's preference, weight and course conditions.

Exchange with an optional spring, the spring constant can be changed.

Follow the precautions below to make the correct setting.

- Suspension setting start is after riding the standard setting.
- Always adjust the fork air pressure to atmospheric pressure before running ➔3-6.
- If the fork is stiff or soft, check which stroke position is stiff or soft. If you fail to check it can not be accurately set.
- Always inspect and adjust to keep the best condition. (Example: Cleaning the dust seal, check for oil leak)
- If you stray from the setting, return to the standard setting and adjust again.

FORK ADJUST TO ATMOSPHERIC PRESSURE

Air pressure acts as a progressive spring and affects the entire range of fork travel.

Air is an unstable gas; it increases in pressure as it is worked (such as in a fork), so the fork action on this motorcycle will get stiffer as the race progresses.

Release built-up air pressure from the fork legs after practice and between motos.

Be sure the fork is fully extended with the front tire off the ground.

Loosen the fork plug bolt [1] fully.

Check that the O-ring [2] is in good condition and replace it if necessary.

Apply recommended fork oil to the O-ring.

Install and tighten the fork plug bolt to the specified torque.

TORQUE: 1.3 N·m (0.1 kgf·m, 1.0 lbf·ft)

HOW TO USE THE COMPRESSION DAMPING ADJUSTER

This adjustment affects how quickly the fork compresses.

The compression damping force can be adjusted from the stiffest to the softest with 16 clicks (4 clicks / 1 rotation) or more by the compression damping adjuster of the fork bolt.

CRF450R/RX:

Turning the adjuster clockwise (direction H) will be stiffer, turning it counterclockwise (direction S) will be softer.

CRF450RWE:

Turning the adjuster clockwise (direction +) will be stiffer, turning it counterclockwise (direction -) will be softer.

NOTE:

- Always start with stiffest position when adjusting damping.
- Do not turn more than 16 clicks from the stiffest position. It causes damage to the fork.
- Be sure to stop the adjuster at the click position.
- For suspension adjustment guideline ➔3-19.

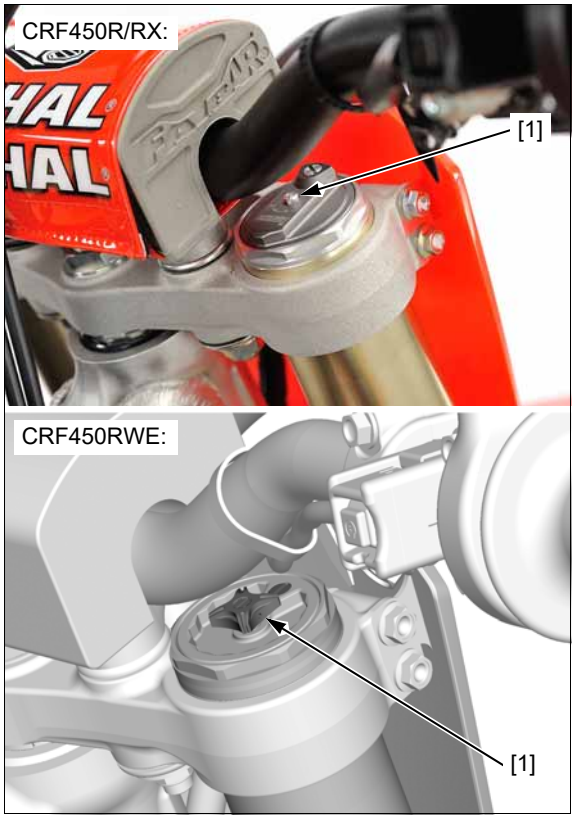
HOW TO SET THE STANDARD POSITION

1. **CRF450R/RX:**
   Turn the compression damping adjuster [1] clockwise (direction H) until it stops (stiffest position).
   CRF450RWE:
   Turn the compression damping adjuster [1] clockwise (direction +) until it stops (stiffest position).
2. **CRF450R/RX:**
   Turn the adjuster [1] counterclockwise (direction S).
   CRF450RWE:
   Turn the adjuster [1] counterclockwise (direction -).

   STANDARD POSITION (from stiffest position):

CRF450R:	**10 clicks (first click is "1" position)**
CRF450RX:	**9 clicks (first click is "1" position)**
CRF450RWE:	**11 clicks (first click is "1" position)**

3. Make sure to the same position on both sides.



HOW TO USE THE REBOUND DAMPING ADJUSTER

This adjustment affects how quickly the fork extends.

The rebound damping force can be adjusted from the stiffest to the softest with 16 clicks (4 clicks / 1 rotation) or more by the rebound damping adjuster of the fork center bolt.

Turning the adjuster clockwise (direction H) will be stiffer, turning it counterclockwise (direction S) will be softer.

NOTE:

- Always start with stiffest position when adjusting damping.
- Do not turn more than 16 clicks from the stiffest position. It causes damage to the fork.
- Be sure to stop the adjuster at the click position.
- For suspension adjustment guideline ➔3-19.

HOW TO SET THE STANDARD POSITION

1. Turn the rebound damping adjuster [1] clockwise (direction H) until it stops (stiffest position).
2. Turn the adjuster counterclockwise (direction S).

STANDARD POSITION (from stiffest position):

CRF450R:	**8 clicks (first click is "1" position)**
CRF450RX:	**14 clicks (first click is "1" position)**
CRF450RWE:	**9 clicks (first click is "1" position)**

3. Make sure to the same position on both sides.

FORK SPRING CHANGE/FORK OIL CHANGE

For the rider's preference, weight and course conditions, the amount of conforming fork oil and the conforming spring will change.

NOTE:

- For suspension adjustment guideline ➔3-19
- For fork oil change ➔2-67
- For fork spring change ➔2-69
- For optional spring types ➔3-3

The amount of fork tube oil for the used spring to can be adjusted within the range of the following table.

CRF450R

	Maximum fork oil capacity	Standard fork oil capacity	Minimum fork oil capacity
Softer spring	385 cm^3 (13.0 US oz, 13.6 Imp oz)	307 cm^3 (10.4 US oz, 10.8 Imp oz)	300 cm^3 (10.1 US oz, 10.6 Imp oz)
Standard spring	388 cm^3 (13.1 US oz, 13.7 Imp oz)	310 cm^3 (10.5 US oz, 10.9 Imp oz)	303 cm^3 (10.2 US oz, 10.7 Imp oz)
Stiffer spring	391 cm^3 (13.2 US oz, 13.8 Imp oz)	313 cm^3 (10.6 US oz, 11.0 Imp oz)	306 cm^3 (10.3 US oz, 10.8 Imp oz)

CRF450RX

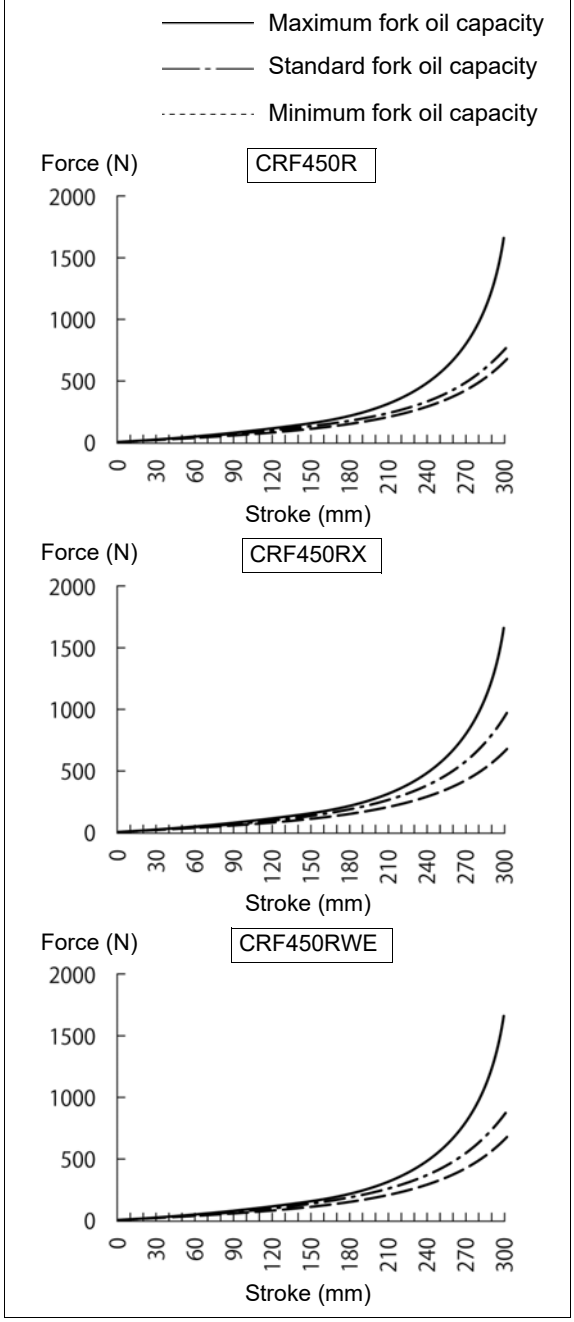
	Maximum fork oil capacity	Standard fork oil capacity	Minimum fork oil capacity
Softer spring	389 cm^3 (13.2 US oz, 13.7 Imp oz)	341 cm^3 (11.5 US oz, 12.0 Imp oz)	304 cm^3 (10.3 US oz, 10.7 Imp oz)
Standard spring	375 cm^3 (12.7 US oz, 13.2 Imp oz)	327 cm^3 (11.1 US oz, 11.5 Imp oz)	289 cm^3 (9.8 US oz, 10.2 Imp oz)
Stiffer spring	378 cm^3 (12.8 US oz, 13.3 Imp oz)	330 cm^3 (11.2 US oz, 11.6 Imp oz)	292 cm^3 (9.9 US oz, 10.3 Imp oz)

CRF450RWE

	Maximum fork oil capacity	Standard fork oil capacity	Minimum fork oil capacity
Softer spring	382 cm^3 (12.9 US oz, 13.4 Imp oz)	322 cm^3 (10.9 US oz, 11.3 Imp oz)	296 cm^3 (10.0 US oz, 10.4 Imp oz)
Standard spring	385 cm^3 (13.0 US oz, 13.6 Imp oz)	325 cm^3 (11.0 US oz, 11.4 Imp oz)	299 cm^3 (10.1 US oz, 10.5 Imp oz)
Stiffer spring	388 cm^3 (13.1 US oz, 13.7 Imp oz)	328 cm^3 (11.1 US oz, 11.5 Imp oz)	303 cm^3 (10.2 US oz, 10.7 Imp oz)

As shown in the graph, the spring characteristic changes depending on the oil amount. Increasing the amount of oil makes it stiffer near the full stroke, and decreases the amount of oil makes it softer near the full stroke.

Change in spring character depending on the amount of fork tube oil (When using standard spring):



NOTE:

- The amount of the fork tube oil should be the same on the left and right.
- Do not use below the minimum oil capacity. The rebound damping force does not work near the full stroke.
- When riding, the fork air pressure increases.
  When the oil capacity is increased, the air pressure increases faster.
  For fork adjust to atmospheric pressure ➔3-6

REAR SUSPENSION SETTING

SETTING BASICS

⚠WARNING

The shock absorber contains nitrogen under high pressure. Be sure to observe the following.
– Do not heat the damper unit. There is a danger of explosion or oil blowing out.
– When discard the shock absorber, be sure to remove the valve core and remove the gas from the damper unit ➔3-18.

The shock absorber of this motorcycle can adjust high speed/low speed compression damping force, rebound damping force and spring install length to rider's preference, weight and course conditions.

The spring constant can be changed by exchanging with an optional spring.
Follow the precautions below to make the correct setting.

NOTE:
- After riding the standard setting, start the suspension setting.
- For adjustment of the damping adjusters:
  – High speed compression damping adjuster ➔3-10
  – Low speed compression damping adjuster ➔3-11
  – Rebound damping adjuster ➔3-11
- If you stray from the setting, return to the standard setting and adjust again.

HOW TO USE THE HIGH SPEED COMPRESSION DAMPING ADJUSTER

The high speed compression damping adjuster is effective when damping adjustment is desired for high speed operation.

The high speed compression damping force can be adjusted 4 1/2 total turns, from stiffest to softest by the high speed compression damping adjuster on the right upper side of the shock absorber.

Turning the adjuster clockwise (direction H) will be stiffer, turning it counterclockwise (direction S) will be softer.

NOTE:
- Be sure to turning the adjuster by 1/12 turn at a time.
- For suspension adjustment guideline ➔3-19.

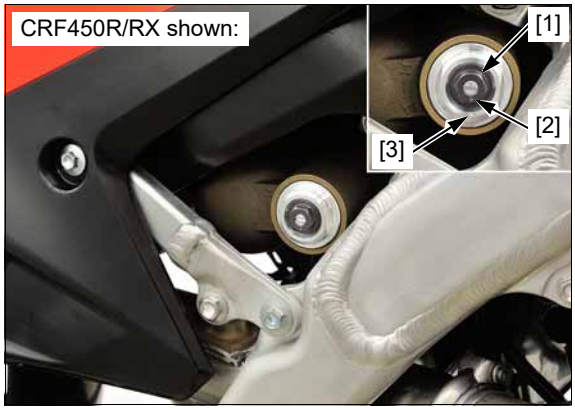
HOW TO SET THE STANDARD POSITION

1. Turn the high speed compression damping adjuster [1] clockwise (direction H) until it stops (stiffest position).
2. Turn the adjuster counterclockwise (direction S) from the stiffest position.

STANDARD POSITION (from stiffest position):

CRF450R:	**1 1/2**
CRF450RX:	**2 2/12**
CRF450RWE:	**1 2/12**

Within ±1/4 turn from standard position, align its punch mark [2] with the punch mark [3] on the adjuster body (CRF450R/RX).



HOW TO USE THE LOW SPEED COMPRESSION DAMPING ADJUSTER

The low speed compression damping adjuster should be used when damping adjustment is desired at relatively low speeds.

The low speed compression damping force can be adjusted from the stiffest to the softest with 19 clicks (4 clicks/1 rotation) or more by the low speed damping compression damping adjuster on the right upper side of the shock absorber.

Turning the adjuster clockwise (direction H) will be stiffer, turning it counterclockwise (direction S) will be softer.

NOTE:
- Turn the adjuster with the correct size tool.
- Be sure to stop the adjuster at the click position.
- For suspension adjustment guideline ➔3-19.

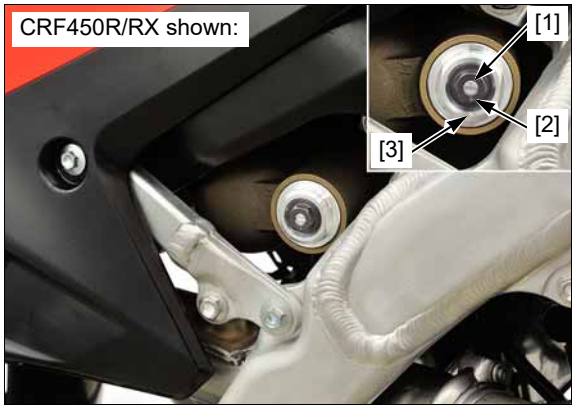
HOW TO SET THE STANDARD POSITION

1. Turn the low speed compression damping adjuster [1] clockwise (direction H) until it stops (stiffest position).
2. Turn the adjuster counterclockwise (direction S).

STANDARD POSITION (from stiffest position):

CRF450R:	**8 clicks (first click is “1” position)**
CRF450RX:	**9 clicks (first click is “1” position)**
CRF450RWE:	**7 clicks (first click is “1” position)**

3. Make sure that the adjuster punch mark [2] aligns the punch mark [3] on the adjuster body (CRF450R/RX).



HOW TO USE THE REBOUND DAMPING ADJUSTER

This adjustment affects how quickly the shock absorber extends.

The rebound damping force can be adjusted from the softest to the stiffest with 22 clicks (6 clicks / 1 rotation) or more by the rebound damping adjuster on the lower right side of the shock absorber.

Turning the adjuster clockwise (direction H) will be stiffer, turning it counterclockwise (direction S) will be softer.

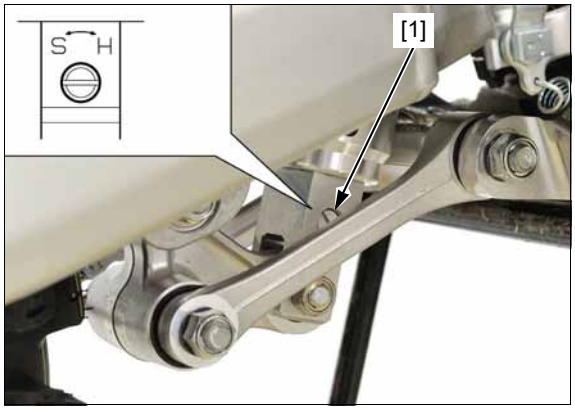
NOTE:
- Turn the adjuster with the correct size tool.
- Be sure to stop the adjuster at the click position.
- For suspension adjustment guideline ➔3-19.

HOW TO SET THE STANDARD POSITION

1. Turn the rebound damping adjuster [1] clockwise (direction H) until it stops (stiffest position).
2. Turn the adjuster counterclockwise (direction S).

STANDARD POSITION (from stiffest position):

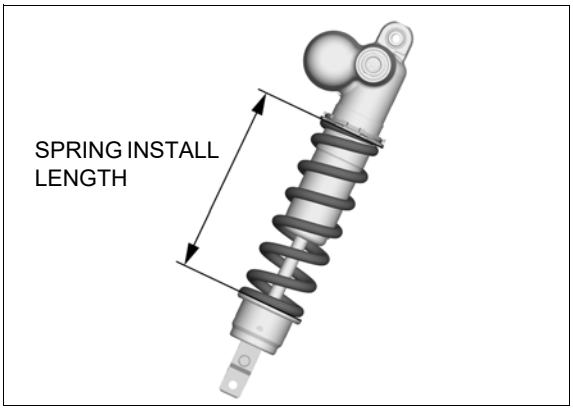
CRF450R:	**9 – 12 clicks (first click is “1” position)**
CRF450RX:	**13 – 16 clicks (first click is “1” position)**
CRF450RWE:	**8 – 11 clicks (first click is “1” position)**



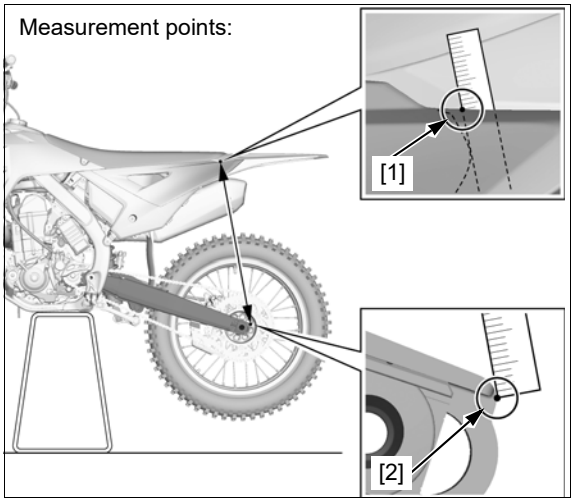
RACE SAG ADJUSTMENT

Adjust the race sag with the following procedure.

1. Raise the rear wheel off the ground by placing a workstand or equivalent under the engine.
   Measure the spring install length.



2. Raise the rear wheel off the ground by placing a workstand or equivalent under the engine.
   Measure the length between the left side cover end [1] and swingarm end [2].



3. Set the motorcycle weight to the time of race.
   - Add fuel until the level reaches the bottom of the filler neck.
   - Check the engine oil level.
   - Check the coolant level.
   Remove the workstand or equivalent.
   Sit on the seat and move the suspension with rider's weights two or three times.

4. Support the motorcycle and the rider vertical.
   Measure the length between the left side cover end and swingarm end as same manner of the unloaded.
   Calculate the race sag dimension. To do this, subtract the loaded with rider dimension from the unloaded dimension.

Example:

Unloaded	**625 mm (24.6 in)**
Loaded	**- 525 mm (20.7 in)**
Race sag	**= 100 mm (3.9 in)**

Standard Race Sag (Standard spring):
100 mm (3.9 in)

If the race sag is shorter than the standard length, adjust the spring install length long and check again ➔3-13.
If the race sag does not become the standard length even if it is adjusted, refer to the “SHOCK ABSORBER SPRING CHANGE” procedure and replace with the optional soft spring and check again ➔3-14.

Standard Race Sag (Soft spring):
105 – 110 mm (4.1 – 4.3 in)

If the race sag is longer than the standard length, adjust the spring install length short and check again ➔3-13.
If the race sag does not become the standard length even if it is adjusted, refer to the “SHOCK ABSORBER SPRING CHANGE” procedure and replace with the optional stiff spring and check again ➔3-14.

Standard Race Sag (Stiff spring):
90 – 95 mm (3.5 – 3.7 in)

SPRING INSTALL LENGTH ADJUSTMENT

Remove the following:

– Right side cover ➔1-5
– Muffler ➔1-10

Measure and record the spring install length.

Loosen the shock absorber spring adjuster lock nut [1] using a special tool or an optional pin spanner.

Raise the rear wheel off the ground by placing a workstand or equivalent under the engine.

Turn the spring adjuster [2] to adjust the spring install length using a special tool or an optional pin spanner.

TOOLS:

Adjustable Pin Spanner (2 required)	**07702-0020001 or**
Pin spanner A (2 required)	**89201-KS6-810 (U.S.A. only)**

SPRING INSTALL LENGTH (CRF450R):
Standard: 232.2 mm (9.14 in)

	Spring rate	Adjustment range
Soft	50 N/mm (285.5 lbf/in)	223.9 – 233.0 mm (8.81 – 9.20 in)
↕	52 N/mm (296.9 lbf/in) [Standard spring]	222.2 – 233.0 mm (8.75 – 9.20 in)
Stiff	54 N/mm (308.3 lbf/in)	224.1 – 233.0 mm (8.82 – 9.20 in)

SPRING INSTALL LENGTH (CRF450RX):
Standard: 231.0 mm (9.09 in)

	Spring rate	Adjustment range
Soft	48 N/mm (274.1 lbf/in)	221.8 – 233.0 mm (8.73 – 9.20 in)
↕	50 N/mm (285.5 lbf/in) [Standard spring]	223.9 – 233.0 mm (8.81 – 9.20 in)
Stiff	52 N/mm (296.9 lbf/in)	222.2 – 233.0 mm (8.75 – 9.20 in)

SPRING INSTALL LENGTH (CRF450RWE):
Standard: 232.1 mm (9.14 in)

	Spring rate	Adjustment range
Soft	50 N/mm (285.5 lbf/in)	223.9 – 233.0 mm (8.81 – 9.20 in)
↕	52 N/mm (296.9 lbf/in) [Standard spring]	222.2 – 233.0 mm (8.75 – 9.20 in)
Stiff	54 N/mm (308.3 lbf/in)	224.1 – 233.0 mm (8.82 – 9.20 in)

NOTE:

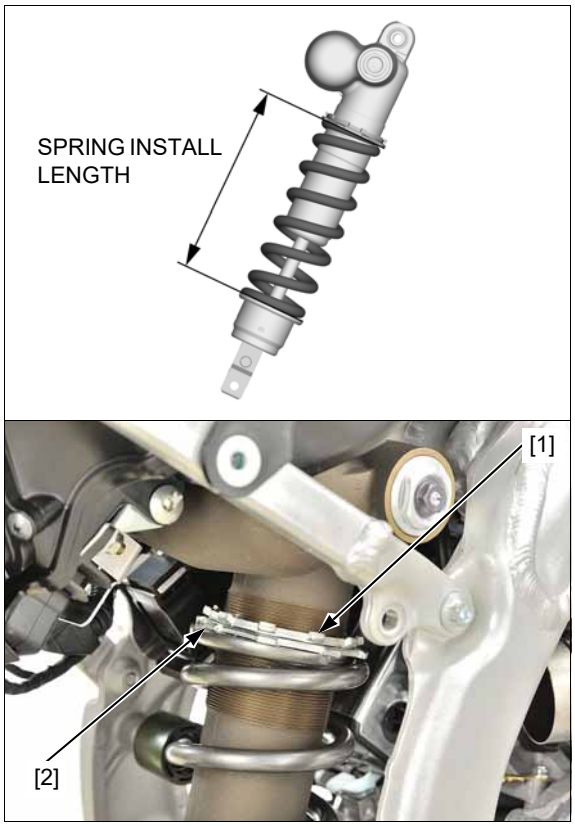
- In the case of standard springs, the spring preload changes by 1.5 mm for one turn of the spring adjuster, 84 N for CRF 450 R/RWE, 75 N for CRF 450 RX.

After adjustment, tighten the shock absorber spring adjuster lock nut to the specified torque using a special tool or an optional pin spanner.

TORQUE: 44 N·m (4.5 kgf·m, 32 lbf·ft)

Install the following:

– Muffler ➔1-10
– Right side cover ➔1-5



SHOCK ABSORBER SPRING CHANGE

Raise the rear wheel off the ground by placing a workstand or equivalent under the engine.

Remove the following:

– Side covers ➔1-5
– Muffler ➔1-10

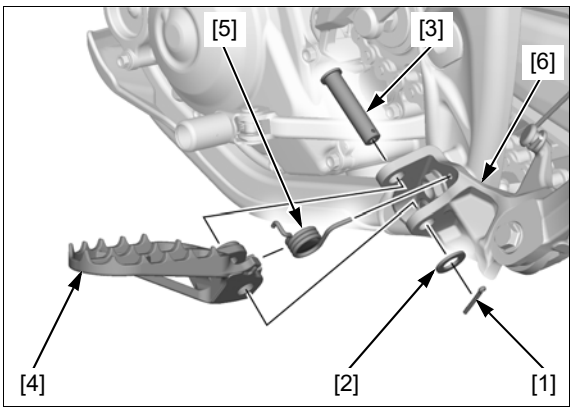
If you plan to disassemble the shock absorber, perform the following procedures.

– Measure and record the spring set length.
– Loosen the shock absorber spring adjuster lock nut [1] and spring adjuster [2] completely using the special tool or optional pin spanner.

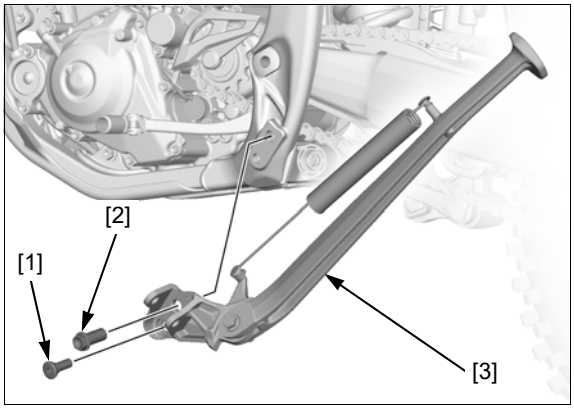
TOOLS:

Adjustable Pin Spanner (2 required)	**07702-0020001 or**
Pin spanner A (2 required)	**89201-KS6-810 (U.S.A. only)**

CRF450RX: Remove the cotter pin [1], washer [2], step joint pin [3], step arm [4] and return spring [5] from the left step bracket [6].

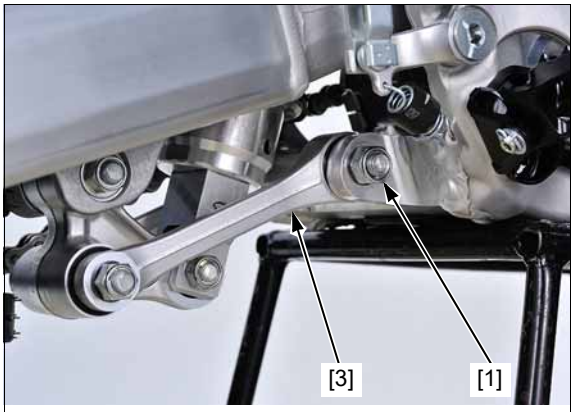


CRF450RX: Remove the socket bolt [1], flange bolt [2] and step bracket/sidestand assembly [3] from the frame.



Remove the cushion connecting rod nut (frame side) [1] while holding the link A bolt [2].

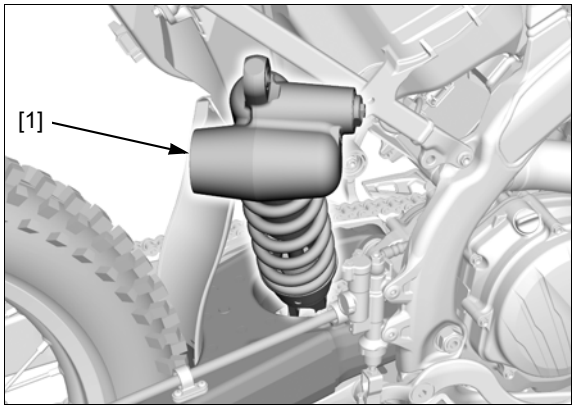
Remove the link A bolt and release the cushion connecting rod [3] from the frame.



Remove the shock absorber lower mounting nut [1] and bolt [2].

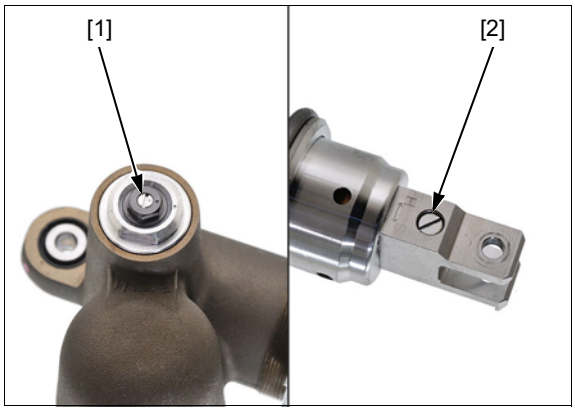
Remove the shock absorber upper mounting nut [3] and bolt [4].

Temporarily lower the shock absorber [1], then rotate it approximately 90 degrees counterclockwise and remove it upward as shown.



Record the current positions of the low speed side compression damping adjuster [1] and rebound damping adjuster [2].

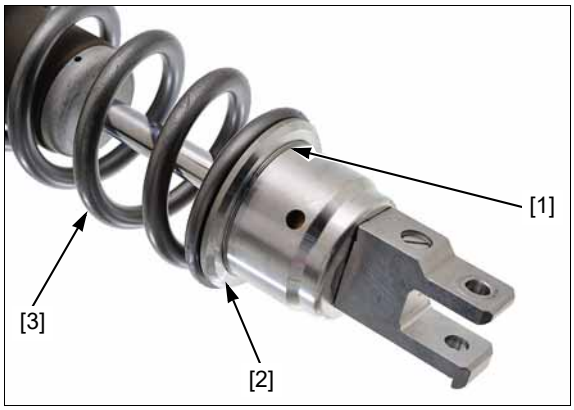
Turn the low speed side compression damping adjuster and rebound damping adjuster counterclockwise (S direction) to the softest position.



Remove the stopper ring [1].

Remove the spring seat [2] and spring [3].

For optional spring types ➔3-3

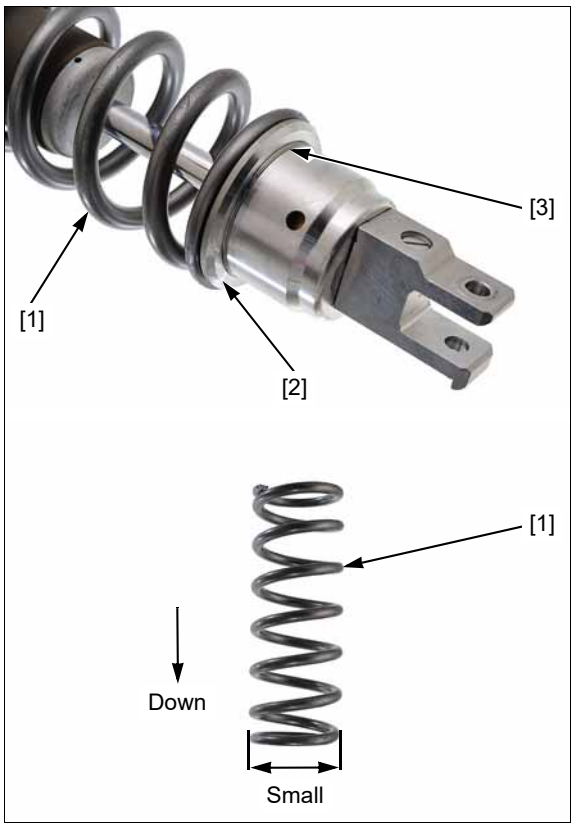


Install the spring [1] with the small diameter side facing down.

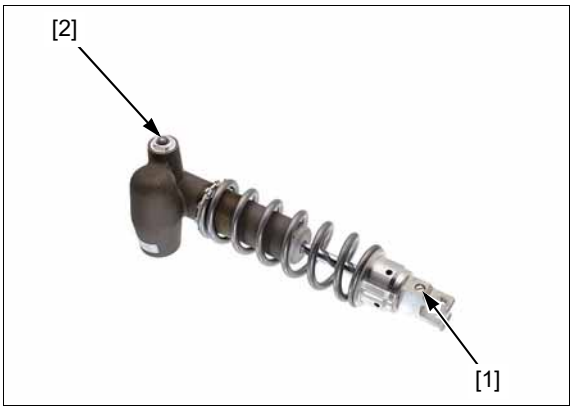
Install the spring seat [2].

Install the stopper ring [3].

Check that the stopper ring is seated securely into the groove in the damper unit.



Position the rebound damping adjuster [1] in the same direction as the compression damping adjuster [2].



Turn the spring adjuster [1] until the spring length measurement recorded at disassembly is reached or until the spring length is as specified below.

STANDARD SPRING LENGTH:

CRF450R:	**232.2 mm (9.14 in)**
CRF450RX:	**231.0 mm (9.09 in)**
CRF450RWE:	**232.1 mm (9.14 in)**

NOTE:

- One turn of the spring adjuster changes the spring length by 1.5 mm (0.06 in).

Hold the spring adjuster and tighten the shock absorber spring adjuster lock nut [2] to the specified torque.

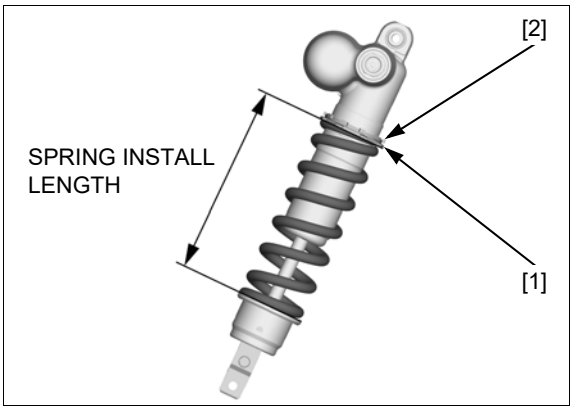
TOOLS:

Adjustable Pin Spanner (2 required)	**07702-0020001 or**
Pin spanner A (2 required)	**89201-KS6-810 (U.S.A. only)**

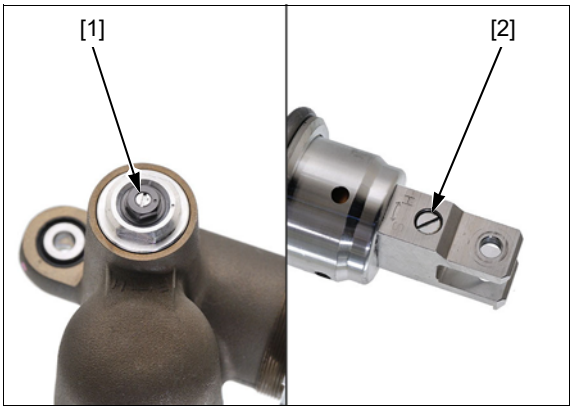
TORQUE: 44 N·m (4.5 kgf·m, 32 lbf·ft)

Use this standard spring length as the baseline.

For spring install length adjustment ➔3-13



Return the low speed side compression damping adjuster [1] and rebound damping adjuster [2] to the original positions as noted during disassembly.



Carefully maneuver the shock absorber into place in the reverse order of removal.

Install the following:

– Shock absorber upper mounting bolt [1]
– Shock absorber upper mounting nut [2]
– Shock absorber lower mounting bolt [3]
– Shock absorber lower mounting nut [4]

NOTE:

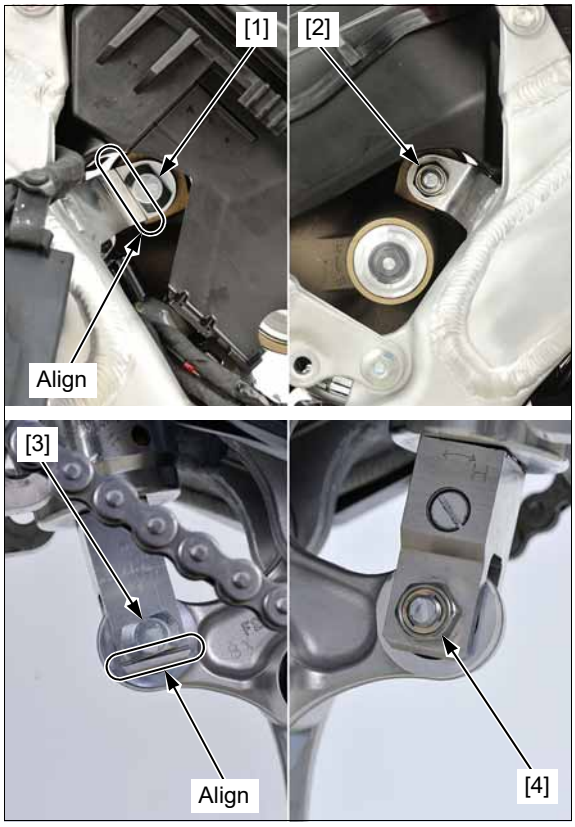
- Align the flat surfaces of the mounting bolts with the stoppers.
- Make sure that the compression and rebound damping adjusters facing right side.

Tighten the shock absorber mounting nuts to the specified torque.

TORQUE: 44 N·m (4.5 kgf·m, 32 lbf·ft)

Install the following:

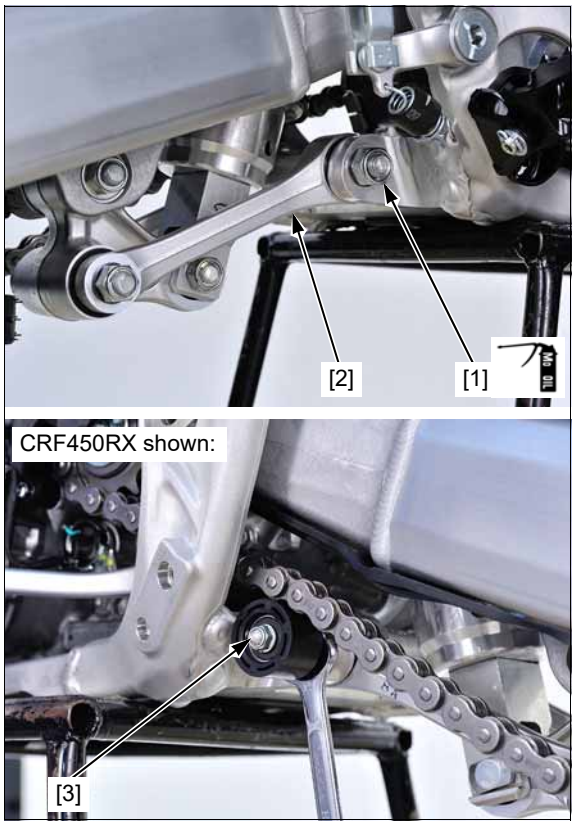
– Muffler ➔1-10
– Side covers ➔1-5



Apply molybdenum oil solution to the threads and seating surfaces of the cushion connecting rod nut [1].

Install the cushion connecting rod [2], link A bolt [3] and tighten the cushion connecting rod nut to the specified torque while holding the link A bolt.

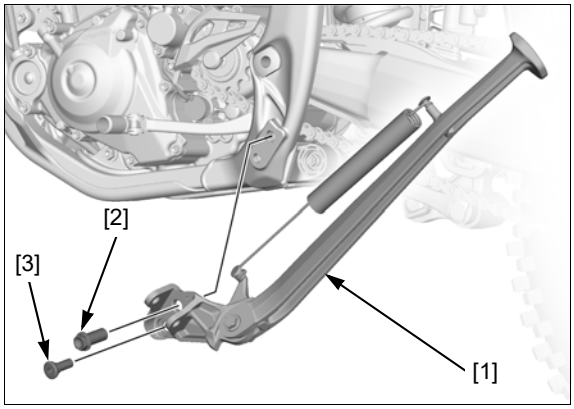
TORQUE: 52 N·m (5.3 kgf·m, 38 lbf·ft)



CRF450RX: Install the step bracket/sidestand assembly [1] with the step bracket bolt [2] and socket bolt [3].

Tighten the bolts to the specified torque.

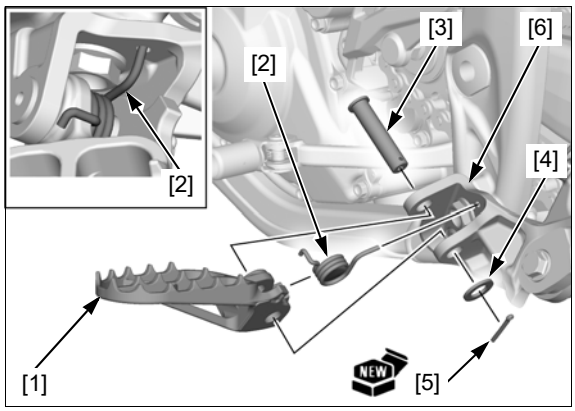
TORQUE:
Step bracket bolt:
54 N·m (5.5 kgf·m, 40 lbf·ft)
Step bracket socket bolt:
29 N·m (3.0 kgf·m, 21 lbf·ft)



CRF450RX: Install the step arm [1], return spring [2], step joint pin [3], washer [4] and a new cotter pin [5] to the left step bracket [6].

NOTE:

- Install the step arm return spring as shown.



DAMPER UNIT NITROGEN RELEASE (WHEN DISCARDING THE DAMPER UNIT)

The shock absorber contains nitrogen under high pressure. Be sure to observe the following.

⚠WARNING

- Do not heat the damper unit. There is a danger of explosion or oil blowing out.
- When discarding the shock absorber, be sure to remove the valve core and remove the gas from the damper unit.

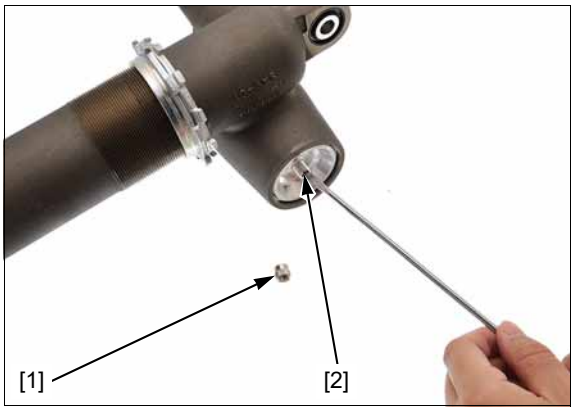
Remove the valve cap [1].

Depress the valve core [2] to release the nitrogen from the reservoir completely.

NOTE:

- Point the valve away from you to prevent debris getting in your eyes.

Remove the valve core after gas has release completely and discard the damper unit.



SUSPENSION ADJUSTMENT GUIDELINE

FORK SETTING

• 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.

Symptom		Action
Stiff suspension	Initial travel too stiff: • Stiff on small bumps while riding at full throttle in a straight line. • Stiff on small cornering bumps. • Front end wanders while riding at full throttle in a straight line.	1. Test softer compression damping adjustments in one-click increments. 2. Reduce the rebound damping adjustments in one-click increments. 3. Check for dirt in the dust seals. Check the fork oil for any contamination. Note: If the front end dives while cornering after the above adjustment: Reduce the rebound damping in one-click increments. If that doesn't solve the problem, install the optional stiff spring. If the stiff spring makes the suspension too stiff over the full range of travel: test softer compression damping adjustments in one-click increments until the desired compression damping for initial travel is obtained.
	Middle travel too stiff: • Stiff on bumps when cornering. • Front end wanders when cornering. • Stiff suspension on bumps, especially downhill bumps. • While braking, front end dives during initial travel, then feels stiff.	If initial travel isn't stiff: – Test stiffer compression damping adjustments in one-click increments. (This should produce smooth fork action from initial to middle travel.) If initial and middle travel is stiff: – Test softer compression damping adjustments in one-click increments. – Reduce the rebound damping in one-click increments.
	Final travel too stiff: • Doesn't bottom on landings, but feels stiff. • Stiff on large bumps, especially downhill bumps. • Stiff on large bumps when cornering.	If initial and middle travel aren't stiff: – Test stiffer compression damping adjustments in one-click increments. (This should produce smooth fork action from initial to middle travel.) If final travel is still stiff after the above adjustment, or If initial and middle travel becomes stiff: – Install the optional soft spring. – Test softer compression damping adjustments in one-click increments. If the entire travel feels stiff after the above adjustment: – Test softer compression damping adjustments in one-click increments until the desired initial travel compression damping is obtained. – Lower the oil capacity by 5 cm^3 (0.2 US oz, 0.2 Imp oz).
	Entire travel too stiff: • Stiff suspension on any type of terrain.	– Test softer compression damping adjustments in one-click increments. – Reduce the rebound damping in one-click increments. – Lower the oil capacity by 5 cm^3 (0.2 US oz, 0.2 Imp oz).

Symptom		Action
Soft suspension	Initial travel too soft: • Steering is too quick. • Front end darts while cornering or riding in a straight line.	– Test stiffer compression damping adjustments in one-click increments. – Test stiffer rebound damping in one-click increments.
	Middle travel too soft: • Front end dives when cornering.	If suspension isn't stiff in initial travel: – Test stiffer compression damping adjustments in one-click increments. If initial travel becomes stiff because of the above adjustment: – Reduce the rebound damping in one-click increments. – Test softer compression damping adjustments in one-click increments. If that doesn't solve the problem, install the optional stiff spring.
	Final travel too soft: • Bottoms on landings. • Bottoms on large bumps, especially downhill bumps.	1. If initial and middle travel aren't stiff: – Test stiffer compression damping adjustments in one-click increments. 2. If initial and middle travel are stiff: – Install the optional stiff spring. If initial travel is stiff after installing the optional stiff spring: – Test softer 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. 3. If final travel is still soft after installing the optional stiff spring: – Increase the fork oil capacity 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 one-click increments.

REAR SUSPENSION SETTING

• 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 an optional stiff spring. – Reduce standard Race Sag –5 to –10 mm (–0.2 to –0.4 in).

NOTE:

• The race sag means the difference in length from the center of the left side rear fender bolt to the center of the drive chain adjuster lock nut in the loaded and the unloaded (the state in which the rear wheel has been released from the ground).

Race sag 90 – 95 mm: Hard setting
100 mm: Standard setting
105 – 110 mm: Soft setting

• Adjust the race sag between 90 – 110 mm.
• After riding, the lowering of the height may be due to the release of nitrogen gas, so check the damper unit.

• Depending on the feeling in the test ride, gradually change the setting in the direction of adjustment "1." corresponding to the symptom.
If you make the too much change amount at once, another symptom will occur, making it difficult to find the optimal setting.
– Low speed compression damping adjuster: Adjust one click at a time.
– High speed compression damping adjuster: Adjust each 1/12 turn at a time.
– Rebound damping adjuster: Adjust one click at a time.
– Spring: Replace spring rate with upper and lower one rank at a time.
• If the change in feeling is small (improvement is not enough) even if the adjustment of "1." is repeatedly executed, adjust "2.".
• After adjusting "1", if there is another symptom, adjust "1" of that item.

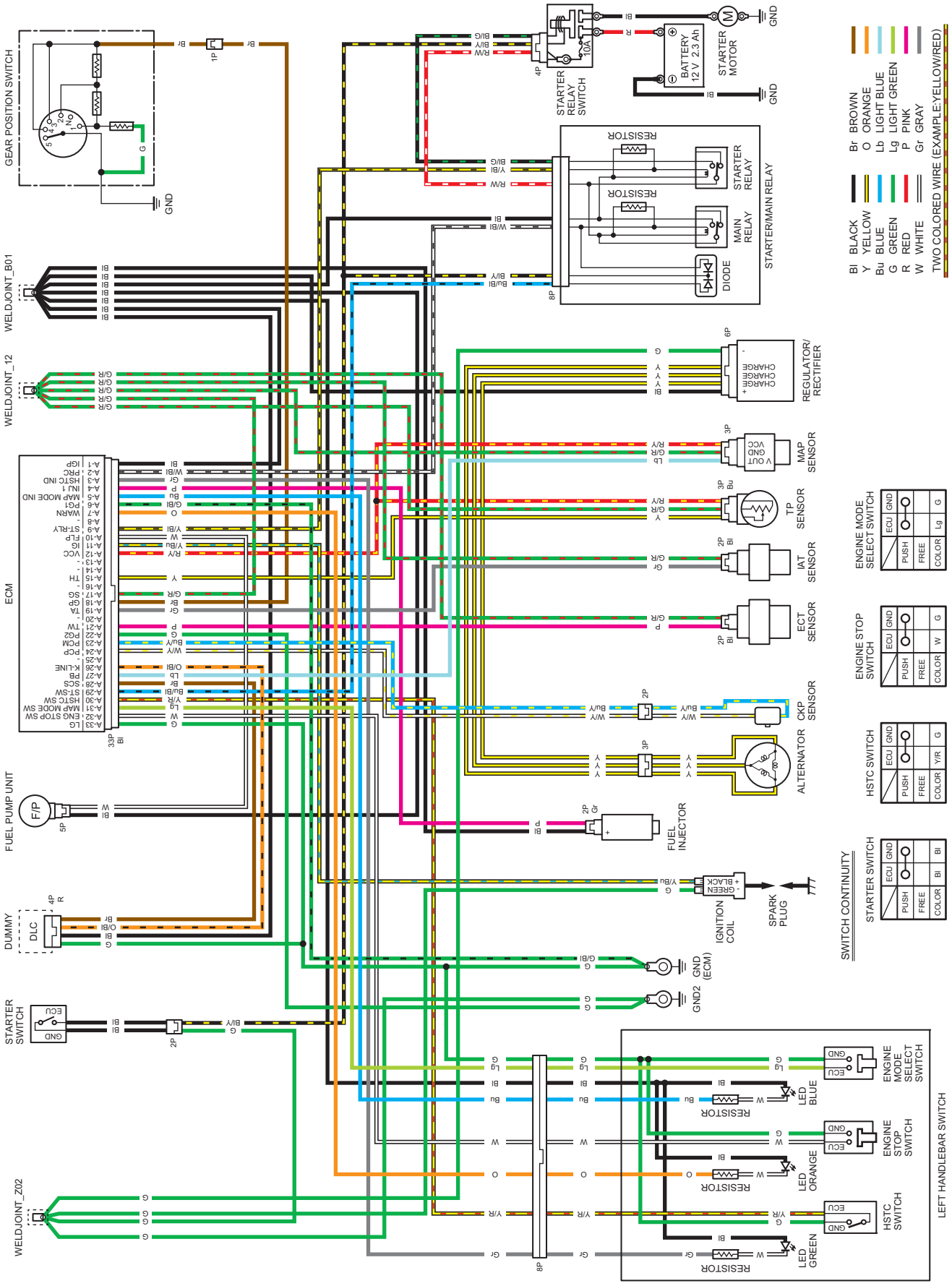
Symptom		Action	Compression damping adjuster		Rebound damping adjuster	Spring rate
			Low speed	High speed		
Stiff suspension	Suspension feels stiff on small bumps	1. Test softer low speed compression adjustment.	↓	-	-	-
		2. If it still feels stiff, further test softer low and high speed compression adjustments simultaneously.	↓	↓	-	-
	Suspension feels stiff on large bumps	1. Test softer high speed compression adjustment.	-	↓	-	-
		2. If it still feels stiff, further test softer low and high speed compression adjustments simultaneously.	-	↓	↓	-
	Entire travel too stiff	1. Test softer high and low speed compression adjustments and rebound adjustment simultaneously.	↓	↓	↓	-
		2. If it still feels stiff, replace the spring with an optional soft spring and begin with the standard settings to softer settings.	↓	↓	↓	↓
Soft suspension	Entire travel too soft	1. Test stiffer high and low speed compression adjustments simultaneously.	↑	↑	-	-
		2. If it still feels soft, replace the spring with an optional stiff spring and begin with the standard settings to stiffer setting.	↑	↑	-	↑
	Rear end sways	1. Test stiffer high and low speed compression adjustments and rebound adjustment to stiffer settings simultaneously.	↑	↑	↑	-
Suspension bottoms	Suspension bottoms at landing after jumping	1. Test stiffer high speed compression adjustment.	-	↑	-	-
		2. If it still bottoms, test stiffer high and low speed compression adjustments, and replace the spring with a stiff spring (optional) if necessary.	↑	↑	-	↑
	Suspension bottoms after landing	1. Test stiffer low speed compression adjustment.	↑	-	-	-
		2. If it still bottoms, test stiffer high and low speed compression adjustments, and replace the spring with a stiff spring (optional) if necessary.	↑	↑	-	↑
	Suspension bottoms after end of continuous bumps	1. Test softer rebound damping adjustment.	-	-	↓	-
		2. If it still bottoms, test stiffer high and low speed compression adjustments and softer rebound damping adjustment, and replace the spring with an optional stiff spring if necessary.	↑	↑	↓	↑

SETTING RECORD SHEET

In order to set the suspension faster and more accurately, record, save and reference the settings in the race and practice. Copy this page if necessary and use it.

Course	Day/Month/Year					
	Event/Course					
	Race					
	temperature/Humidity					
	weather/Course condition					
	soil condition					
Spark plug						
Fork	Compression damping adjuster					
	Rebound damping adjuster					
	Spring					
Rear suspension	Race sag					
	Spring install length					
	Compression damping adjuster	Low speed				
		High speed				
	Rebound damping adjuster					
	Spring					
Final reduction						
Tire	Front	Tire brand				
		Size				
		Cold tire pressure				
	Rear	Tire brand				
		Size				
		Cold tire pressure				

WIRING DIAGRAM



MEMO

INDEX

61MKEX40
00X61-MKE-X400

Printed in the U.S.A.