COMPETITION HANDBOOK

2024 CRF450X

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 CRF450X.

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

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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

Frame/ Body Panels	1
Maintenance	2
Setting Information	3
INDEX	

MEMO

1. Frame/ Body Panels

SERVICE INFORMATION ····· 1-2

TROUBLESHOOTING ····· 1-2

BODY PANEL LOCATIONS ····· 1-2

SEAT ····· 1-3

SEAT SUPPORT BASE ····· 1-3

RADIATOR SHROUD ····· 1-4

SIDE COVER ····· 1-4

FRONT VISOR ····· 1-5

KNUCKLE GUARD ····· 1-6

FRONT FENDER ····· 1-7

FRONT BRAKE DISC COVER ····· 1-8

RADIATOR GRILL ····· 1-8

DRIVE SPROCKET COVER ····· 1-8

ENGINE GUARD ····· 1-8

LEFT CRANKCASE OVER COVER ····· 1-9

RIGHT CRANKCASE OVER COVER ····· 1-10

MUD GUARD ····· 1-10

TOP SHELTER ····· 1-11

REAR FENDER ····· 1-11

REAR FRAME ····· 1-12

MUFFLER ····· 1-14

EXHAUST PIPE ····· 1-16

SIDESTAND ····· 1-17

SERVICE INFORMATION

GENERAL

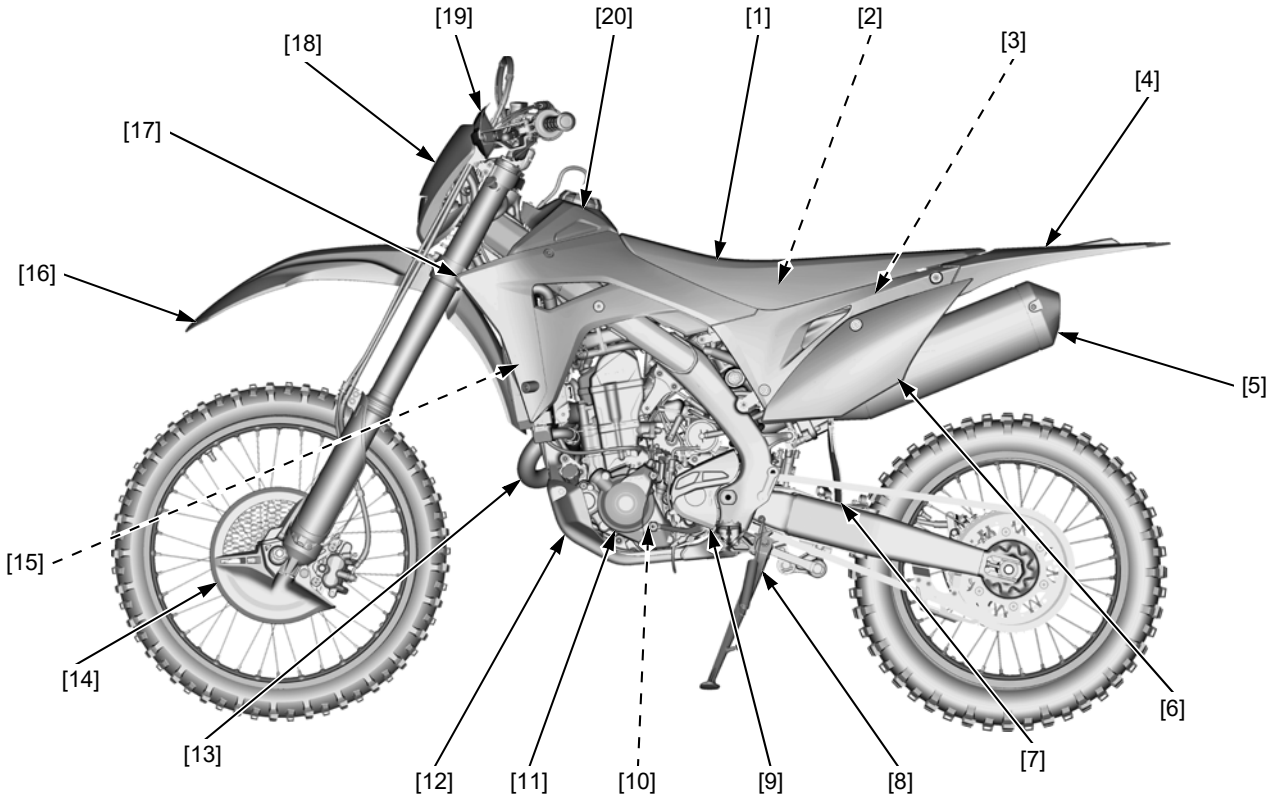
- This section covers removal and installation of the body panels, rear frame and exhaust system.
- Always replace the exhaust pipe gaskets after removing the exhaust pipe from the engine.
- When installing the exhaust system, loosely install all of the exhaust system fasteners. Always tighten the exhaust 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



[1] Seat ➔1-3
[2] Seat support base ➔1-3
[3] Rear frame ➔1-12
[4] Rear fender ➔1-11
[5] Muffler ➔1-14
[6] Side cover ➔1-4
[7] Mud guard ➔1-10
[8] Sidestand ➔1-17
[9] Drive sprocket cover ➔1-8
[10] Right crankcase over cover ➔1-10
[11] Left crankcase over cover ➔1-9
[12] Engine guard ➔1-8
[13] Exhaust pipe ➔1-16
[14] Front brake disc cover ➔1-8
[15] Radiator grill ➔1-8
[16] Front fender ➔1-7
[17] Radiator shroud ➔1-4
[18] Front visor ➔1-5
[19] Knuckle guard ➔1-6
[20] Top shelter ➔1-11

SEAT

REMOVAL/INSTALLATION

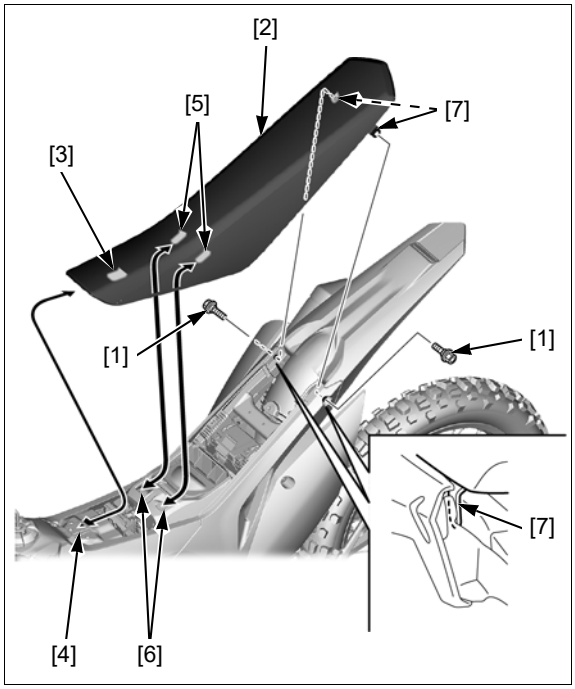
Remove the seat mounting bolts [1].
Remove the seat [2] by pulling it backward.

Installation is in the reverse order of removal.

TORQUE:
Seat mounting bolt:
26 N·m (2.7 kgf·m, 19 lbf·ft)

NOTE:

- Align the seat hook [3] with the slot [4] on the fuel tank and seat center prongs [5] with the seat support base slots [6].
- Insert the seat rear stays [7] in the position shown. Be careful not to scratch the side covers and rear fender A with the seat rear stay.



SEAT SUPPORT BASE

HANGING/INSTALLATION

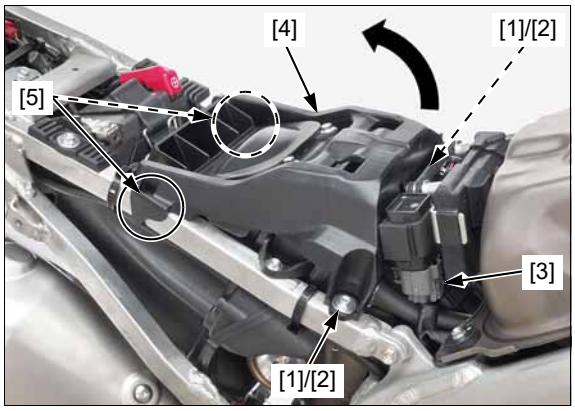
Remove the side covers ➔1-4.

Remove the bolts [1] and flange collars [2].

Disconnect the relay box 8P connector [3].

Pull up the front side of the seat support base [4].
Release the tabs [5] from the rear frame.
Remove the seat support base and hang it to the left side of the rear frame.

Installation is in the reverse order of removal.



REMOVAL/INSTALLATION

Hang the seat support base ➔1-3.

Disconnect the ECM 33P connector [1].

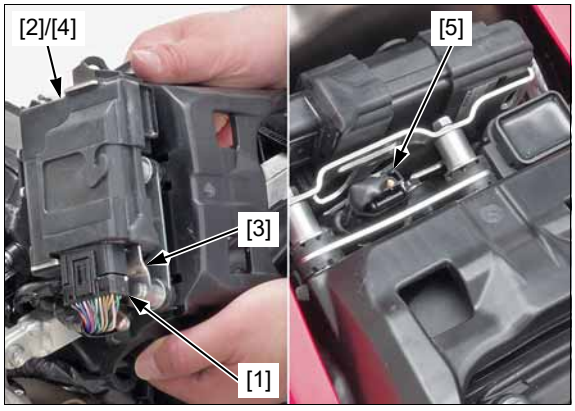
Remove the ECM [2] from the ECM stay [3].

Remove the ECM suspension [4] from the ECM.

Disconnect the bank angle sensor 3P connector [5].

Remove the seat support base with the relay box and bank angle sensor.

Installation is in the reverse order of removal.



RADIATOR SHROUD

REMOVAL/INSTALLATION

Remove the seat ➔1-3.

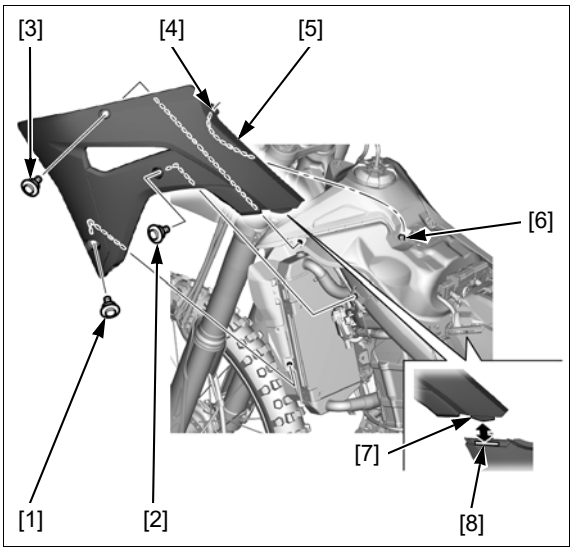
Remove the following:

– Radiator shroud bolt A [1]
– Radiator shroud bolt B [2]
– Radiator shroud bolt C [3]

Release the hole [4] of the radiator shroud [5] from the tab [6] of the top shelter.
Release the tab [7] from the slot [8] of the side cover.
Remove the radiator shroud.

Installation is in the reverse order of removal.

TORQUE:
Radiator shroud bolt A/B:
10 N·m (1.0 kgf·m, 7 lbf·ft)
Radiator shroud bolt C:
5.2 N·m (0.5 kgf·m, 3.8 lbf·ft)



SIDE COVER

REMOVAL/INSTALLATION

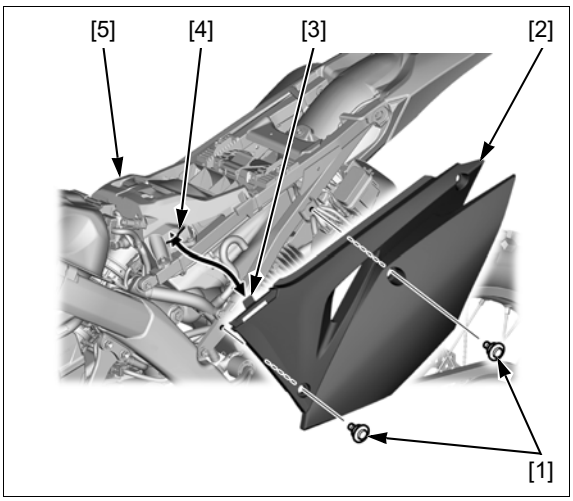
Remove the radiator shroud ➔1-4.

Remove the side cover bolts [1].

Remove the side cover [2] by releasing the tab [3] from the slot [4] of the seat support base [5].

Installation is in the reverse order of removal.

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



FRONT VISOR

REMOVAL/INSTALLATION

Remove the bolt/washers [1].
Release the grommets [2] of the front visor [3] from the front fender stay [4].

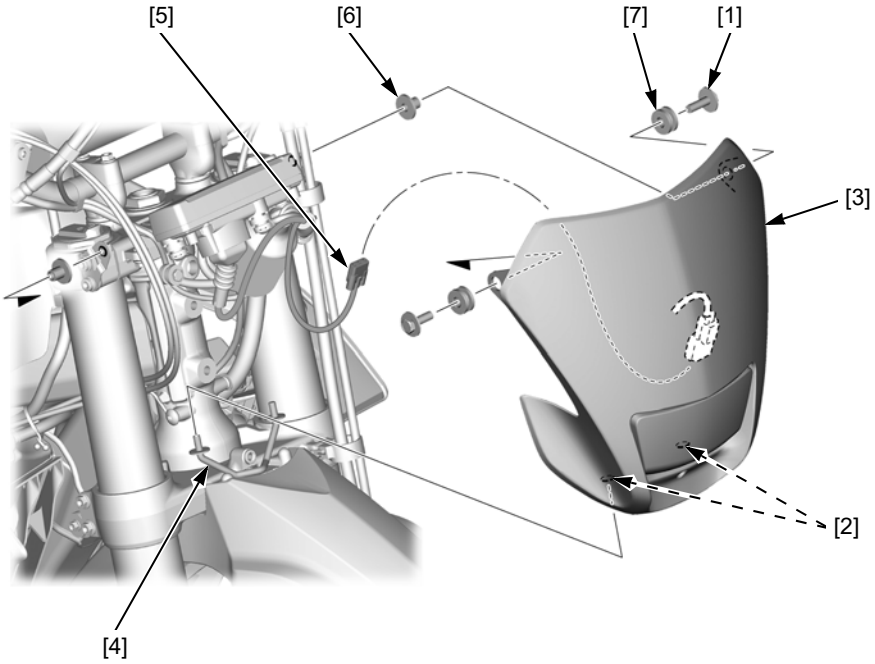
Disconnect the headlight 3P connector [5].
Remove the front visor.

Remove the flange collars [6] and grommets [7] from the front visor.

Installation is in the reverse order of removal.

NOTE:

- Route the wires properly as shown.



KNUCKLE GUARD

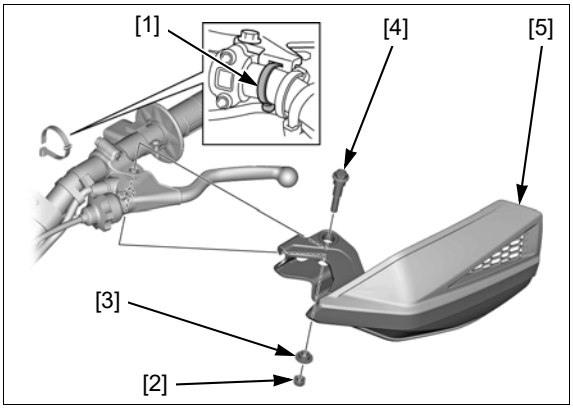
LEFT

REMOVAL

Remove the following:

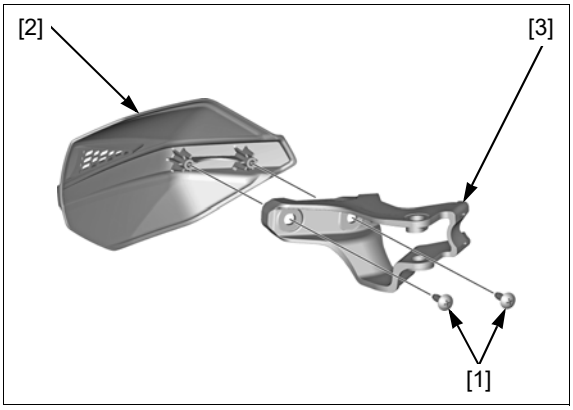
– Wire band [1]
– Clutch lever pivot nut [2]
– Collar [3]
– Clutch lever pivot bolt [4]

Remove the left knuckle guard assembly [5].



Remove the knuckle guard screws [1].

Remove the left knuckle guard [2] from the bracket [3].

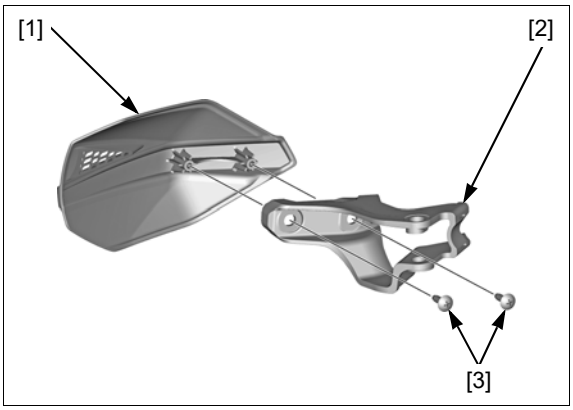


INSTALLATION

Install the left knuckle guard [1] to the bracket [2].

Install and tighten the knuckle guard screws [3] to the specified torque.

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



Install the left knuckle guard assembly [1].

Apply grease to the clutch lever pivot bolt sliding surface.

Install and tighten the clutch lever pivot bolt [2] to the specified torque.

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

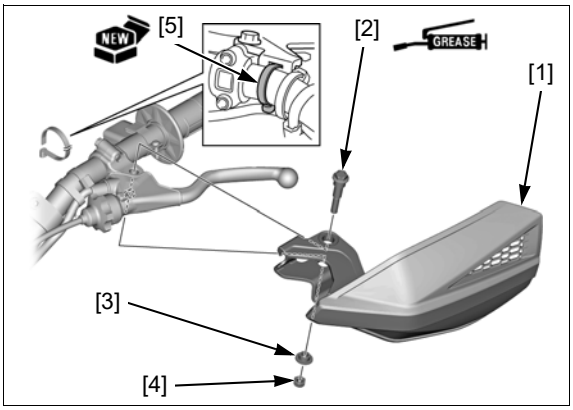
Loosen the clutch lever pivot bolt 45° – 90°.

Install the collar [3].

Install and tighten the clutch lever pivot nut [4] to the specified torque while holding the clutch lever pivot bolt.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

Install a new wire band [5].



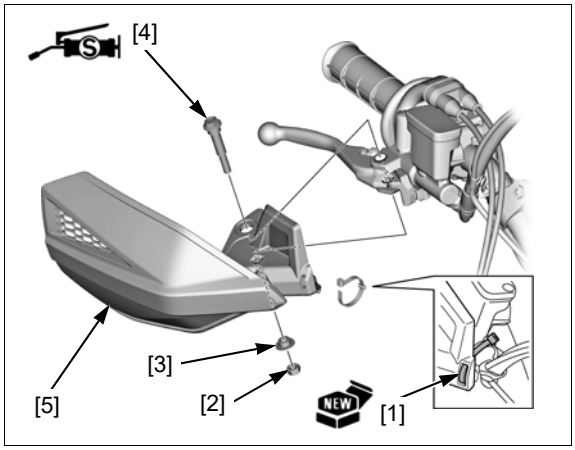
RIGHT

REMOVAL/INSTALLATION

Remove the following:

– Wire band [1]
– Brake lever pivot nut [2]
– Collar [3]
– Brake lever pivot bolt [4]

Remove the right knuckle guard assembly [5].



Remove the knuckle guard screws [1].

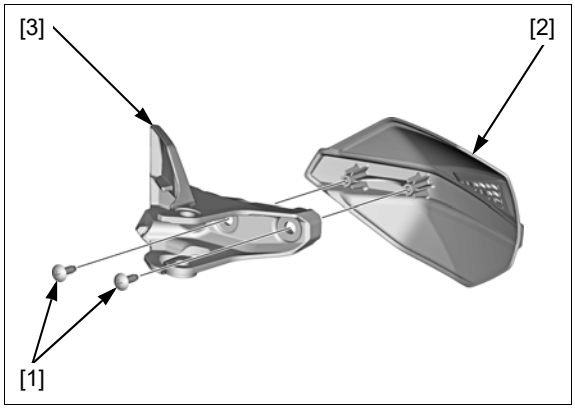
Remove the right knuckle guard [2] from the bracket [3].

Installation is in the reverse order of removal.

TORQUE:
Knuckle guard screw:
1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)
Brake lever pivot bolt:
1.0 N·m (0.1 kgf·m, 0.7 lbf·ft)
Brake lever pivot nut:
5.9 N·m (0.6 kgf·m, 4.4 lbf·ft)

NOTE:

- Apply 0.10 g (0.004 oz) of silicone grease to the brake lever pivot bolt sliding surface.
- Replace the wire band with a new one.



FRONT FENDER

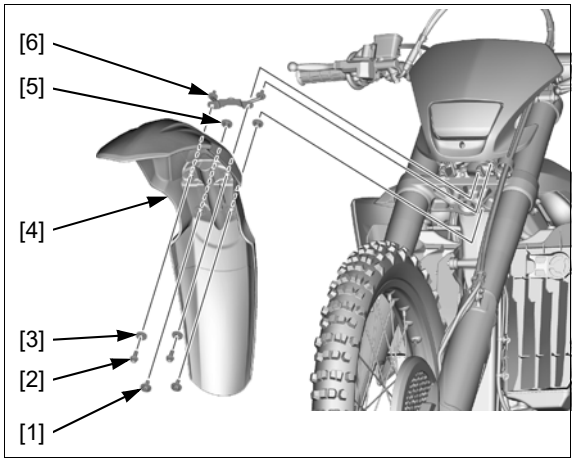
REMOVAL/INSTALLATION

Remove the following:

– Front fender bolt/washers [1]
– Front fender bolts [2]
– Washers [3]
– Front fender [4]
– Flange collars [5]
– Front fender stay [6]

Installation is in the reverse order of removal.

TORQUE:
Front fender bolt/washer:
10 N·m (1.0 kgf·m, 7 lbf·ft)
Front fender bolt:
10 N·m (1.0 kgf·m, 7 lbf·ft)



FRONT BRAKE DISC COVER

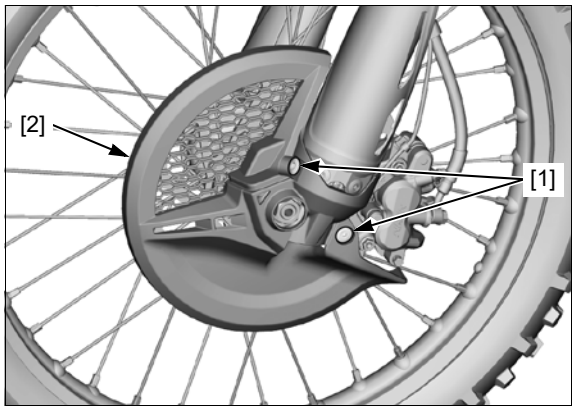
REMOVAL/INSTALLATION

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

Installation is in the reverse order of removal.

TORQUE:

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

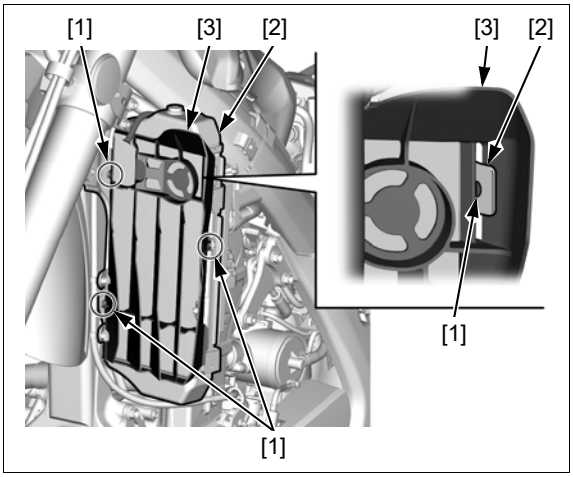


RADIATOR GRILL

REMOVAL/INSTALLATION

Release the radiator grill tabs [1] from the radiator [2]. Remove the radiator grill [3].

Installation is in the reverse order of removal.



DRIVE SPROCKET COVER

REMOVAL/INSTALLATION

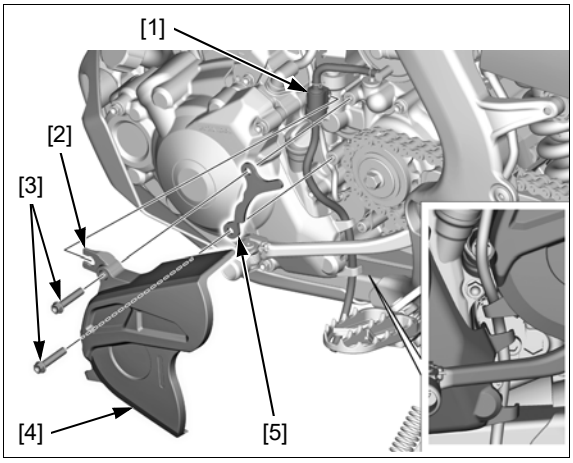
Release the one-way valve [1] from the drive sprocket cover guide [2].

Remove the bolts [3], drive sprocket cover [4], and drive chain guide plate [5].

Installation is in the reverse order of removal.

NOTE:

- Route the hose properly as shown.



ENGINE GUARD

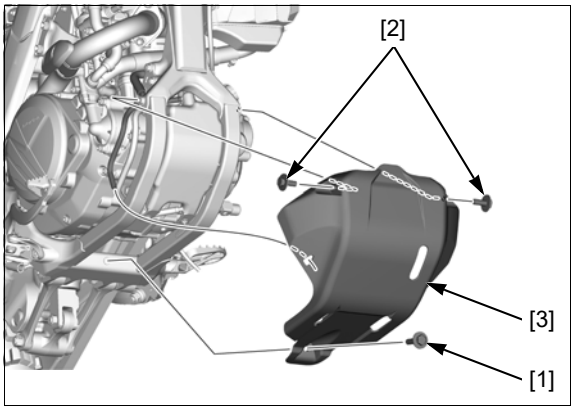
REMOVAL/INSTALLATION

Remove the engine guard bolt (long)/washer [1], engine guard bolts (short)/washers [2] and engine guard [3].

Installation is in the reverse order of removal.

TORQUE:

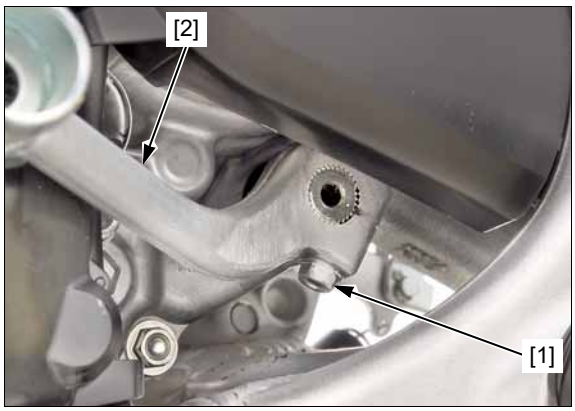
Engine guard bolt (long)/washer:
10 N·m (1.0 kgf·m, 7 lbf·ft)
Engine guard bolt (short)/washer:
10 N·m (1.0 kgf·m, 7 lbf·ft)



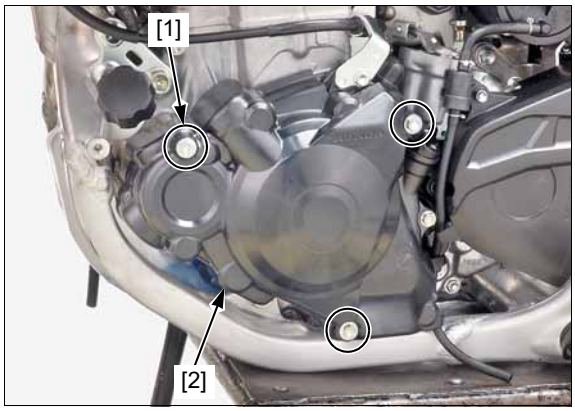
LEFT CRANKCASE OVER COVER

REMOVAL

Remove the engine guard ➔1-8.
Remove the gearshift pedal pinch bolt [1] and gearshift pedal [2].

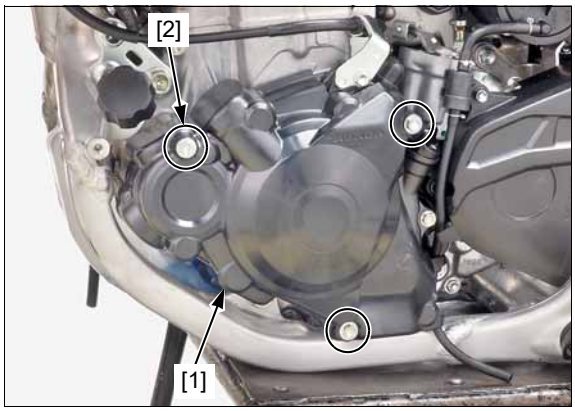


Remove the bolts [1] and left crankcase over cover [2].



INSTALLATION

Install the left crankcase over cover [1] and bolts [2].
Tighten the bolts securely.



Install the gearshift pedal [1].

NOTE:
- Align the gearshift pedal slit with the punch mark of the gearshift spindle.

Install and tighten the gearshift pedal pinch bolt [2] to the specified torque.

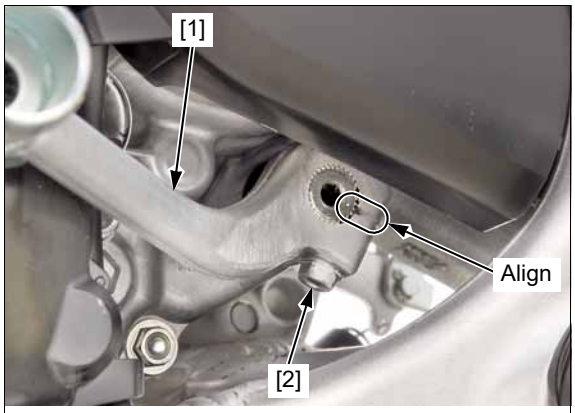
TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

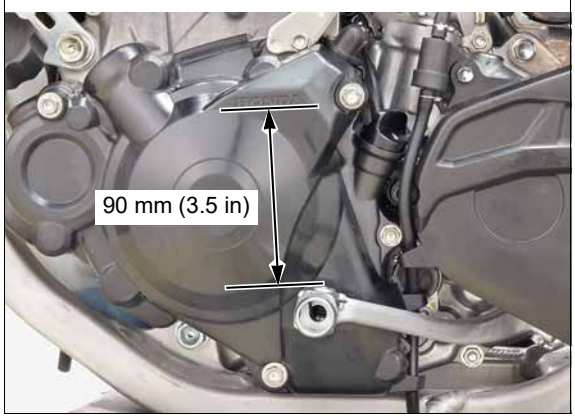
Check the dimension between the gearshift pedal end and "HONDA" logo as shown.

Move the gearshift pedal and check the shift mechanism for smooth operation.

Install the engine guard ➔1-8.

NOTE:
- Route the hose properly as shown.

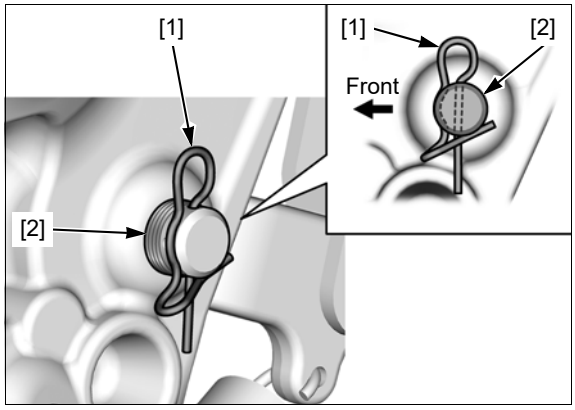




RIGHT CRANKCASE OVER COVER

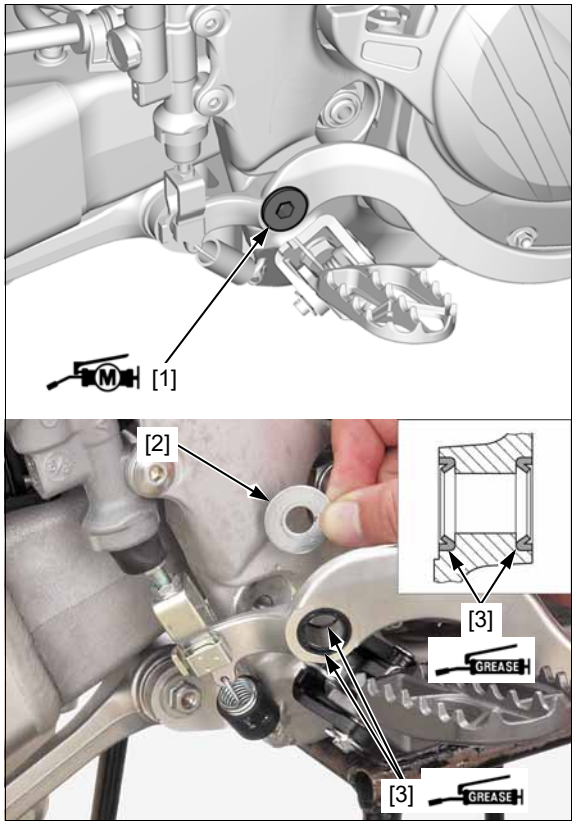
REMOVAL/INSTALLATION

Remove the lock pin [1] from brake pedal pivot bolt [2].



Remove the brake pedal pivot bolt [1] and washer [2].

Remove the dust seals [3] from the brake pedal.



Remove the bolt A [1], bolts B [2], bolts C [3], and right crankcase over cover [4].

Installation is in the reverse order of removal.

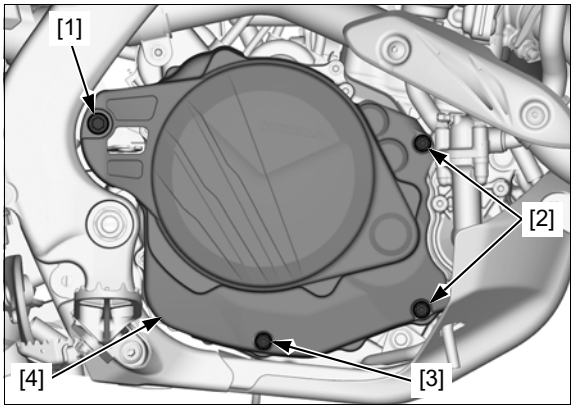
TORQUE:

Brake pedal pivot bolt:

36 N·m (3.7 kgf·m, 27 lbf·ft)

NOTE:

- Apply specified grease to the dust seal lips ➔2-7.
- Install the dust seals to the brake pedal with its lip side facing out as shown.
- Replace the dust seals with new ones if they are damaged or deteriorated.
- Apply molybdenum disulfide grease to the brake pedal pivot bolt sliding surface.
- Check that the lock pin is seated in the groove of the brake pedal pivot bolt securely.



MUD GUARD

REMOVAL/INSTALLATION

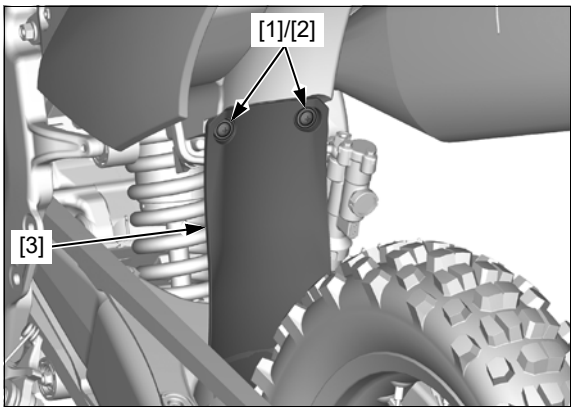
Remove the mud guard screws [1], washers [2], and mud guard [3].

Installation is in the reverse order of removal.

TORQUE:

Mud guard screw:

1.5 N·m (0.2 kgf·m, 1.1 lbf·ft)



TOP SHELTER

REMOVAL/INSTALLATION

Remove the radiator shrouds ➔1-4.

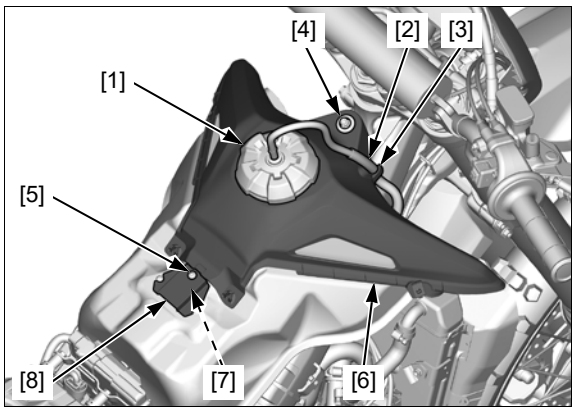
Remove the fuel tank cap [1].
Release the fuel tank breather hose A [2] from the guide [3].
Remove the bolt/washer [4] and top shelter bolt [5].
Remove the top shelter [6].

Temporarily install the fuel tank cap.

Installation is in the reverse order of removal.

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

NOTE:
- Align the top shelter tab [7] with the fuel tank slot [8].



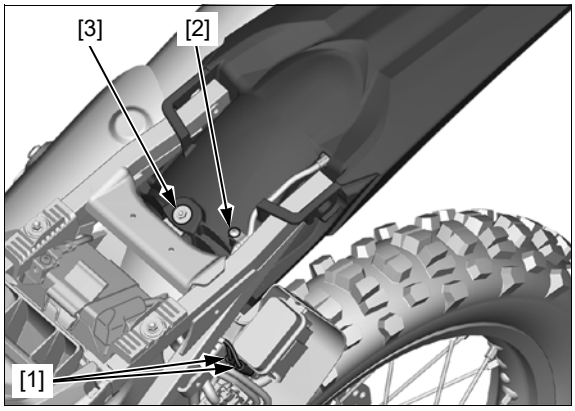
REAR FENDER

REMOVAL/INSTALLATION

Remove the side covers ➔1-4.

Disconnect the taillight connectors [1].

Remove the taillight wire screw [2] and rear fender bolt [3].



Remove the taillight wire screws [1].

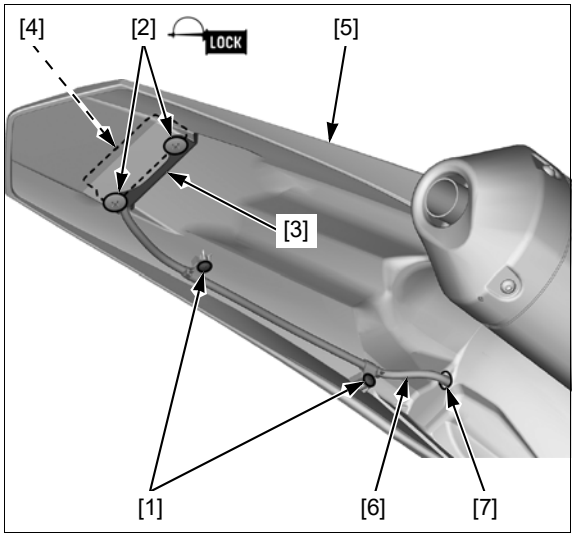
Remove the taillight screws [2], taillight bracket [3], and taillight [4].

Remove the rear fender [5]

Installation is in the reverse order of removal.

TORQUE:
Taillight screw:
4.2 N·m (0.4 kgf·m, 3.1 lbf·ft)
Taillight wire screw:
0.7 N·m (0.1 kgf·m, 0.5 lbf·ft)
Rear fender bolt:
10 N·m (1.0 kgf·m, 7 lbf·ft)

NOTE:
- Apply locking agent to the taillight screw threads.
- Route the taillight wire [6] through the rear fender hole [7].
  For taillight wire routing as shown.



REAR FRAME

REMOVAL/INSTALLATION

Remove the seat ➔1-3.

Remove the battery terminal bolt [1].

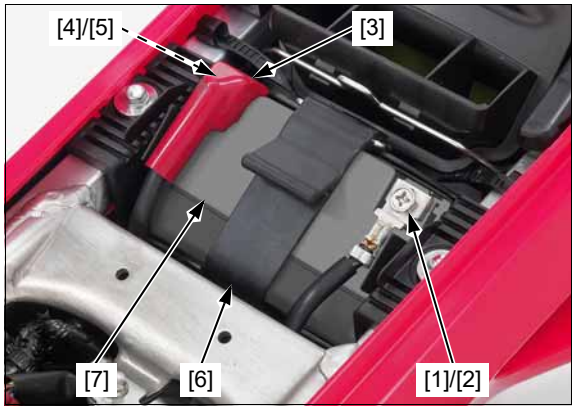
Disconnect the battery negative (–) cable [2].

Release the terminal cover [3].

Remove the battery terminal bolt [4].

Disconnect the battery positive (+) cable [5].

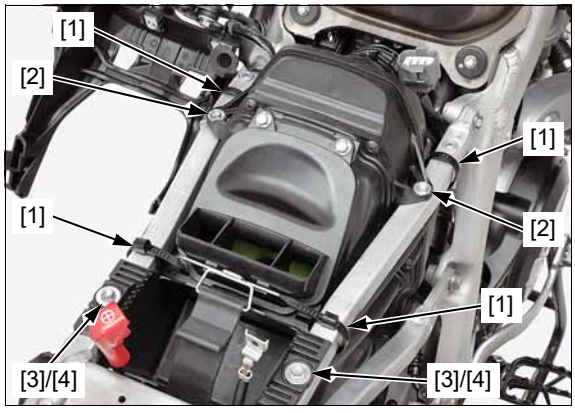
Remove the battery band [6] and battery/spacer [7].



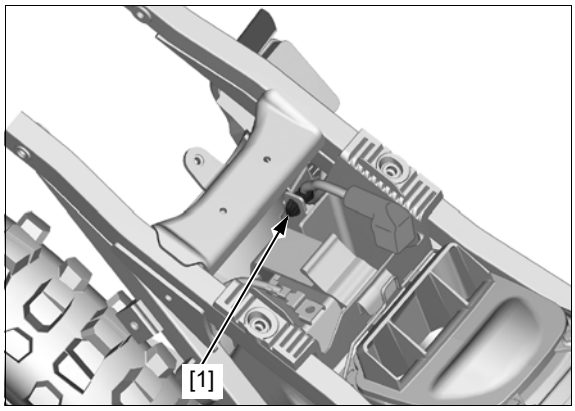
Remove the muffler ➔1-14.
Remove the rear fender ➔1-11.
Hang the seat support base ➔1-3.

Remove the wire bands [1].

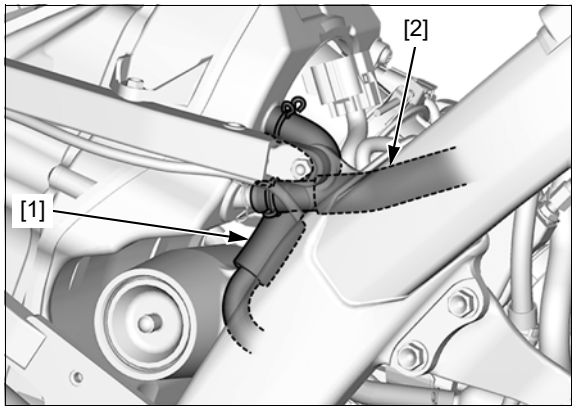
Remove the bolts A [2], bolts B [3], and flange collars [4].



Release the battery positive (+) cable clip [1].



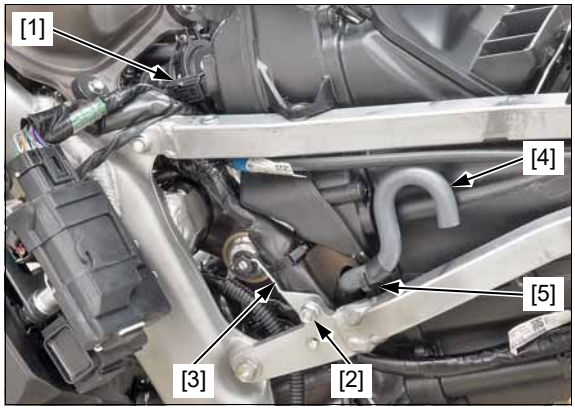
Disconnect the crankcase breather hose B [1] and air suction hose [2].



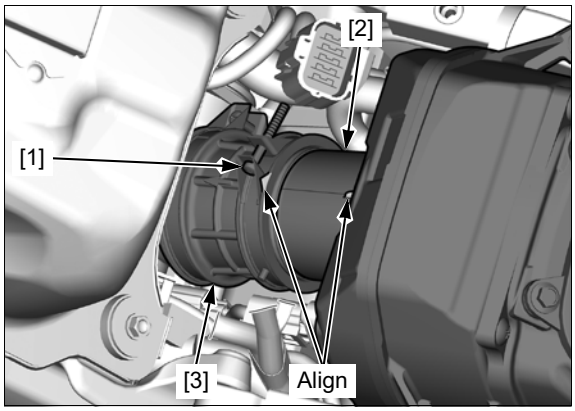
Disconnect the IAT sensor 2P (Black) connector [1].

Remove the nut [2] and release the wire stay [3].

Release the open air hose [4] from the guide [5].

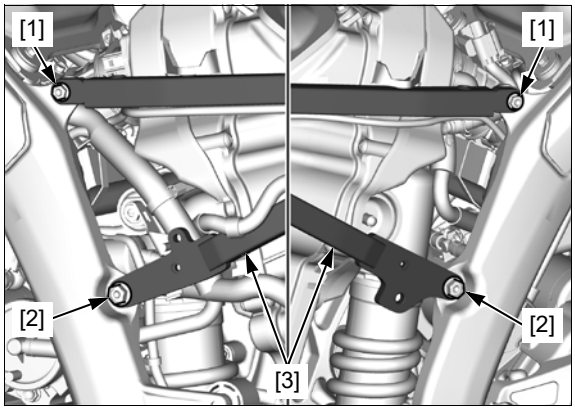


Loosen the air cleaner connecting hose band screw [1] and disconnect the air cleaner housing [2] from the connecting hose [3].



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

Remove the rear frame [3] with the air cleaner housing.



Installation is in the reverse order of removal.

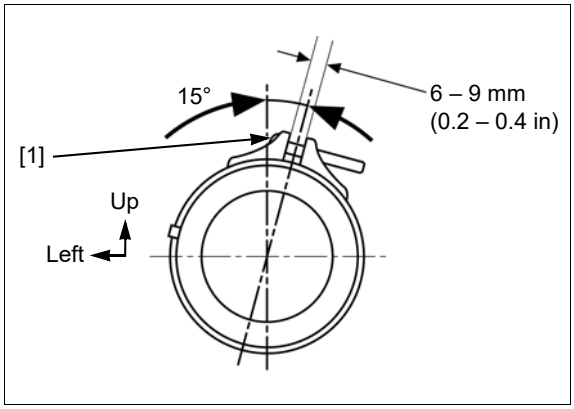
TORQUE:

Rear frame upper bolt:
32 N·m (3.3 kgf·m, 24 lbf·ft)
Rear frame lower bolt:
49 N·m (5.0 kgf·m, 36 lbf·ft)
Battery terminal bolt:
2.0 N·m (0.2 kgf·m, 1.5 lbf·ft)

NOTE:

- Tighten the rear frame upper bolts first, then the lower bolts.
- Align the tab of the air cleaner housing with the index mark of the connecting hose.
- Tighten the air cleaner connecting hose band screw [1] to the specified range as shown.
- Connect the positive (+) terminal first and then the negative (–) cable.

Install the seat support base ➔1-3.
Install the rear fender ➔1-11.
Install the muffler ➔1-14.



MUFFLER

REMOVAL/INSTALLATION

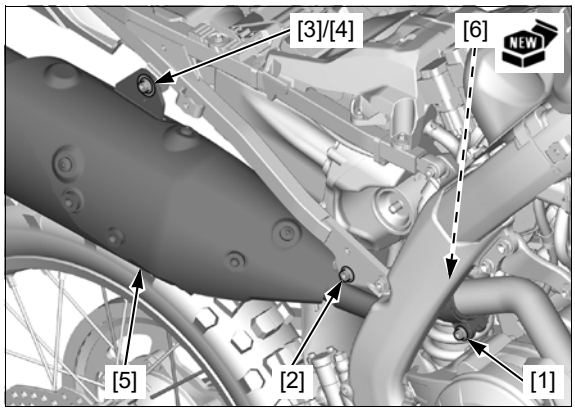
Remove the right side cover ➔1-4.

Loosen the exhaust pipe band bolt [1].
Remove the muffler front mounting bolt [2], rear mounting bolt [3], washer [4], and muffler [5].
Remove the gasket [6].

Installation is in the reverse order of removal.

TORQUE:
Exhaust pipe band bolt:
20 N·m (2.0 kgf·m, 15 lbf·ft)
Muffler front/rear mounting bolt:
26 N·m (2.7 kgf·m, 19 lbf·ft)

NOTE:
- Always replace the gasket with a new one.
- Tighten the exhaust pipe band bolt first and then muffler mounting bolts.



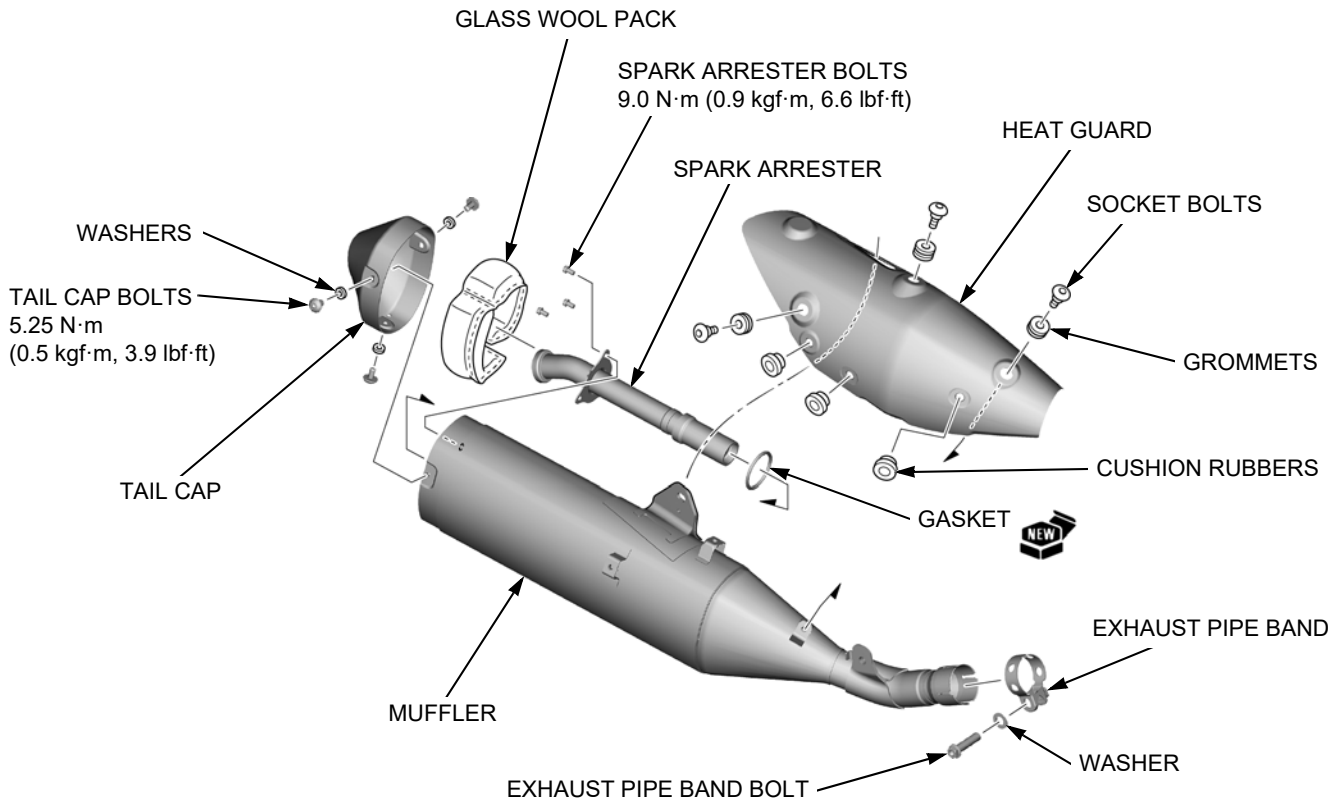
DISASSEMBLY/ASSEMBLY

Remove the muffler ➔1-14.

Assembly is in the reverse order of disassembly.

NOTE:

- Check the glass wool pack and replace if necessary.



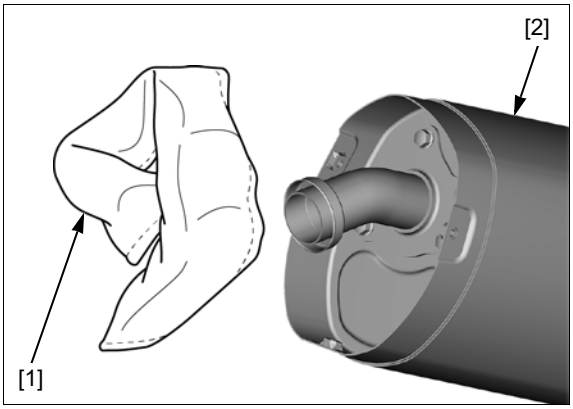
GLASS WOOL REPLACEMENT

NOTE:

- Glass wool replacement can be done with the muffler installed on the exhaust pipe.

Remove the tail cap ➔1-14.

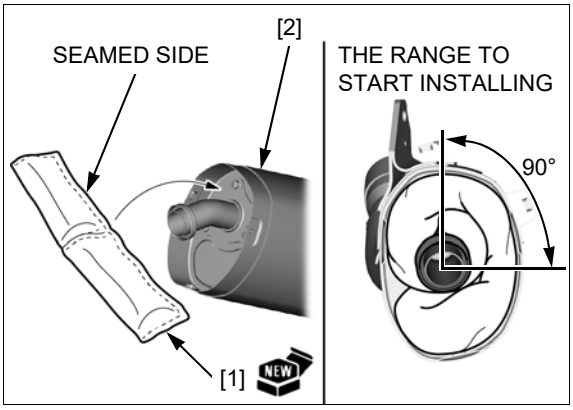
Remove the glass wool pack [1] from the muffler [2].



Roll a new glass wool pack [1] onto the muffler [2] as shown.

NOTE:

- Roll a new glass wool pack with its seamed side facing forward.

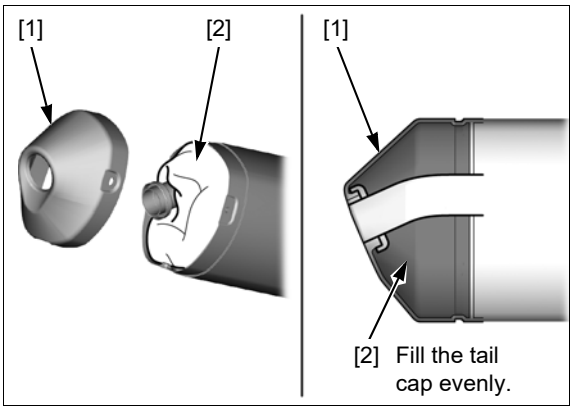


Install the tail cap [1] by setting the glass wool pack [2] position as shown.

NOTE:

- Fill up the tail cap with the glass wool evenly.

Install the washers and tail cap bolts and tighten them to the specified torque ➔1-14.

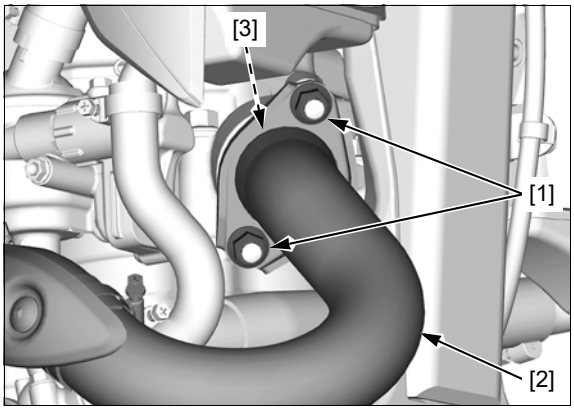


EXHAUST PIPE

REMOVAL

Remove the muffler ➔1-14.

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



INSTALLATION

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

Install the exhaust pipe [2].
Install the exhaust pipe joint nuts [3] but do not tighten them yet.

Install the muffler ➔1-14.

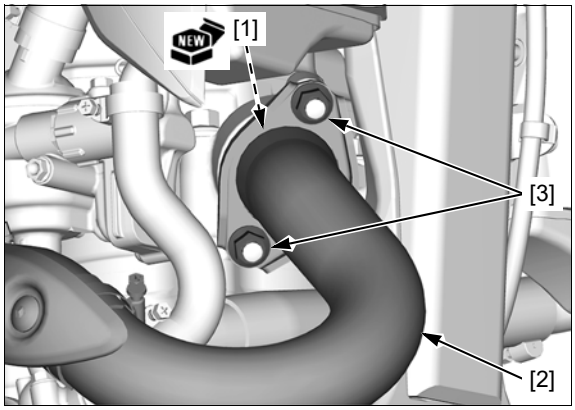
NOTE:
- Do not tighten the exhaust pipe band bolt and muffler mounting bolts yet.

Tighten the exhaust pipe joint nuts to the specified torque.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

Tighten the exhaust pipe band bolts and muffler mounting bolts to the specified torque ➔1-14.

NOTE:
- Tighten the exhaust pipe band bolts first.
- Always inspect the exhaust system for leaks after installation.



CYLINDER HEAD EXHAUST PIPE STUD BOLT REPLACEMENT

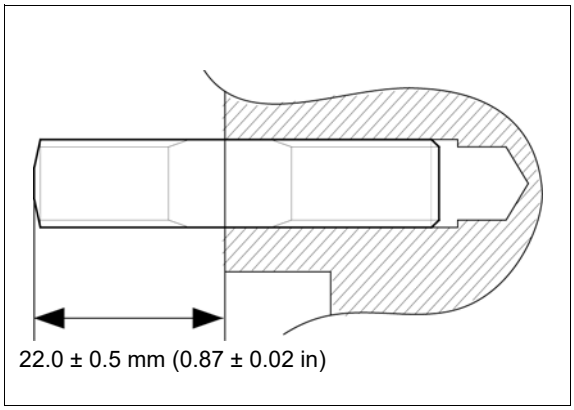
Remove the exhaust pipe ➔1-16.

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.

Install the exhaust pipe ➔1-16.



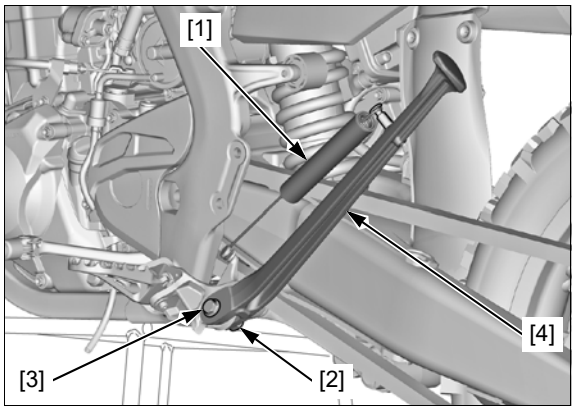
SIDESTAND

REMOVAL

Remove the engine guard ➔1-8.

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

Remove the sidestand spring [1].
Remove the sidestand pivot nut [2], sidestand pivot bolt [3], and sidestand [4].



INSTALLATION

Apply molybdenum disulfide grease to the sidestand sliding surface ➔2-7.

Install the sidestand [1].

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

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

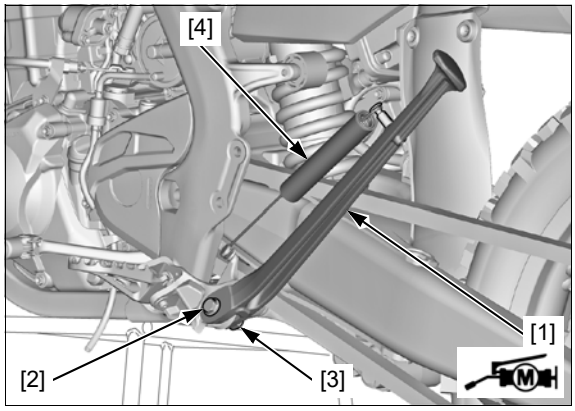
After tightening the sidestand pivot bolt, return it 45° – 90°.

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

TORQUE: 39 N·m (4.0 kgf·m, 29 lbf·ft)

Install the sidestand spring [4].

Install the engine guard ➔1-8.



SERVICE INFORMATION ····· 2-2

COMPETITION MAINTENANCE SCHEDULE ····· 2-9

MAINTENANCE SCHEDULE - REGULAR OFF-ROAD USE (NON-COMPETITION) ····· 2-10

FUEL LINE ····· 2-11

FUEL FILTER ····· 2-14

THROTTLE OPERATION ····· 2-19

AIR CLEANER ····· 2-19

CRANKCASE BREATHER ····· 2-21

SPARK PLUG ····· 2-24

VALVE CLEARANCE ····· 2-25

DECOMPRESSOR SYSTEM ····· 2-33

ENGINE OIL ····· 2-34

ENGINE OIL FILTER ····· 2-35

ENGINE IDLE SPEED ····· 2-36

PISTON/PISTON RINGS/PISTON PIN ····· 2-36

RADIATOR COOLANT ····· 2-45

COOLING SYSTEM ····· 2-47

DRIVE CHAIN ····· 2-48

DRIVE CHAIN SLIDER ····· 2-51

DRIVE CHAIN ROLLER ····· 2-52

DRIVE/DRIVEN SPROCKET ····· 2-52

BRAKE FLUID ····· 2-53

BRAKE PADS WEAR ····· 2-54

BRAKE SYSTEM ····· 2-55

HEADLIGHT AIM ····· 2-56

CLUTCH SYSTEM ····· 2-56

CONTROL CABLES ····· 2-61

EXHAUST PIPE/MUFFLER ····· 2-63

SIDESTAND ····· 2-63

SUSPENSION ····· 2-64

SWINGARM/CUSHION LINKAGE ····· 2-64

FORK OIL ····· 2-65

SPARK ARRESTER ····· 2-69

NUTS, BOLTS, FASTENERS ····· 2-70

WHEELS/TIRES ····· 2-70

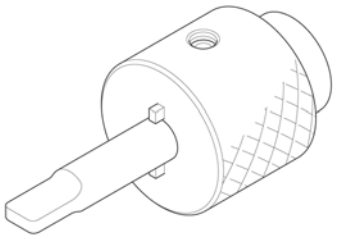
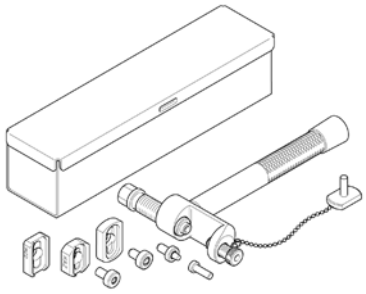
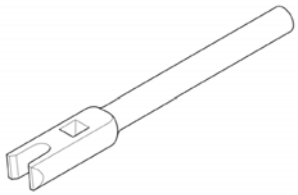
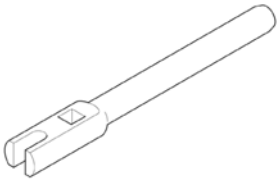
STEERING HEAD BEARINGS ····· 2-70

SERVICE INFORMATION

GENERAL

- Place the motorcycle on a level surface before starting any work.
- The CRF450X 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 well 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.	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.		

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/EXHAUST SYSTEM

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Seat mounting bolt	2	8	26 (2.7, 19)	
Radiator shroud bolt A	2	6	10 (1.0, 7)	
Radiator shroud bolt B	2	6	10 (1.0, 7)	
Radiator shroud bolt C	2	5	5.2 (0.5, 3.8)	
Side cover bolt	4	6	10 (1.0, 7)	
Front fender bolt/washer	2	6	10 (1.0, 7)	
Front fender bolt	2	6	10 (1.0, 7)	
Front brake disc cover bolt	2	6	13 (1.3, 10)	
Engine guard bolt (long)/washer	1	6	10 (1.0, 7)	
Engine guard bolt (short)/washer	2	6	10 (1.0, 7)	
Knuckle guard screw	4	5	1.5 (0.2, 1.1)	
Clutch lever pivot bolt	1	6	–	➔1-6
Clutch lever pivot nut	1	6	10 (1.0, 7)	Self-lock nut ➔1-6
Brake lever pivot bolt	1	6	1.0 (0.1, 0.7)	
Brake lever pivot nut	1	6	5.9 (0.6, 4.4)	
Gearshift pedal pinch bolt	1	6	12 (1.2, 9)	
Brake pedal pivot bolt	1	10	36 (3.7, 27)	
Mud guard screw	2	5	1.5 (0.2, 1.1)	
Top shelter bolt	1	5	5.2 (0.5, 3.8)	
Taillight screw	2	5	4.2 (0.4, 3.1)	
Taillight wire screw	3	4	0.7 (0.1, 0.5)	
Rear fender bolt	1	6	10 (1.0, 7)	
Rear frame upper bolt	2	8	32 (3.3, 24)	
Rear frame lower bolt	2	10	49 (5.0, 36)	
Battery terminal bolt	2	6	2.0 (0.2, 1.5)	
Exhaust pipe band bolt	1	8	20 (2.0,15)	
Muffler front/rear mounting bolt	2	8	26 (2.7, 19)	
Tail cap bolt	3	5	5.25 (0.5, 3.9)	
Spark arrester bolt	3	6	9.0 (0.9, 6.6)	
Exhaust pipe joint nut	2	8	22 (2.2, 16)	
Exhaust pipe stud bolt	2	8	–	➔1-16
Sidestand pivot bolt	1	10	10 (1.0, 7)	➔1-17
Sidestand pivot nut	1	10	39 (4.0, 29)	Self-lock nut ➔1-17

MAINTENANCE

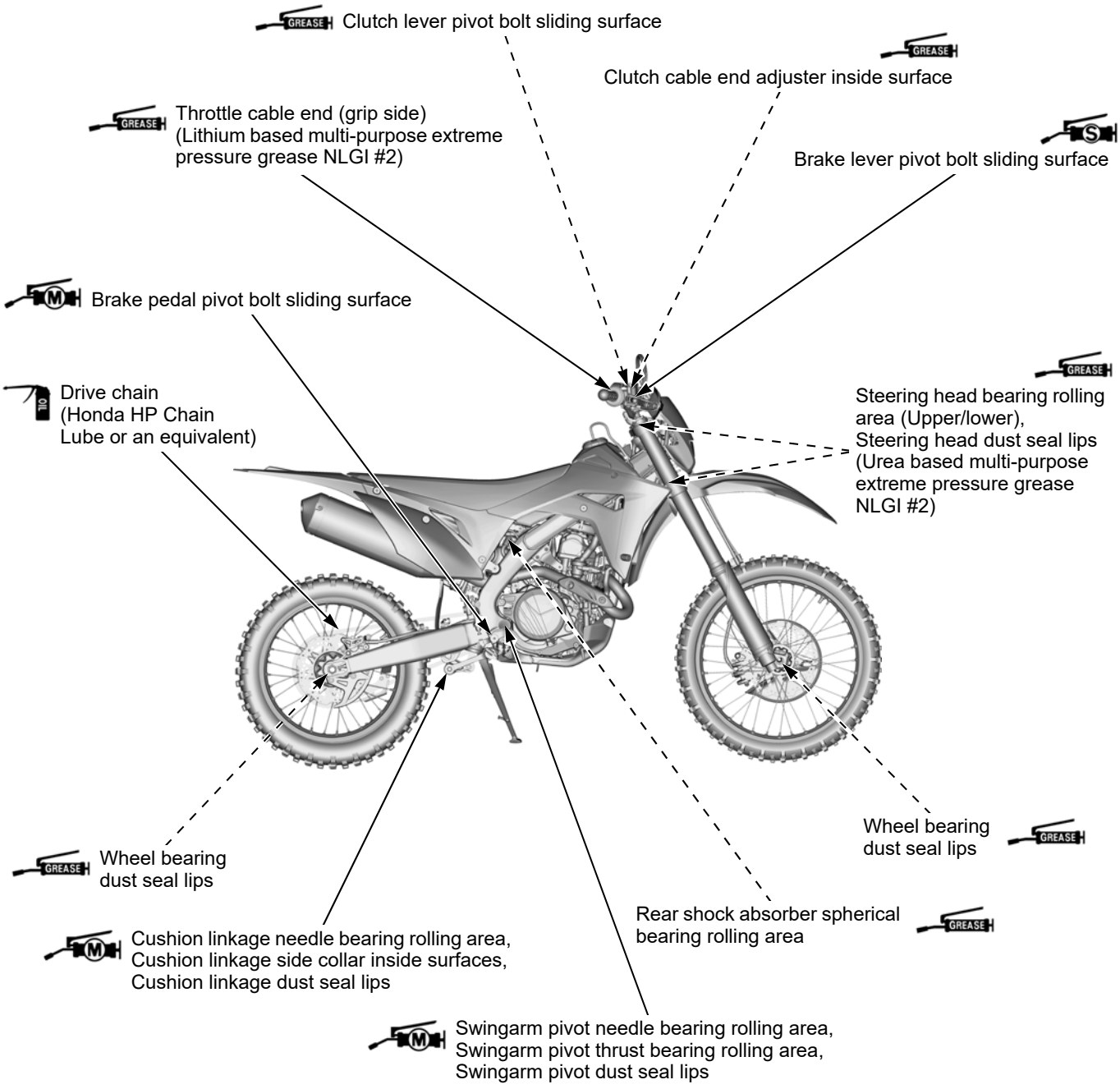
ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Fuel pump mounting nut	5	6	11 (1.1, 8)	For tightening sequence; ➔2-14
Fuel pump mounting cap nut	1	6	11 (1.1, 8)	
Throttle cable adjuster lock nut	1	6	4.0 (0.4, 3.0)	
Air cleaner element set bolt	1	6	2.4 (0.2, 1.8)	
Left cylinder head hanger bolt	1	10	54 (5.5, 40)	
Left cylinder head hanger plate bolt	2	8	32 (3.3, 24)	
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 (long)	2	7	15 (1.5, 11)	Apply engine oil to the threads.
Camshaft holder mounting bolt (short)	2	7	15 (1.5, 11)	Apply engine oil to the threads.
Engine oil drain bolt	1	30	18 (1.8, 13)	Apply engine oil to the threads.
Cylinder head bolt	4	10	50 (5.1, 37)	Apply engine oil to the threads and seating surface.
Right cylinder head hanger bolt	1	10	54 (5.5, 40)	
Right cylinder head hanger plate bolt	2	8	32 (3.3, 24)	
Air bleed bolt	1	12	1.6 (0.2, 1.2)	
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
Drive chain upper roller bolt	1	8	12 (1.2, 9)	Replace with a new one.
Drive chain lower roller nut	1	6	12 (1.2, 9)	Self-lock nut
Drive sprocket bolt	1	8	31 (3.2, 23)	UBS nut
Driven sprocket nut	6	8	32 (3.3, 24)	Self-lock nut
Front master cylinder reservoir cover screw	2	4	1.5 (0.2, 1.1)	
Rear master cylinder reservoir cover bolt	2	4	1.5 (0.2, 1.1)	
Brake hose oil bolt	4	10	34 (3.5, 25)	
Brake lever adjuster lock nut	1	5	4.9 (0.5, 3.6)	
Rear master cylinder push rod lock nut	1	6	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	22 (2.2, 16)	
Exhaust pipe band bolt	1	8	20 (2.0,15)	
Fork plug bolt	2	5	1.3 (0.1,1.0)	
Front spoke	36	BC3.5	3.7 (0.4, 2.7)	
Rear spoke	32	4.5	3.7 (0.4, 2.7)	
Rim lock	2	8	12 (1.2, 9)	

Setting Information

ITEM	Q'TY	THREAD DIA. (mm)	TORQUE N·m (kgf·m, lbf·ft)	REMARKS
Front/rear handlebar upper holder bolt	4	8	22 (2.2, 16)	
Handlebar lower holder nut	2	10	44 (4.5, 32)	Self-lock nut
Fork plug bolt	2	5	1.3 (0.1, 1.0)	
Fork bottom bridge pinch bolt	4	8	20 (2.0, 15)	
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 damper	2	51	76 (7.7, 56)	➔3-17
Fork bolt	2	44	30 (3.1, 22)	
Fork top bridge pinch bolt	4	8	22 (2.2, 16)	
Fork protector mounting bolt	6	6	7.0 (0.7, 5.2)	Replace with new ones.
Brake hose clamp bolt	2	6	10 (1.0, 7)	
Front axle nut	1	16	88 (9.0, 65)	
Front brake caliper mounting bolt	2	8	30 (3.1, 22)	Apply locking agent to the threads.
Left/right axle holder bolt	4	8	20 (2.0, 15)	
Shock absorber spring adjuster lock nut	1	60	44 (4.5, 32)	
Shock absorber upper/lower 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 ➔2-7.



LUBRICATION & SEAL POINTS (FRAME)

MATERIAL	LOCATION	REMARKS
Lithium based multi-purpose grease NLGI #2 or equivalent	Wheel bearing dust seal lips	
	Gearshift pedal pin sliding area	
	Clutch cable end	
	Clutch cable end adjuster inside surface	
	Clutch in-line cable adjuster threads	
	Clutch lever pivot bolt sliding surface	
	Air cleaner housing-to-air cleaner element contacting area	Apply 1.5 – 5.5 g (0.1 – 0.2 oz)
	Front wheel bearing cavity	
	Axle outer surface	
	Swingarm pivot bolt outer surface	
	Shock absorber spherical bearing rolling area	
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	
	Swingarm left end piece (left swingarm washer contact areas)	
	Cushion linkage needle bearing rolling area	Filling up
	Cushion linkage side collar inside surfaces	
	Cushion linkage dust seal lips	
	Shock absorber dust seal lips	
	Brake pedal pivot bolt sliding surface	
	Sidestand sliding area	Apply 1.0 g (0.04 oz)
Lithium based multi-purpose extreme pressure grease NLGI #2 (ALVANIA EP2 manufactured by Shell or equivalent)	Throttle cable end (grip side)	
	Throttle pipe flange cable sliding area	
Urea based multi-purpose extreme pressure grease NLGI #2 (EXCELITE EP2 manufactured by KYODO YUSHI CO., LTD. or equivalent)	Steering head bearing rolling area	Apply 3 – 5 g (0.1 – 0.2 oz)
	Steering head dust seal lips	Apply 3 – 5 g (0.1 – 0.2 oz)
	Brake pedal dust seal lips	
Silicone grease	Brake caliper pin bolt sliding area	Apply 0.4 g (0.01 oz) minimum
	Brake caliper bracket pin sliding area	Apply 0.4 g (0.01 oz) minimum
	Brake caliper dust seal lips	
	Brake caliper pad pin stopper ring	
	Brake lever pivot bolt sliding surface	Apply 0.10 g (0.004 oz) minimum
	Brake lever sliding area	Apply 0.10 g (0.004 oz) minimum
	Rear master cylinder push rod round surface	Apply 0.10 g (0.004 oz) minimum
	Rear master cylinder boot fitting area	Apply 0.10 g (0.004 oz) minimum
Engine oil	Fuel pump unit O-ring	
	Fuel pump assembly O-ring (at joint)	
	Fuel pump base O-ring (at joint)	
Honda DOT 4 brake fluid	Brake caliper piston seal lips	
	Brake caliper piston sliding surface	
	Front master cylinder inner surface	Apply 0.04 – 0.16 g (0.001 – 0.006 oz)
	Rear master cylinder inner surface	
	Master piston outer surface and piston cups	

MATERIAL	LOCATION	REMARKS
Fork Fluid (Viscosity: 5W)	Fork bolt O-rings	
	Fork plug bolt O-ring	
	Fork bolt assembly bushings	
	Fork bolt assembly piston rings	
	Fork bolt assembly O-rings	
	Fork spring seat collar bushing	
	Fork damper O-rings	
	Fork center bolt O-rings	
	Fork oil seal lips	
	Fork dust seal lips	
	Slider bushing	
	Guide bushing	
	Fork damper piston rod sliding surface	
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 equivalent	Air cleaner element inside	Apply 55 cm^3 (1.9 US oz)
Honda Bond A or Pro Honda Handgrip Cement (U.S.A. only)	Handlebar grip rubber inner surface	
	Rear brake pad retainer seating surface	

COMPETITION MAINTENANCE SCHEDULE

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 race or about 7.5 hours	Every 4 race or about 15.0 hours	Every 6 race or about 22.5 hours	Every 8 race or about 30.0 hours	REFER TO PAGE
FUEL LINE	NOTE 6	I				R	➔2-11
FUEL PUMP FILTER	NOTE 6					R	➔2-14
THROTTLE OPERATION		I					➔2-19
AIR CLEANER	NOTE 1 NOTE 7	C					➔2-19
CRANKCASE BREATHER		I					➔2-21
SPARK PLUG		I					➔2-24
VALVE CLEARANCE/ DECOMPRESSOR SYSTEM	NOTE 4			I			➔2-25
ENGINE OIL	NOTE 3	I		R			➔2-34
ENGINE OIL FILTER	NOTE 3			R			➔2-35
ENGINE IDLE SPEED		I					➔2-36
PISTON AND PISTON RINGS				R			➔2-36
PISTON PIN				R			➔2-36
RADIATOR COOLANT	NOTE 2	I					➔2-45
COOLING SYSTEM		I					➔2-47
DRIVE CHAIN		I, L	R				➔2-48
DRIVE CHAIN SLIDER		I					➔2-51
DRIVE CHAIN ROLLER		I					➔2-52
DRIVE SPROCKET		I					➔2-52
DRIVEN SPROCKET		I					➔2-52
BRAKE FLUID	NOTE 2	I					➔2-53
BRAKE PADS WEAR		I					➔2-54
BRAKE SYSTEM		I					➔2-55
CLUTCH SYSTEM		I					➔2-56
CONTROL CABLES		I, L					➔2-61
EXHAUST PIPE/MUFFLER		I					➔2-63
SUSPENSION		I					➔2-64
SWINGARM/SHOCK LINKAGE			L				➔2-64
FORK OIL					R		➔2-65
NUTS, BOLTS, FASTENERS		I					➔2-70
WHEELS/TIRES		I					➔2-70
STEERING HEAD BEARINGS					I		➔2-70

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.
7. Replace 3 years.

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

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	WHICHEVER COMES FIRST	INITIAL MAINTENANCE	REGULAR MAINTENANCE INTERVAL				REFER TO PAGE
		⇨ mile	100	600	1200	1800	2400	
		km	150	1000	2000	3000	4000	
	ITEMS	MONTH	1	6	12	18	24	
*	FUEL LINE				I		I	→2-11
**	FUEL PUMP FILTER					R		→2-14
*	THROTTLE OPERATION				I		I	→2-19
	AIR CLEANER	NOTE 1, NOTE 3		C	C	C	C	→2-19
	CRANKCASE BREATHER			I	I	I	I	→2-21
	SPARK PLUG			I	I	I	I	→2-24
*	VALVE CLEARANCE		I	I	I	I	I	→2-25
	ENGINE OIL		R	R	R	R	R	→2-34
	ENGINE OIL FILTER		R	R	R	R	R	→2-35
*	DECOMPRESSOR SYSTEM		I	I	I	I	I	→2-33
**	ENGINE IDLE SPEED		I	I	I	I	I	→2-36
	RADIATOR COOLANT	NOTE 2			I		R	→2-45
*	COOLING SYSTEM		I	I	I	I	I	→2-47
*	SECONDARY AIR SUPPLY SYSTEM				I		I	-
	EVAPORATIVE EMISSION CONTROL SYSTEM						I	-
	DRIVE CHAIN	NOTE 1	I, L	I, L: Every 300 mi (500 km) or 3 month				→2-48
	DRIVE CHAIN SLIDER			I	I	I	I	→2-51
	BRAKE FLUID	NOTE 2		I	I	I	I	→2-53
	BRAKE PADS WEAR			I	I	I	I	→2-54
	BRAKE SYSTEM		I	I	I	I	I	→2-55
*	HEADLIGHT AIM				I		I	→2-56
	CLUTCH SYSTEM		I	I	I	I	I	→2-56
	SIDESTAND				I		I	→2-63
*	SUSPENSION				I		I	→2-64
*	SPARK ARRESTER		C: Every 1000 mi (1600 km) or every 100 operating hours					→2-69
*	NUTS, BOLTS, FASTENERS		I		I		I	→2-70
**	WHEELS/TIRES		I	I	I	I	I	→2-70
**	STEERING HEAD BEARINGS		I		I		I	→2-70

* Should be serviced by a dealer, unless the owner has proper tools and service data and is mechanically qualified.

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

NOTES:

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

FUEL LINE

⚠WARNING

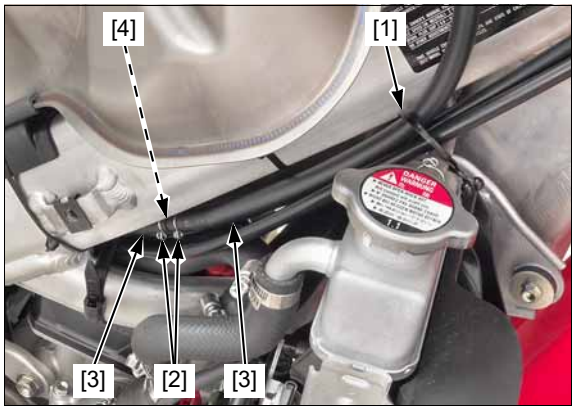
Gasoline is highly flammable and explosive.
You can be burned or seriously injured when handling fuel.
- Stop the engine and keep heat, sparks and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.

FUEL TANK LIFTING/INSTALLATION

Remove the top shelter ➔1-11.

Remove the hose clamp [1].

Release the hose clips [2] and disconnect the fuel tank breather hoses [3] from the hose joint [4].



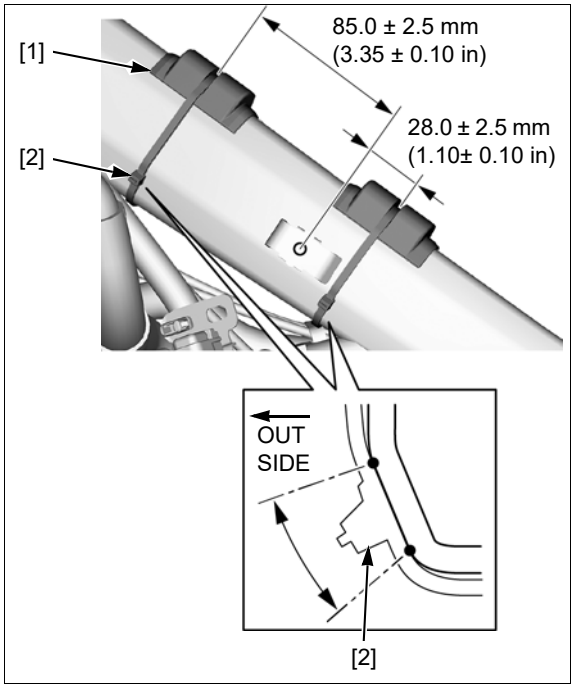
Remove the bolts [1] and washers [2].

Lift the fuel tank [3].

Check the rubber cushions [1] for proper installation as shown.

Installation is in the reverse order of removal.

NOTE:
- Do not ride the motorcycle in state which the rubber cushions have been removed. It may cause the fuel leaking.
- If replace the rubber cushions, degrease the attaching area of the frame.
  Be sure that the bands ends [2] are in position as shown.



INSPECTION

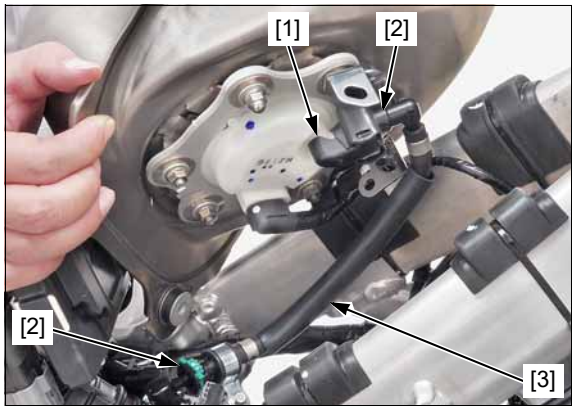
Lift the fuel tank ➔2-11.

Check the quick connect fitting cover [1] for proper installation.
Remove the quick connect fitting cover.

Check the quick connect fittings [2] for looseness.
Check the quick connect fittings for dirt and clean if necessary.

Check the fuel feed hose [3] for deterioration, damage, or leakage and replace if necessary.

NOTE:
- For fuel line replacement ➔2-11.



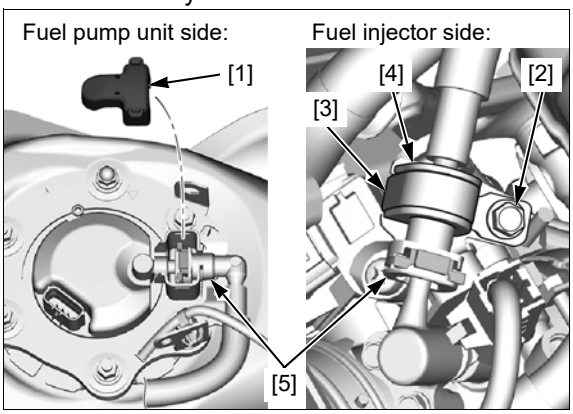
QUICK CONNECT FITTING REMOVAL

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

1. Lift the fuel tank ➔2-11.
2. Support the fuel tank in an upright position onto the frame.
3. Start the engine and let it idle until the engine stalls.
4. Disconnect the following:

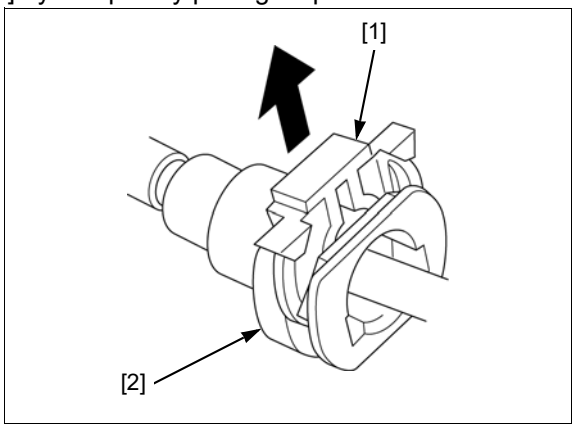
– Fuel pump 5P connector [1]
– Battery negative (–) cable ➔1-12

5. Fuel pump unit side:
   Remove the quick connect fitting cover [1].
   Fuel injector side:
   Remove the bolt [2], clamp [3], and setting rubber [4].
6. Check the fuel quick connect fittings [5] for dirt and clean if necessary.



7. Place a shop towel over the quick connect fitting.

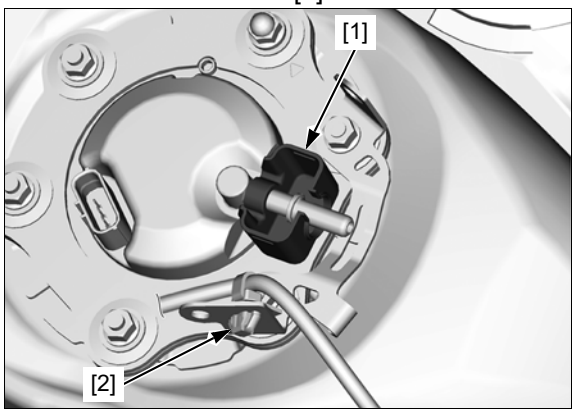
8. Unlock the slide retainer [1] of the quick connect fitting [2] by completely pulling it up.



9. Release the quick connect fittings from the fuel joints while holding the connector housing.

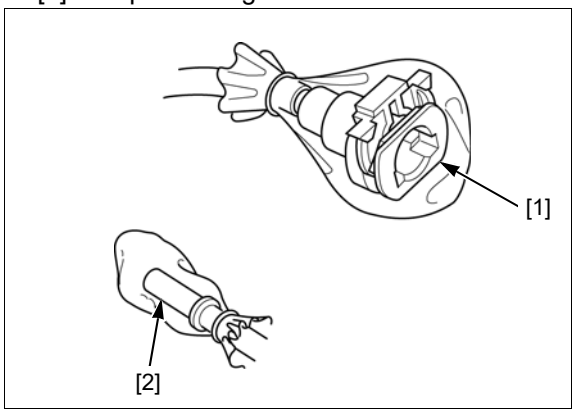
NOTE:
- Prevent the remaining fuel in the fuel feed hose from flowing out, using a shop towel.
- Be careful not to damage the slide retainer and hose.
- Do not use tools.

10. Fuel pump unit side:
Remove the rubber cover [1].



11. Release the wire clip [2] and remove the fuel tank.

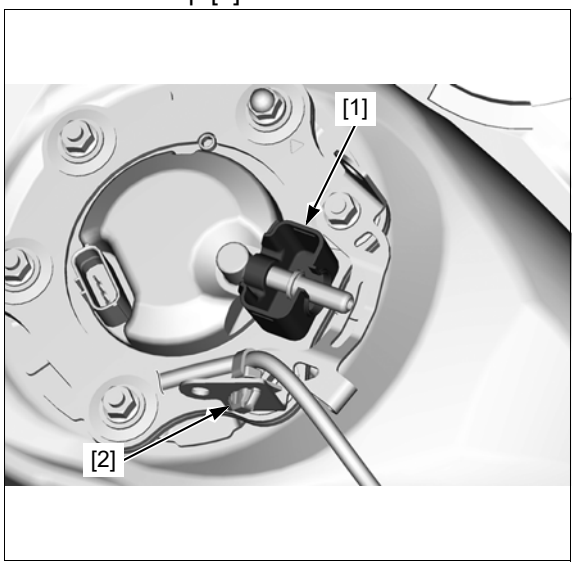
12. To prevent damage and keep foreign matter out, cover the disconnected connectors [1] and fuel joints end [2] with plastic bags.



QUICK CONNECT FITTING INSTALLATION

1. Fuel pump unit side:
Install the rubber cover [1].

2. Install the wire clip [2].

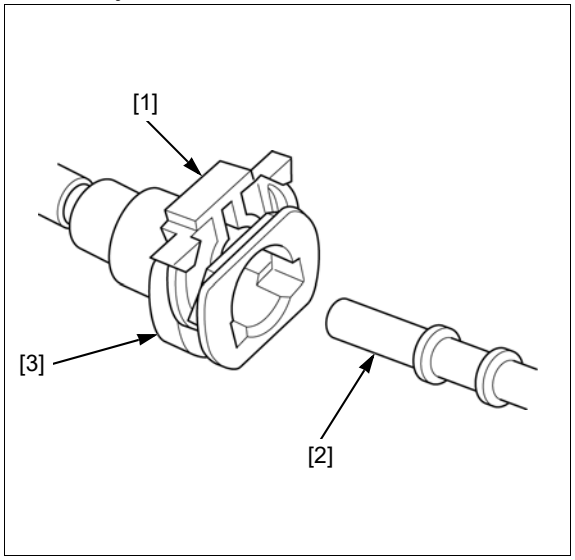


3. Be sure that the slide retainer [1] is completely pulled up before connecting the quick connect fitting.

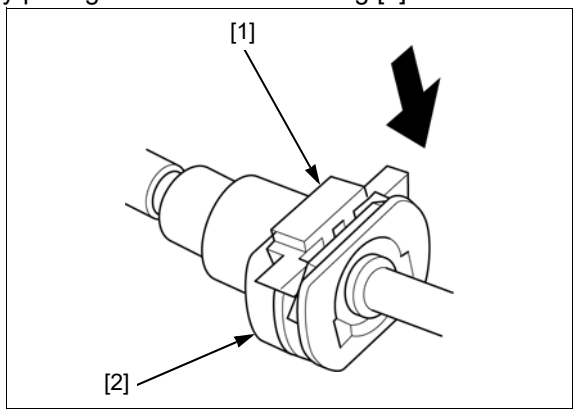
NOTE:
- Do not bend or twist fuel feed hose.
- Do not reuse the kinked or damaged fuel feed hose.
- Check the quick connect fitting for damage, replace the fuel feed hose if necessary.
- Do not use gloves or a shop towel while installing the quick connect fitting.

4. Connect the quick connect fitting to the fuel joints [2] until you hear the "CLICK" while holding the connector housing [3].

NOTE:
- If it is hard to connect, put a small amount of engine oil on the fuel joint end.



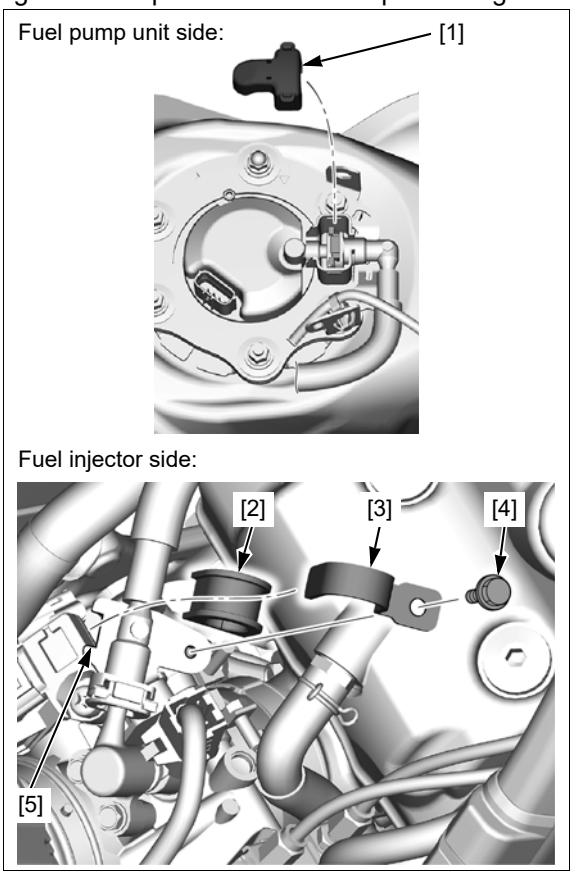
5. Lock the slide retainer [1] by pushing it until you hear the "CLICK".
   Make sure the connection is secure and that the slide retainer is firmly locked into place; check visually and by pulling the connector housing [2].



6. Fuel pump unit side:
   Install the quick connect fitting cover [1] securely.
   Fuel injector side:
   Install the setting rubber [2] and clamp [3].
   Install and tighten the bolt [4] securely.

NOTE:

- Align the clamp end with the clamper base groove [5].



7. Connect the battery negative (–) cable ➔1-12.
8. Connect the fuel pump 5P connector [1].

9. Temporarily install the fuel tank on the frame.
10. With the throttle closed, pull the clutch lever all the way in, and depress the starter switch.
    The engine will start up by increasing the fuel pressure.
11. Stop the engine.

    Check that there is no leakage in the fuel supply system ➔2-11.

FUEL FILTER

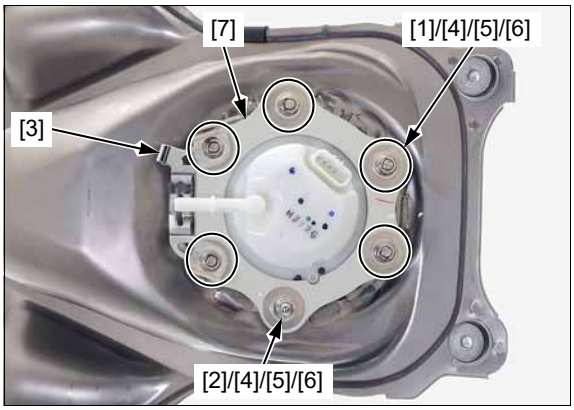
Disconnect the quick connect fitting from the fuel pump unit side ➔2-12.

Remove the following:

– Fuel pump unit mounting nuts [1]
– Fuel pump unit mounting cap nut [2]
– Stay [3]
– Washers [4]
– Collars [5]
– Conical spring washers [6]
– Fuel pump plate [7]

NOTE:

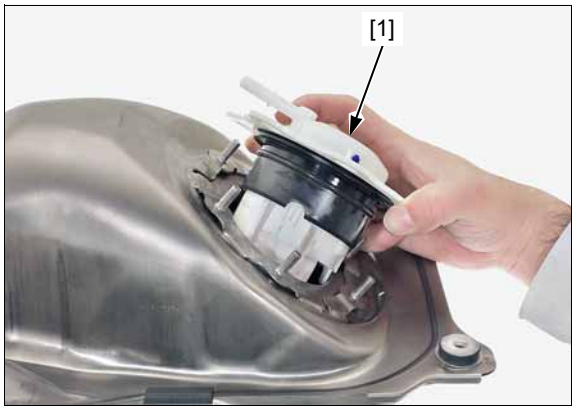
- Loosen the mounting nuts in a crisscross pattern in two or three steps.



Remove the fuel pump unit [1].

NOTE:

- Be careful not to damage the fuel pump unit.
- Wipe up any spilled fuel immediately.



Remove the O-ring [1] and dust seal [2].

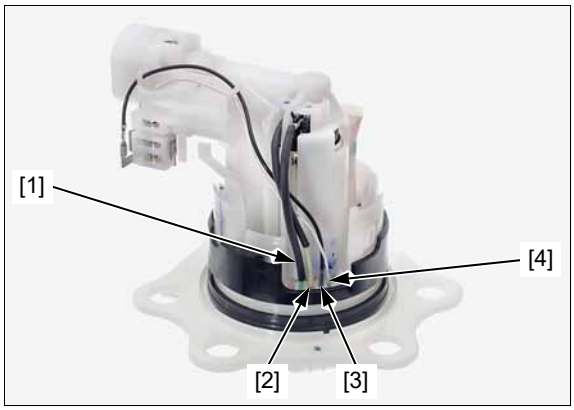
Check the terminal for loose connection or damage.

Disconnect the following wires from the fuel pump base terminals.

– Green wire [1]
– Yellow wire [2]
– Black wire [3]
– White wire [4]

NOTE:

- Be careful not to damage the wires.

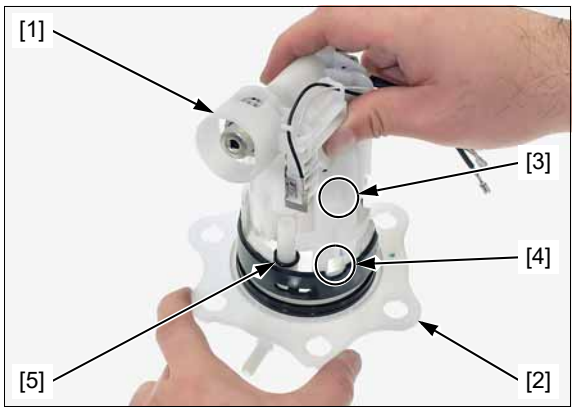


Remove the fuel pump unit holder assembly [1] from the fuel pump base [2] by releasing the three hooks [3] from the grooves [4].

NOTE:

- Wipe up any spilled fuel immediately.

Remove the O-ring [5].



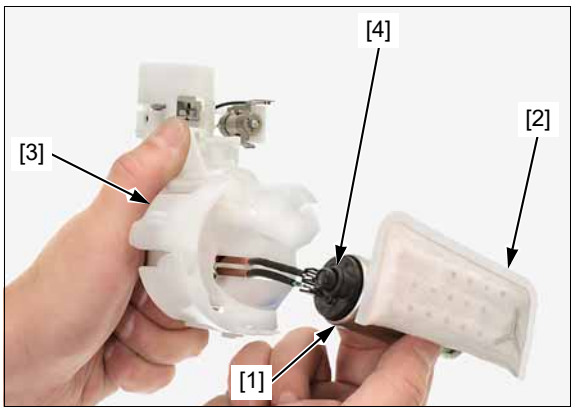
Remove the fuel pump stopper [1] and damper rubber [2] from the fuel unit holder assembly [3].

Remove the fuel pump assembly [1] with the fuel filter [2] from the fuel pump unit holder [3].

NOTE:

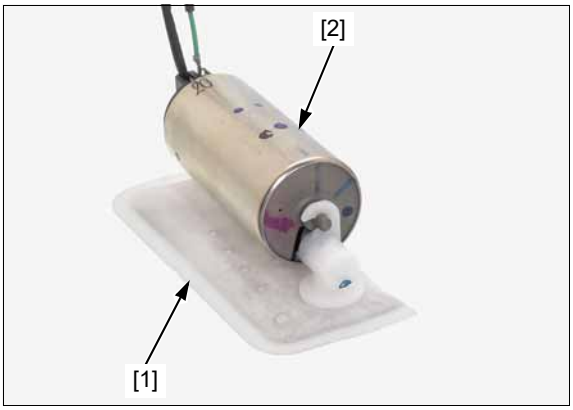
- Be careful not to damage the wires.

Remove the O-ring [4] from the fuel pump unit assembly.

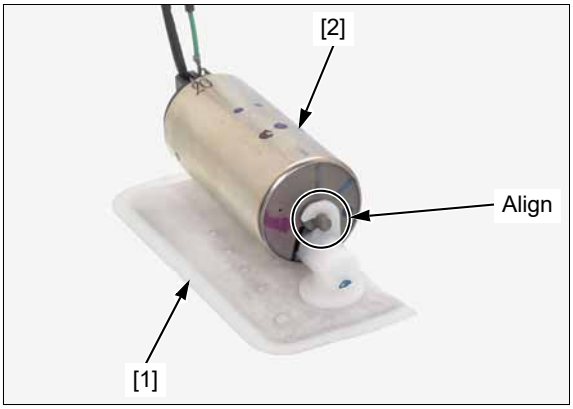


Remove the fuel filter [1] from the fuel pump assembly [2].

Check the fuel filter for clog, damage or deterioration and replace if necessary.



Install the fuel filter [1] onto the fuel pump assembly [2] by aligning its hook with the joint boss securely.

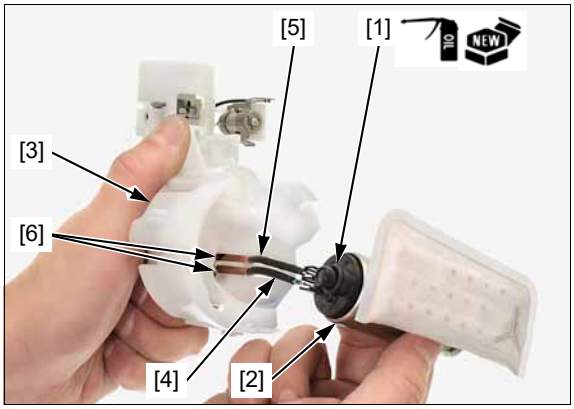


Apply engine oil to a new O-ring.
Install the O-ring [1] to the fuel pump assembly [2].

Install the fuel pump assembly into the fuel pump unit holder [3] while routing the green wire [4] and yellow wire [5] through the holder slots [6] as shown.

NOTE:

- Be careful not to damage the wires.



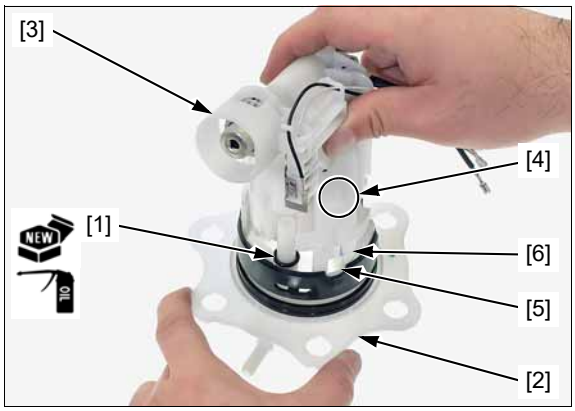
Install a new damper rubber [1] as shown.

Install the fuel pump stopper [2].

Apply engine oil to a new O-ring.
Install the O-ring [1] to the fuel pump base [2].

Install the fuel pump unit holder assembly [3] into the fuel pump base while holding its hooks [4].

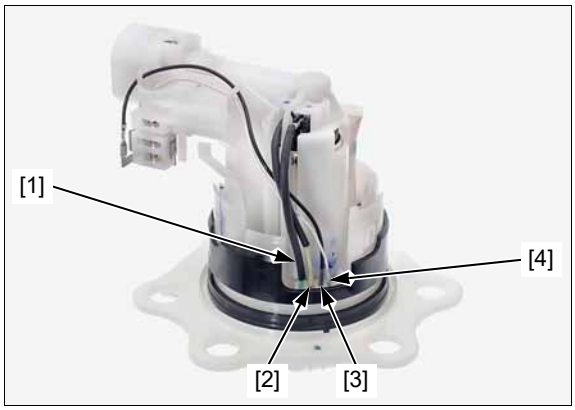
NOTE:
- Be sure that the hooks are completely seated at the pump base grooves [5].
- If the gap between the hooks and tabs [6] is more than 1.0 mm (0.04 in), replace the fuel pump unit.



Connect the following wires to the fuel pump base terminals.

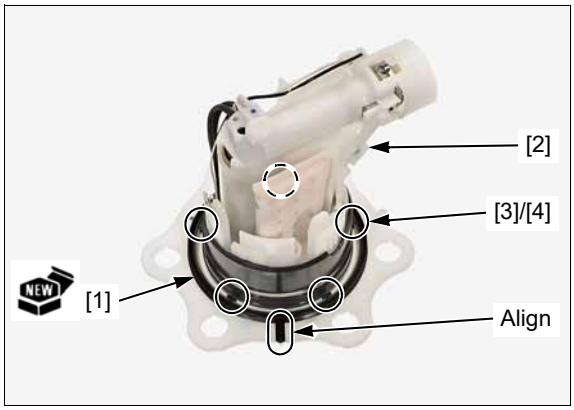
– Green wire [1]
– Yellow wire [2]
– Black wire [3]
– White wire [4]

NOTE:
- Be careful not to damage the wires.
- Route the wires properly as shown.



Install a new dust seal [1] onto the fuel pump unit [2].

NOTE:
- Align the dust seal tabs [3] with the fuel pump unit grooves [4].
- Align the dust seal lip with the index line of the pump base.

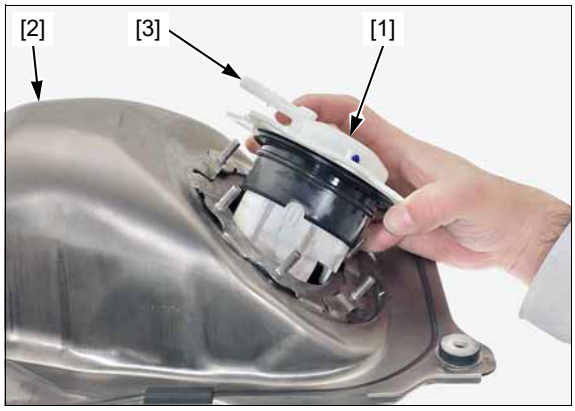


Apply engine oil to a new O-ring.
Install the O-ring [1] onto the fuel pump unit.

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

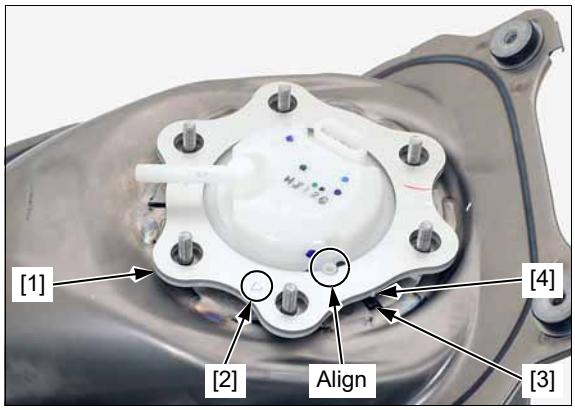
Install the fuel pump unit [1] into the fuel tank [2] with the fuel joint [3] facing forward.

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



Install the fuel pump plate [1] with the "△" mark [2] facing outside.

NOTE:
- Align the fuel pump plate groove with the fuel pump unit lug.
- Make sure that the dust seal lip [3] aligned with the index mark [4] of the plate.



Install the following:

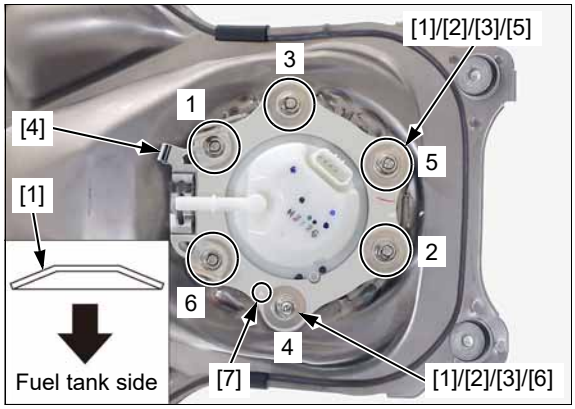
– Conical spring washers [1]
– Collars [2]
– Washers [3]
– Stay [4]
– Fuel pump mounting nuts [5]
– Fuel pump mounting cap nut [6]

NOTE:
- Install the conical spring washers in the shown direction.
- Install the cap nut so that it is neighbored the "△" mark [7] on the fuel pump plate.

Tighten the fuel pump mounting nuts and fuel pump mounting cap nut to the specified torque in the specified sequence as shown.

TORQUE: 11 N·m (1.1 kgf·m, 8 lbf·ft)

Connect the quick connect fitting to the fuel pump unit side ➔2-13.



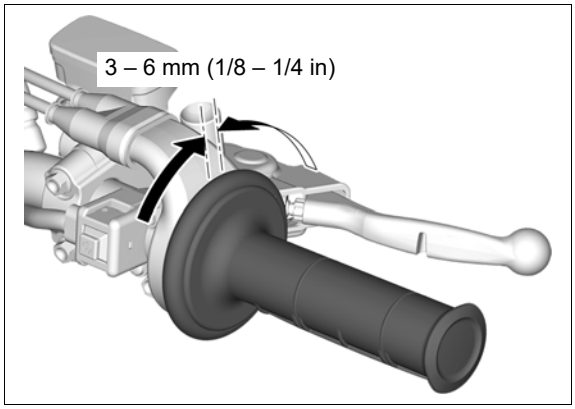
THROTTLE OPERATION

Check for smooth operation of the throttle and that it returns automatically to the fully closed position from any open position and from any steering position.
Check the throttle cables and replace them if they are deteriorated, kinked or damaged.

Replace the throttle cables if throttle operation is not smooth.

Measure the freeplay at the throttle grip flange.

FREEPLAY:3 – 6 mm (1/8 – 1/4 in)



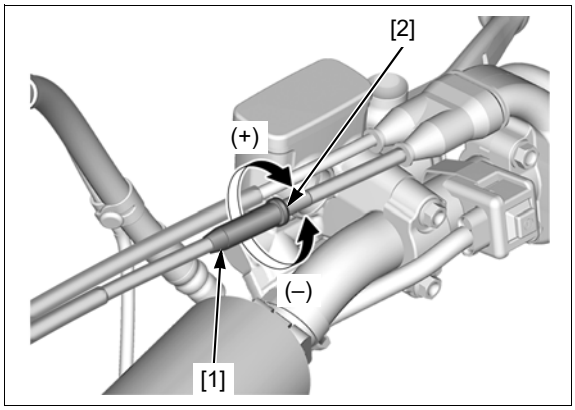
Throttle grip freeplay can be adjusted at either end of the throttle cable.

Minor adjustment is made with the grip side adjuster [1].
Adjust the freeplay by loosening the grip side adjuster lock nut [2] and turning the adjuster.
Turning the grip side adjuster in direction (–) will decrease freeplay and turning it in direction (+) will increase freeplay.

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

Recheck the throttle operation.

If you cannot obtain the correct freeplay with grip side adjuster, turn it all the way in and then turn it out one turn. Make the major adjustment with the throttle body side adjuster.



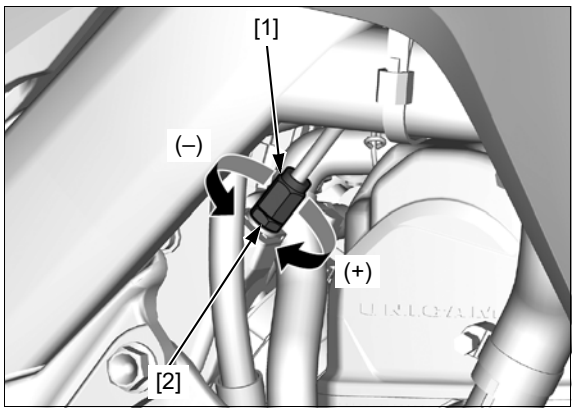
Major adjustment is made with the throttle body side adjuster [1].

Adjust the freeplay by loosening the throttle cable adjuster lock nut [2] and turning the throttle body side adjuster.
Turn the throttle body side adjuster 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 throttle body side adjuster.

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

Recheck the throttle operation.



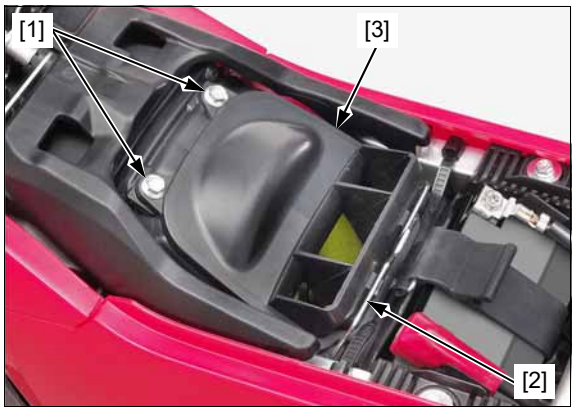
AIR CLEANER

Remove the seat ➔1-3.

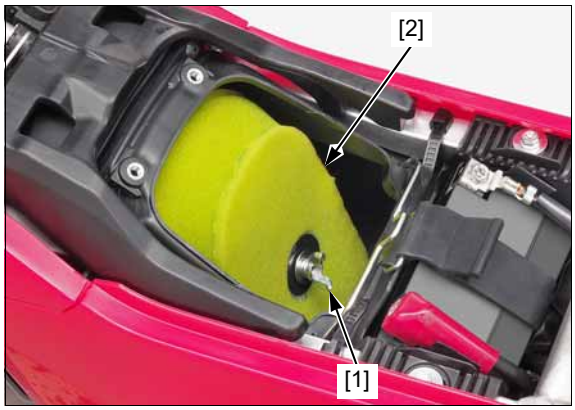
Remove the bolts [1].

Release the air cleaner lid spring [2].

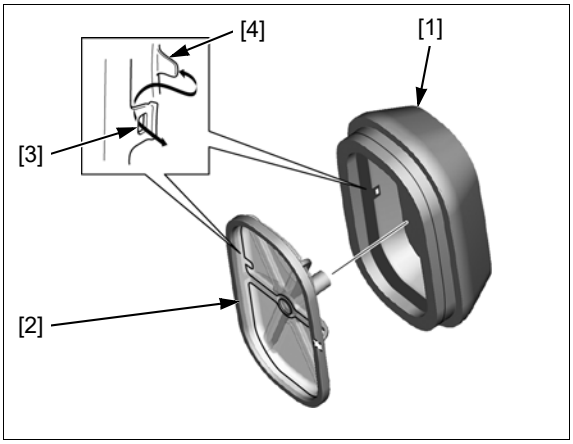
Remove the air cleaner lid [3].



Remove the air cleaner element set bolt [1] and air cleaner assembly [2].



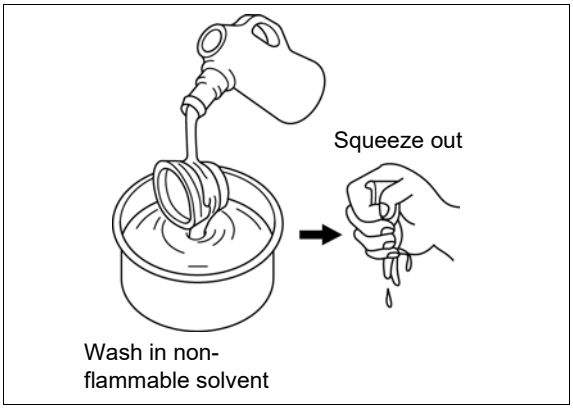
Remove the air cleaner element [1] from the element holder [2] by releasing the element hole [3] from the holder tab [4].



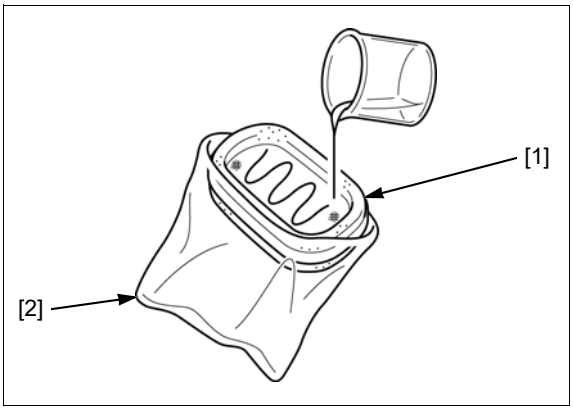
Thoroughly wash the air cleaner element in clean nonflammable or high flash-point cleaning solvent.
Then wash the air cleaner element again in a solution of hot water and dishwashing liquid soap.

After cleaning, be sure there is no dirt or dust trapped between the inner and outer layer of the air cleaner element.
Wash again if necessary.

Allow the air cleaner element to dry thoroughly.

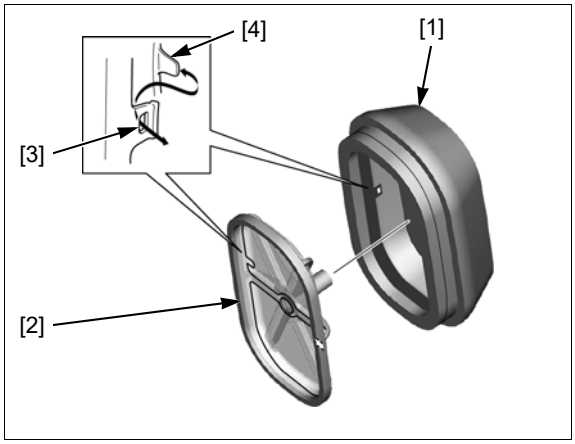


Apply 55 cm^3 (1.9 US oz) of Pro Honda Foam Air Filter Oil or equivalent oil to the inside of the element.
Place the air cleaner element [1] into a plastic bag [2] and spread the oil evenly by hand.



Assemble the air cleaner element [1] and element holder [2].

Hook the element hole [3] onto the holder tab [4].



Apply 1.5 – 5.5 g (0.1 – 0.2 oz) of grease to the air cleaner element contacting area of the air cleaner housing [1].

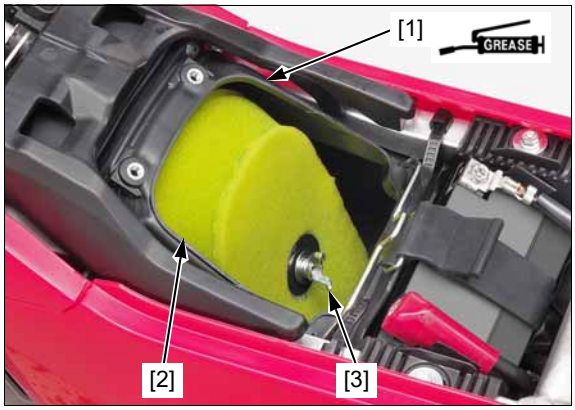
Install the air cleaner element [2].

Install the air cleaner element set bolt [3] and tighten it to the specified torque.

TORQUE: 2.4 N·m (0.2 kgf·m, 1.8 lbf·ft)

NOTE:

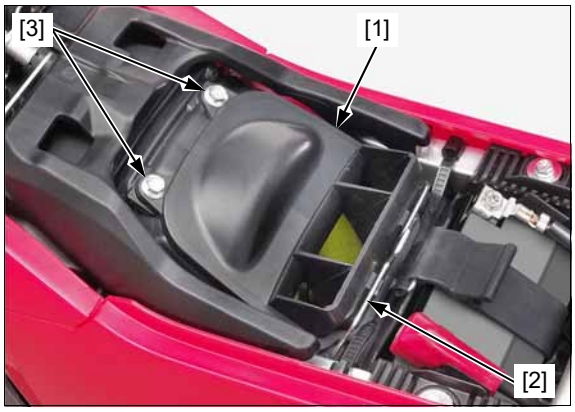
- If the air cleaner assembly is not installed correctly, dirt and dust may enter the engine, resulting in wear of the piston ring and cylinder.



Install the air cleaner lid [1].

Hook the air cleaner lid spring [2].

Install the bolts [3] and tighten them securely.



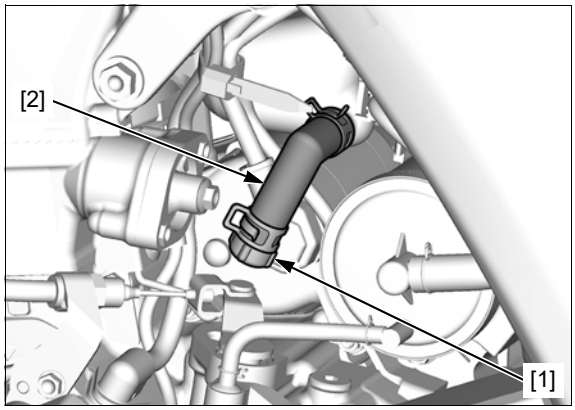
CRANKCASE BREATHER

INSPECTION

Remove the drain plug [1], then drain any fluid or dirt into a proper container from the crankcase breather hose [2].

Reinstall the drain plug.

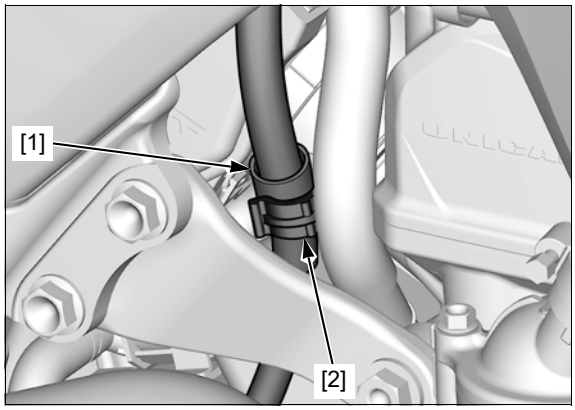
Remove the drain plug [1], then drain any fluid or dirt into a proper container from the breather catch tank drain hose [2].
Reinstall the drain plug.



CRANKCASE BREATHER CATCH TANK REMOVAL/INSTALLATION

Remove the side covers ➔1-4.
Remove the fuel tank ➔2-11.
Remove the drive sprocket cover ➔1-8.

Remove the fuel tank breather hose B [1] from the hose clamp [2].

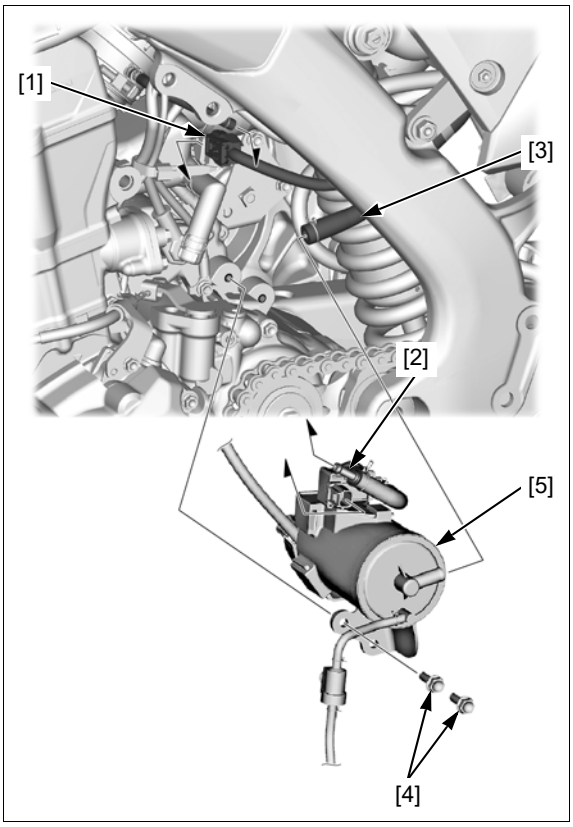


Disconnect the following:

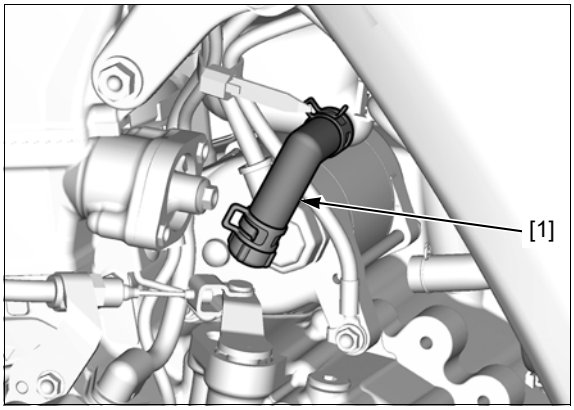
– EVAP purge control solenoid valve 2P (Black) connector [1]
– Vacuum hose joint [2]
– Open air hose [3]

Remove the bolts [4].

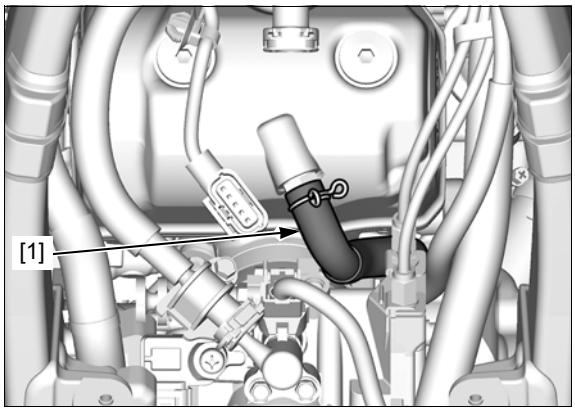
Remove the EVAP purge control solenoid valve/canister assembly [5].



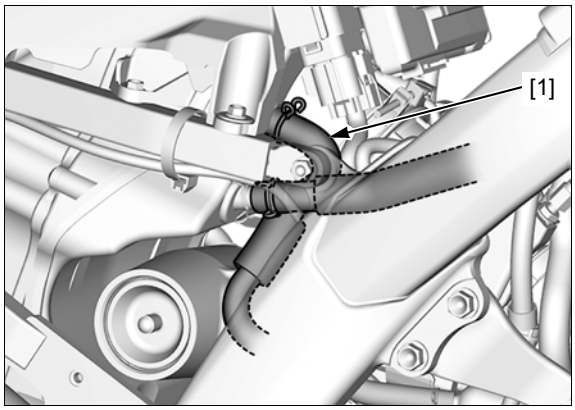
Remove the breather catch tank drain hose [1].



Disconnect the crankcase breather hose A [1].

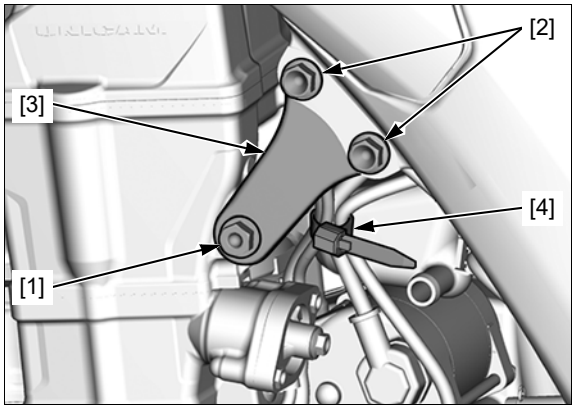


Disconnect the crankcase breather hose B [1].



Remove the following:

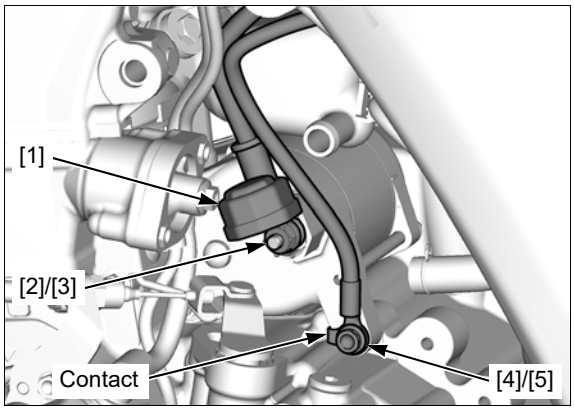
– Left cylinder head hanger bolt [1]
– Left cylinder head hanger plate bolts [2]
– Left cylinder head hanger plate [3]
– Wire band [4]



Open the terminal cap [1].

Remove the terminal nut [2] and release the starter motor cable [3].

Remove the bolt [4] and release the battery negative (–) cable [5].



Remove the bolt/washer [1].

Remove the following:

– Crankcase breather catch tank [2]
– Grommet A [3]
– Flange collar [4]
– Stay [5]
– Grommet B [6]

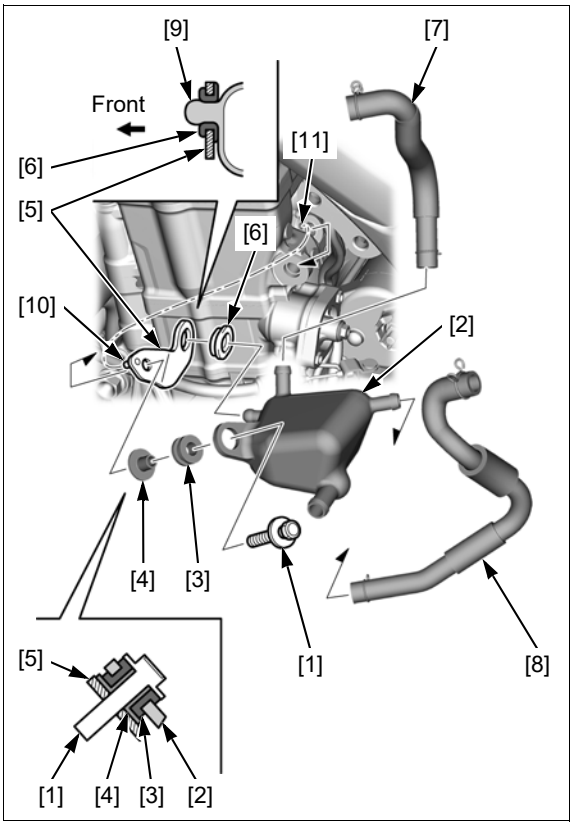
Remove the crankcase breather hose A [7] and B [8].

Installation is in the reverse order of removal.

TORQUE:
Left cylinder head hanger bolt:
54 N·m (5.5 kgf·m, 40 lbf·ft)
Left cylinder head hanger plate bolt:
32 N·m (3.3 kgf·m, 24 lbf·ft)

NOTE:

- Align the catch tank boss [9] with the grommet B on the stay.
- Align the stay pin [10] with the hole [11] of the cylinder head.
- Contact the battery negative (–) cable terminal tab on the starter motor rear bracket.
- Tighten the left cylinder head hanger bolt first and then hanger plate bolts.
- Route the wires and hoses properly as shown.



SPARK PLUG

REMOVAL/INSTALLATION

Remove the fuel tank ➔2-11.

Disconnect the spark plug cap [1].

NOTE:

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

Remove the spark plug [2] and inspect it for damage.

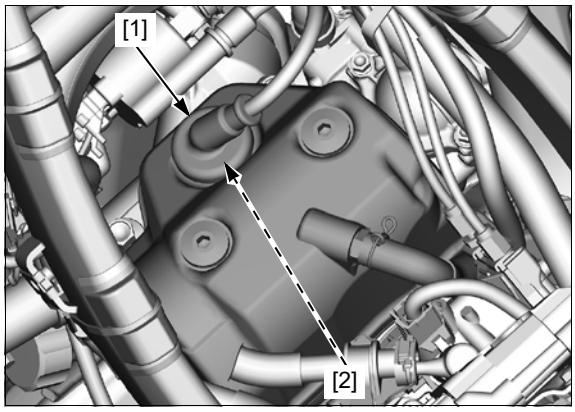
Inspect or replace as described in the maintenance schedule ➔2-9.

Install and hand tighten the spark plug to the cylinder head, then tighten the spark plug to the specified torque.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

Connect the spark plug cap securely.

Install the fuel tank ➔2-11.



INSPECTION

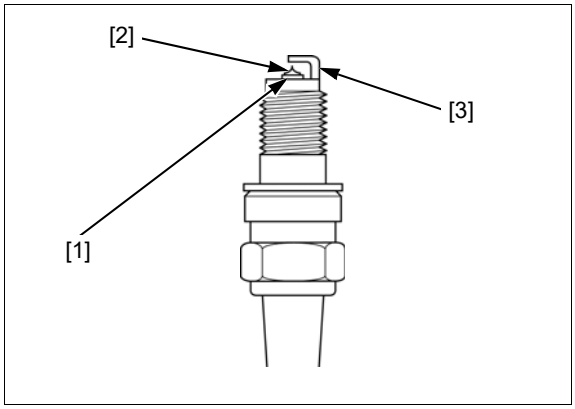
Check the following and replace the spark plug if necessary.

– Insulator [1] for damage
– Center electrode [2] and side electrode [3] for wear
– Coloration or burning condition

NOTE:

• This motorcycle's spark plugs are equipped with an iridium center electrode. Do not clean the electrodes.

If the electrodes are contaminated with accumulated objects or dirt, replace the spark plug.



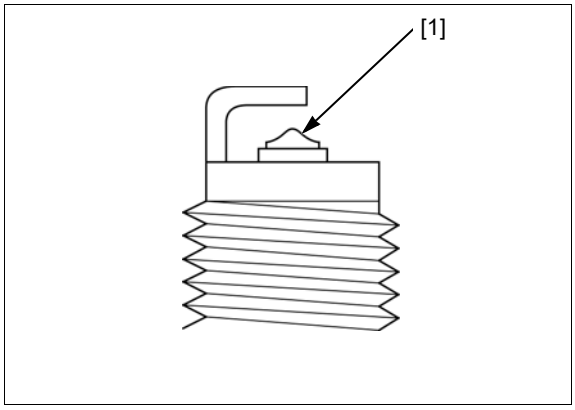
Replace the plug if the center electrode [1] is rounded as shown in the illustration.

SPECIFIED SPARK PLUG

STANDARD:	**SILMAR9A-9S (NGK)**
OPTIONAL:	**SILMAR10A-9S (NGK)**

NOTE:

• Always use specified spark plugs on this motorcycle.



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

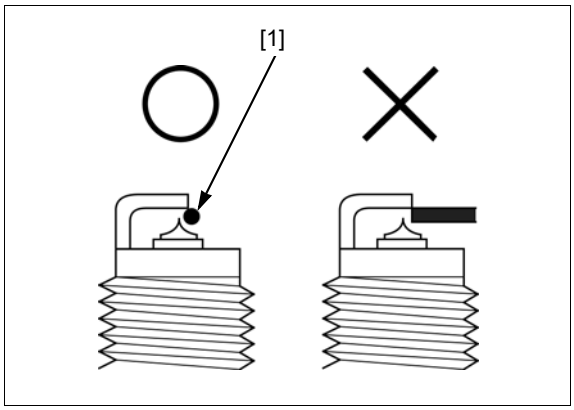
NOTE:

• 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.

NOTE:

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



VALVE CLEARANCE

INSPECTION

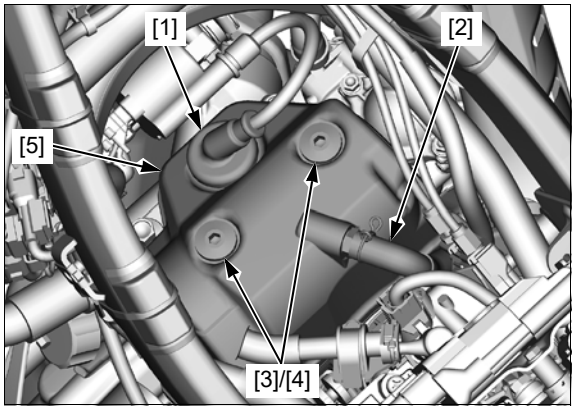
NOTE:

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

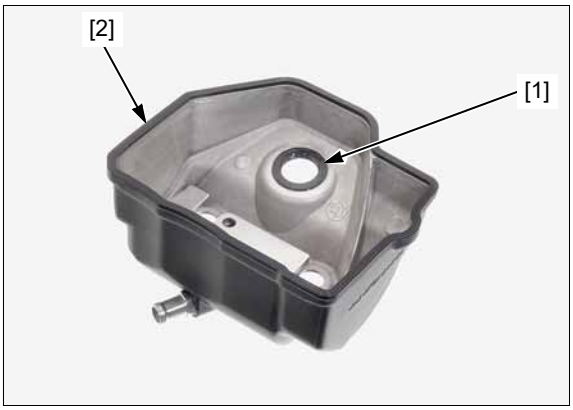
Remove the fuel tank ➔2-11.

Disconnect the spark plug cap [1] and crankcase breather hose A [2].

Remove the cylinder head cover bolts [3], rubber seals [4], and cylinder head cover [5].

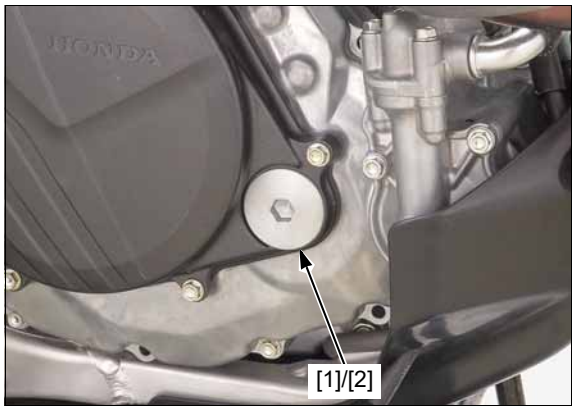


Remove the spark plug hole seal ring [1] and cylinder head cover packing [2].



Remove the spark plug ➔2-24.

Remove the crankshaft hole cap [1] and O-ring [2].

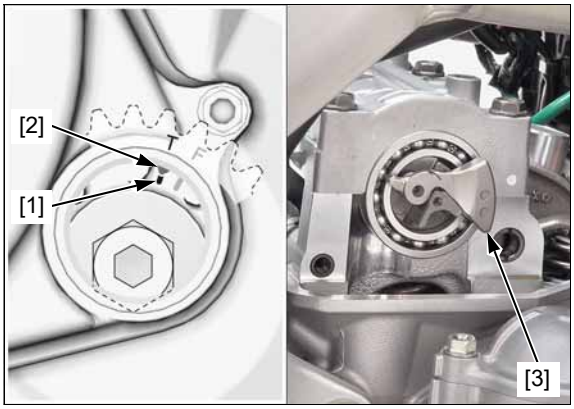


Turn the crankshaft clockwise to align the "T" mark [1] on the primary drive gear with the index mark [2] on the right crankcase cover.

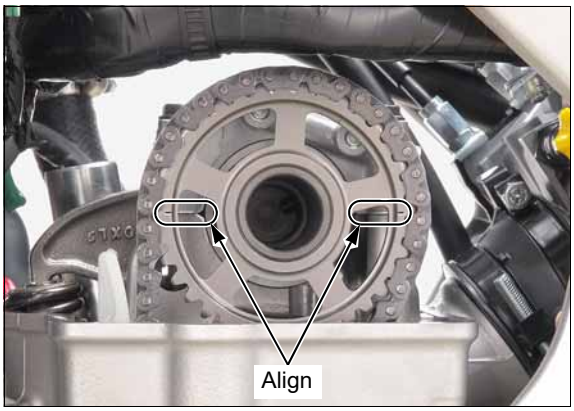
Check the decompressor weight [3] position.

NOTE:

- If the weight is in position as shown, the piston is TDC (Top Dead Center) on the compression stroke.
  If the weight is opposite, the piston is TDC on the exhaust stroke. Rotate the crankshaft clockwise one full turn and match up the "T" mark on the primary drive gear with the index mark on the right crankcase cover again.



Check that the index lines on the cam sprocket align with the camshaft holder mating surface.



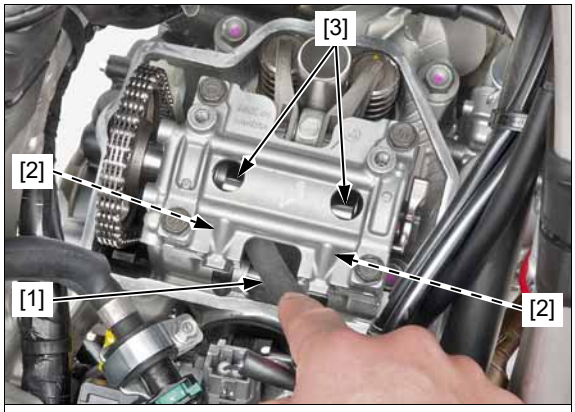
Check the valve clearance for the intake valves using a feeler gauge [1].

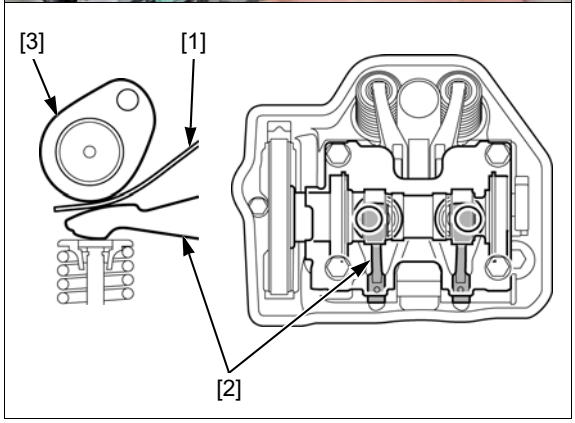
Insert a feeler gauge between the intake rocker arms [2] and camshaft cam lobes [3].

INTAKE VALVE CLEARANCE:
0.11 ± 0.03 mm (0.004 ± 0.001 in)

NOTE:
- Be careful not to damage the intake rocker arms.
- Record the clearance for each valve for reference in shim selection if adjustment is required.

If the clearance is out of specification, adjust the valve clearance ➔2-25.





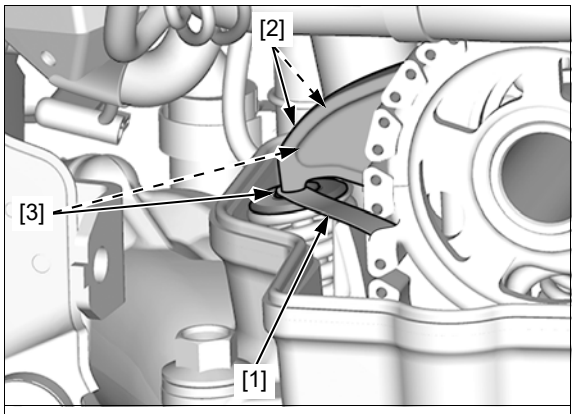
Check the valve clearance for the exhaust valves using a feeler gauge [1].

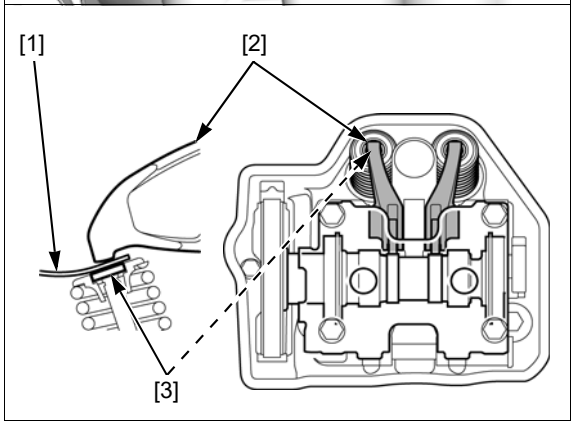
Insert a feeler gauge between the exhaust rocker arms [2] and shims [3].

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

NOTE:
- Record the clearance for each valve for reference in shim selection if adjustment is required.

If the clearance is out of specification, adjust the valve clearance ➔2-25.



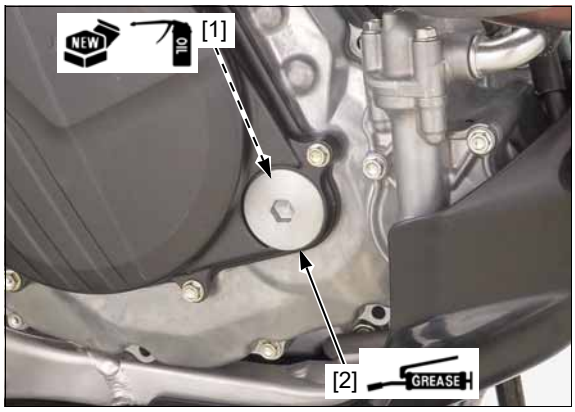


Apply engine oil to a new O-ring.
Install the O-ring [1] to the crankshaft hole cap [2].

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)

Install the spark plug ➔2-24.

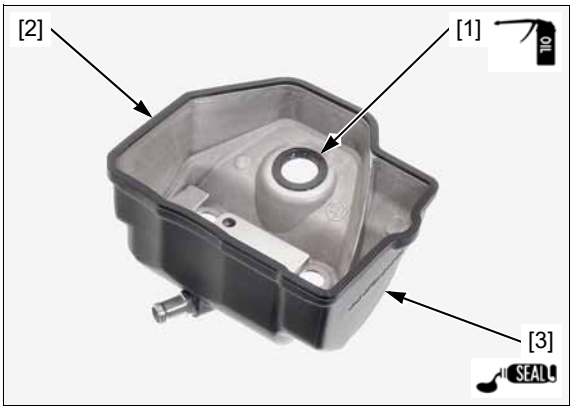


Check the plug hole seal ring [1] and cylinder head cover packing [2] for damage or deterioration and replace them if necessary.

Apply engine oil to the spark plug hole seal ring circumference.
Install the spark plug hole seal ring to the cylinder head cover [3].

Apply liquid sealant (TB1207B manufactured by ThreeBond or an equivalent) to the cylinder head cover groove.

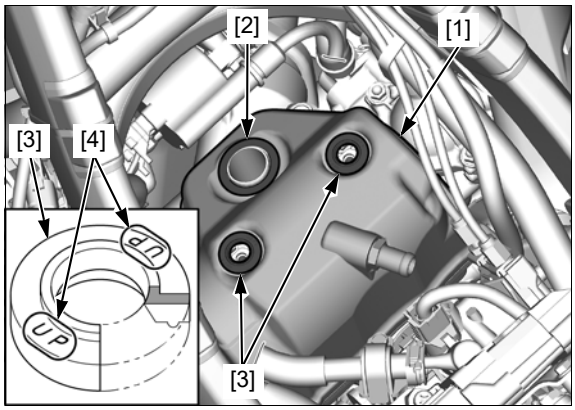
Install the cylinder head cover packing to the cylinder head cover.



Install the cylinder head cover [1].

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

Install the rubber seals [3] onto the cylinder head cover with their "UP" marks [4] facing up.

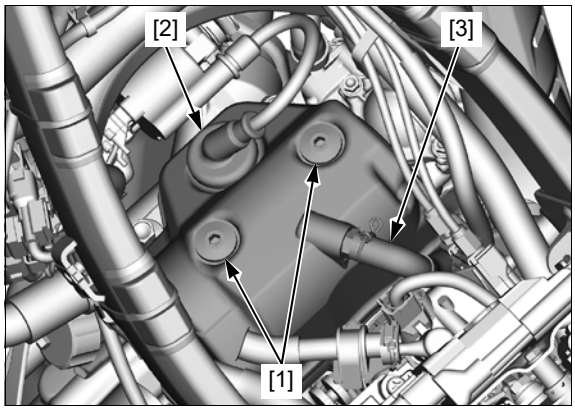


Install and tighten the cylinder head cover bolts [1] to the specified torque.

TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

Connect the spark plug cap [2] and crankcase breather hose A [3].

Install the fuel tank ➔2-11.



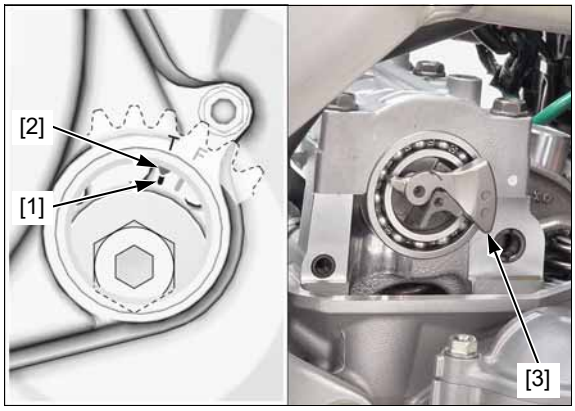
ADJUSTMENT

Remove the following:

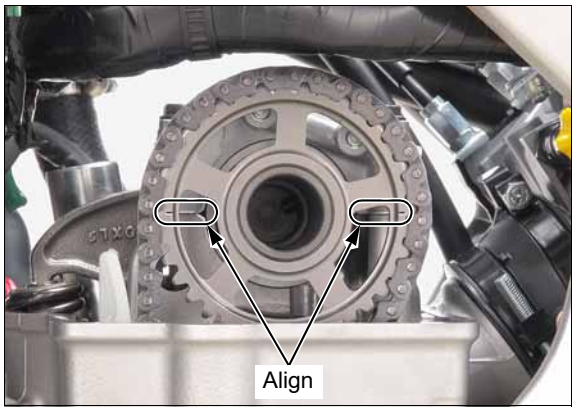
– Crankshaft hole cap ➔2-25
– Cylinder head cover ➔2-25
– Spark plug ➔2-24

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.

Check the decompressor weight [3] position.
If the weight is in position as shown, the piston is TDC (Top Dead Center) on the compression stroke.
If the weight is opposite, the piston is TDC on the exhaust stroke. Rotate the crankshaft clockwise one full turn and match up the "T" mark on the primary drive gear with the index mark on the right crankcase cover again.



Align the index line on the cam sprocket with the camshaft holder mating surface.



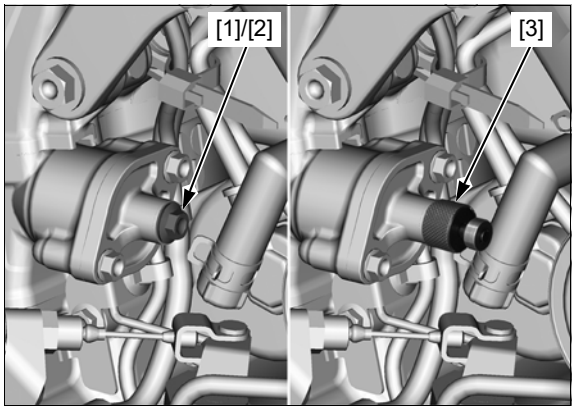
Remove the cam chain tensioner lifter bolt [1] and sealing washer [2].

Insert the special tool into the cam chain tensioner lifter hole.

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 (long) [1], camshaft holder bolts (short) [2], camshaft holder [3] and set rings [4].

NOTE:

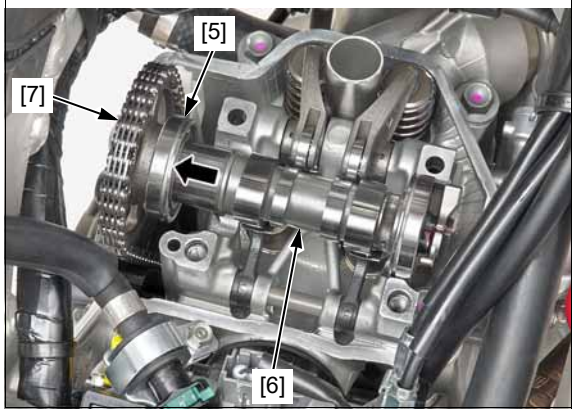
- Be careful not to drop the set rings into the crankcase.

Slide the bearing [5] to the cam sprocket side.

Remove the camshaft [6] by removing the cam chain [7] from the cam sprocket.

NOTE:

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

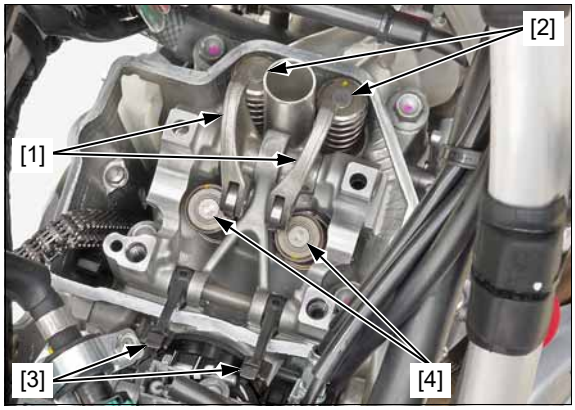


Lift the exhaust rocker arms [1] up.
Remove the exhaust side shims [2].

Lift the intake rocker arms [3] up.
Remove the intake side shims [4].

NOTE:

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



Measure the shim [1] thickness and record it.

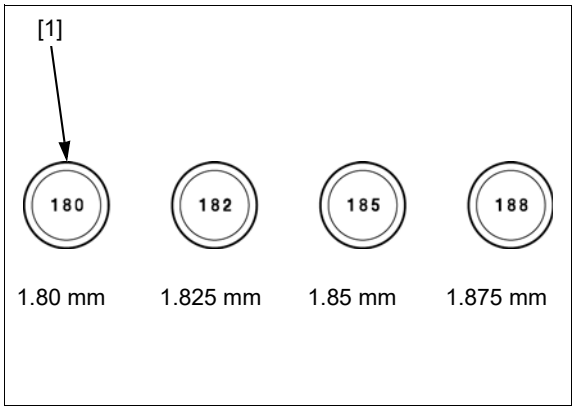
Calculate the new shim [1] thickness using the equation below.

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

A = (B – C) + D

NOTE:

- Make sure of the correct shim thickness by measuring the shim using a micrometer.
- Seventy-three different thickness shims are available from 1.200 mm to 3.000 mm in increments of 0.025 mm.
- Inspect the valve and valve seat if carbon deposits result in a calculated dimension of over 3.000 mm. Refer to an official Honda Service Manual or see your dealer to inspect the valve and valve seat.

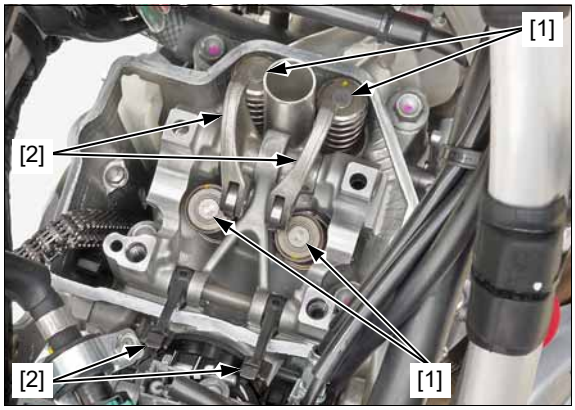


Install the newly selected shims [1] on the valve spring retainers.

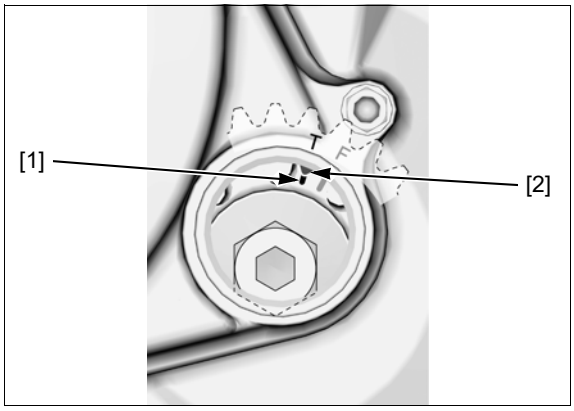
Lower the rocker arms [2] down.

NOTE:

- Be careful not to damage the intake rocker arms.



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.



Apply molybdenum oil solution to the camshaft cam lobes.

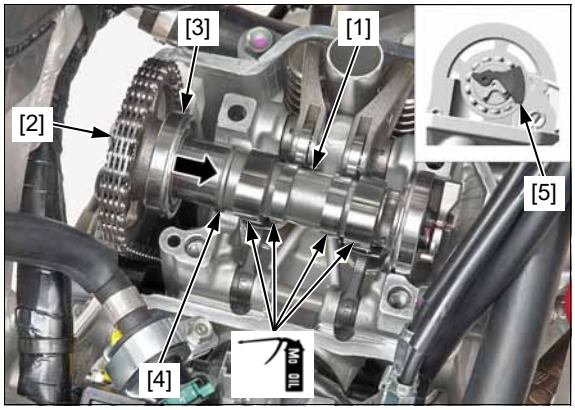
Install the camshaft [1] while installing the cam chain [2] onto the cam sprocket.

NOTE:

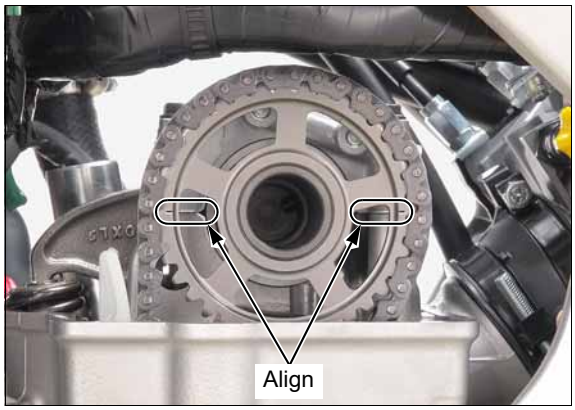
- Install the camshaft with the intake cam lobes facing up.

Slide the bearing [3] until it is fully seated to the camshaft rib [4].

Check the decompressor weight [5] is in position as shown.



Make sure that the index line on the cam sprocket aligns with the camshaft holder mating surface.



Install the set rings [1] into the camshaft bearing grooves.

NOTE:

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

Install the camshaft holder [2] by aligning their grooves with the set rings and dowel pins with the camshaft holder base holes [3].

NOTE:

- Install the camshaft holder with its "△" mark [4] facing exhaust side.

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

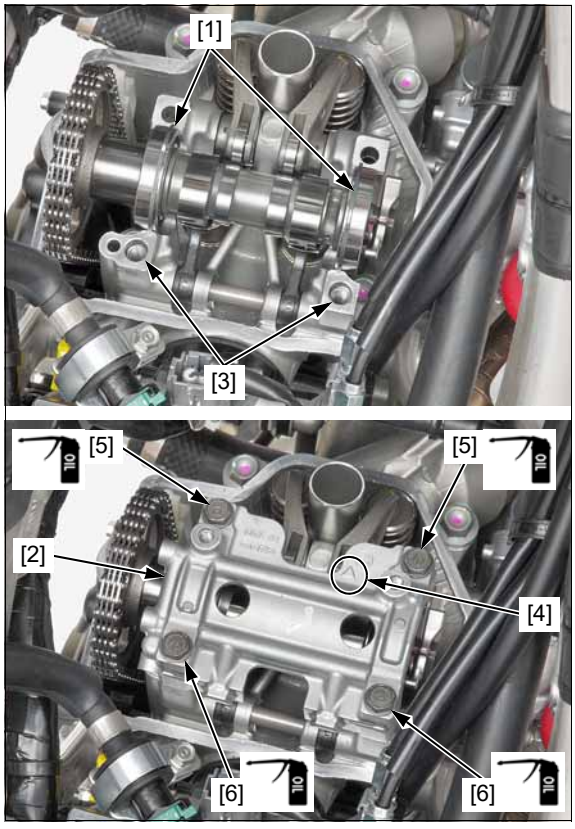
Install the camshaft holder mounting bolts (long) [5] and camshaft holder mounting bolts (short) [6].

NOTE:

- Align the rocker arm shaft cut-outs with the camshaft holder mounting bolts.

Tighten the camshaft holder mounting bolts to the specified torque.

TORQUE: 15 N·m (1.5 kgf·m, 11 lbf·ft)



Remove the stopper tensioner [1].

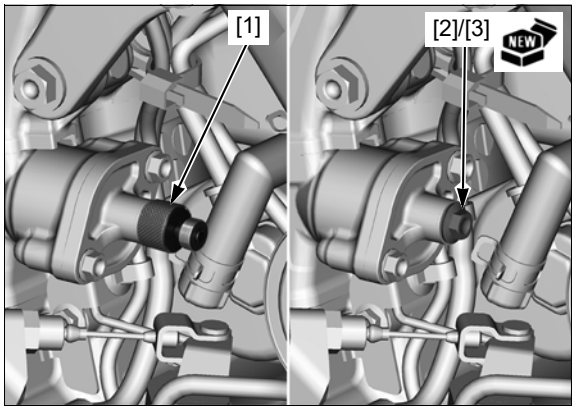
Install the cam chain tensioner lifter bolt [2] with a new sealing washer [3].
Tighten the cam chain tensioner lifter bolt securely.

Rotate the camshaft by rotating the crankshaft clockwise several times.

Recheck the valve clearance ➔2-25.

Install the following:

– Spark plug ➔2-24
– Cylinder head cover ➔2-25
– Crankshaft hole cap ➔2-25



DECOMPRESSOR SYSTEM

OPERATION INSPECTION

Remove the camshaft ➔2-25.

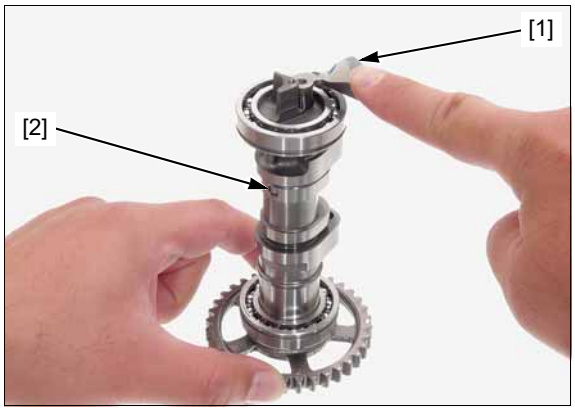
Inspect the decompressor operation.

1. Move the decompressor weight [1] outward with your finger.
   – The plunger [2] operation is normal if it is retracted.
2. Release the decompressor weight.
   – The decompressor weight should move inward automatically.
   – The plunger operation is normal if it is protruded.

If the decompressor weight operation is abnormal, disassemble and inspect the decompressor system.

Refer to an official Honda Service Manual or see your dealer to disassemble and inspect the decompressor system.

If the decompressor weight operation is normal, install the camshaft ➔2-25.



ENGINE OIL

ENGINE OIL LEVEL INSPECTION

Start the engine and let it idle for 3 minutes.
Stop the engine and wait 3 minutes.
Support the motorcycle upright on a level surface.

Remove the oil filler cap/dipstick [1] and wipe the oil with a clean cloth.
Insert the oil filler cap/dipstick without it is screw in, remove it and check the oil level.

If the oil level is below or near the lower level line [2] on the oil filler cap/dipstick, add the recommended engine oil to the upper level line [3] through the oil filler hole.

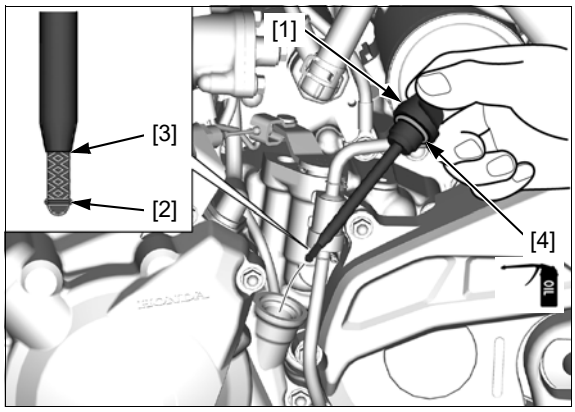
RECOMMENDED ENGINE OIL:
Pro Honda GN4 4-stroke oil (U.S.A. & Canada) or equivalent motorcycle oil
API service classification: SJ or higher
JASO T903 standard: MA
Viscosity: SAE 10W-30

- **Do not use API SJ or higher 4-stroke engine oils displaying a circular API "energy conserving" or "resource conserving" service label on the container. They may affect lubrication.**

NOT RECOMMENDED RECOMMENDED

Check that the O-ring [4] is in good condition, replace it if necessary.

Apply engine oil to the O-ring.
Reinstall the oil filler cap/dipstick.



ENGINE OIL CHANGE

ENGINE OIL DRAINING

Remove the engine guard ➔1-8.

Start the engine and let it idle for 3 minutes.
Support the motorcycle upright on a level surface.

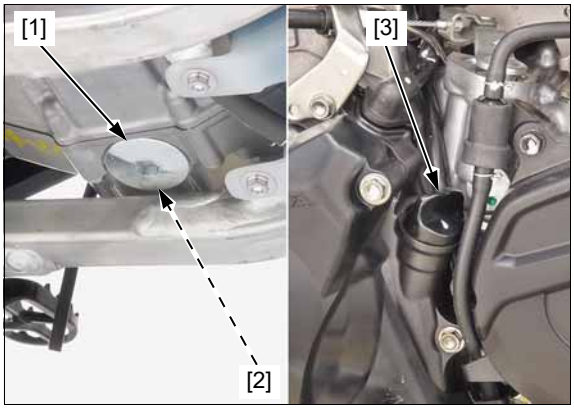
Place an oil pan under the engine to catch the engine oil, then remove the engine oil drain bolt [1] and O-ring [2].

Remove the oil filler cap/dipstick [3].

Drain the engine oil.

NOTE:

- Pull the clutch lever all the way in, and depress the starter switch while pressing the engine stop switch, so the engine oil completely drains.



ENGINE OIL FILLING

Apply engine oil to the engine oil drain bolt threads and a new O-ring whole surface.

Install a new O-ring [1] to the oil drain bolt [2].

Install the engine oil drain bolt and tighten it to the specified torque.

TORQUE: 18 N·m (1.8 kgf·m, 13 lbf·ft)

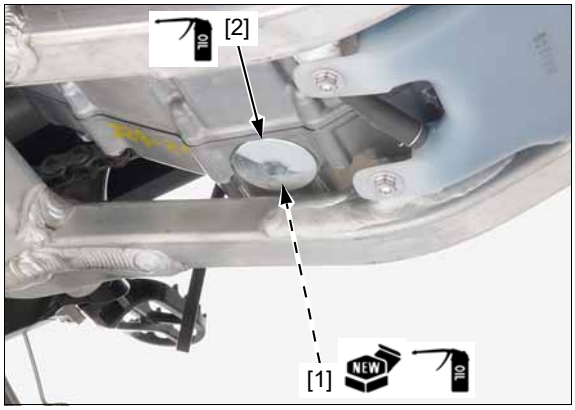
Fill the engine with the recommended engine oil ➔2-34.

ENGINE OIL CAPACITY:
1.10 liters (1.16 US qt, 0.97 Imp qt) at draining
1.15 liters (1.22 US qt, 1.01 Imp qt) at oil filter change
1.45 liters (1.53 US qt, 1.28 Imp qt) at disassembly

Recheck the oil level ➔2-34.

Make sure there are no oil leaks.

Install the engine guard ➔1-8



ENGINE OIL FILTER

ENGINE OIL FILTER CHANGE

Drain the engine oil ➔2-34.

Remove the following:

– Oil filter cover bolt (long) [1]
– Oil filter cover bolt (short) [2]
– Oil filter cover [3]
– O-ring [4]
– Oil filter [5]
– Oil filter spring [6]

Apply grease to the oil filter contact area of the spring.

Install the spring into a new oil filter.

Install the oil filter with the "OUT-SIDE" mark [7] facing out.

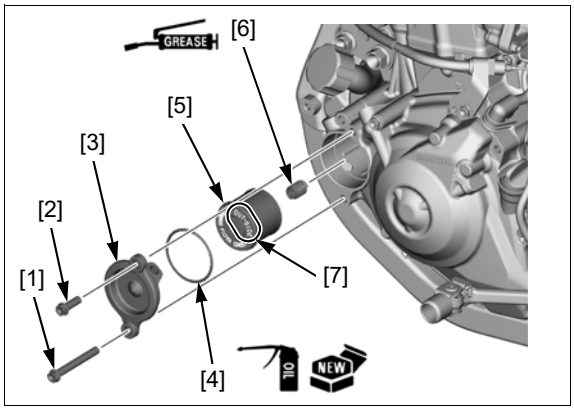
NOTE:

- 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.
Tighten the bolts securely.

Fill the engine with the recommended engine oil ➔2-34.



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.

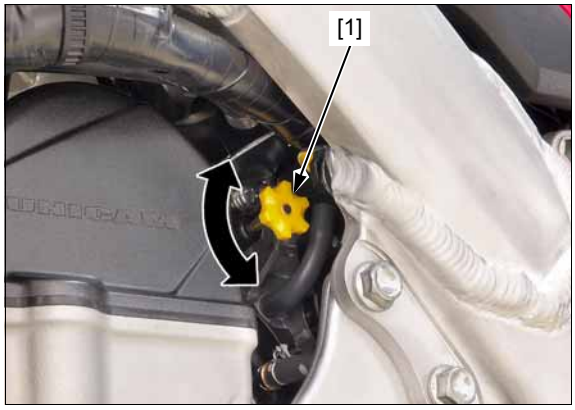
Start the engine and warm it up to coolant temperature 80°C (176°F).
Stop the engine and connect a tachometer according to the tachometer manufacturer's operating instructions.

Start the engine and let it idle. Turn the fast idle knob [1] to obtain the specified idle speed.
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.

IDLE SPEED: 1,800 ± 100 rpm

If engine idle speed can not adjust, check the fast idle knob.

Refer to an official Honda Service Manual or see your dealer to check the fast idle knob.



PISTON/PISTON RINGS/PISTON PIN

DISASSEMBLY

Drain the coolant ➔2-45.

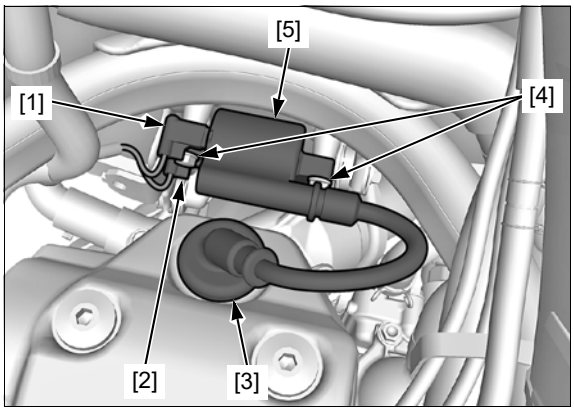
Remove the following:

– Crankcase breather catch tank ➔2-21
– Rear frame ➔1-12

Disconnect the ignition coil primary wire connector (Green terminal side) [1] and primary wire connector (Black terminal side) [2].

Disconnect the spark plug cap [3].

Remove the bolts [4] and ignition coil [5].

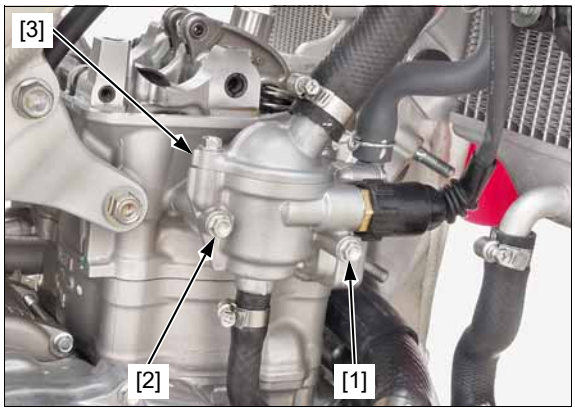


Remove the shims ➔2-25.

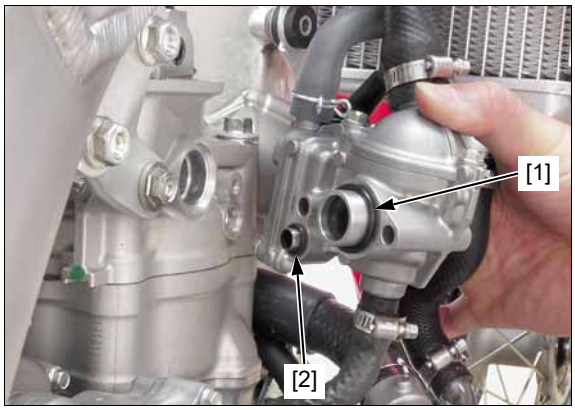
Remove the right radiator mounting bolts [1] and washers [2].

Remove the bolt (long) [1] and bolt (short) [2].

Remove the thermostat housing [3] (with the PAIR check valve cover, radiator hoses, and ECT sensor connector).

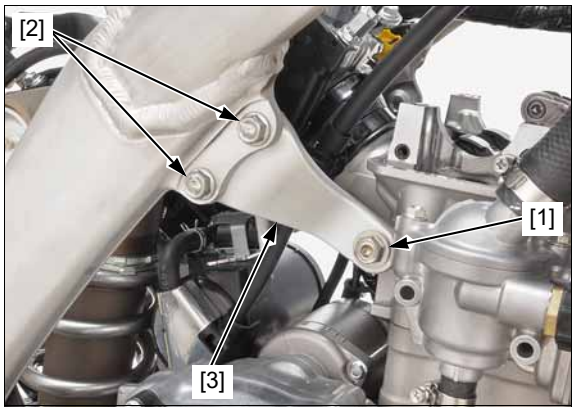


Remove the O-ring (large) [1] and O-ring (small) [2].



Remove the right cylinder head hanger bolt [1].

Remove the right cylinder head hanger plate bolts [2] and right cylinder head hanger plate [3].



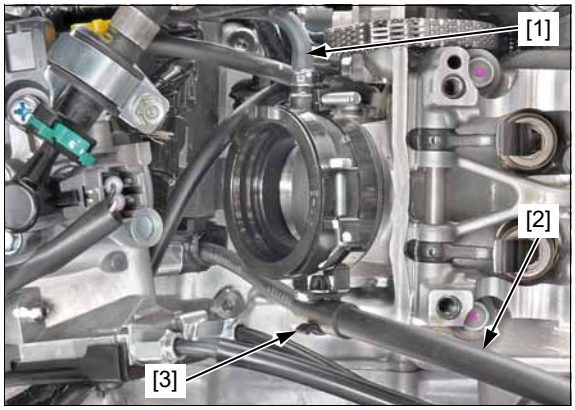
Loosen the insulator band screw [1] and pull the throttle body [2] out from the insulator [3].

NOTE:

- Do not let the throttle body hang from the throttle cable.

Disconnect the vacuum hose B [1] from the insulator.

Release the fuel tank breather hose B [2] from the clamp [3].



Remove the cylinder head 6 mm bolt [1].

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

Remove the cylinder head bolts and washers [3].

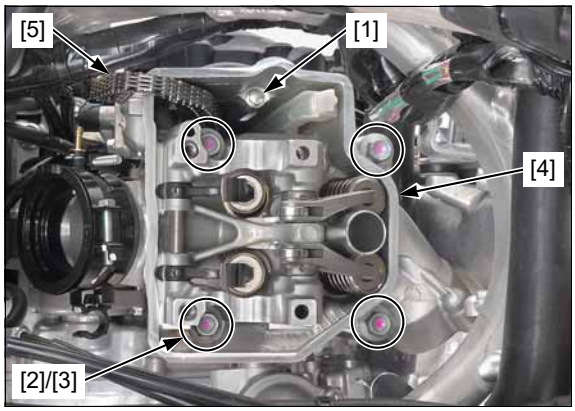
NOTE:

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

Remove the cylinder head [4].

NOTE:

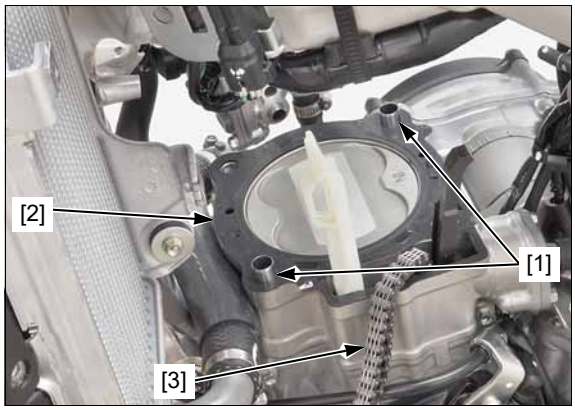
- Be careful not to drop the cam chain [5] into the crankcase.



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

NOTE:

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



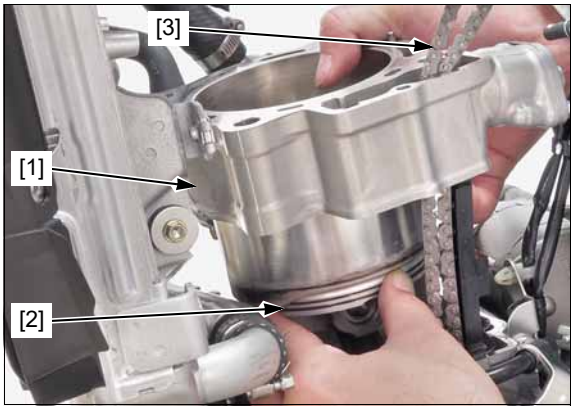
Remove the cam chain guide [1].

Inspect the cam chain guide for excessive wear or damage, replace it if necessary.

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

NOTE:

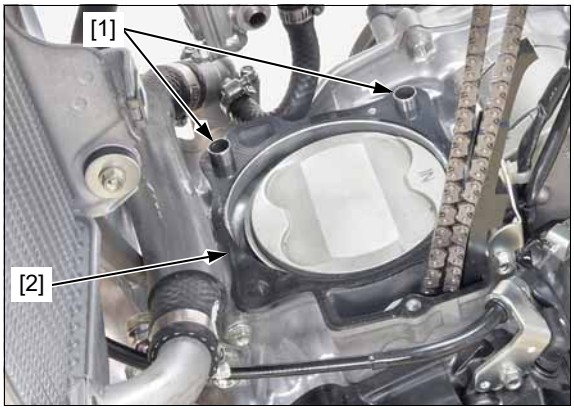
- Be careful not to drop the cam chain [3] into the crankcase.



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

NOTE:

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



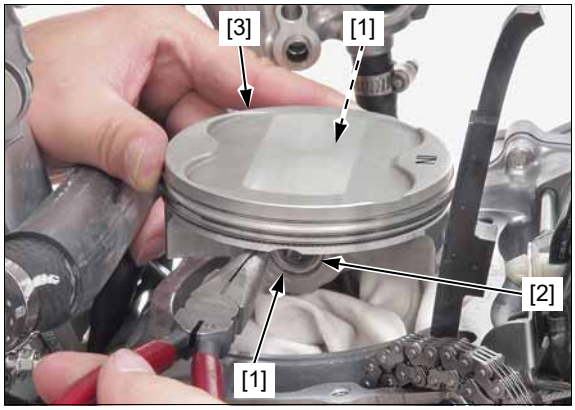
Place a clean shop towel over the crankcase.

Remove the piston pin clips [1] with pliers.

NOTE:

- Prevent the piston pin clip from dropping into the crankcase.

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



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 scratch, 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

Unit: mm (in)

ITEM			STANDARD	SERVICE LIMIT
Cylinder	I.D.		96.000 – 96.015 (3.7795 – 3.7801)	96.025 (3.7805)
	Warpage		–	0.05 (0.002)
Piston, piston pin, piston ring	Piston mark direction		"IN" mark facing toward the intake side	–
	Piston O.D. at 5 mm (0.2 in) from the bottom of skirt		95.959 – 95.980 (3.7779 – 3.7787)	95.859 (3.7740)
	Piston pin bore I.D.		19.002 – 19.008 (0.7481 – 0.7483)	19.020 (0.7488)
	Piston pin O.D.		18.994 – 19.000 (0.7478 – 0.7480)	18.980 (0.7472)
	Piston ring mark	Top ring	"1R" mark side facing up	–
		Second ring	"RN" mark side facing up	–
	Piston ring end gap	Top ring	0.20 – 0.26 (0.008 – 0.010)	0.36 (0.014)
		Second ring	0.35 – 0.45 (0.014 – 0.018)	0.55 (0.022)
		Oil ring (side rail)	0.20 – 0.70 (0.008 – 0.028)	0.71 (0.028)
	Piston ring-to-ring groove clearance	Top	0.030 – 0.065 (0.0012 – 0.0026)	–
		Second ring	0.035 – 0.070 (0.0014 – 0.0028)	–
Connecting rod small end I.D.			19.022 – 19.042 (0.7489 – 0.7497)	19.052 (0.7501)

ASSEMBLY

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 [3].

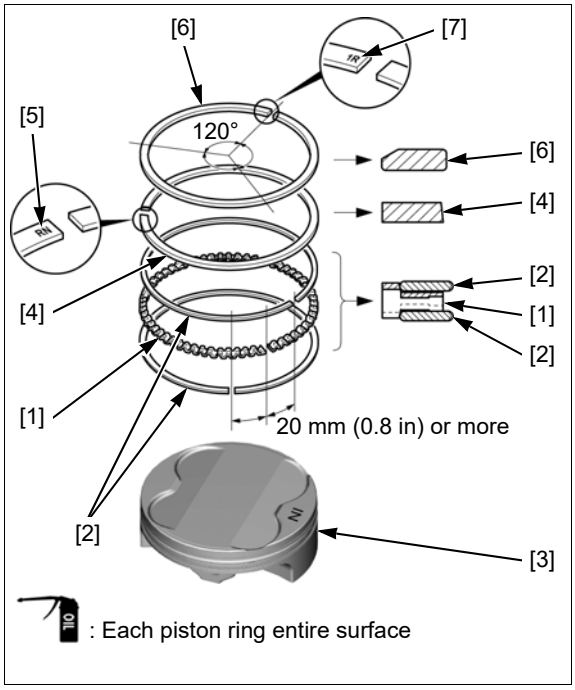
Install the second ring [4] on the piston with "RN" mark [5] side facing up.

Install the top ring [6] on the piston with "1R" mark [7] 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.
- Stagger the piston ring end gaps 120° apart from each other.
  Stagger the side rail end gaps as shown.

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

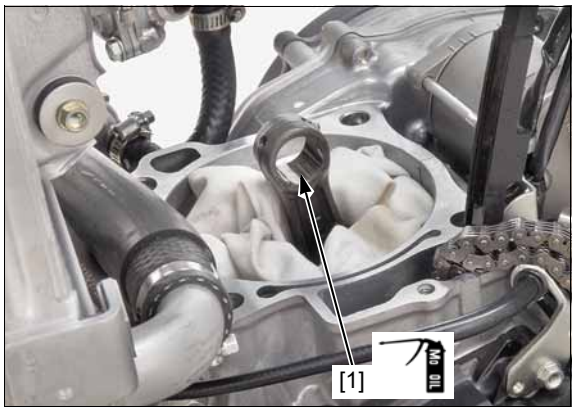


Place a shop towel over the cylinder opening.

NOTE:

- Prevent dust or dirt from entering the crankcase.

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



Apply engine oil to the piston [1] outer surface and piston pin hole.

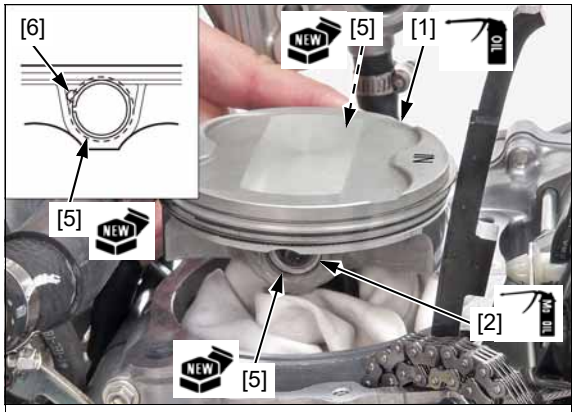
Apply molybdenum oil solution to the piston pin [2] outer surface.

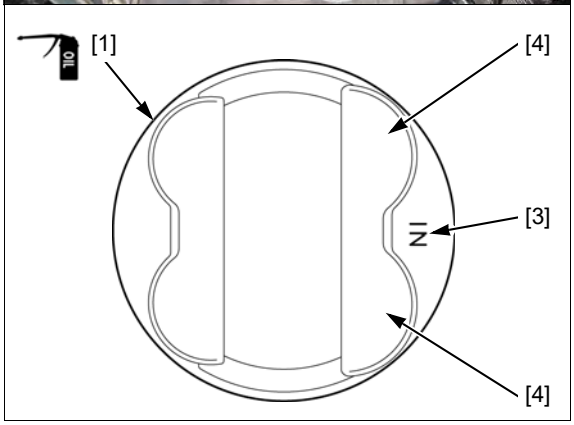
Install the piston with the "IN" mark [3] facing the intake side.

NOTE:
- Large valve recesses [4] facing the intake side.

Install the piston pin and new piston pin clips [5].

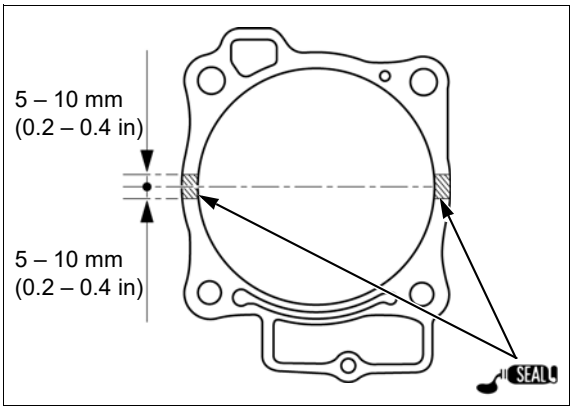
NOTE:
- Always replace piston pin clips with new ones.
- Be careful not to drop the piston pin clips into the crankcase.
- Do not align the piston pin clip end gap with the piston cut-out [6].
- Make sure that the piston pin clips are firmly seated in the grooves.





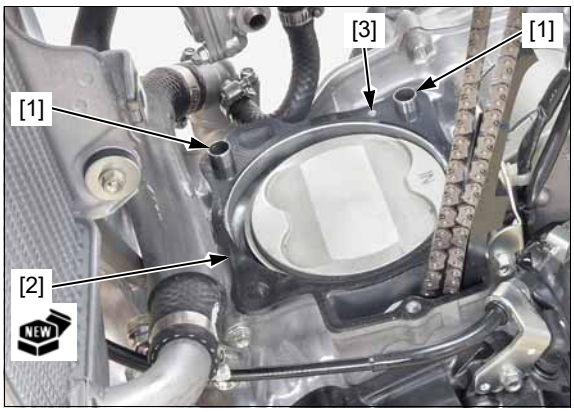
Clean any gasket material from the cylinder mating surfaces of the crankcase.

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].

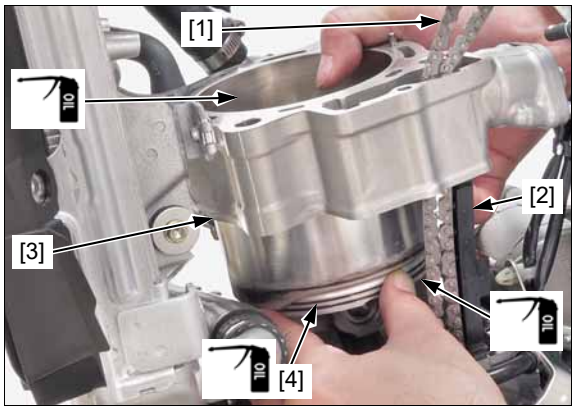
NOTE:
- Be careful not to drop the dowel pins into the crankcase.
- Align the gasket hole with the pin [3] of the crankcase.



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

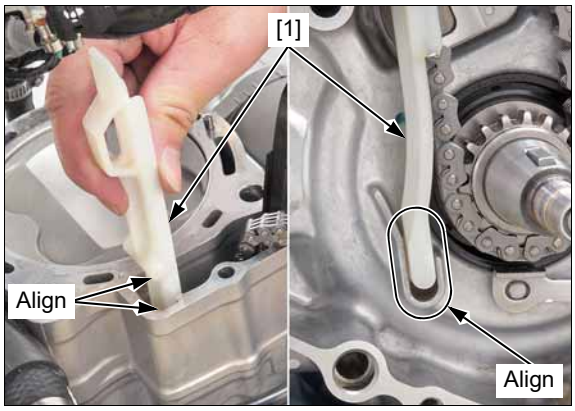
Route the cam chain [1] and cam chain tensioner [2] through the cylinder [3] and install the cylinder while compressing the piston rings [4].

NOTE:
- Be careful not to damage the piston ring and cylinder wall.
- Align the hole of the cylinder with the drive pin of the crankcase.



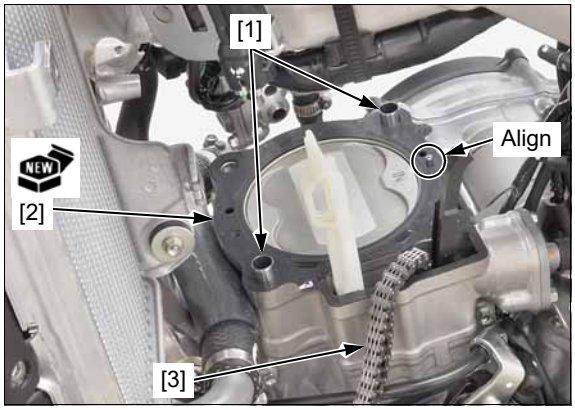
Install the cam chain guide [1].

NOTE:
- Align the cam chain guide tabs with the grooves of the cylinder.
- Align the cam chain guide end with the groove of the crankcase.



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

NOTE:
- Be careful not to drop the cam chain [3] and dowel pins into the crankcase.
- Align the hole of the gasket with the pin of the cylinder.



Install the cylinder head [1] onto the cylinder.

NOTE:
- Be careful not to drop the cam chain [2] into the crankcase.
- Align the hole of the cylinder head with the pin of the cylinder.

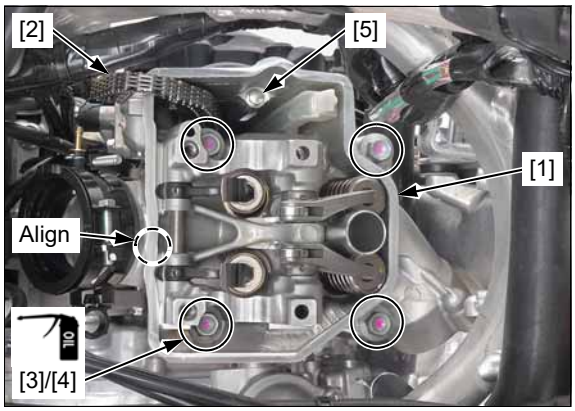
Apply engine oil to the cylinder head bolt threads and seating surface.
Install the cylinder head bolts [3] with the washers [4].

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

Tighten the 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)

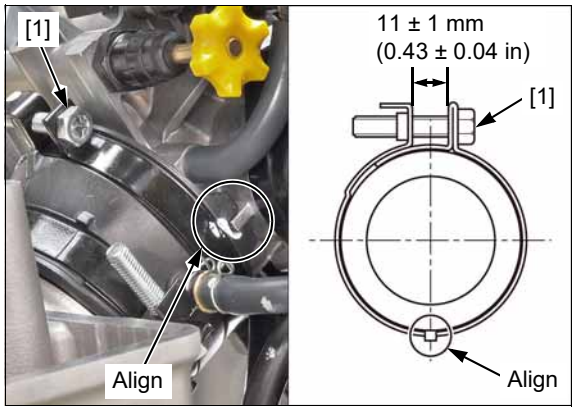
Install and tighten the cylinder head 6 mm bolt [5].



Install the throttle body by aligning its tab with the insulator groove.

Align the insulator band hole with the insulator tab.

Tighten the insulator band screw [1] to the specified range as shown.



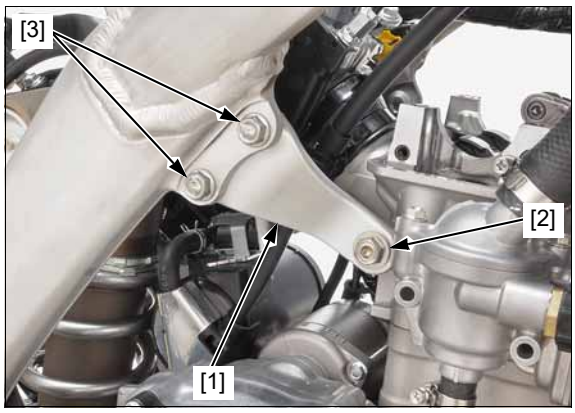
Install the right cylinder head hanger plate [1], hanger bolt [2] and hanger plate bolts [3].

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

TORQUE: 54 N·m (5.5 kgf·m, 40 lbf·ft)

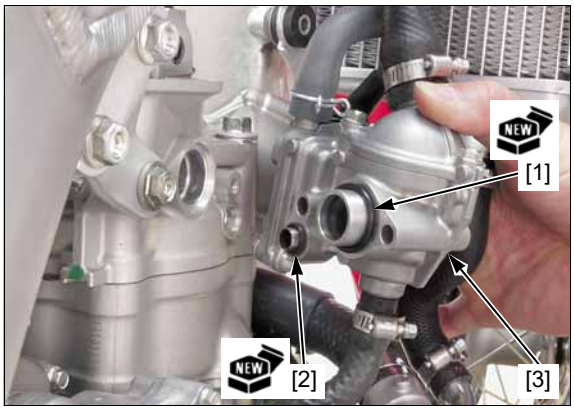
Tighten the right cylinder head hanger plate bolts to the specified torque.

TORQUE: 32 N·m (3.3 kgf·m, 24 lbf·ft)



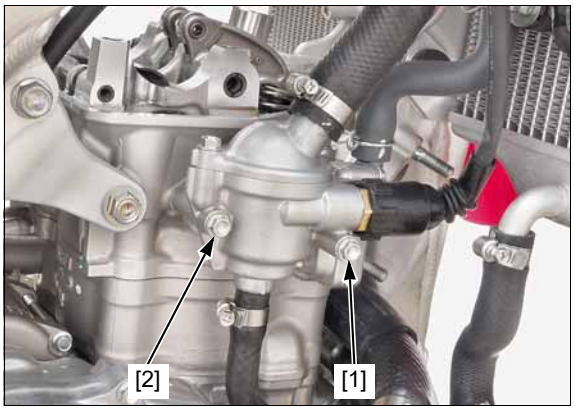
Install a new O-ring (large) [1] and O-ring (small) [2] to the thermostat housing [3].

Install the thermostat housing to the cylinder head.



Install the bolt (long) [1] and bolt (short) [2].

Tighten the bolts securely.



Install the right radiator mounting bolts [1] and washers [2].
Tighten the bolts securely.

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

Tighten the bolts securely.

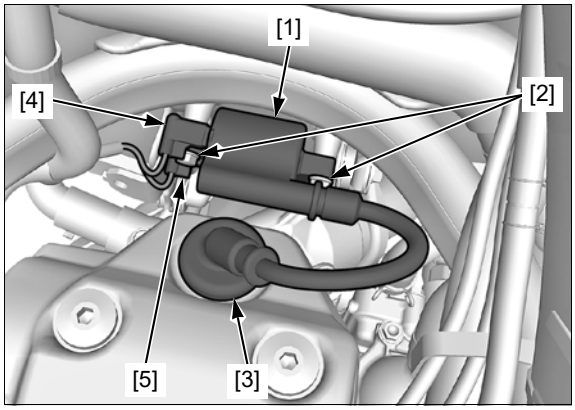
Connect the spark plug cap [3].

Connect the ignition coil primary wire connector (Green terminal side) [4] and primary wire connector (Black terminal side) [5].

Install the following:

– Shims ➔2-25
– Rear frame ➔1-12
– Crankcase breather catch tank ➔2-21

Fill the radiator with the recommended coolant mixture to the filler neck and bleed the air ➔2-45.



RADIATOR COOLANT

INSPECTION

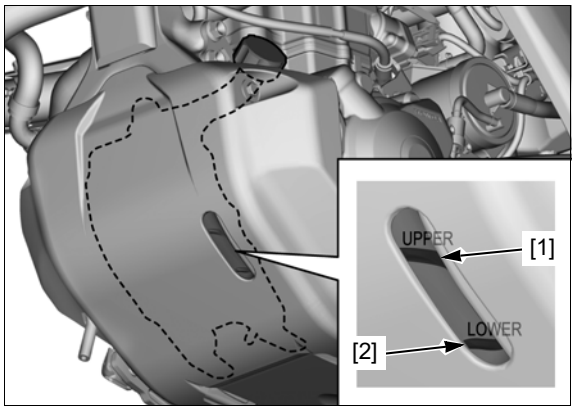
Check the coolant level of the radiator reserve tank with the engine running at normal operating temperature.

The level should be between the "UPPER" [1] and "LOWER" [2] level lines.

If necessary, add the recommended coolant.

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

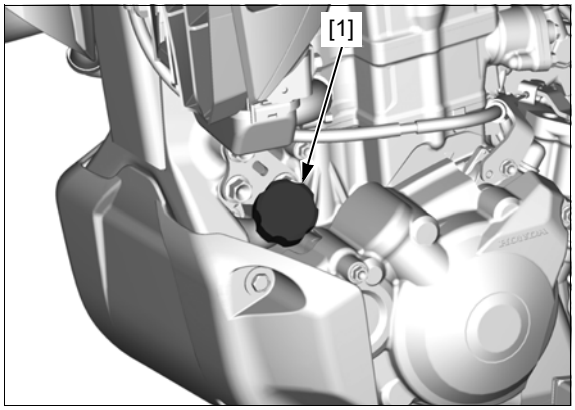


Remove the radiator reserve tank cap [1] and add the coolant to the "UPPER" level line.

Reinstall the cap.

Check to see if there are any coolant leaks when the coolant level decreases very rapidly.

If the reserve tank becomes completely empty, there is a possibility of air getting into the cooling system.
Be sure to remove any air from the cooling system ➔2-45.



COOLANT REPLACEMENT

Remove the engine guard ➔1-8.

Support the motorcycle in an upright position on a level surface.

Remove the water pump cover bolt (short) [1] and sealing washer [2].

Remove the radiator cap [3] slowly.

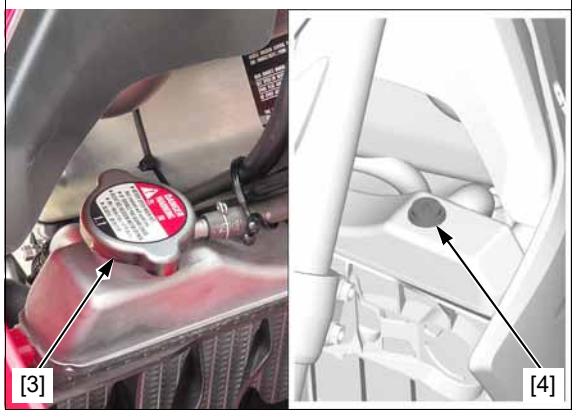
⚠CAUTION

The engine must be cool before removing the radiator cap, or severe scalding may result.

Remove the air bleed bolt [4] from the left radiator.

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

Install the water pump cover bolt (short) with a new sealing washer.
Tighten the water pump cover bolt (short) securely.



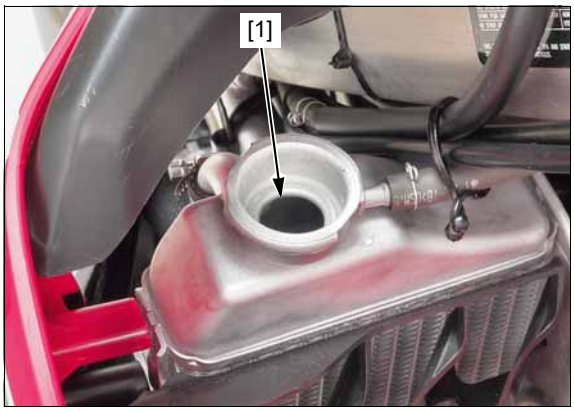
Fill the system with the recommended coolant through the filler opening up to filler neck [1] ➔2-45.
Fill the radiator reserve tank to the upper level line ➔2-45.

Bleed air from the system as follows:

1. Shift the transmission into neutral.
   Start the engine and let it idle for 2 – 3 minutes.
2. Snap the throttle 3 or 4 times to bleed air from the system.
3. Stop the engine and add coolant up to the filler neck if necessary.
4. Install the radiator cap securely.
5. Check the level of coolant in the radiator reserve tank and fill to the upper level line if it is low ➔2-45.

NOTE:

- When air bleeding is insufficient, level of coolant in the radiator reserve tank will decrease. If so, fill to the upper level line with coolant.



Check that there are no coolant leaks.

Install the air bleed bolt and tighten it to the specified torque.

TORQUE: 1.6 N·m (0.2 kgf·m, 1.2 lbf·ft)

Install the engine guard ➔1-8.

COOLING SYSTEM

INSPECTION

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.

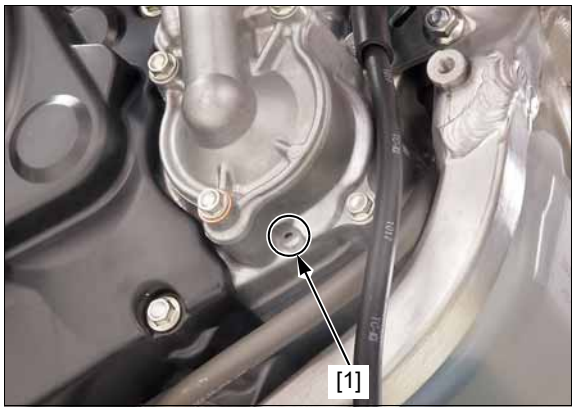
If oil leaks through the bleed hole, replace the oil seal.

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.



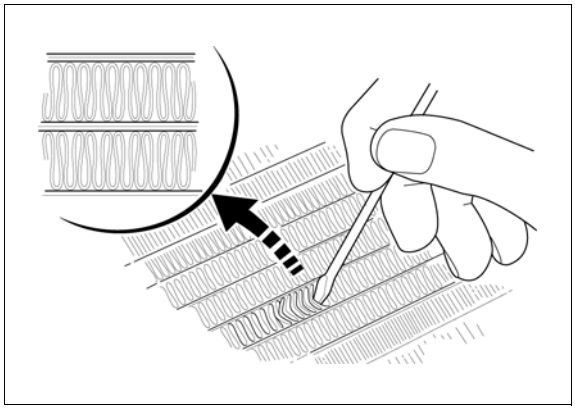
Remove the radiator grills ➔1-8.

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.

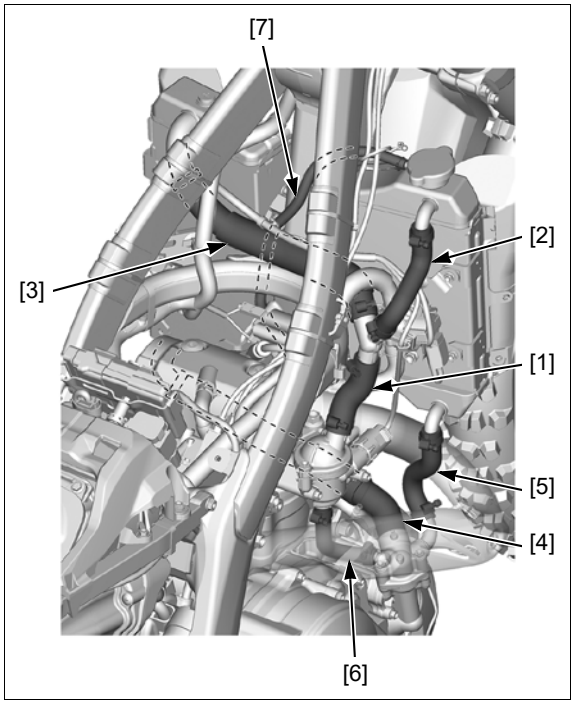
Refer to an official Honda Service Manual or see your dealer to replace the radiator.



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 hose E [5]
– Bypass hose [6]
– Siphon hose [7]

Check the tightness of all the hose band screws.



DRIVE CHAIN

⚠WARNING

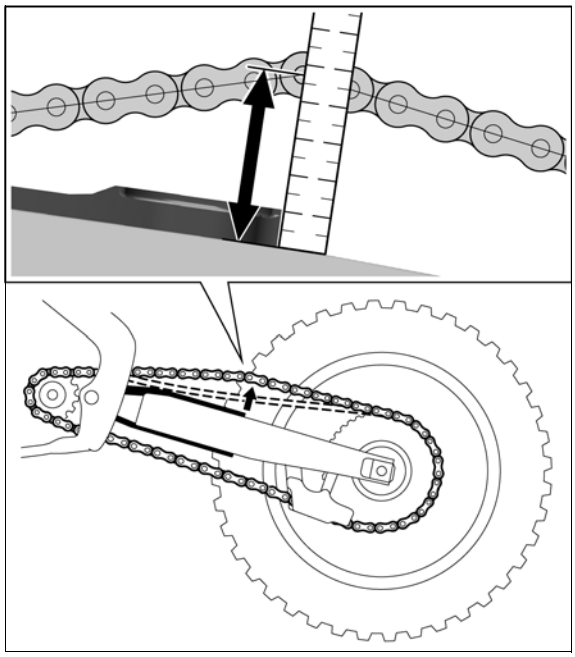
Amputation hazard. Never inspect or adjust the drive chain while the engine is running.

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: 55 – 60 mm (2 1/4 – 2 3/8 in)



SLACK ADJUSTMENT

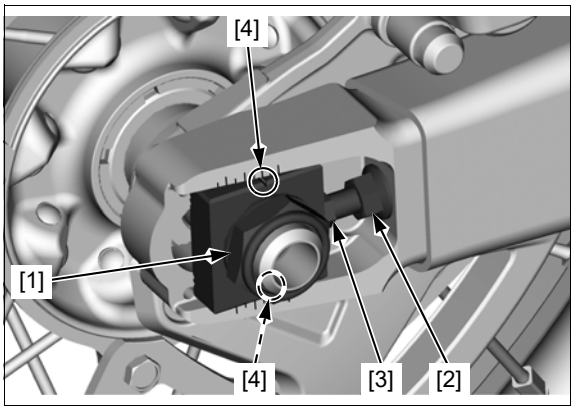
If the chain needs adjustment, loosen the rear axle nut [1] and drive chain adjuster lock nuts [2], then turn the adjusting bolts [3].

Check that the adjusting block index marks [4] are in the same position on each side, then tighten the rear axle nut to the specified torque.

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

After torquing the axle nut, seat the adjusting bolts snugly against the adjusting block and tighten the drive chain adjuster lock nuts to the specified torque while holding the adjusting bolts.

TORQUE: 27 N·m (2.8 kgf·m, 20 lbf·ft)

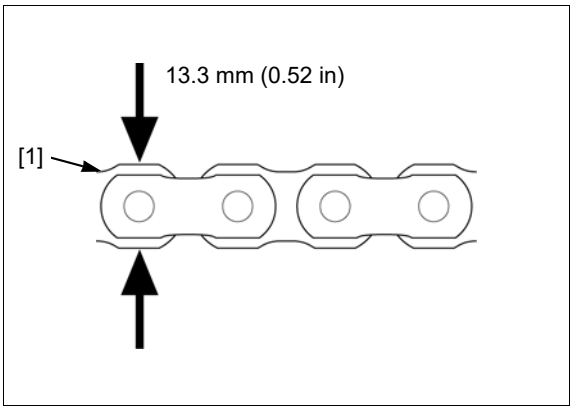


INSPECTION

Measure the drive chain plate [1].

SERVICE LIMIT: 13.3 mm (0.52 in)

If the measurement exceeds the service limit, replace the drive chain ➔2-48.



CLEANING/LUBRICATION

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.

Be sure the drive chain has dried completely before lubricating.

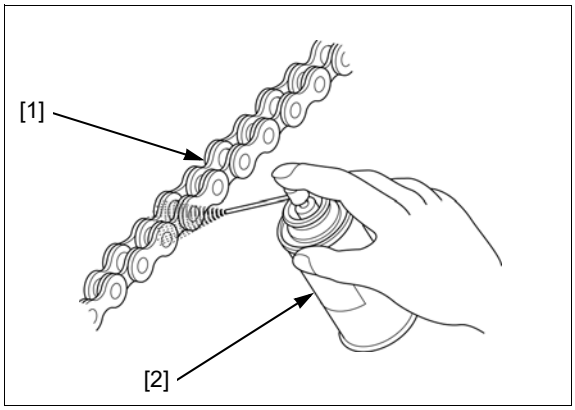
Lubricate the drive chain with drive chain lubricant [2].

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.



REPLACEMENT

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

Fully slacken the drive chain ➔2-48.

Remove the drive chain using the special tool.

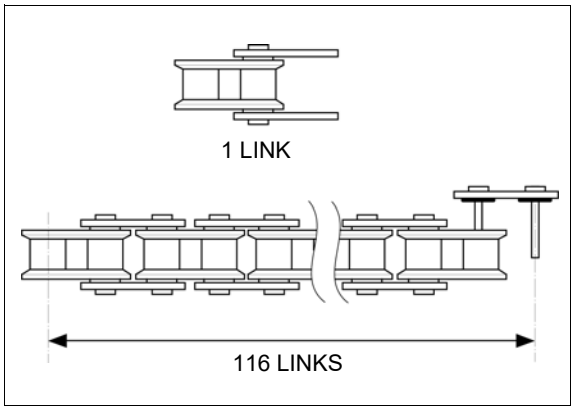
TOOL:
Chain Tool Set 07HMH-MR10105

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

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

STANDARD LINKS: 116 LINKS

REPLACEMENT CHAIN
RK: 520EXU-120-LJFZ



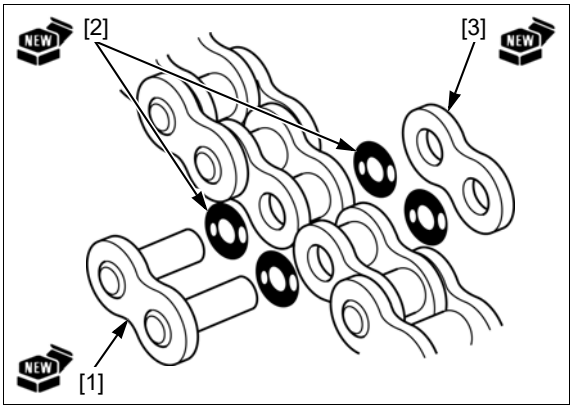
Insert a new master link [1] with new O-rings [2] from the inside of the drive chain, and install a new master link plate [3] and O-rings with the identification mark facing the outside.

NOTE:

- Never reuse the old drive chain, master link, master link plate, or O-rings.

Assemble the master link, O-rings and plate.

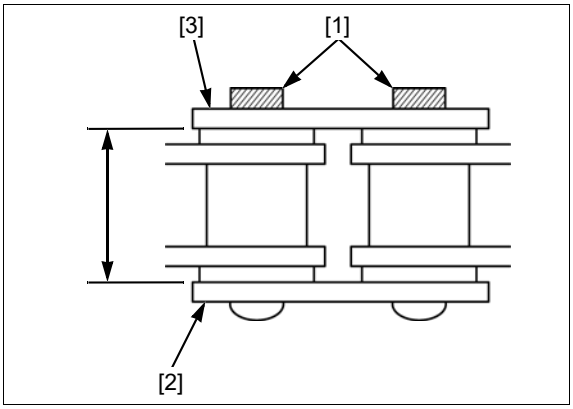
TOOL:
Chain Tool Set 07HMH-MR10105



Make sure that the master link pins [1] are installed properly.
Measure the length between the master link [2] and master link plate [3].

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

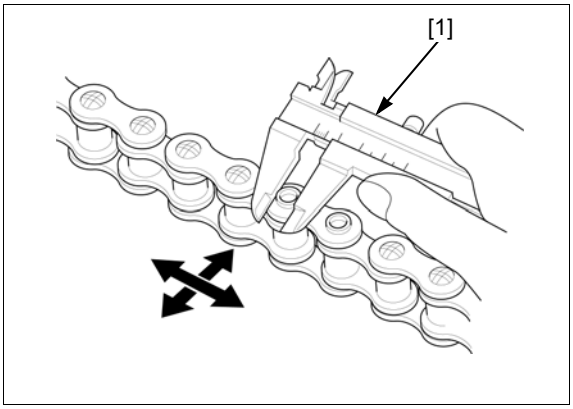
Stake the master link pins.



Make sure that the pins are staked properly by measuring the diameter of the staked area using a slide caliper [1].

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 plate.



DRIVE CHAIN SLIDER

INSPECTION

DRIVE CHAIN SLIDER

Inspect the drive chain slider for excessive wear.

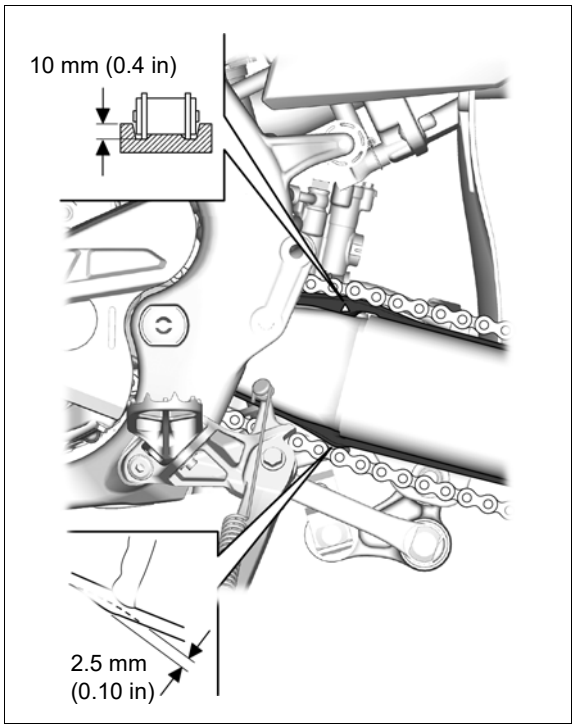
SERVICE LIMITS:
Upper side: 10 mm (0.4 in)
Lower side: 2.5 mm (0.10 in)

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.



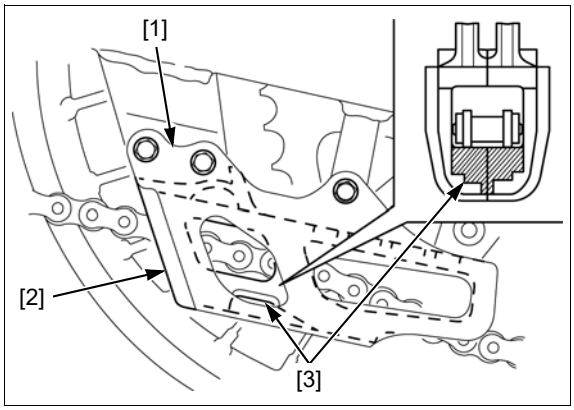
DRIVE CHAIN GUIDE SLIDER

Check the drive chain guide [1] and drive chain guide slider [2] for alignment, wear or damage.

Replace the drive chain guide if it is damaged or worn.

Replace the drive chain guide slider if it 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 slider.



DRIVE CHAIN ROLLER

INSPECTION

Inspect the drive chain rollers for excessive wear or binding.

Measure the upper drive chain roller (Green) [1] and lower drive chain roller (Black) [2] O.D.

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

Replace the drive chain roller if necessary.

Remove the drive chain upper roller bolt [3] and drive chain upper roller.

Install the drive chain upper roller with the "→" mark [4] facing out as shown.

Install and tighten a new drive chain upper roller bolt to the specified torque.

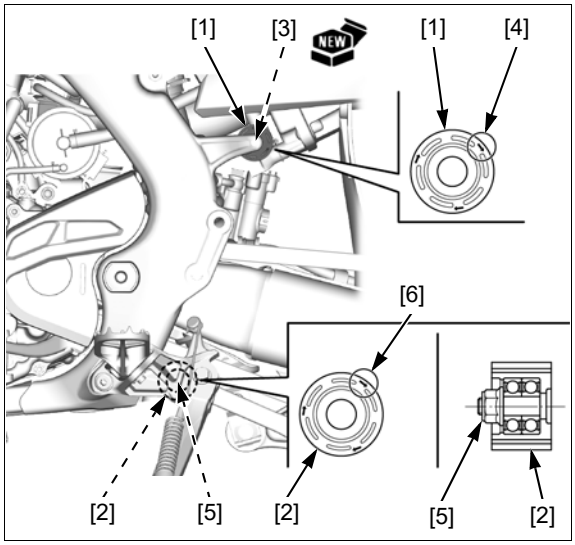
TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

Remove the drive chain lower roller nut [5] and drive chain lower roller.

Install the drive chain lower roller with the "→" mark [6] facing out as shown.

Install and tighten the drive chain lower roller nut to the specified torque.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)

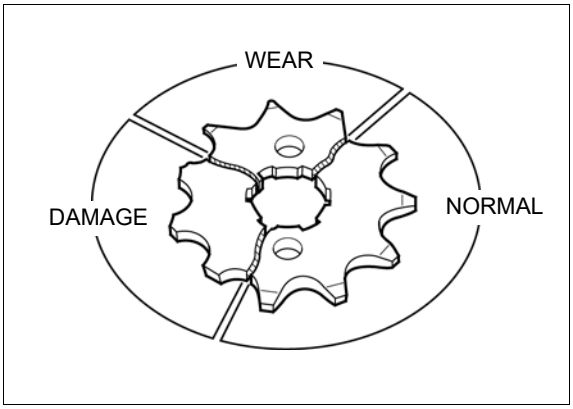


DRIVE/DRIVEN SPROCKET

WEAR INSPECTION

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

Never use a new drive chain on worn sprockets.
Both chain and sprockets must be in good condition or the new replacement chain will wear rapidly.



TIGHTENING INSPECTION

Remove the drive sprocket cover ➔1-8.

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:
32 N·m (3.3 kgf·m, 24 lbf·ft)

Install the drive sprocket cover ➔1-8.

BRAKE FLUID

NOTICE

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

NOTE:

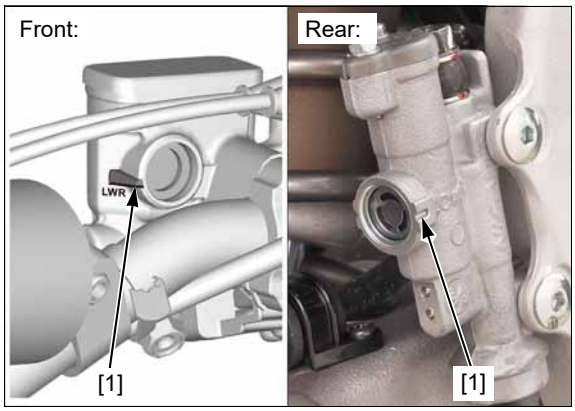
- Do not mix different types of fluid, as they are not compatible with each other.
- Do not allow foreign material to enter the system when filling the reservoir.

FLUID LEVEL INSPECTION

Support the motorcycle upright on a level surface and check the brake fluid level.

If the level is near the lower level line [1], check the brake pad wear ➔2-54.

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 ➔2-53.



FLUID FILLING

FRONT:

Remove the following:

– Front master cylinder reservoir cover screws [1]
– Reservoir cover [2]
– Set plate [3]
– Diaphragm [4]

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

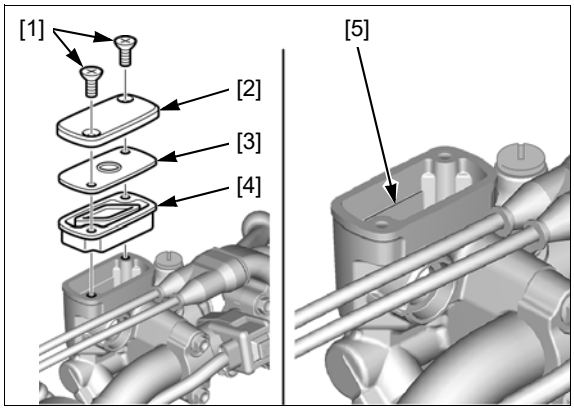
RECOMMENDED BRAKE FLUID:
Honda DOT 4 brake fluid

Install the diaphragm, set plate, and reservoir cover.

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

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

Inspect the hydraulic system ➔2-55.



REAR:

Remove the following:

– Rear master cylinder reservoir cover bolts [1]
– Reservoir cover [2]
– Set plate [3]
– 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 reservoir cover.

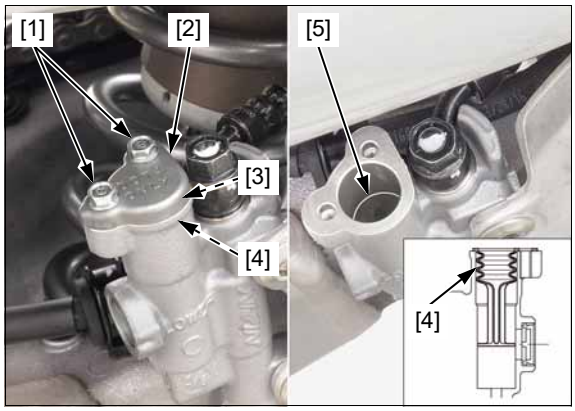
NOTE:

• Do not bend the diaphragm during installation.

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

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

Inspect the hydraulic system ➔2-55.



BRAKE PADS WEAR

Inspect the brake pads.

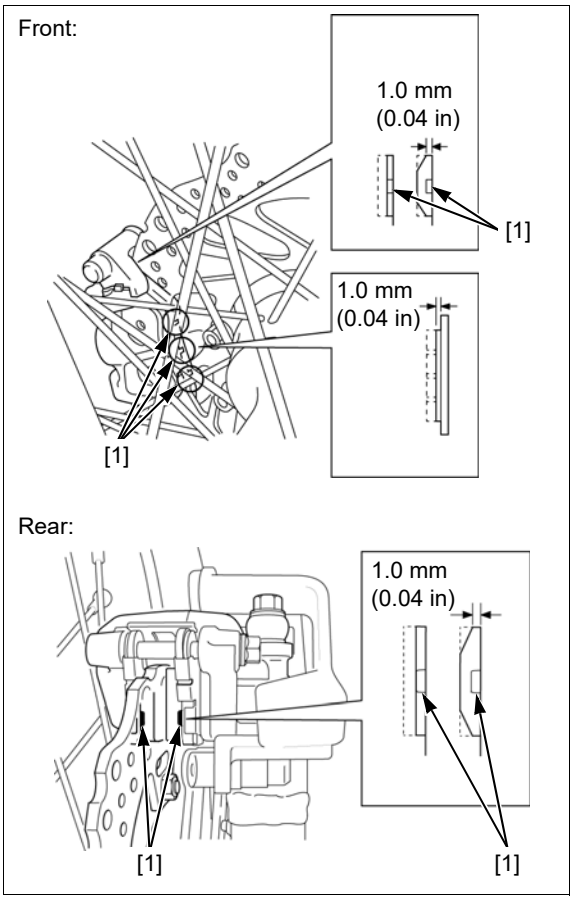
If either pad is worn anywhere to a thickness of 1.0 mm (0.04 in), both pads must be replaced.

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.

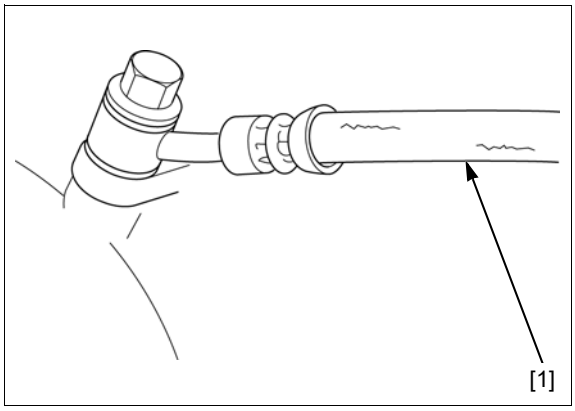
Inspect the brake hose [1] and fittings for deterioration, cracks, and signs of leakage.

If the brake hose oil bolt is loose, tighten to the specified torque.

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

Replace the brake hose, brake hose oil bolt and sealing washer if necessary.

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

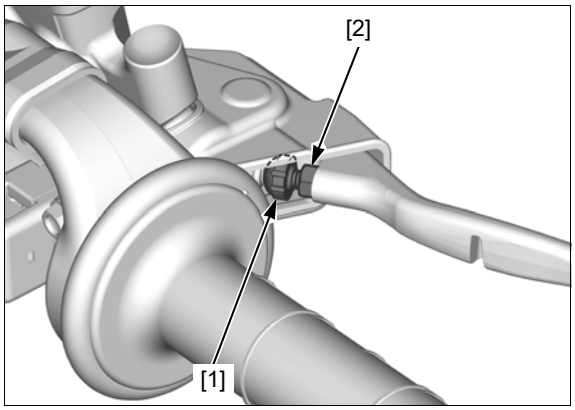
NOTE:
- The brake lever position can be adjusted by turning the adjusting bolt [1].

Loosen the brake lever adjuster lock nut [2].

To position the front brake lever farther away from the throttle grip, turn the adjusting bolt clockwise.
To position the front brake lever closer to the throttle grip, turn the adjusting bolt counterclockwise.

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

TORQUE: 4.9 N·m (0.5 kgf·m, 3.6 lbf·ft)



BRAKE PEDAL HEIGHT

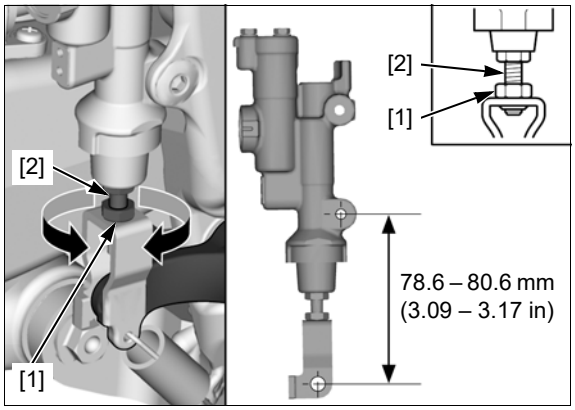
Check the length from the center of the master cylinder lower mounting bolt hole to the center of the joint pin hole is the specified length as shown.

If adjustment is necessary, loosen the push rod lock nut [1] while holding the rear master cylinder push rod [2], adjust by turn the rear master cylinder push rod.

After adjustment, tighten the push rod lock nut to the specified torque.

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

NOTE:
- Make sure that the lower end of the rear master cylinder push rod thread is visible inside the joint.



BRAKE DISC INSPECTION

Visually inspect the brake discs for damage or cracks.

Measure the thickness of the brake disc and replace it if necessary.

SERVICE LIMIT: Front: 2.5 mm (0.10 in)
Rear: 3.5 mm (0.14 in)

Measure the warpage of the brake disc and replace it if necessary.

SERVICE LIMIT: Front: 0.3 mm (0.01 in)
Rear: 0.3 mm (0.01 in)

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

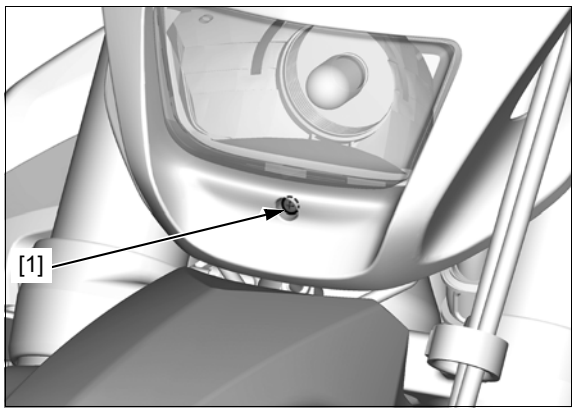
HEADLIGHT AIM

Place the motorcycle on a level surface.

Adjust the headlight aim vertically by turning the vertical beam adjuster [1].

NOTE:

- Adjust the headlight aim as specified by local laws and regulations.

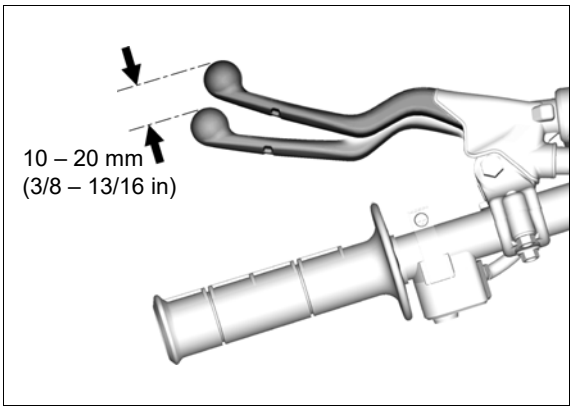


CLUTCH SYSTEM

CLUTCH LEVER FREEPLAY

Measure the clutch lever freeplay at the lever end.

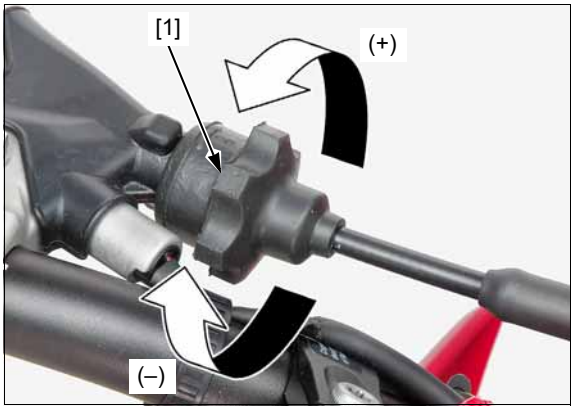
FREEPLAY: 10 – 20 mm (3/8 – 13/16 in)



Minor adjustments can be made at the cable end adjuster [1].

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

If the adjuster is threaded out near its limit and the correct freeplay cannot be reached, turn the adjuster in direction (+) until it seats lightly and then turn it out 5 turn in direction (–).
Make the adjustment with the in-line cable adjuster.



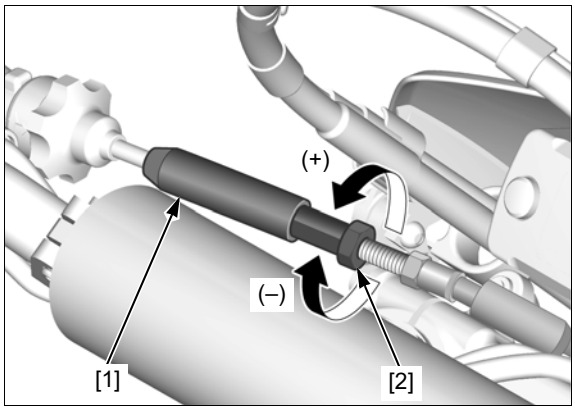
Major adjustments can be made with the in-line cable adjuster [1].

Loosen the adjuster lock nut [2] and turn the adjuster. Turning the adjuster in direction (+) will increase freeplay and turning it in direction (–) will decrease freeplay.

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

Test ride to be sure the clutch operates properly without slipping or dragging.

If proper freeplay cannot be obtained using both procedures or the clutch slips during the test ride, disassemble and inspect the clutch ➔2-57.

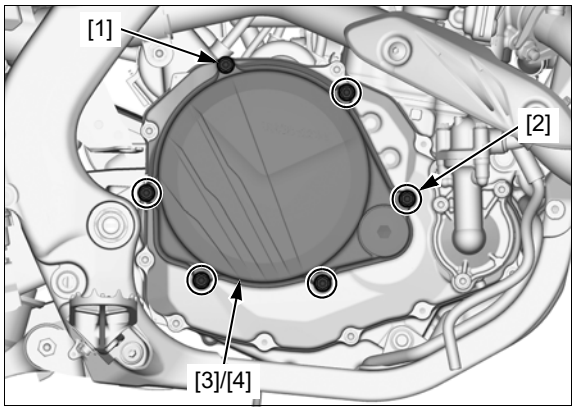


CLUTCH INSPECTION

Drain the engine oil ➔2-34.
Remove the right crankcase over cover ➔1-10.

Loosen the clutch cover bolt (long) [1] and clutch cover bolts (short) [2] in a crisscross pattern in two or three steps.

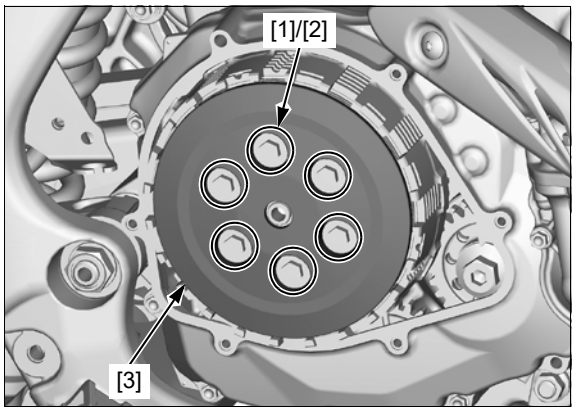
Remove the bolts, clutch cover [3] and O-ring [4].



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

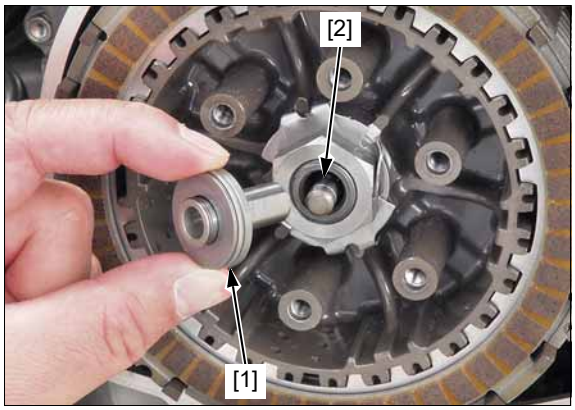
Remove the bolt/washers, and clutch springs [2].

Remove the clutch pressure plate [3].



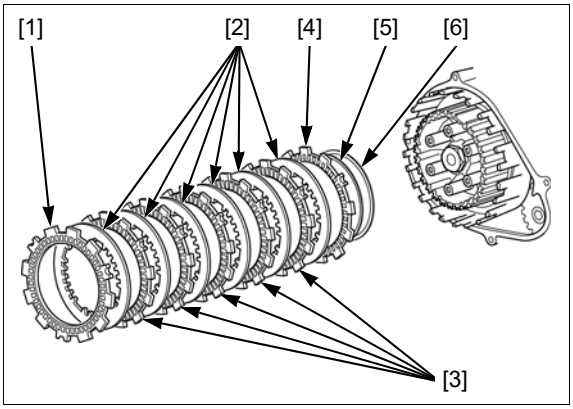
Remove the following:

– Clutch lifter piece [1]
– Clutch lifter rod [2]



Remove the following:

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



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

– Clutch springs
– Clutch pressure plate
– Clutch lifter peace
– Clutch lifter rod
– Clutch discs/plates
– Judder spring
– Spring seat

Replace if necessary.

Measure each part according to CLUTCH SPECIFICATIONS.

Replace any parts if it is out of service limit.

NOTE:

- Replace the clutch springs (6 pcs) as a set.
- Replace the clutch discs and plates as a set.

CLUTCH SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT
Clutch lever freeplay		10 – 20 (3/8 – 13/16)	–
Clutch	Disc thickness	2.92 – 3.08 (0.115 – 0.121)	2.85 (0.112)
	Plate warpage	–	0.15 (0.006)
	Spring free length	46.50 (1.831)	45.57 (1.794)

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

Coat the clutch disc lining surfaces with clean engine oil.

Install the clutch disc A (larger I.D. disc) [3].

Install the six clutch plates [4] and five clutch discs B [5] alternately, starting with the clutch plate.

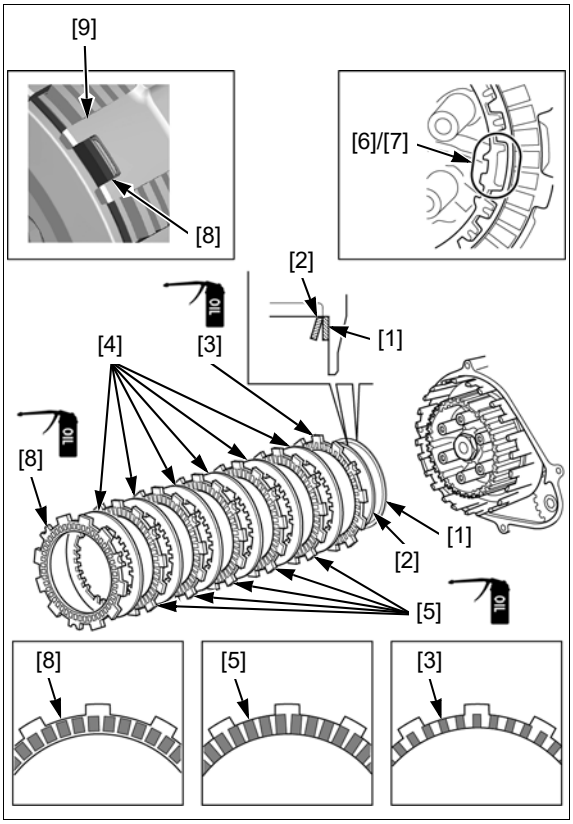
NOTE:

- Align the clutch plates larger grooves [6] with the larger lugs [7] of the clutch center as shown.

Install the clutch disc C [8].

NOTE:

- Install the clutch disc C tabs into the shallow slots of the clutch outer [9] as shown.

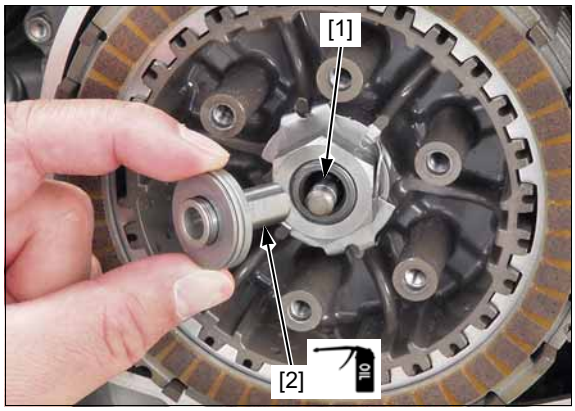


Insert the clutch lifter rod [1] into the mainshaft.

NOTE:

- Check the lifter rod installation by turning the clutch lifter arm.

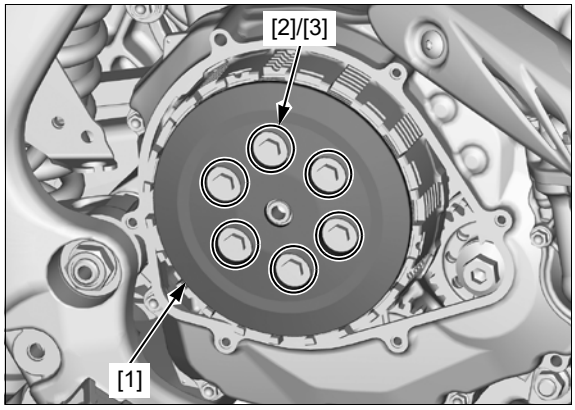
Apply engine oil to the bearing area of the clutch lifter piece.
Install the clutch lifter piece [2].



Install the clutch pressure plate [1].

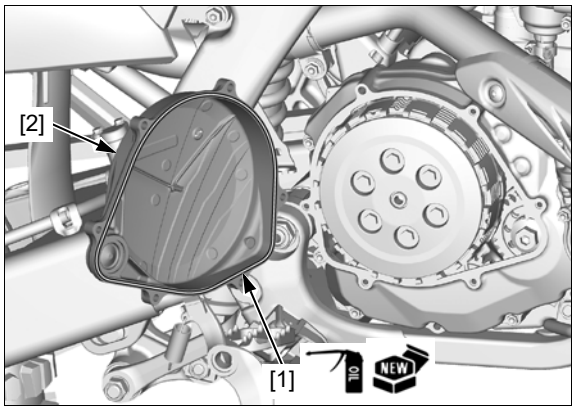
Install the clutch springs [2] and clutch spring bolt/washers [3].
Tighten the bolt/washers to the specified torque in a crisscross pattern in two or three steps.

TORQUE: 12 N·m (1.2 kgf·m, 9 lbf·ft)



Apply engine oil to a new O-ring [1] and install it onto the clutch cover [2].

Install the clutch cover with the O-ring onto the right crankcase cover.



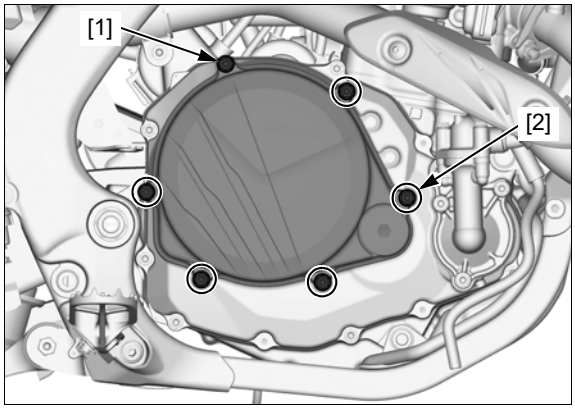
Install the clutch cover bolt (long) [1] and clutch cover bolts (short) [2].
Tighten the bolts in a crisscross pattern in two or three steps.

Adjust the clutch lever freeplay ➔2-56.

Install the right crankcase over cover ➔1-10.

Fill the engine with the recommended oil ➔2-34.

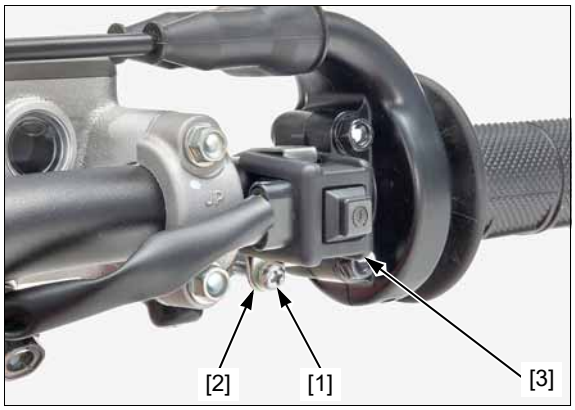
Start the engine and check for oil leaks.



CONTROL CABLES

THROTTLE CABLE LUBRICATION

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



Release the dust cover [1].

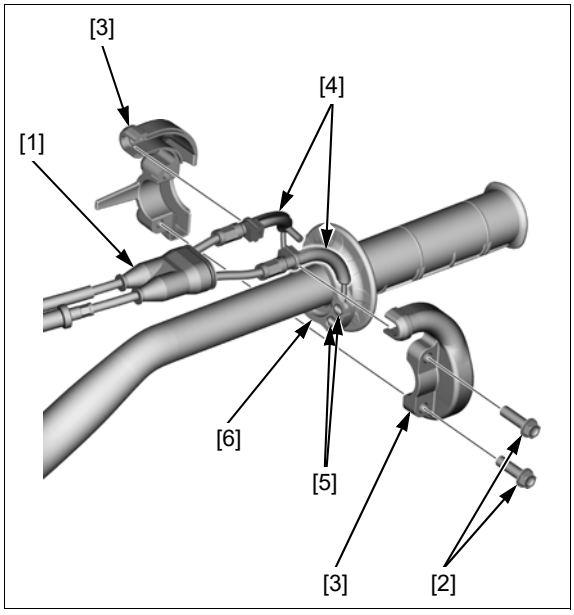
Remove the bolts [2] and separate the throttle housings [3].

Release the wire guides [4] from the throttle housings.

Release the throttle cables [5] from the throttle pipe [6].

Remove the throttle pipe from the handlebar.

Clean around for throttle pipe and handlebar contact area.



Apply specified grease to the throttle cable ends and throttle pipe flange groove ➔2-7.

Put the throttle pipe on the handlebar.

Connect the throttle cables [1] to the throttle pipe [2].

Install the wire guides [3] onto the throttle housings [4].

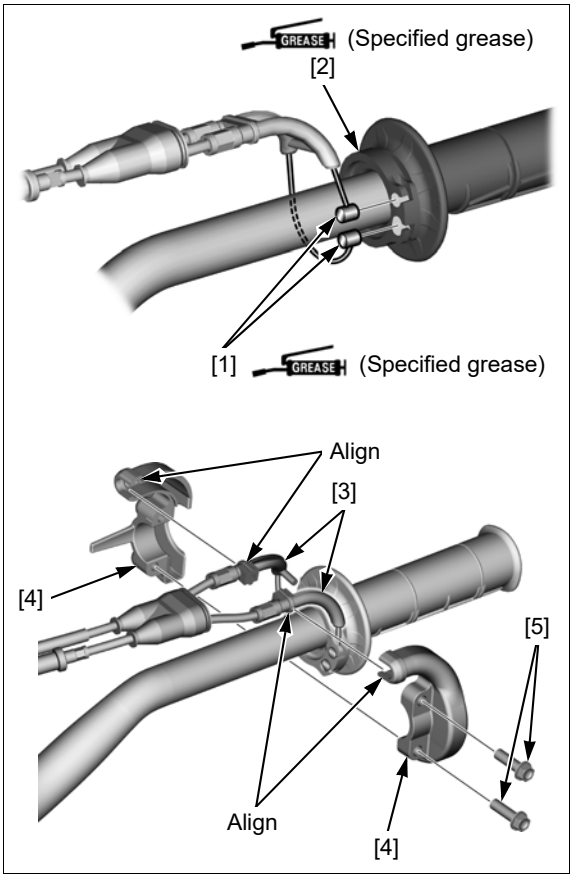
NOTE:

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

Install the throttle housings and bolts [5].

NOTE:

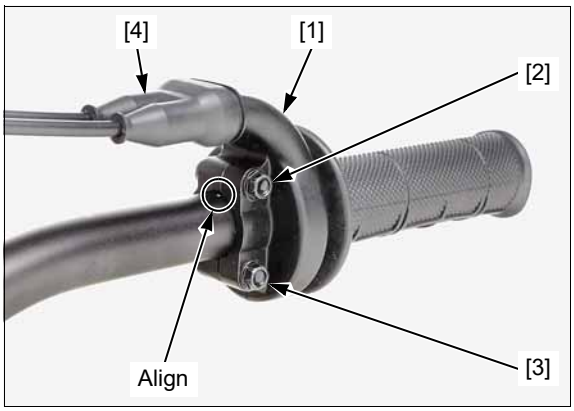
- Be careful not to pinch the throttle wires by the housings.
- Do not tighten bolts yet.



Align the throttle housings [1] end with the paint mark on the handlebar.

Tighten the upper bolt [2] first, then the lower bolt [3].

Install the dust cover [4].



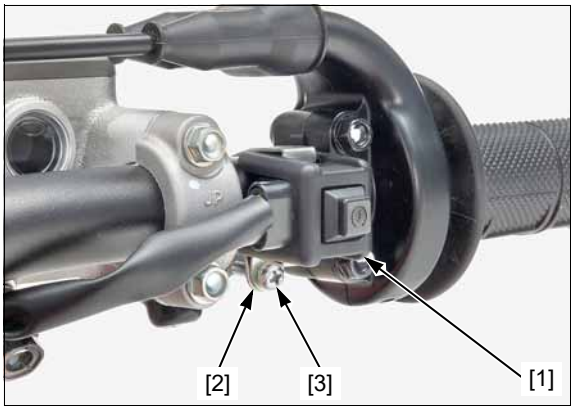
Install the starter switch [1], holders [2], and screw [3] and tighten the screw to the specified torque.

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

Adjust the throttle grip freeplay ➔2-19.

Be sure the throttle returns freely from fully open to fully closed automatically, in all steering positions.

If the throttle operation is not smooth, replace the cable.



CLUTCH CABLE LUBRICATION

Release the clutch lever cover [1].

Turn the adjuster [2] and remove the clutch cable [3].

Disconnect the clutch cable from the clutch lever [4].

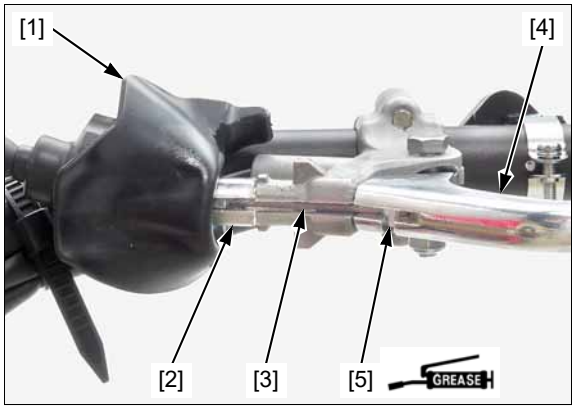
Thoroughly lubricate the cable end [5] with grease.

NOTE:

- It is not necessary to lubricate the entire cable.

Connect the clutch cable end to the lever.

Install the clutch cable and turn the adjuster.

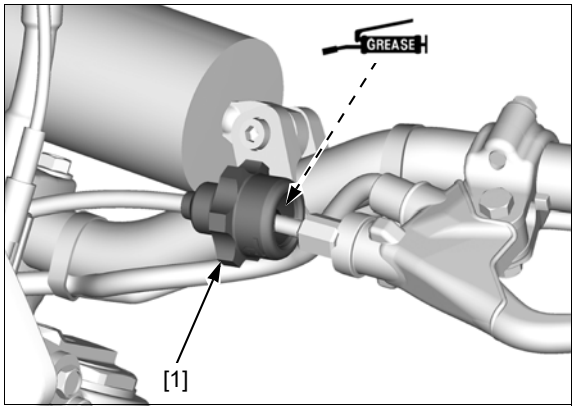


Remove the clutch cable end adjuster [1].

Apply grease to the clutch cable end adjuster inside surface.

Adjust the clutch lever freeplay ➔2-56.

If the clutch lever operation is not smooth, replace the cable.



EXHAUST PIPE/MUFFLER

TIGHTENING INSPECTION

NOTE:

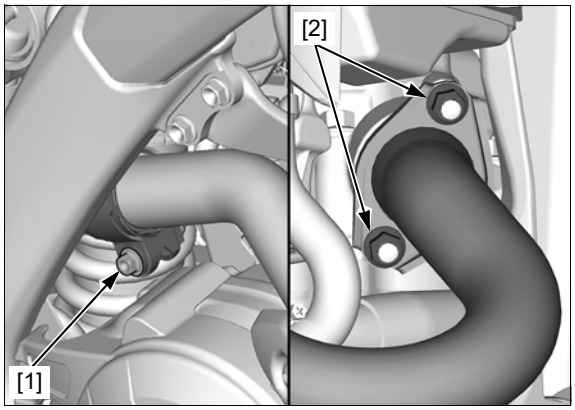
- Inspect the exhaust pipe/muffler while the engine is cold.

Check the exhaust pipe band bolt [1] and exhaust pipe joint nuts [2] for looseness and exhaust gas leaks.

Tighten each bolt and nut of the exhaust system to the specified torque.

TORQUE:
Exhaust pipe joint nut:
22 N·m (2.2 kgf·m, 16 lbf·ft)
Exhaust pipe band bolt:
20 N·m (2.0 kgf·m, 15 lbf·ft)

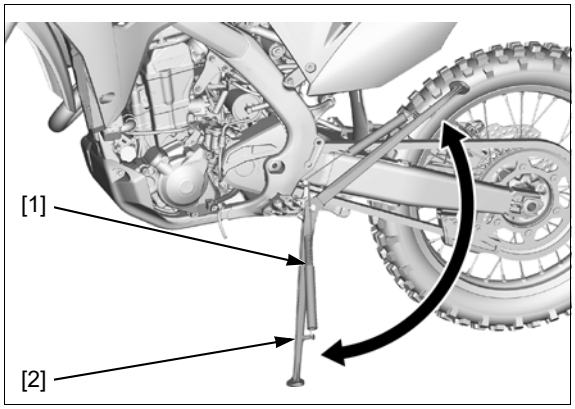
Check the exhaust pipe and mufflers for cracks or deformation, replace if necessary.



SIDESTAND

Check the sidestand spring [1] for damage or loss of tension.

Check the sidestand [2] for movement and lubricate the sidestand pivot if necessary.



SUSPENSION

FRONT SUSPENSION INSPECTION

Check the action of the forks by operating the front brake and compressing the forks several times.
Check the entire assembly for signs of leaks, damage, or loose fasteners.

Make sure 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.
Tighten all nuts and bolts.

For removal/installation/disassembly/assembly of the fork, refer to the following:

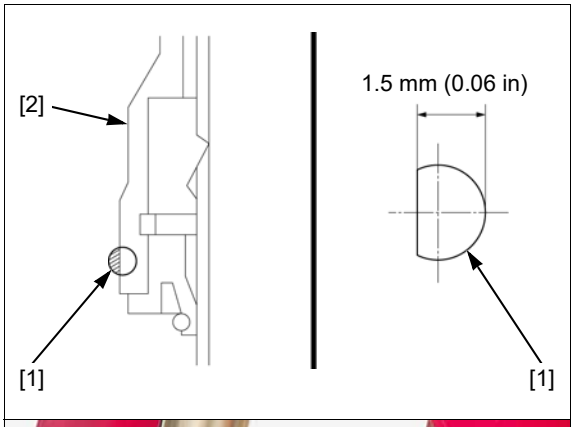
– Fork oil: ➔2-65
– Fork spring change/fork tube oil change: ➔3-7

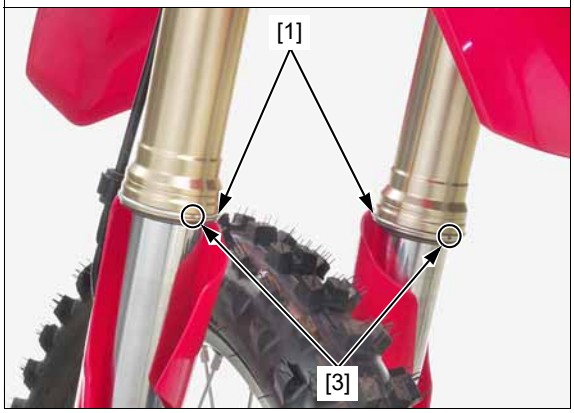
For front fork adjust to atmospheric pressure, refer to the "Setting Information".

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] facing rearward.





REAR SUSPENSION INSPECTION

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

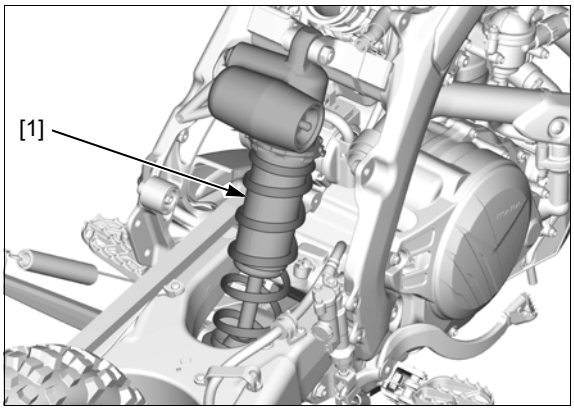
Remove the rear frame ➔1-12.

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

Replace damaged components which cannot be repaired.
Tighten all nuts and bolts.

For removal/installation/disassembly/assembly of the shock absorber, refer to the shock absorber disassembly/assembly" ➔3-24.

Install the rear frame ➔1-12.



SWINGARM/CUSHION LINKAGE

Remove the engine guard ➔1-8.

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.

Replace the bearings if excessively worn.

Check the cushion linkage and replace any damaged needle bearings.

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

Install the engine guard ➔1-8.

FORK OIL

NOTE:

- For change the fork tube oil, refer to the following:
  – Drain the fork tube oil: ➔3-10
  – Fill the fork tube oil: ➔3-16

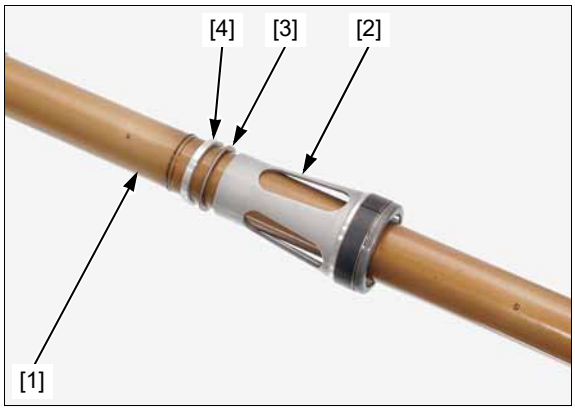
FORK DAMPER OIL CHANGE

FORK DAMPER DISASSEMBLY

Remove the fork damper ➔3-8.

Remove the following from the fork damper assembly [1]:

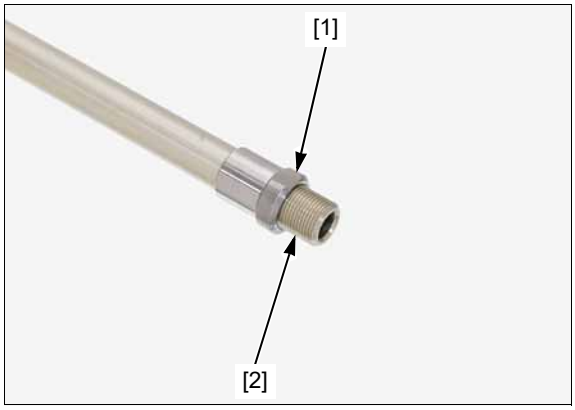
– Spring seat collar [2]
– Back-up ring [3]
– Seat stopper [4]



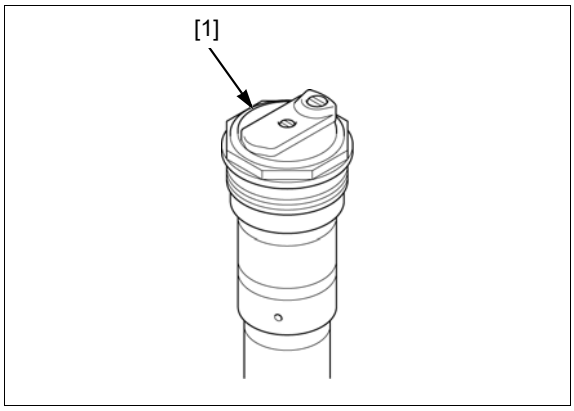
Check the fork center bolt lock nut [1] is installed on the fork damper piston rod [2] properly.

NOTE:

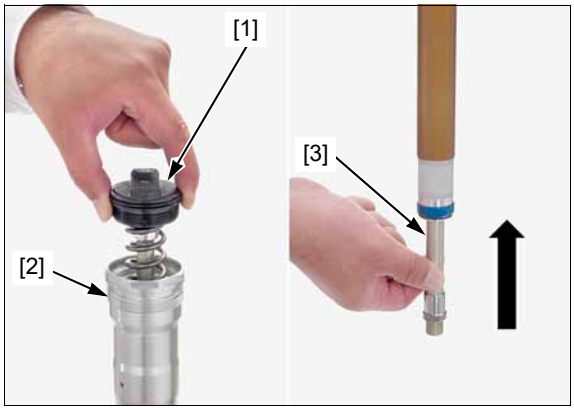
- If the lock nut was removed, the piston rod will fall into the fork damper and you will not be able to reassemble the fork damper.



Loosen the fork bolt [1].



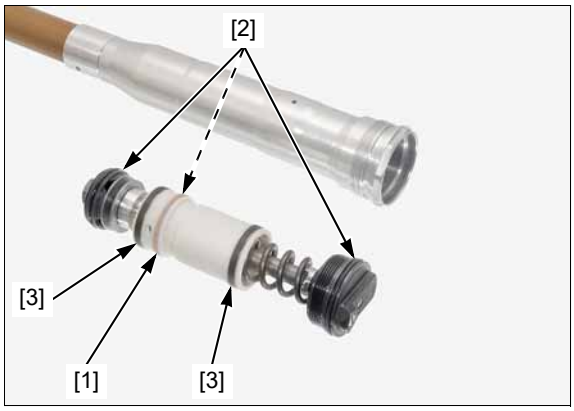
Remove the fork bolt assembly [1] from the fork damper [2] while pumping the piston rod [3] slowly.



Remove the piston ring [1] and O-rings [2] from the fork bolt assembly.

NOTE:

- Do not disassemble the fork bolt assembly.
- Be careful not to damage the slider bushings [3].



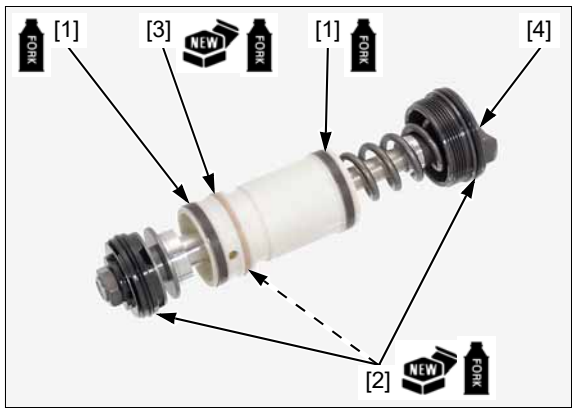
Empty the fork oil from the fork damper [1] by pumping the piston rod several times.

FORK DAMPER REFILLING/ASSEMBLY

Clean the fork bolt assembly threads.

Apply recommended fork oil to the slider bushings [1], new O-rings [2] and a new piston ring [3].

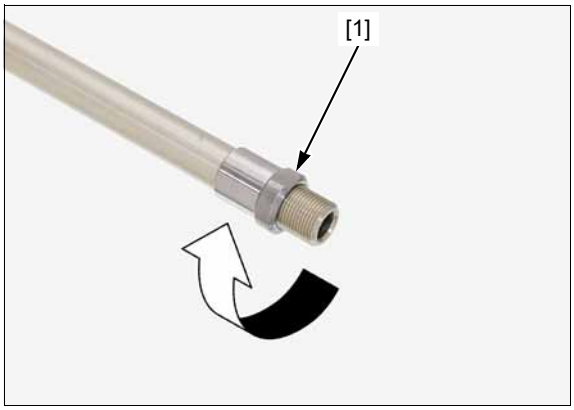
Install new O-rings and piston ring to the fork bolt assembly [4].



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

NOTE:

- If the lock nut was removed, 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] to its maximum length.

Pour the recommended fork oil into the fork damper [2].

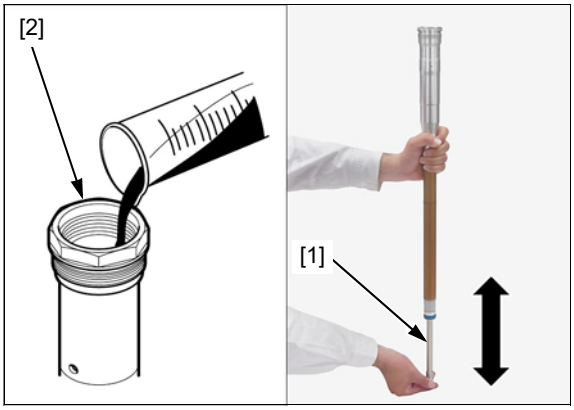
RECOMMENDED FORK OIL:
Fork Fluid (Viscosity: 5W)

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 damper.



Clean the fork damper threads.

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

Pull the piston rod out 20 mm (0.8 in).

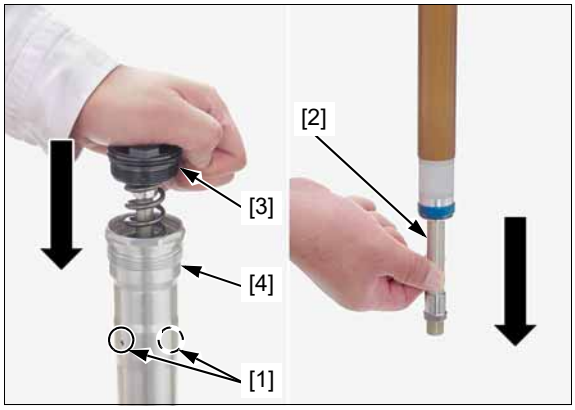
Install the fork bolt assembly [3] into the fork damper [4].

Push the fork bolt assembly in slowly while pulling the piston rod out.

NOTE:

- Be careful not to damage the fork cap bushings.

Temporarily tighten the fork bolt.



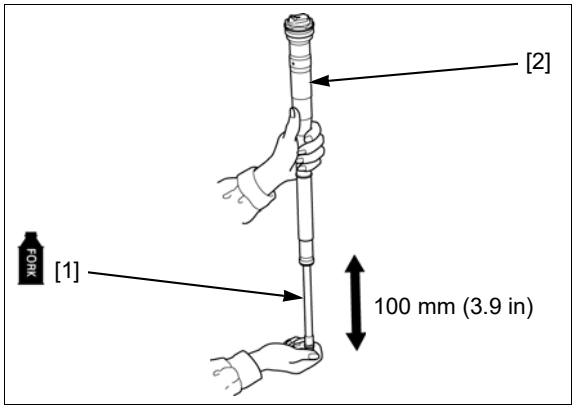
After assembling the fork damper, perform following procedure to bleed the air from the fork damper:

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

Check the piston rod [1] sliding surface for damage.

Apply recommended fork oil to the piston rod sliding surface.

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



Cover the piston rod [1] end to prevent damage.

Cover the fork damper oil holes with shop towel [2].

Blow out any extra fork oil in the fork damper [3] by fully stroking the piston rod.

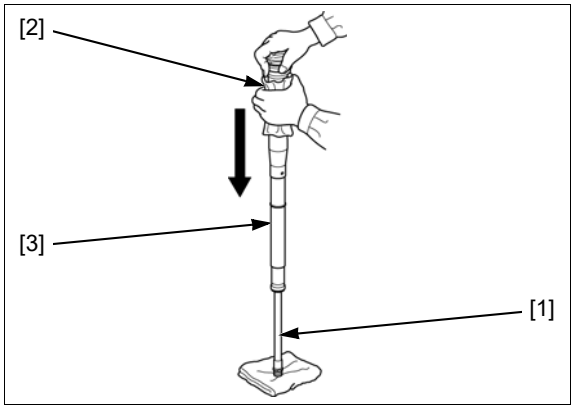
NOTE:

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

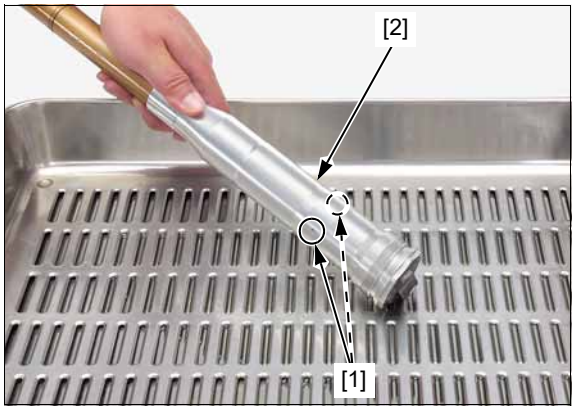
Repeat the above process until the extra fork oil does not overflow.

NOTE:

- 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 243 cm^3 (8.2 US oz, 8.6 Imp oz) of fork oil to be left in the fork damper.

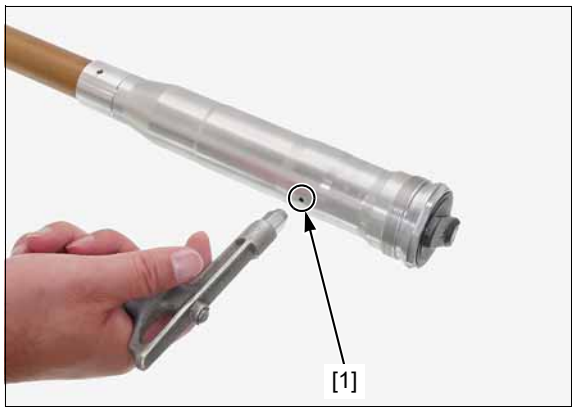


Drain the extra fork oil from the oil holes [1] of the fork damper [2].



Blow out the oil of the fork damper spring chamber with compressed air from the oil hole [1] of the fork damper.

Wipe off the oil completely from the fork damper



If your cannot use compressed air, perform the following procedure:

Remove the fork plug bolt [1] from the fork bolt assembly.

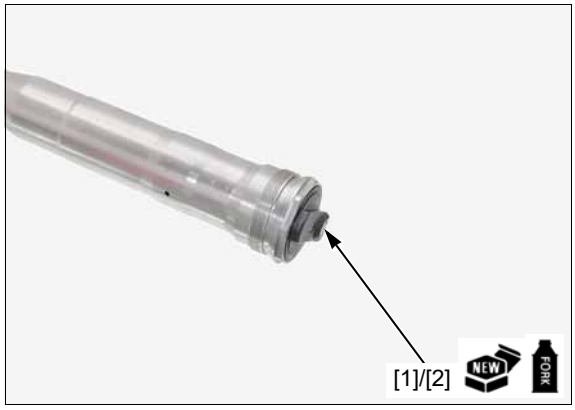
Hold the fork damper upside down for 10 minutes for drain the oil from the fork damper spring chamber.

Apply fork oil to a new O-ring.

Install the O-ring [2] to the fork plug bolt.

Install and tighten the fork plug bolt to the specified torque.

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



FORK DAMPER OPERATION INSPECTION

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

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

Check the piston rod [1] sliding surface for damage.

Apply recommended fork oil to the piston rod sliding surface.

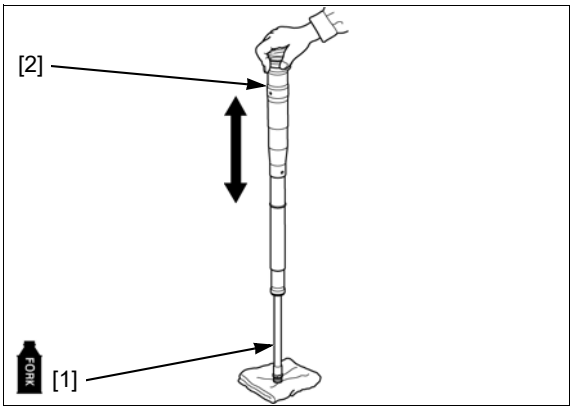
Cover the piston rod end to prevent damage.

Fully stroke the piston rod by pushing down the fork damper [2].
Check the piston rod for smooth operation.

NOTE:

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

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



Fully extend the piston rod [1] by hand.
Measure and record the piston rod maximum length.

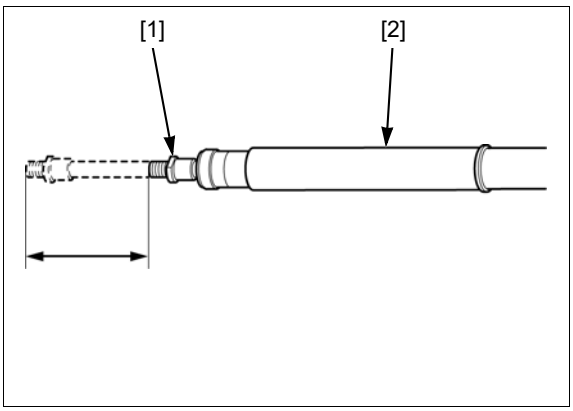
Hold the fork damper [2] on level ground.

Fully compressed the piston rod by hand.

Release the piston rod.

Check the piston rod extends to its maximum length.

If the piston rod does not extend to maximum, bleed air in the fork damper again ➔2-65.



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

Compress the piston rod [2] 200 – 250 mm (7.9 – 9.8 in) from fully extended and hold the fork damper in an upright position for 10 minutes.

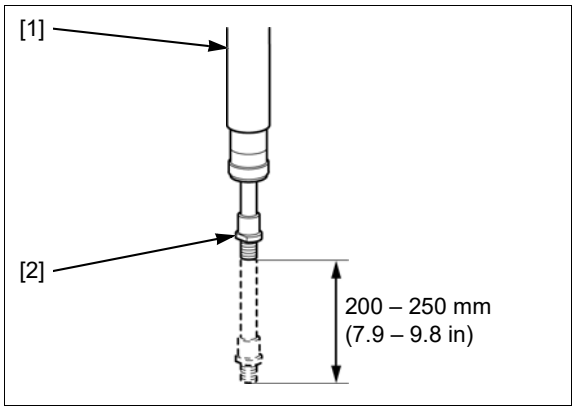
Hold the fork damper on level ground.

Release the piston rod.

Check that the piston rod extends to its maximum length.

There should be no oil leaking from the fork damper and piston rod.

If oil leaks from the fork damper or piston rod, replace the fork damper assembly.

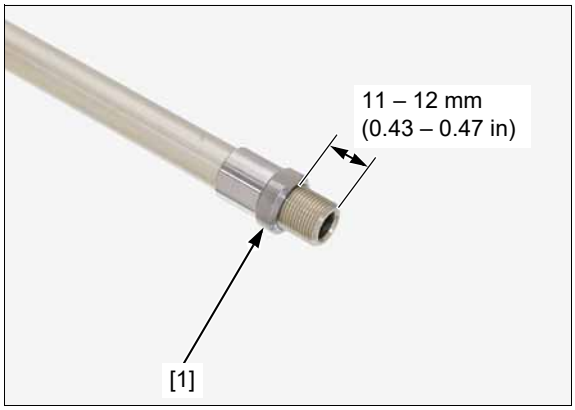


Tighten the fork center bolt lock nut [1] fully.

Make sure that the length between the lock nut end and piston rod end is in the standard value.

STANDARD: 11 – 12 mm (0.43 – 0.47 in)

Wipe off any oil completely from the fork damper.

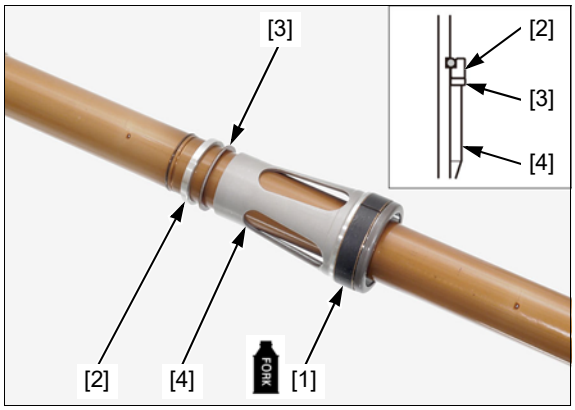


Apply recommended fork oil to the slider bushing [1].

Install the seat stopper [2], back-up ring [3] and spring seat collar [4] to the fork damper in the shown direction.

NOTE:

- Install the back-up ring with its black coated side facing the seat stopper.



SPARK ARRESTER

INSPECTION/CLEANING

Remove the spark arrester (without removing the muffler from the exhaust pipe) ➔1-14.

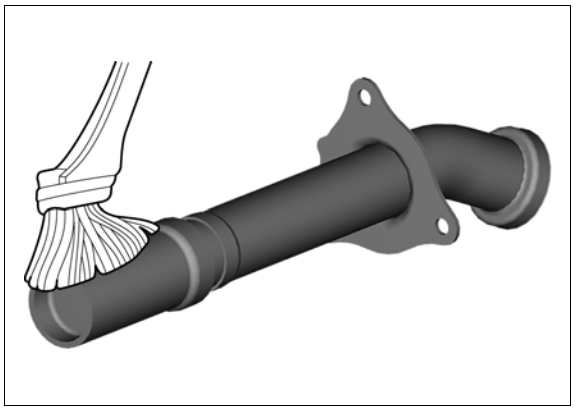
Check the screen mesh and replace if necessary.

Use a soft brush to remove carbon deposits from the spark arrester screen.

NOTE:

- Be careful not to avoid damaging the spark arrester screen.

The spark arrester must be free of breaks and holes, and replace if necessary ➔1-14.



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 torque values.

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

WHEELS/TIRES

INSPECTION

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

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

COLD TIRE PRESSURE:
FRONT: 100 kPa (1.0 kgf/cm2, 15 psi)
REAR: 100 kPa (1.0 kgf/cm2, 15 psi)

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

Check for worn front wheel bearings by grabbing the front fork and attempting to move the front wheel side-to-side.

Replace the front wheel bearings if excessively worn.

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

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

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

Replace the rear wheel bearings if excessively worn.

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

Check the wheel rim 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)

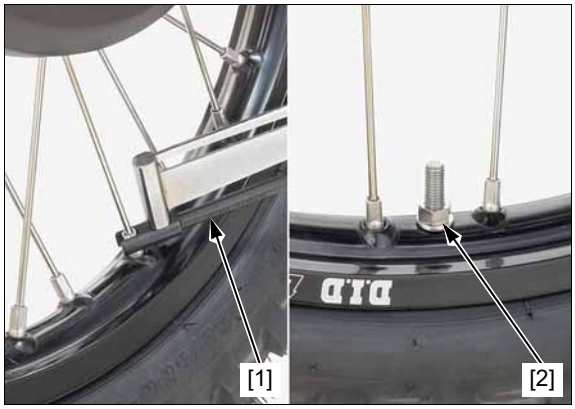
Inspect the wheel rims and spokes for damage.

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)
Rim lock:
12 N·m (1.2 kgf·m, 9 lbf·ft)



STEERING HEAD BEARINGS

INSPECTION

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

Check that the handlebar moves freely from side-to-side. Be sure the control cables do not interfere with handlebar rotation.

Move the front 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.

3. Setting Information

SERVICE INFORMATION ····· 3-2

OPTIONAL PARTS ····· 3-3

HANDLE POSITION ····· 3-4

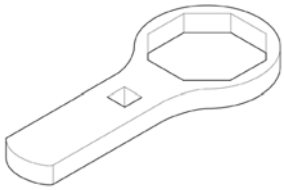
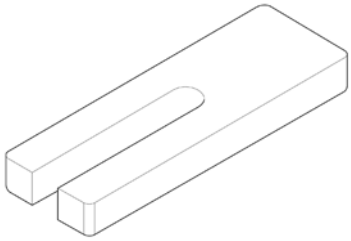
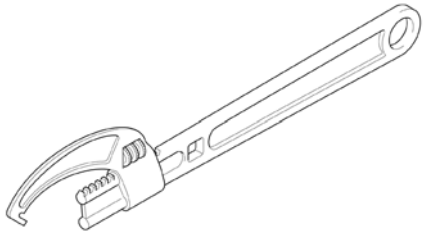
SUSPENSION SETTING ····· 3-5

SUSPENSION ADJUSTMENT GUIDELINE ····· 3-26

WIRING DIAGRAM ····· 3-30

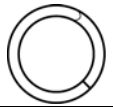
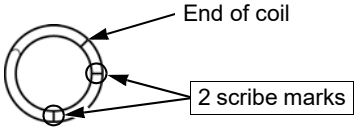
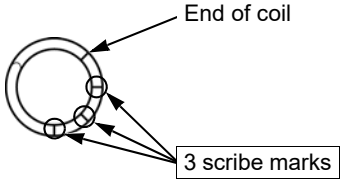
SERVICE INFORMATION

TOOLS

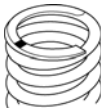
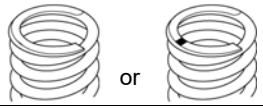
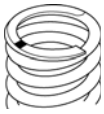
Locknut Wrench 50 (octagon) 07WMA-KZ30100 	Piston Base 11.5 07958-2500001  or 07AMB-KZ3A100 (U.S.A. only)	Adjustable Pin Spanner (2 required) 07702-0020001  or Pin spanner A (2 required) 89201-KS6-810

OPTIONAL PARTS

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
SPARK PLUG:	SILMAR10A-9S (NGK)
DRIVE CHAIN:	RK 520EXU-120-LJFZ

ITEM		REMARKS	
FRONT FORK:			
Spring	**TYPE**	**SPRING RATE**	**IDENTIFICATION MARK**
	Soft 	4.8 N/mm (27.4 lbf/in)	No mark
	Medium (standard spring)  or 	5.0 N/mm (28.6 lbf/in)	No mark (factory products) or 2 scribe mark
	Stiff 	5.2 N/mm (29.7 lbf/in)	3 scribe marks

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

ITEM		REMARKS	
SHOCK ABSORBER:			
Spring	**TYPE**	**SPRING RATE**	**IDENTIFICATION MARK**
	Soft 	50 N/mm (285.5 lbf/in)	Pink paint
	Medium (Standard spring) 	52 N/mm (296.9 lbf/in)	No mark (factory products) or Red paint (after market parts)
	Stiff 	54 N/mm (308.3 lbf/in)	White 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

HANDLEBAR LOWER HOLDER POSITION ADJUSTMENT

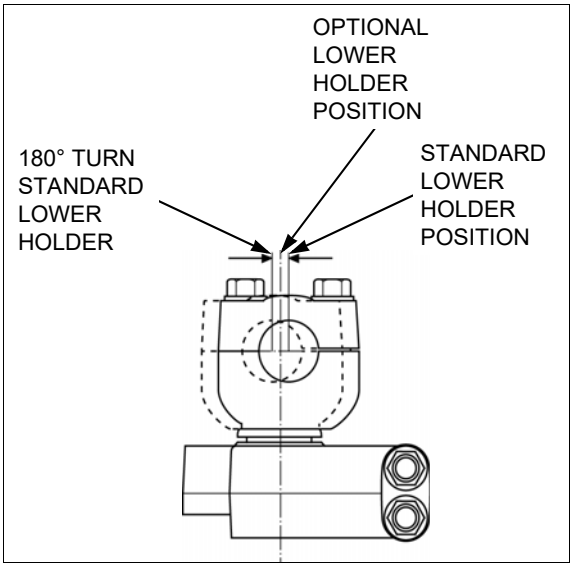
The position of the handlebar can be changed by exchange it with the optional handlebar lower holder, or by changing the install direction of the standard handlebar lower holder.

NOTE:

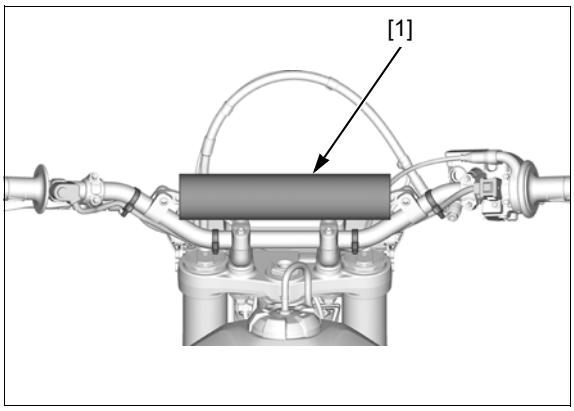
- The standard handlebar position is offset to 3.0 mm (0.1 in) forward from the center axis of the lower holder.
- By turning the standard handlebar lower holder 180°, the handlebar position will be moved 6.0 mm (0.2 in) rearward of the standard position.

	LOWER HOLDER	LOWER HOLDER DIRECTION
Standard position	**Standard**	**Forward**
3 mm rearward	Optional	–
6 mm rearward	Standard	Rearward

For exchange or change the install direction of the handlebar lower holder, refer to the following:



Remove the handlebar pad [1].



Loosen the handlebar lower holder nuts [1].

Remove the rear handlebar upper holder bolts [2], front handlebar upper holder bolts [3], handlebar upper holders [4] and handlebar [5].

Remove the handlebar lower holder nuts and washers [6].

Turn or exchange the handlebar lower holders [7].

Temporarily install the washers and handlebar lower holder nuts.

Place the handlebar on the handlebar lower holders.

Install the handlebar upper holders with its punch mark [8] facing forward.
Install and tighten the front handlebar upper holder bolts to the specified torque.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

NOTE:

- Align the paint mark on the handlebar with the top surface of the handlebar lower holders.

Install and tighten the rear handlebar upper holder bolts to the specified torque.

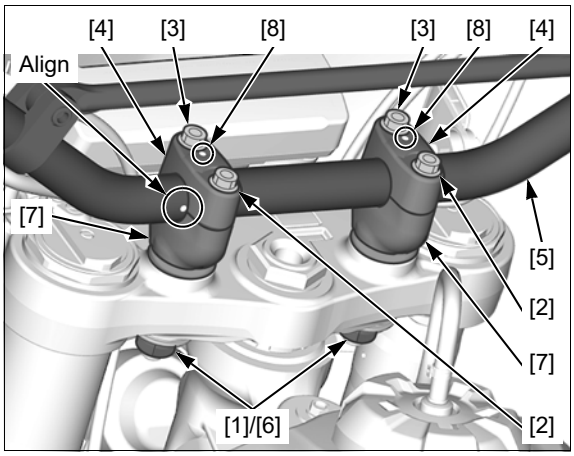
TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

NOTE:

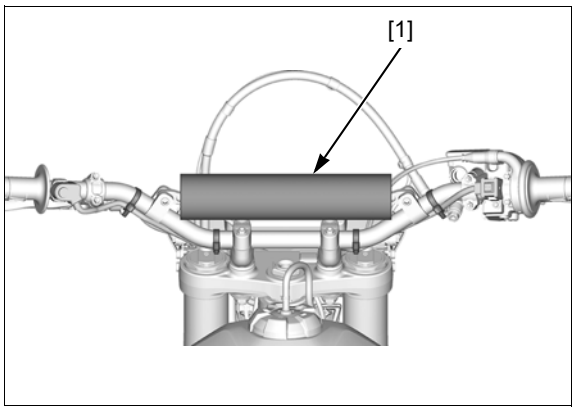
- Tighten the front handlebar upper holder bolt first.

Tighten the handlebar lower holder nuts to the specified torque.

TORQUE: 44 N·m (4.5 kgf·m, 32 lbf·ft)



Install the handlebar pad [1].



SUSPENSION SETTING

FRONT FORK

SETTING BASICS

The front 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 front fork air pressure to atmospheric pressure before running ➔3-5.
- 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.

FRONT 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.

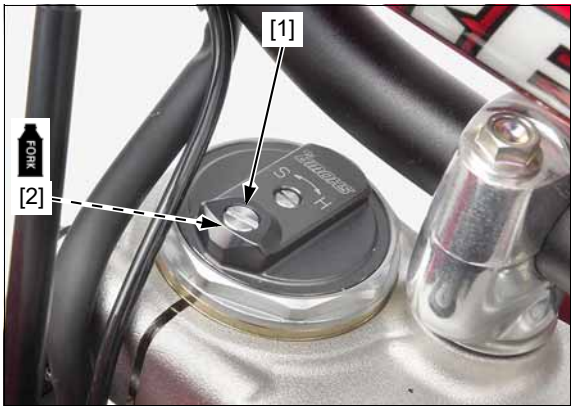
Loosen the plug bolt [1] fully.

Check that the O-ring [2] is in good condition, replace it if necessary.

Apply recommended fork oil to the O-ring.

Install and tighten the plug bolt to the specified torque.

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



HOW TO USE THE COMPRESSION ADJUSTER

The compression damping force can be adjusted from the softest to the stiffest with 16 clicks (4 clicks / 1 rotation) or more by the compression adjuster [1] of the fork cap.

Turning clockwise (H) turns stiffer, turning counterclockwise (S) turns it softer.

NOTE:

- Always start with full hard 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 ➔3-26.

HOW TO SET THE STANDARD POSITION

1. Turn the adjuster clockwise (H) until it stops (stiffest position).
2. Turn counterclockwise (S) direction from the stiffest position.
   The first click is confirmed as 1 click, and the 5 clicks is the standard position.
3. Make sure to the same position on both sides.

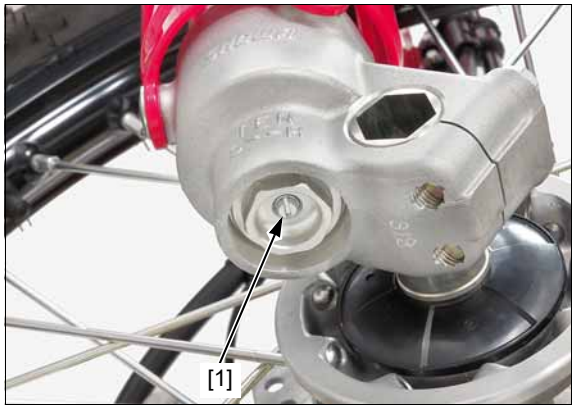
HOW TO USE THE REBOUND ADJUSTER

The rebound damping force can be adjusted from the softest to the stiffest with 16 clicks (4 clicks / 1 rotation) or more by the rebound adjuster [1] of the fork center bolt.

Turning clockwise (H) turns stiffer, turning counterclockwise (S) turns it softer.

NOTE:

- Always start with full hard 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 ➔3-26.



HOW TO SET THE STANDARD POSITION

1. Turn the adjuster clockwise (H) until it stops (stiffest position).
2. Turn counterclockwise (S) direction from the stiffest position.
   The first click is confirmed as 1 click, and the 11 clicks is the standard position.
3. Make sure to the same position on both sides.

FORK SPRING CHANGE/FORK TUBE OIL CHANGE

Refer to the "optional parts" for the optional spring types ➔3-3.

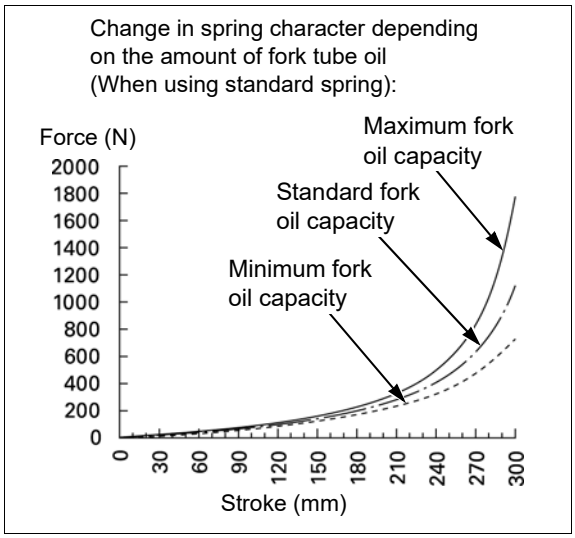
For the rider's preference, weight and course conditions, the amount of conforming fork tube oil and the conforming spring will change.

NOTE:

- For suspension adjustment guideline ➔3-26.
- For fork tube oil change ➔3-10.
- For fork spring change ➔3-11.

The amount of fork tube oil for the used spring to can be adjusted within the range of the following table.

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.



	Fork oil capacity		
	Maximum	Standard	Minimum
Stiffer spring	383 cm^3 (13.0 US oz, 13.5 Imp oz)	355 cm^3 (12.0 US oz, 12.5 Imp oz)	298 cm^3 (10.1 US oz, 10.5 Imp oz)
Standard spring	389 cm^3 (13.2 US oz, 13.7 Imp oz)	361 cm^3 (12.2 US oz, 12.7 Imp oz)	304 cm^3 (10.3 US oz, 10.7 Imp oz)
Softer spring	387 cm^3 (13.1 US oz, 13.6 Imp oz)	359 cm^3 (12.1 US oz, 12.6 Imp oz)	301 cm^3 (10.2 US oz, 10.6 Imp oz)

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 front fork adjust to atmospheric pressure ➔3-5.

FRONT WHEEL REMOVAL

Remove the following:

– Front brake disc cover ➔1-8
– Engine guard ➔1-8

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

Remove the axle nut [1].

Loosen the left axle holder bolts [2].

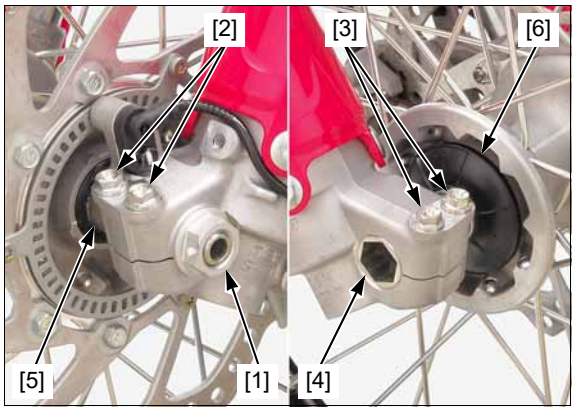
Loosen the right axle holder bolts [3].

Remove the front axle [4] and front wheel.

NOTE:

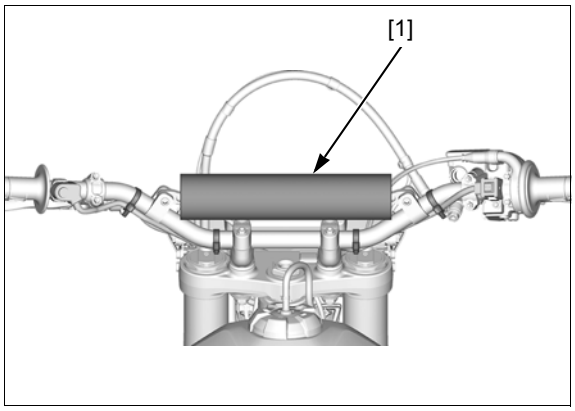
- Do not operate the brake lever after removing the front wheel.

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



HANDLEBAR REMOVAL

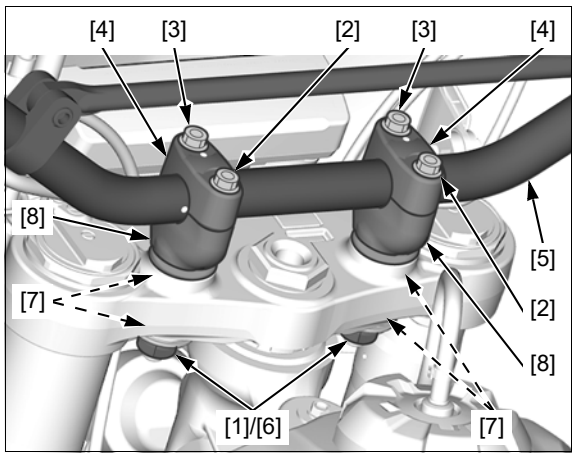
Remove the handlebar pad [1].



Loosen the handlebar lower holder nuts [1].

Remove the rear handlebar upper holder bolts [2], front handlebar upper holder bolts [3], handlebar upper holders [4] and handlebar [5].

Remove the handlebar lower holder nuts, washers [6], bushings [7], and handlebar lower holders [8].



FRONT FORK REMOVAL

Remove the following:

– Front brake disc cover ➔1-8
– Handlebar and holders ➔3-4

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.

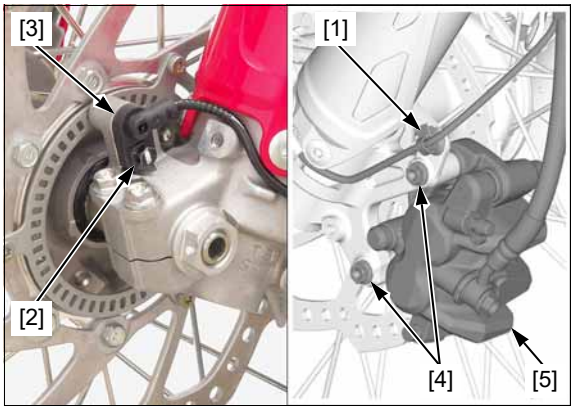
Release the wire clip [1].

Remove the bolt [2] and wheel speed sensor [3].

Remove the front brake caliper mounting bolts [4] and front brake caliper/bracket assembly [5].

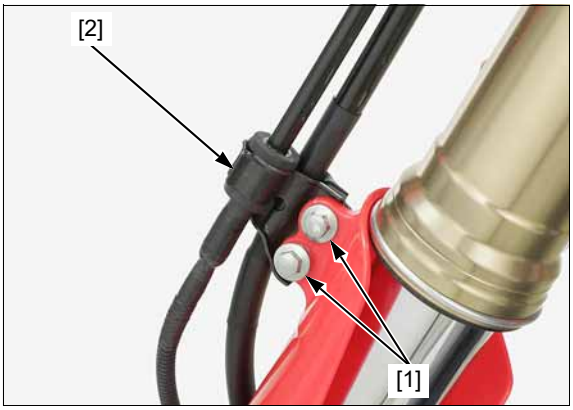
NOTE:

- Do not suspend the brake caliper/bracket assembly from the brake hose.
- Do not twist the brake hose.
- Do not operate the brake lever after removing the caliper/bracket assembly.

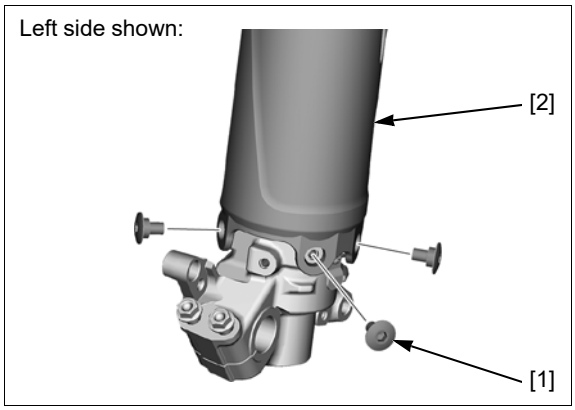


Remove the front wheel ➔3-7.

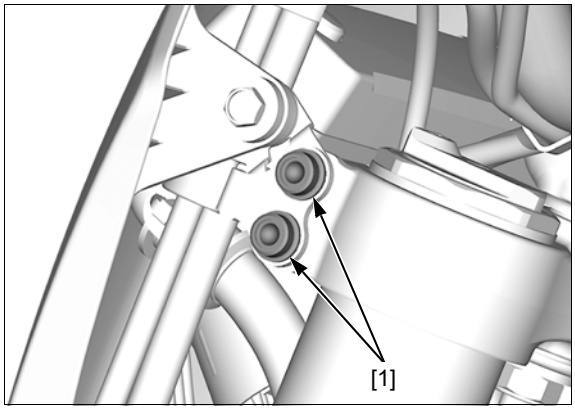
Remove the bolts [1] and brake hose clamp [2].



Remove the fork protector mounting bolts [1] and fork protectors [2].



Loosen the fork top bridge pinch bolts [1].

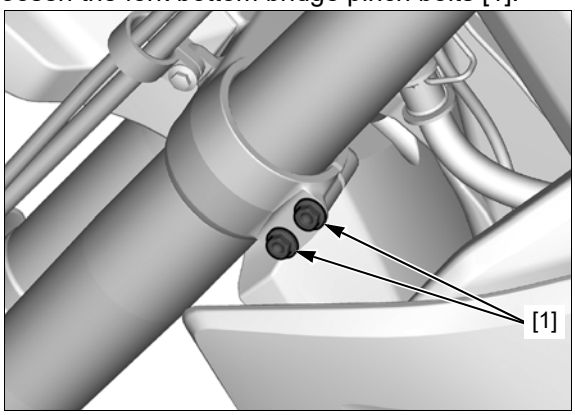


If you plan to disassemble the fork, perform the following procedure:

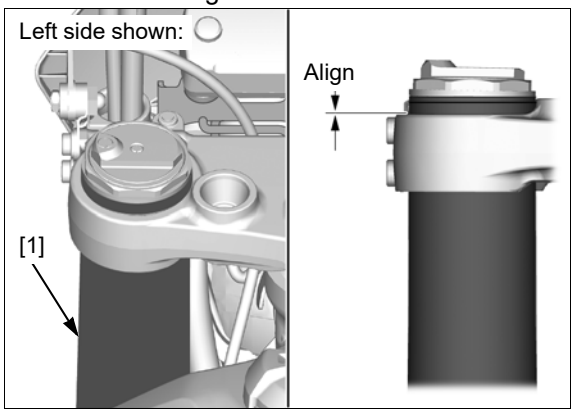
NOTICE

Over-tightening the fork bottom bridge pinch bolts can deform the outer tube. A deformed outer tube must be replaced.

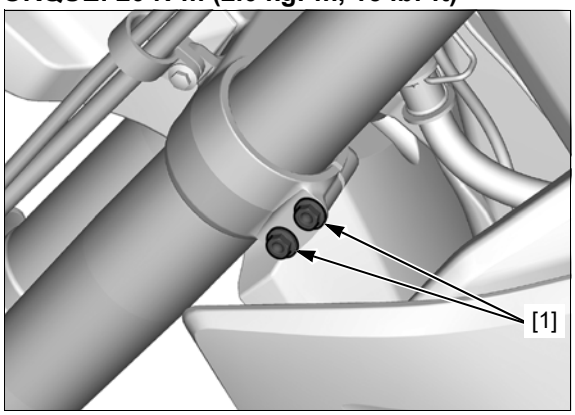
1. Loosen the fork bottom bridge pinch bolts [1].



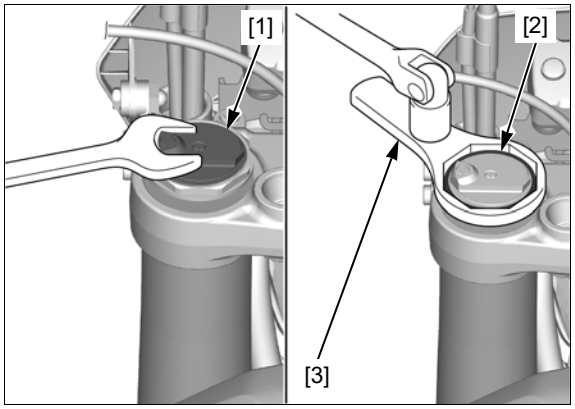
2. Pull the fork leg [1] up and align the fork outer tube lower index line with the top bridge upper surface. Position the fork leg in the direction as shown.



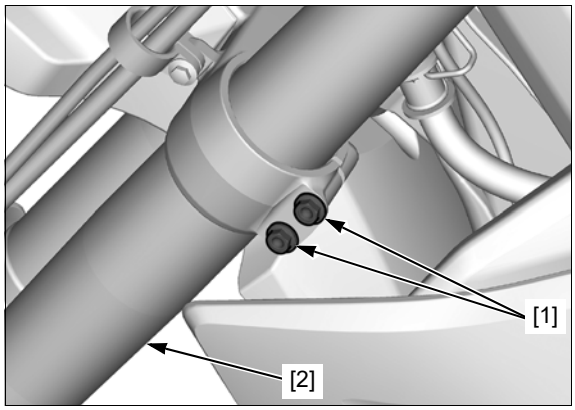
3. Tighten the fork bottom bridge pinch bolts [1].
TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)



4. Loosen the fork bolt [1], but do not remove it yet. Loosen the fork damper [2] using the special tool, but do not remove it yet.
TOOL:
Locknut Wrench 50 (octagon) [3]
07WMA-KZ30100



Loosen the fork bottom bridge pinch bolts [1] and pull the fork leg [2] down and out.



FORK TUBE OIL DRAINING

Remove the front fork ➔3-8.

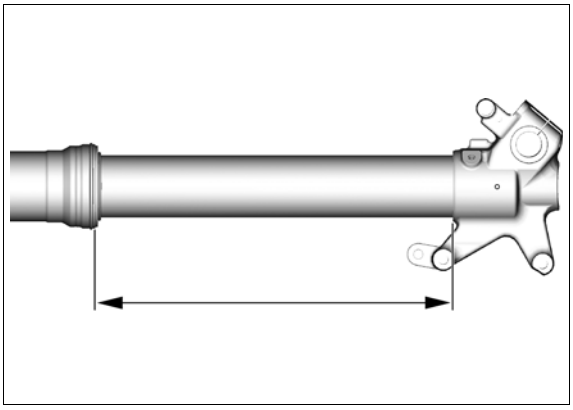
Clean the following before disassemble the fork.

– Fork assembly
– Bottom of the slider around the center bolt
– Sliding surface of the slide pipe

NOTE:

- Be careful not to scratch the slide pipe.
- Be careful not to damage the dust seal.

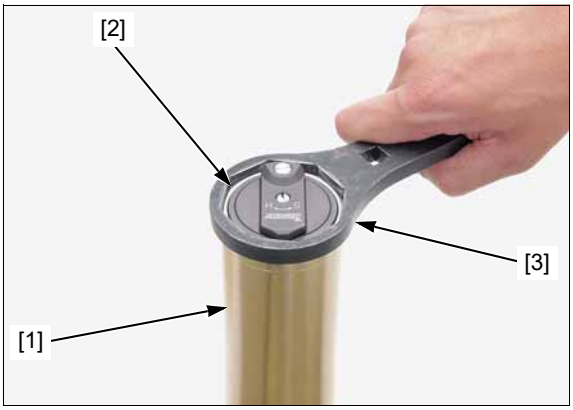
Measure and record the length between the axle holder and outer tube before disassembling the fork.



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

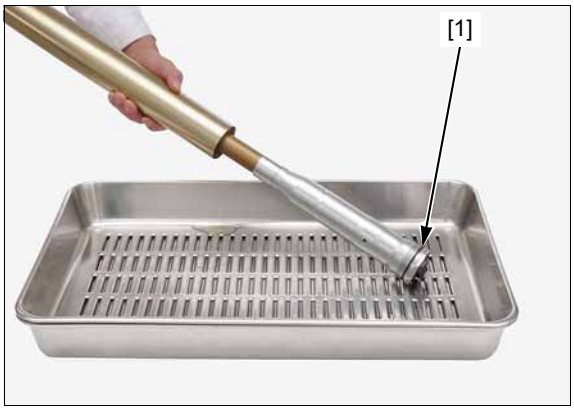
TOOL:
Locknut Wrench 50 (octagon) [3] 07WMA-KZ30100

Slide the outer tube down onto the axle holder.



Drain the fork oil from the inside of the fork tube and fork damper oil holes by pumping the fork several times.

Remove the O-ring [1] from the fork damper.



If only change the fork tube oil, perform the following procedure:

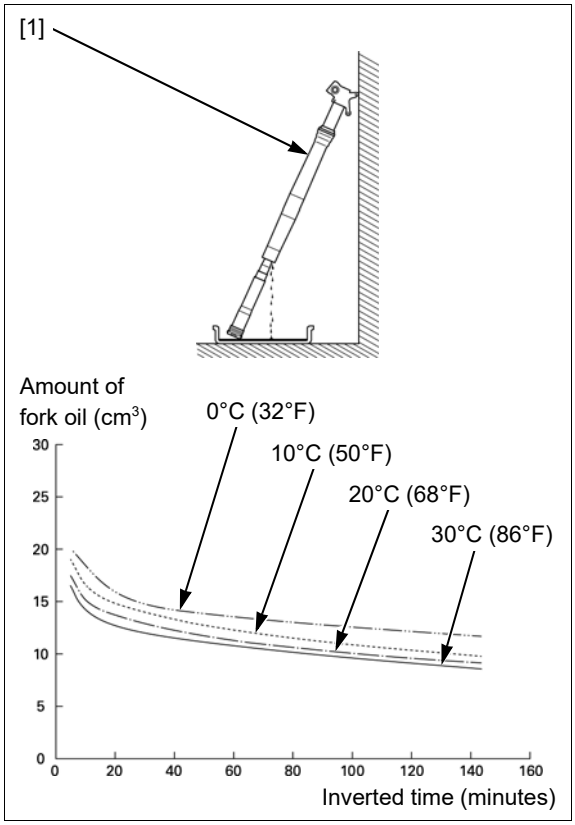
Place the fork [1] upside down and drain the fork oil from the fork inside.

By standing time and temperature, the amount of remaining oil in the fork is varied.
For more details, refer to the following table (for example, the amount of remaining oil is 13.7 cm^3 at 20°C/ 68°F, for 20 minutes).

Amount of remaining fork oil after draining (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

Fill the fork tube oil ➔3-16.



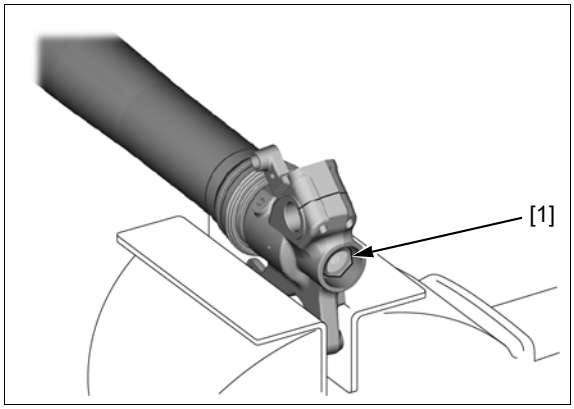
FORK SPRING REPLACEMENT

If you plan to only fork oil exchange, skip the following procedures.

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

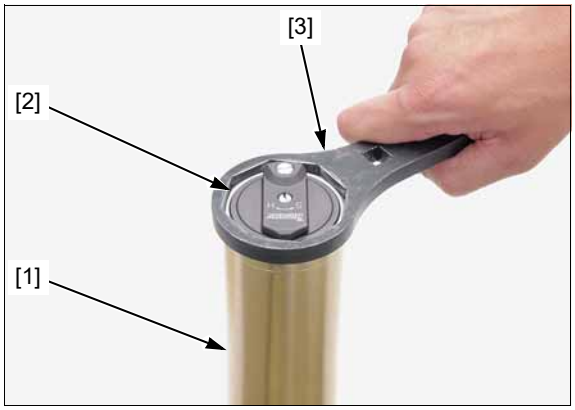
NOTE:
- Do not over-tighten the vise on the axle holder.

Loosen the fork center bolt [1].



Hold the outer tube [1] and temporarily install the fork damper [2] 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 install the special tool between the axle holder [2] and fork center bolt lock nut.

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

TOOL:
Piston Base 11.5 [3] 07958-2500001

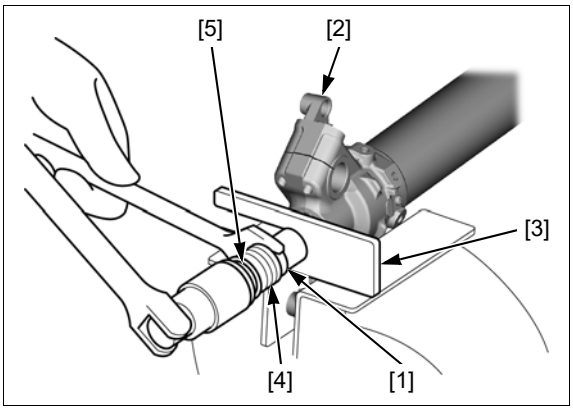
U.S.A. TOOL:
Plate Stopper 07AMB-KZ3A100

Hold the fork center bolt lock nut using the 17 mm open end wrench.

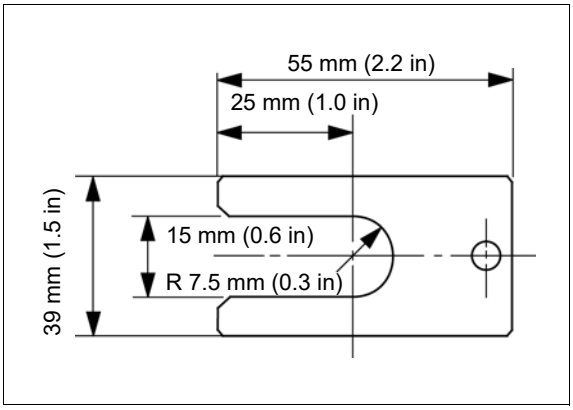
Remove the fork center bolt [4] from the fork damper.

NOTE:
- Do not remove the fork center bolt 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.



An equivalent tool can be made from a thin piece of steel (2.0 mm (0.08 in) thick) as shown if you do not have a special tool.

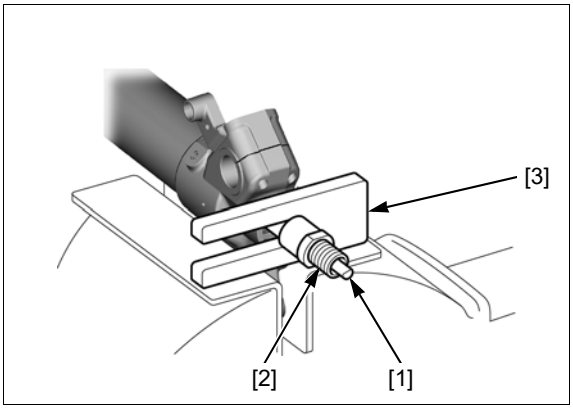


Remove the push rod [1] from the piston rod [2].

Remove the special tool [3] while pushing the outer tube.

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

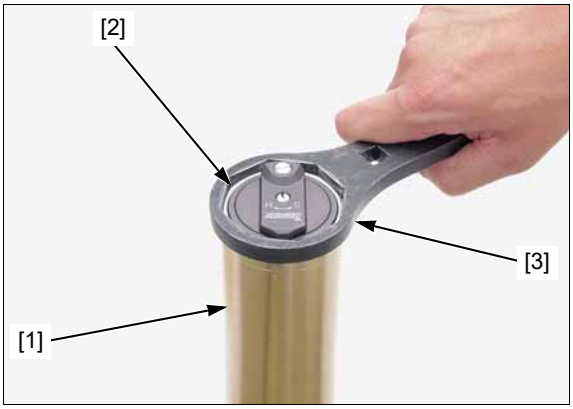
Remove the fork assembly from the vise.



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

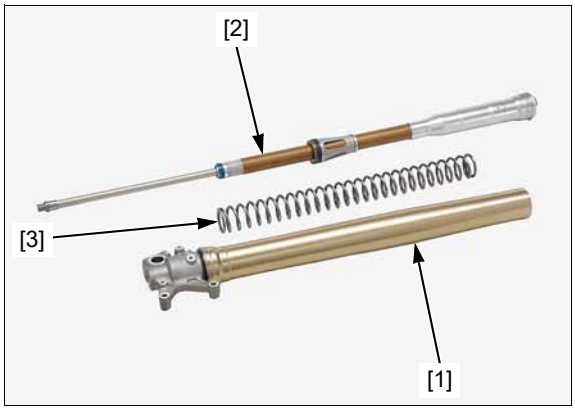
TOOL:
Locknut Wrench 50 (octagon) [3] 07WMA-KZ30100

Slide the outer tube down onto the axle holder.



Remove the following from the fork assembly [1]:

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

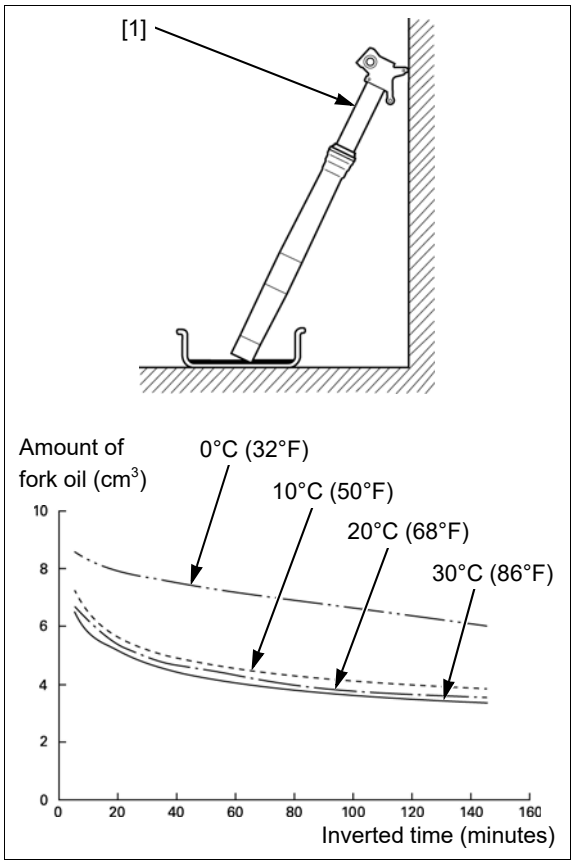


Place the fork [1] upside down and drain the fork oil from the inside of the outer tube and slide pipe.

By standing time and temperature, the amount of remaining oil in the fork is varied.
For more details, refer to the following table (for example, the amount of remaining oil is 5.4 cm^3 at 20°C/ 68°F, for 20 minutes).

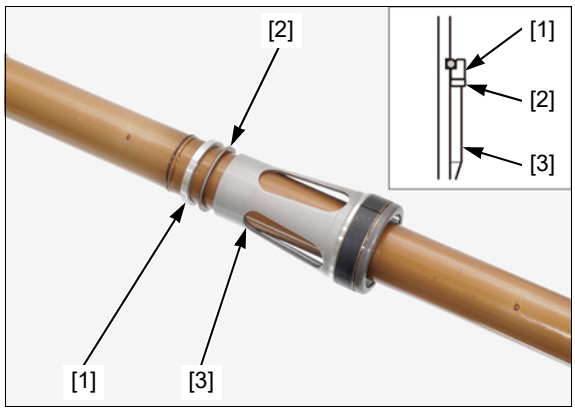
Amount of remaining fork oil after draining (The fork damper and spring is removed) unit: cm^3

		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



Install the seat stopper [1], back-up ring [2] and spring seat collar [3] to the fork damper in the shown direction.

NOTE:
- Install the back-up ring with its black coated side facing the seat stopper.

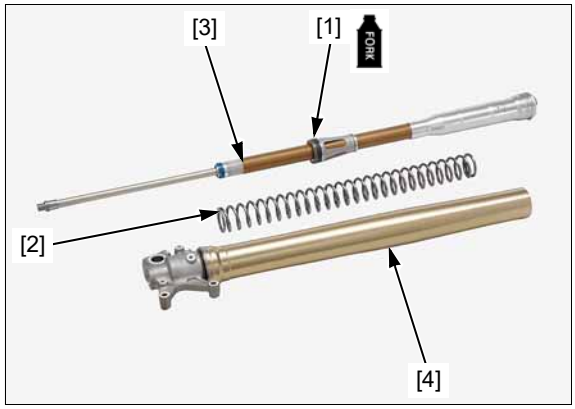


Blow out the oil off completely from the fork spring and damper.

Apply recommended fork oil to the spring seat collar bushing [1].

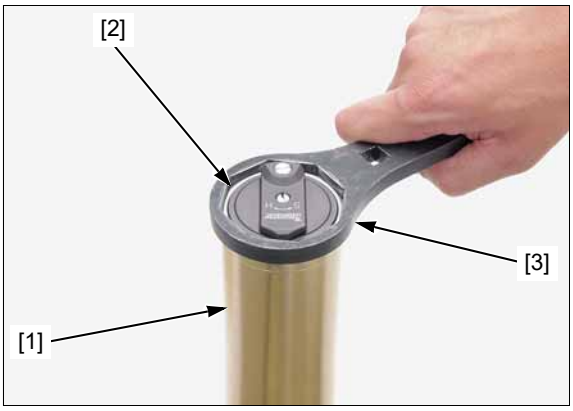
Put the fork spring [2] on the fork damper [3].

Put the fork damper/spring into the fork assembly [4].



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

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



Set the axle holder [1] 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 [2] is fully exposed and install the special tool or mechanic's stopper tool between the axle holder and lock nut.

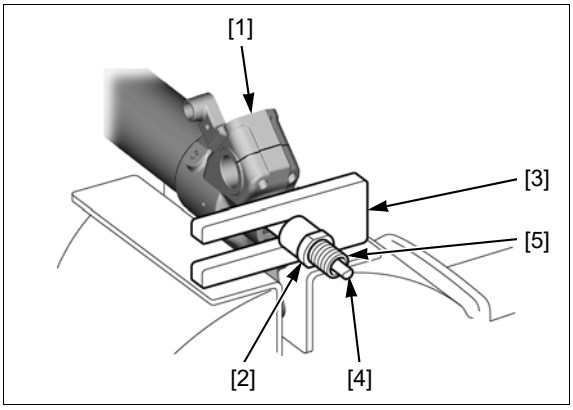
TOOL:
Piston Base 11.5 [3] **07958-2500001**

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

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

Install the push rod [4] into the piston rod [5] until it stops.

NOTE:
- Check the push rod installation by turning the push rod right and left.



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

STANDARD: 11 – 12 mm (0.43 – 0.47 in)

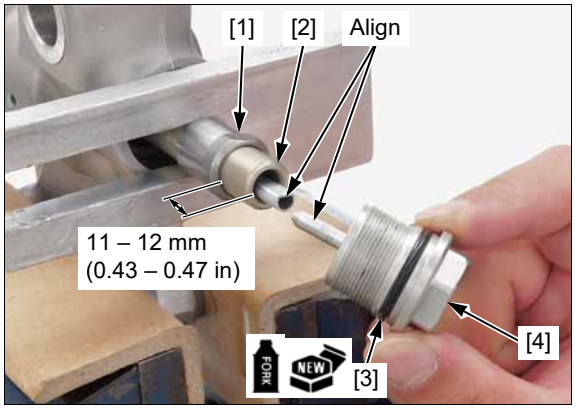
Apply recommended fork oil to a new O-ring.
Install the O-ring [3] to the fork center bolt [4].

Install the fork center bolt to the piston rod.

NOTE:

- Align the each flat-side of the fork center bolt adjusting rod and push rod.

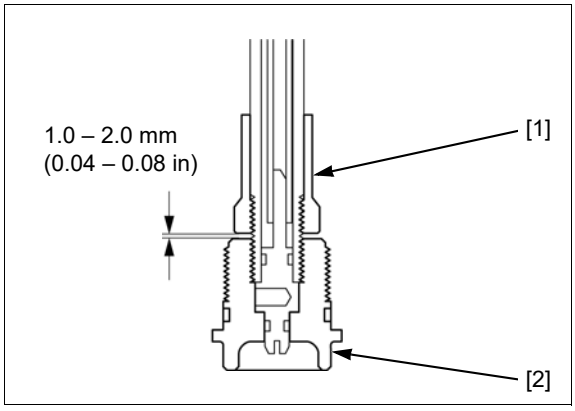
Tighten the fork center bolt fully by hand.



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

STANDARD: 1.0 – 2.0 mm (0.04 – 0.08 in)

If the clearance is out of specification, 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].
Tighten the lock nut to the specified torque.

TORQUE: 28 N·m (2.9 kgf·m, 21 lbf·ft)

NOTE:

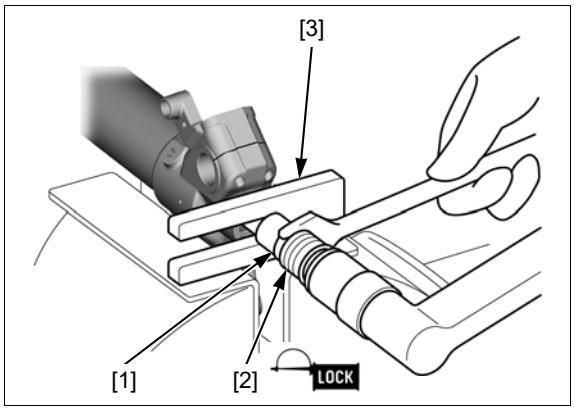
- Tighten the fork center bolt lock nut with specified torque by tightening the fork center bolt / piston rod while holding the fork center bolt lock nut.

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

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

NOTE:

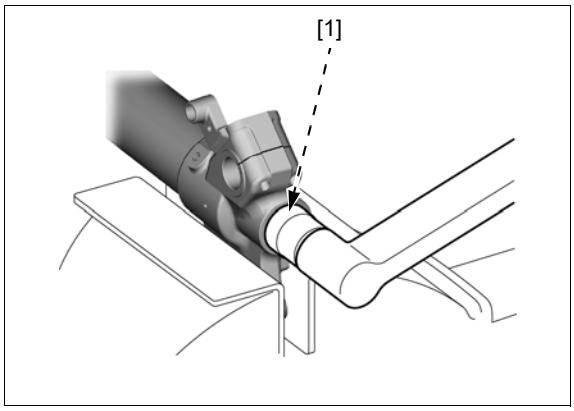
- Be careful not to damage the piston rod.



Install and tighten the fork center bolt [1] to the specified torque.

TORQUE: 69 N·m (7.0 kgf·m, 51 lbf·ft)

Remove the fork from the vise.



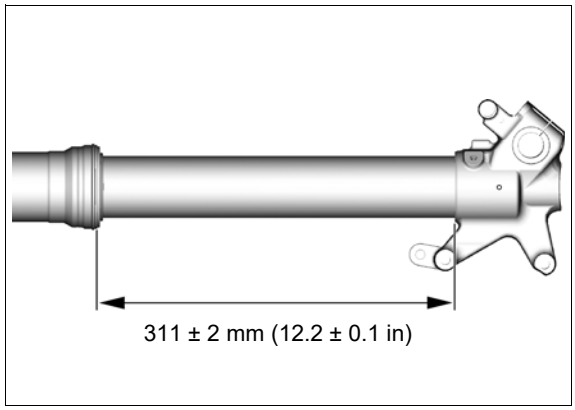
Measure the length between the axle holder and outer tube.

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

STANDARD: 311 ± 2 mm (12.2 ± 0.1 in)

If the length at assembly is longer than at disassembly, check the fork center bolt and fork center bolt lock nut installation.

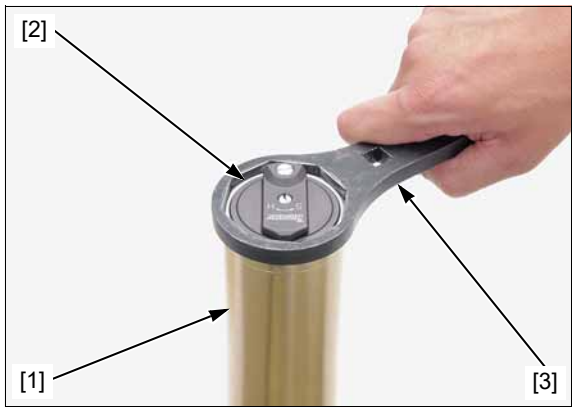
Fill the fork tube oil ➔3-16.



FORK TUBE OIL FILLING

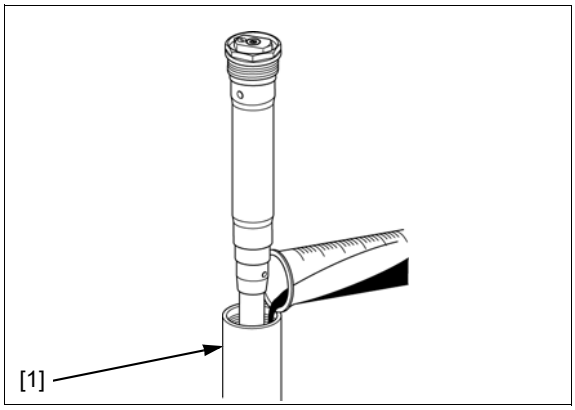
Hold the outer tube [1] and remove the fork damper [2] from the outer tube using the special tool.

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

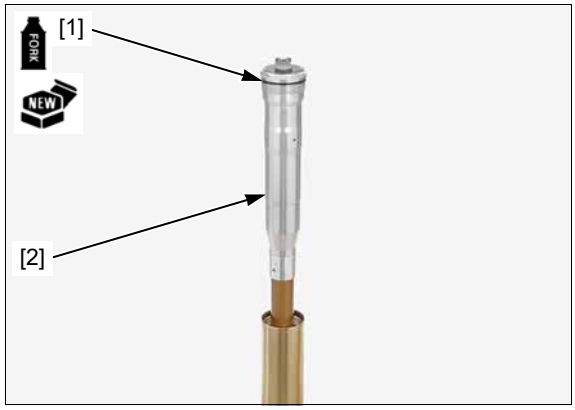


Fill the recommended fork oil into the fork tube [1], refer to "FORK SPRING CHANGE / FORK TUBE OIL CHANGE" ➔3-7.

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



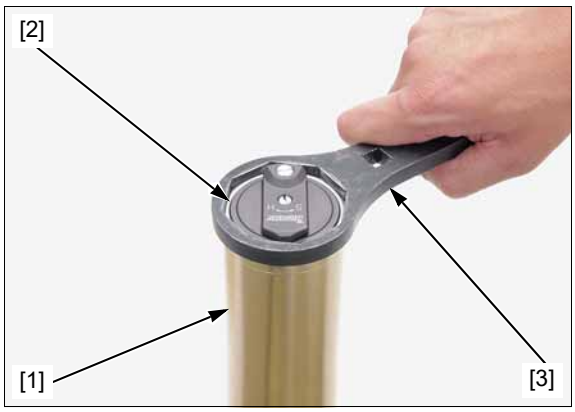
Apply recommended fork oil to a new O-ring [1] and install it to the fork damper [2].



Pull up the outer tube [1] slowly and temporarily tighten the fork damper [2] using the special tool.

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

Install the front fork ➔3-17.



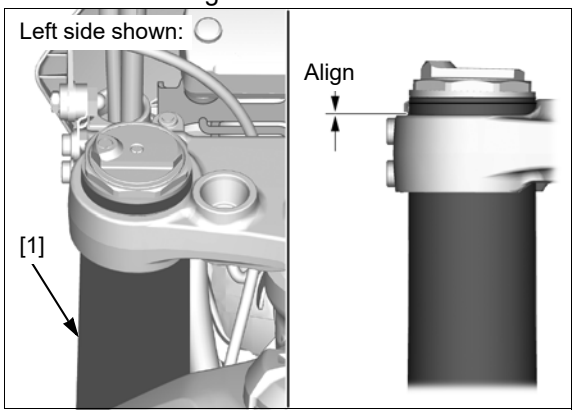
FRONT FORK INSTALLATION

When the fork damper is removed, perform the following procedure:

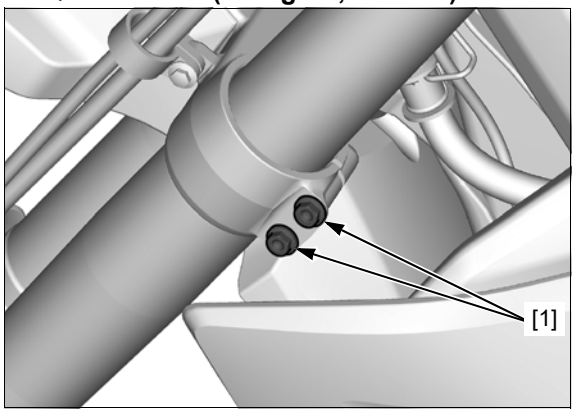
NOTICE

Over-tightening the fork bottom bridge pinch bolts can deform the outer tube. A deformed outer tube must be replaced.

1. Install the fork leg [1] and align the fork outer tube lower index line with the top surface of the top bridge. Position the fork leg in the direction as shown.



2. Tighten the fork bottom bridge pinch bolts [1].
TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)

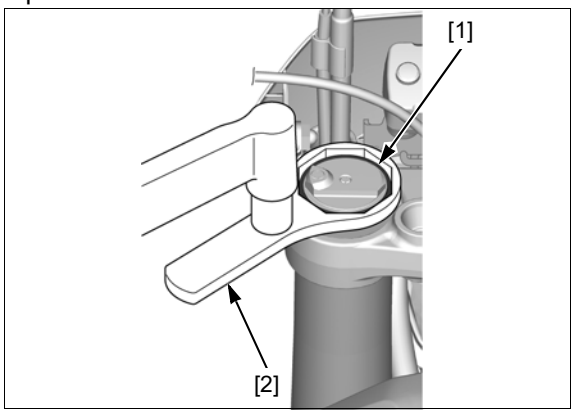


3. When the fork damper is removed, tighten the fork damper [1] to the specified torque using the special tool.
TOOL:
Locknut Wrench 50 (octagon) [2]
07WMA-KZ30100

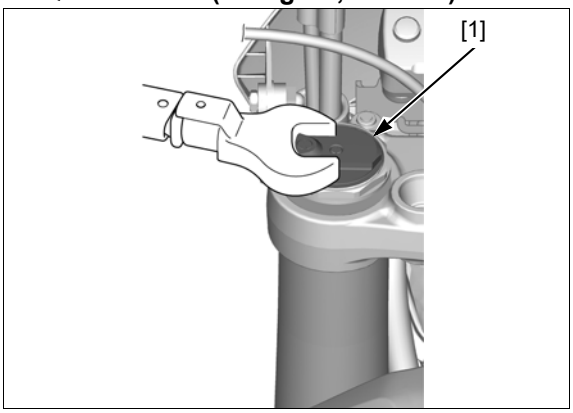
TORQUE:
Actual: 76 N·m (7.7 kgf·m, 56 lbf·ft)
Indicated: 69 N·m (7.0 kgf·m, 51 lbf·ft)

NOTE:

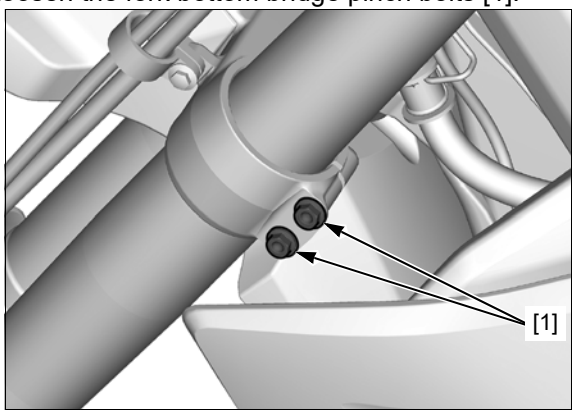
- When using the lock nut wrench, use a 500 mm (20.0 in) long deflecting beam type torque wrench. The lock nut wrench increases the torque wrench's leverage, so the torque wrench reading will be less than the torque actually applied to the fork damper. The specification given on this page is actual torque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



4. When the fork bolt is removed, tighten the fork bolt [1] to the specified torque.
   TORQUE: 30 N·m (3.1 kgf·m, 22 lbf·ft)

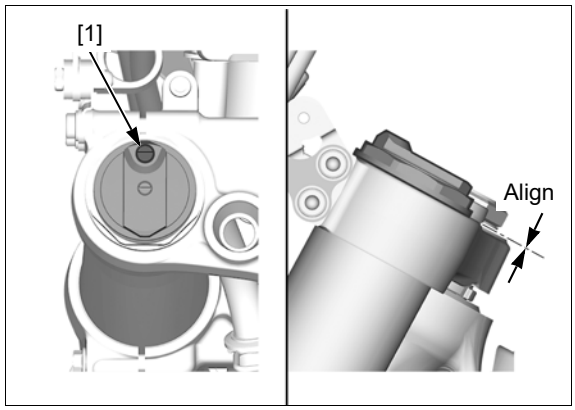


5. Loosen the fork bottom bridge pinch bolts [1].



Position the fork outer tube so the fork plug bolt [1] is in position forward.

Align fork outer tube upper index line with the top surface of the top bridge as shown.



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

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)

NOTICE

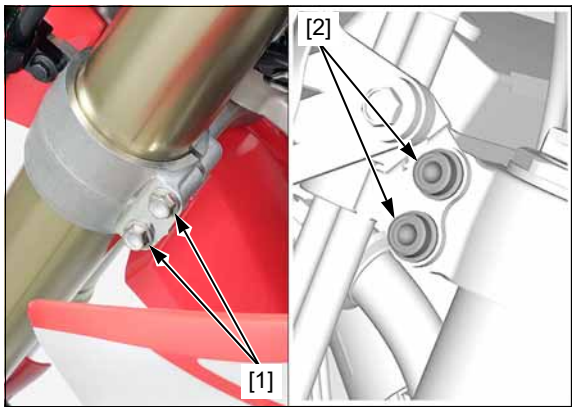
Over-tightening the fork bottom bridge pinch bolts can deform the outer tube. A deformed outer tube must be replaced.

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

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

NOTICE

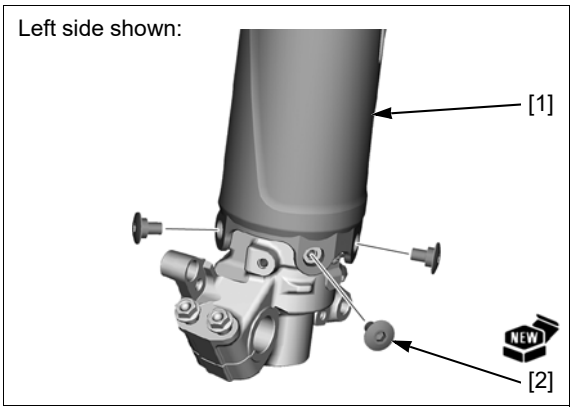
Over-tightening the fork top bridge pinch bolts can deform the outer tube. A deformed outer tube must be replaced.



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

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

Install the front wheel ➔3-20.



Clamp the brake hose and wheel speed sensor wire with the brake hose clamps [1].
Install the clamps and brake hose clamp bolts [2].
Tighten the brake hose clamp bolts to the specified torque.

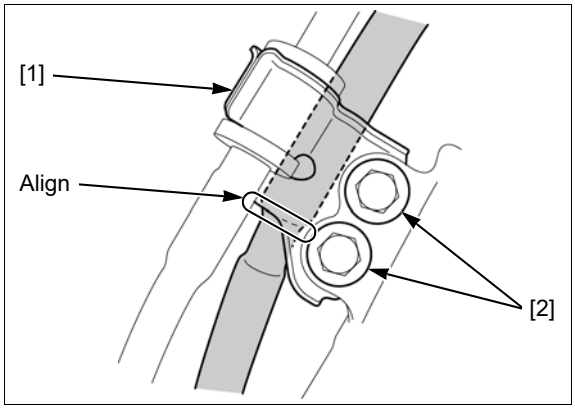
TORQUE: 10 N·m (1.0 kgf·m, 7 lbf·ft)

NOTE:
- Align the brake hose protector end with the hose clamp end as shown.

Install the handlebar ➔3-19.

Inspect the wear rings direction ➔2-64.

Adjust the front fork air pressure to atmospheric pressure ➔3-5.



HANDLEBAR INSTALLATION

Temporarily install the bushings [1], handlebar lower holders [2], washers [3] and handlebar lower holder nuts [4].

Place the handlebar [5] on the handlebar lower holders.

Install the handlebar upper holders [6] with its punch mark [7] facing forward.
Install and tighten the front handlebar upper holder bolts [8] to the specified torque.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

NOTE:
- Align the paint mark on the handlebar with the top surface of the handlebar lower holders.

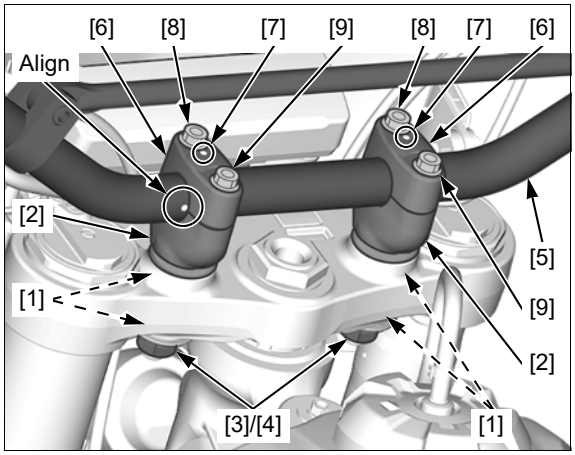
Install and tighten the rear handlebar upper holder bolts [9] to the specified torque.

TORQUE: 22 N·m (2.2 kgf·m, 16 lbf·ft)

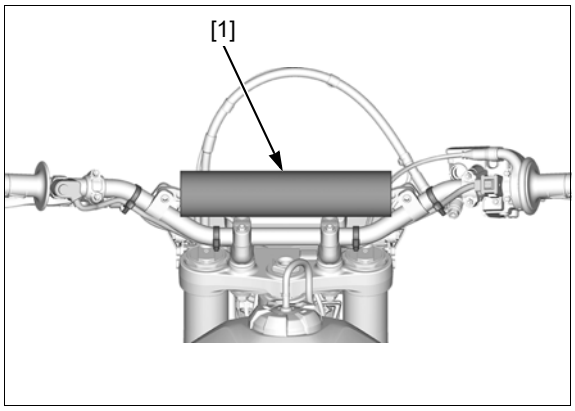
NOTE:
- Tighten the front handlebar upper holder bolt first.

Tighten the handlebar lower holder nuts to the specified torque.

TORQUE: 44 N·m (4.5 kgf·m, 32 lbf·ft)



Install the handlebar pad [1].



FRONT WHEEL INSTALLATION

Clean the clamping surface of the front axle and axle holders.

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

Place the front wheel between the fork legs

NOTE:
- Brake disc is positioned between the brake pads.
- Be careful not to damage the brake pads.

Apply a thin coat of grease to the front axle outer surface.

Insert the front axle [3] from the right side.

NOTE:
- Align the surfaces of the front axle and right fork leg.

Install and tighten the front axle nut [4] to the specified torque while holding the front axle.

TORQUE: 88 N·m (9.0 kgf·m, 65 lbf·ft)

Install the front brake caliper/bracket assembly [5] and new front brake caliper mounting bolts [6].

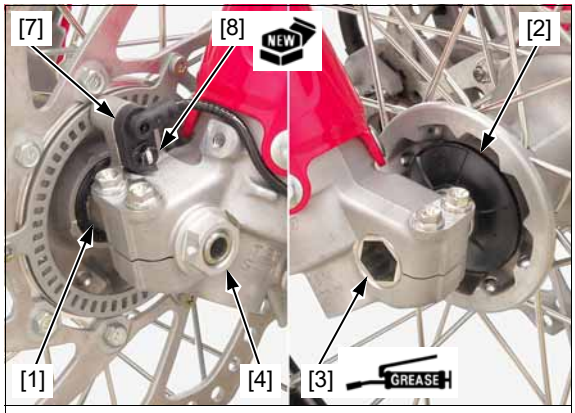
Tighten the front brake caliper mounting bolts to the specified torque.

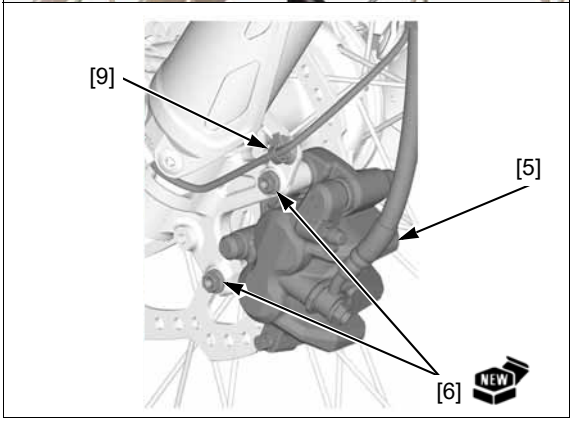
TORQUE: 30 N·m (3.1 kgf·m, 22 lbf·ft)

Install the wheel speed sensor [7] and a new bolt [8].

Tighten the bolt securely.

Install the wire clip [9].





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

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)

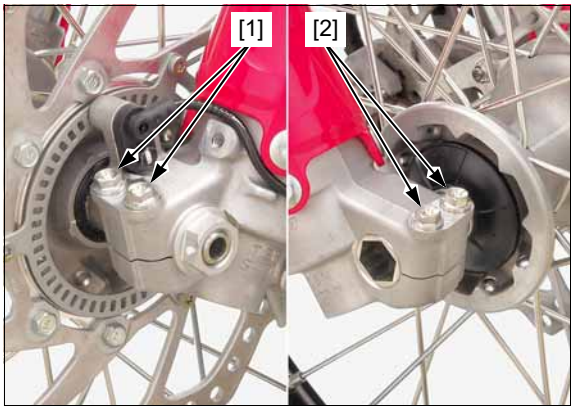
With the front brake applied, pump the front suspension up and down several times to seat the axle and check the front brake operation.

Check the fork legs are parallel.

Tighten the right axle holder bolts [2] to the specified torque.

TORQUE: 20 N·m (2.0 kgf·m, 15 lbf·ft)

Install the front brake disc cover ➔1-8.
Install the engine guard ➔1-8.



REAR SUSPENSION

⚠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 ➔3-25.

SETTING BASICS

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.

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.
- Adjustment of high speed/low speed compression damping force, rebound damping adjuster, refer to following.
- If you stray to the setting, return to the standard setting and adjust again.

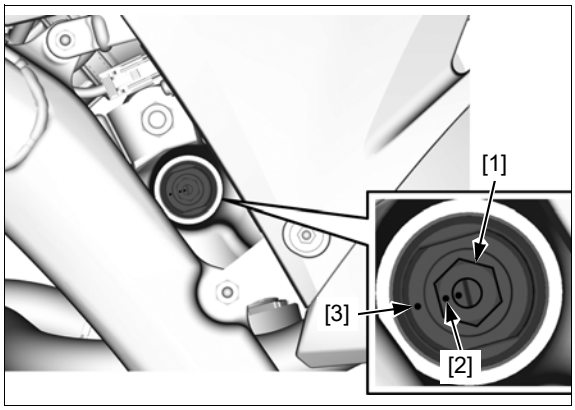
HIGH SPEED COMPRESSION DAMPING ADJUSTER

The high speed compression damping force can be adjusted from the stiffer to the softer (3 - 1/2 turning back) by the high speed compression adjuster [1] on the upper left side of the rear shock absorber.

Turning clockwise (H) turns stiffer, turning counterclockwise (S) turns it softer.

NOTE:

- Be sure to adjusting the adjusters by 1/4 turn at a time.
- For suspension adjustment guideline ➔3-26.



HOW TO SET THE STANDARD POSITION

1. Turn the adjuster clockwise (H) until it stops (stiffest position).
2. Turn counterclockwise (S) direction from the stiffest position and align the adjuster punch mark [2] with the adjuster body punch mark [3] between 3-1/12 – 3-7/12 turns is the standard position.

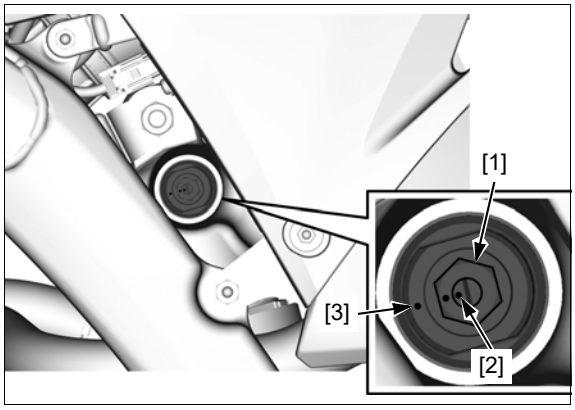
LOW SPEED COMPRESSION DAMPING ADJUSTER

The low speed compression damping force can be adjusted from the softest to the stiffest with 13 clicks (4 clicks / 1 rotation) or more by the low speed compression adjuster [1] on the upper left side of the rear shock absorber.

Turning clockwise (H) turns stiffer, turning counterclockwise (S) turns it softer.

NOTE:

- Turn the adjuster with the correct size tool.
- Be sure to stop the adjuster at the click position.
- For suspension adjustment guideline ➔3-26.



HOW TO SET THE STANDARD POSITION

1. Turn the adjuster clockwise (H) until it stops (stiffest position).
2. Turn counterclockwise (S) direction from the stiffest position.
   The first click is confirmed as 1 click, and the 11 clicks and align the adjuster punch mark [2] with the adjuster body punch mark [3] is the standard position.

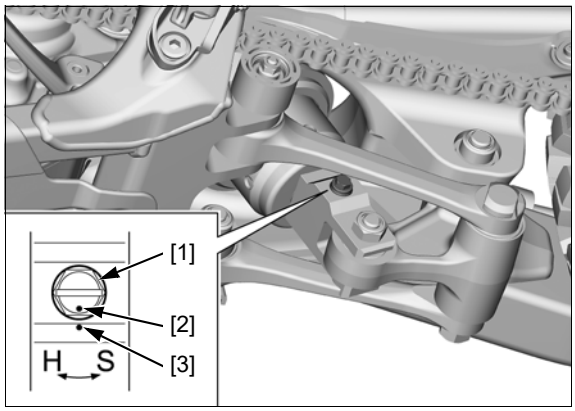
HOW TO USE THE REBOUND ADJUSTER

The rebound damping force can be adjusted from the softest to the stiffest with 17 clicks (8 clicks / 1 rotation) or more by the rebound adjuster [1] on the lower left side of the rear shock absorber.

Turning clockwise (H) turns stiffer, turning counterclockwise (S) turns it softer.

NOTE:

- Turn the adjuster with the correct size tool.
- Be sure to stop the adjuster at the click position.
- For suspension adjustment guideline ➔3-26.



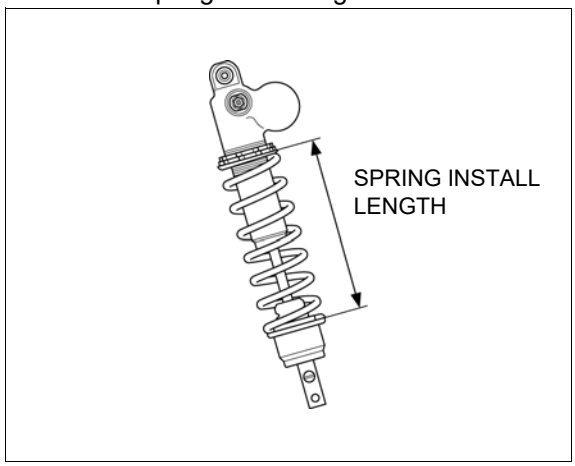
HOW TO SET THE STANDARD POSITION

1. Turn the adjuster clockwise (H) until it stops (stiffest position).
2. Turn counterclockwise (S) direction from the stiffest position.
   The first click is confirmed as 1 click, and the 12 – 15 clicks and align the adjuster punch mark [2] with the adjuster body punch mark [3] is the standard position.

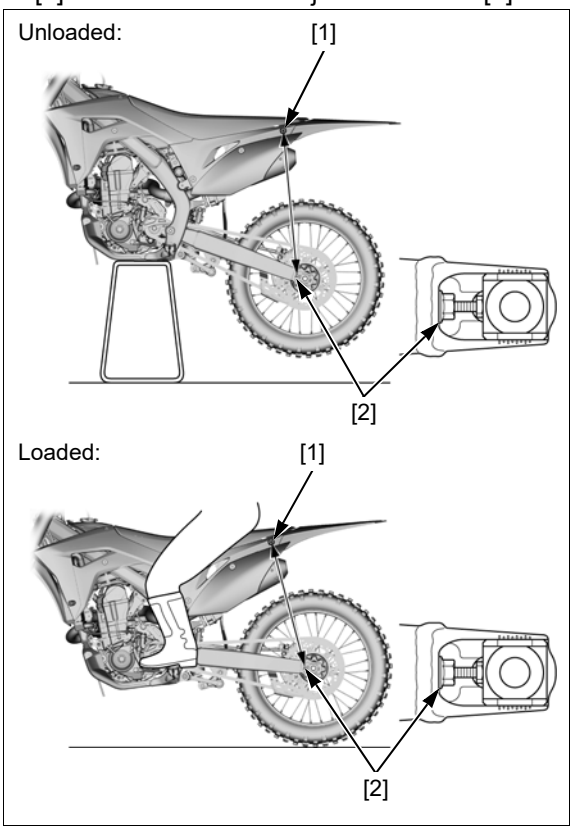
RACE SAG ADJUSTMENT

Adjust the race sag with the following procedure.

1. Remove the engine guard ➔1-8.
   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 from the left side seat mounting bolt [1] to the drive chain adjuster lock nut [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 from the left side seat mounting bolt [1] to the drive chain adjuster lock nut [2].

Example: Unloaded 625 mm
Loaded - 525 mm
Race sag = 100 mm

Standard Race Sag (Standard spring)
105 mm

If the race sag is shorter than the standard length, adjust the spring install length long and check again ➔3-23.

If the race sag does not become the standard length even if it is adjusted, refer to the "Shock absorber disassembly / assembly" procedure and replace with the optional soft spring and check again ➔3-24.

Standard Race Sag (Soft spring)
110 – 115 mm

If the race sag is longer than the standard length, adjust the spring install length short and check again ➔3-23.

If the race sag does not become the standard length even if it is adjusted, refer to the "Shock absorber disassembly / assembly" procedure and replace with the optional hard spring and check again ➔3-24.

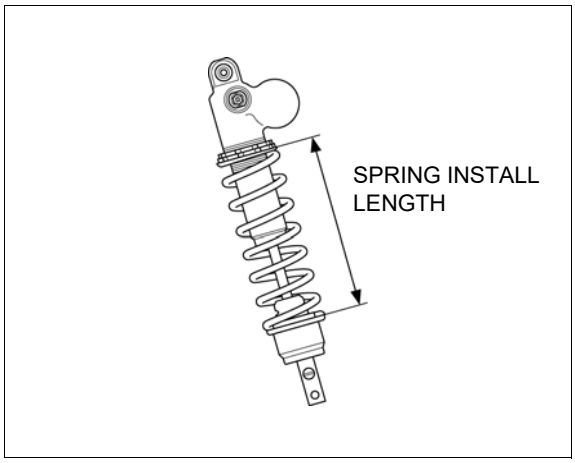
Standard Race Sag (Hard spring)
95 – 100 mm

SPRING INSTALL LENGTH ADJUSTMENT

Remove the following:

– Engine guard ➔1-8
– Rear frame ➔1-12

Measure and record the spring install length.



Loosen the adjuster lock nut [1] 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)**

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

Turn the adjusting nut [2] to adjust the spring install length using a special tool or an optional pin spanner.

SPRING INSTALL LENGTH:

Standard:	**234 mm (9.2 in)**	
Adjustment range:	**Hard spring:**	**230.5 – 239 mm (9.07 – 9.4 in)**
	Standard spring:	**227 – 239 mm (8.9 – 9.4 in)**
	Soft spring	**227 – 234 mm (8.9 – 9.2 in)**

NOTE:

- In the case of the standard spring, one rotation of the adjust nut changes the spring installation length by 1.5 mm and the spring preload by 78 N.

After adjustment, tighten the adjuster lock nut while holding the adjusting 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:

– Engine guard ➔1-8
– Rear frame ➔1-12

SHOCK ABSORBER DISASSEMBLY/ASSEMBLY

Loosen the adjuster lock nut [1] and adjusting nut [2] using a special tool or an optional pin spanner ➔3-3.

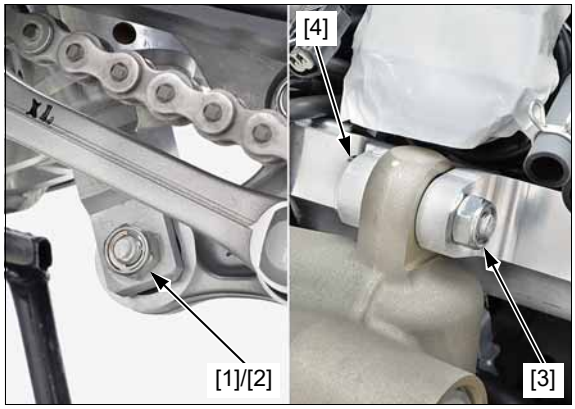
TOOLS:

Adjustable Pin Spanner (2 required)	**07702-0020001 or**
Pin spanner A (2 required)	**89201-KS6-810 (U.S.A. only)**

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

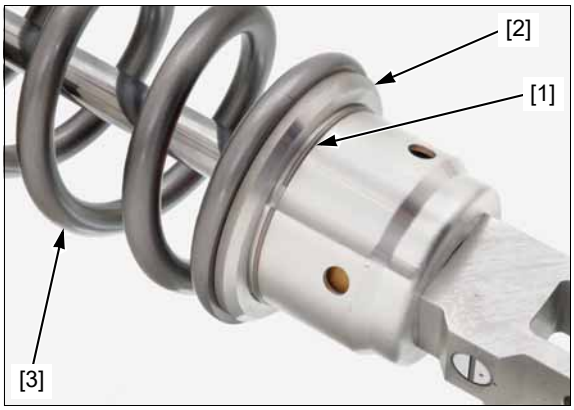
Remove the shock absorber lower mounting nut [1] and bolt [2].

Remove the upper mounting nut [3] and bolt [4] and shock absorber.



Remove the stopper ring [1] and spring seat [2] while compressing the shock absorber spring [3].

Remove the shock absorber spring.

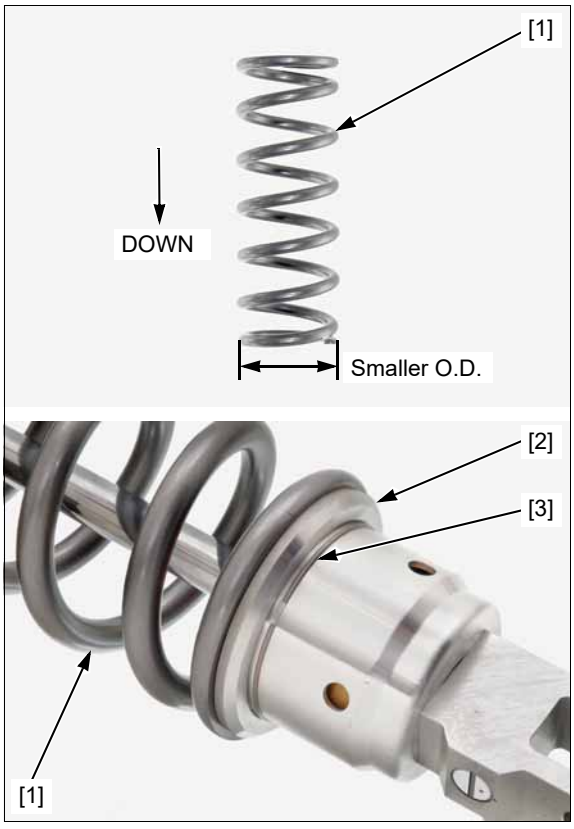


Install the shock absorber spring [1] with its smaller O.D. side facing toward the lower mount.

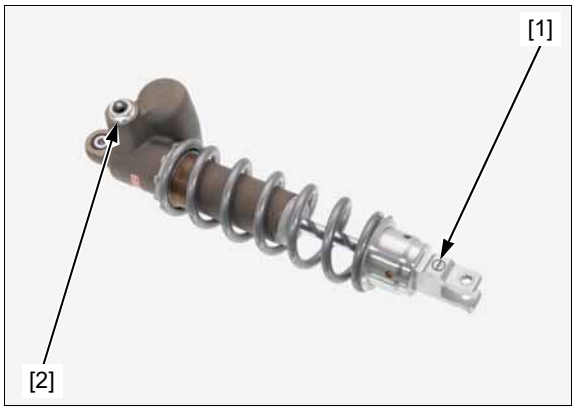
Install the spring seat [2].

Install the stopper ring [3] while compressing the shock absorber spring.

Make sure that the stopper ring is seated in the groove of the spring seat stopper completely.



Turn the shock absorber lower mount so the rebound adjuster screw [1] is on the same side of the compression adjuster [2].



Set the shock absorber to the cushion arm with the rebound damping adjuster facing left side.

Install the upper shock absorber mounting bolt [1] by aligning cut-outs of the frame.

Install and tighten the upper shock absorber mounting nut [2] to the specified torque.

TORQUE: 44 N·m (4.5 kgf·m, 32 lbf·ft)

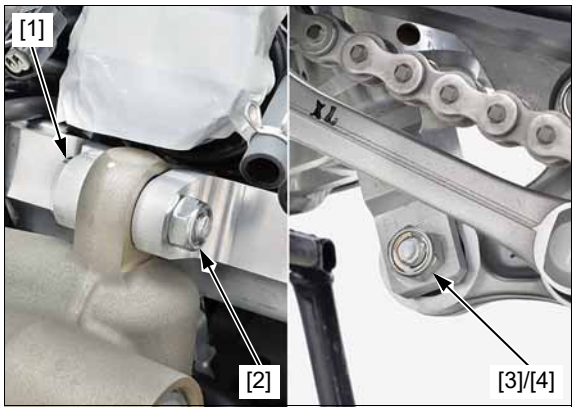
Install the lower shock absorber mounting bolt [3] by aligning the flat side of the bolt with the stopper on the shock absorber.

Install and tighten the lower shock absorber mounting nut [4] to the specified torque.

TORQUE: 44 N·m (4.5 kgf·m, 32 lbf·ft)

Adjust the spring install length refer to "SPRING INSTALL LENGTH ADJUSTMENT".

Install the removed parts.



DAMPER UNIT NITROGEN RELEASE (WHEN DISCARD 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 discard the shock absorber, be sure to remove the valve core and remove the gas from the damper unit.

Remove the shock absorber ➔3-24.

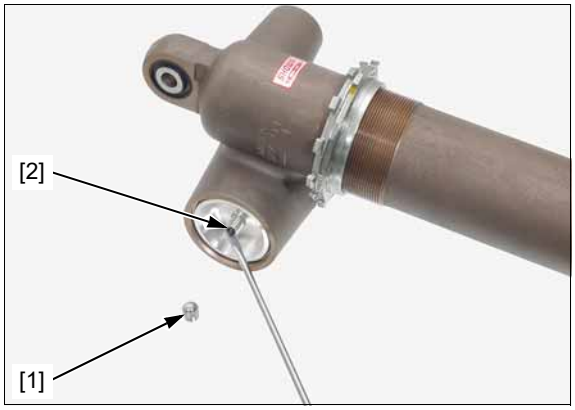
Remove the valve cap [1].

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

FRONT 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 left side rear seat mounting bolt to 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 95 – 100 mm: Hard setting
  105 mm: Standard setting
  110 – 115 mm: Soft setting
- Adjust the race sag between 95 – 115 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 adjuster: Adjust one click at a time.
  – High speed compression adjuster: Adjust each 1/12 turn at a time.
  – Rebound 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.

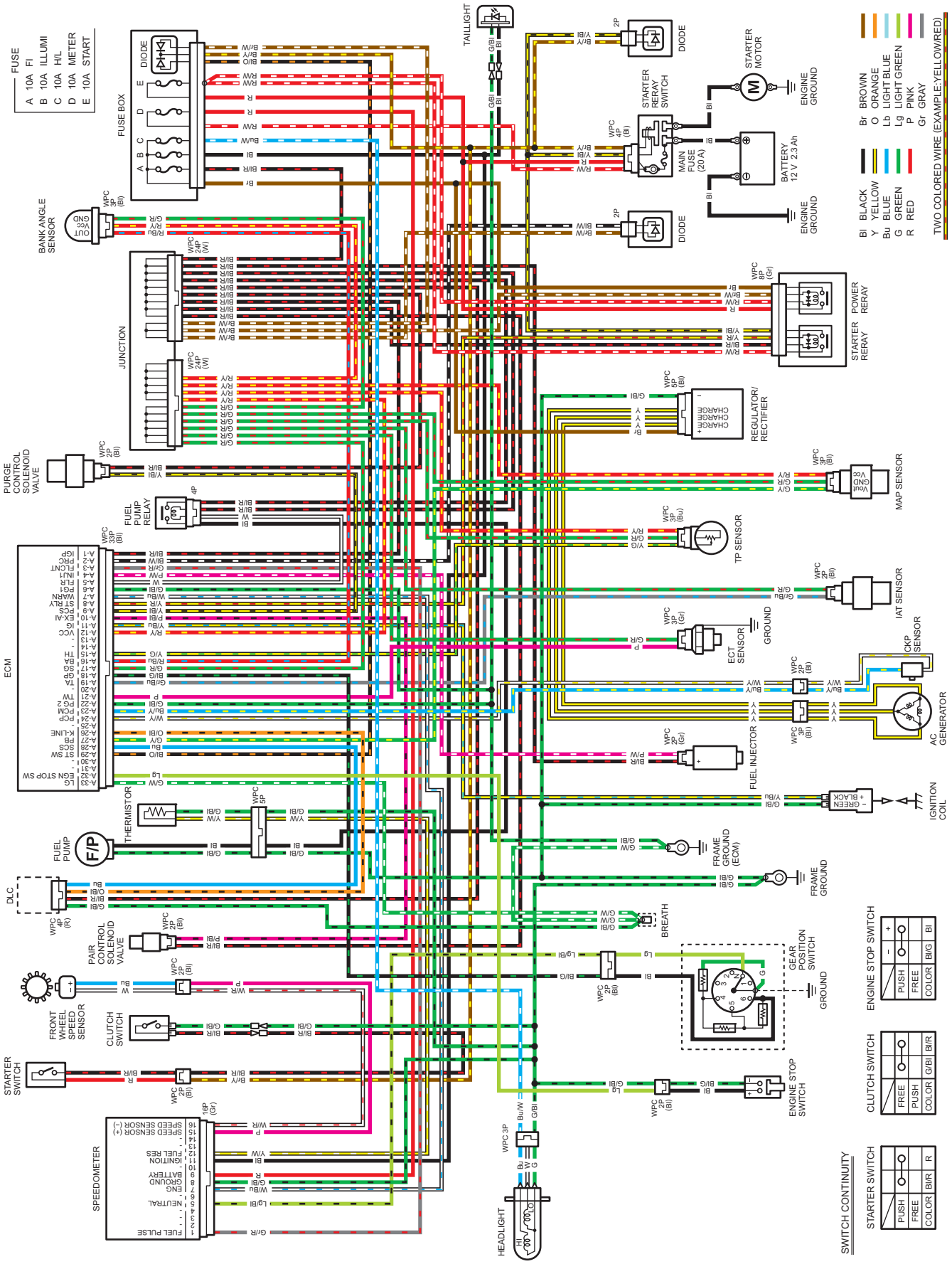
Symptom		Action	Compression adjuster		Rebound adjuster	Spring rate
			Low speed	High speed		
Stiff suspension	Suspension feels stiff on small bumps	1. Test softer low speed compression adjustment.	↓	-	-	-
		2. If it still feels stiff, further test softer low and high speed compression adjustments simultaneously.	↓	↓	-	-
	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 setting 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 adjuster					
	Rebound adjuster					
	Oil capacity					
	Spring					
Rear suspension	Race sag					
	Spring install length					
	Compression adjuster	Low speed				
		High speed				
	Rebound adjuster					
	Spring					
Final reduction						
Tire	Front	Tire brand				
		Size				
		Cold tire pressure				
	Rear	Tire brand				
		Size				
		Cold tire pressure				

WIRING DIAGRAM



INDEX

AIR CLEANER 2-19
BODY PANEL LOCATIONS 1-2
BRAKE FLUID 2-53
BRAKE PADS WEAR 2-54
BRAKE SYSTEM 2-55
CLUTCH SYSTEM 2-56
COMPETITION MAINTENANCE SCHEDULE 2-9
CONTROL CABLES 2-61
COOLING SYSTEM 2-47
CRANKCASE BREATHER 2-21
DECOMPRESSOR SYSTEM 2-33
DRIVE CHAIN 2-48
DRIVE CHAIN ROLLER 2-52
DRIVE CHAIN SLIDER 2-51
DRIVE SPROCKET COVER 1-8
DRIVE/DRIVEN SPROCKET 2-52
ENGINE GUARD 1-8
ENGINE IDLE SPEED 2-36
ENGINE OIL 2-34
ENGINE OIL FILTER 2-35
EXHAUST PIPE 1-16
EXHAUST PIPE/MUFFLER 2-63
FORK OIL 2-65
FRONT BRAKE DISC COVER 1-8
FRONT FENDER 1-7
FRONT VISOR 1-5
FUEL FILTER 2-14
FUEL LINE 2-11
HANDLE POSITION 3-4
HEADLIGHT AIM 2-56
KNUCKLE GUARD 1-6
LEFT CRANKCASE OVER COVER 1-9
MAINTENANCE SCHEDULE
- REGULAR OFF-ROAD USE 2-10
MUD GUARD 1-10
MUFFLER 1-14
NUTS, BOLTS, FASTENERS 2-70
OPTIONAL PARTS 3-3
PISTON/PISTON RINGS/PISTON PIN 2-36
RADIATOR COOLANT 2-45
RADIATOR GRILL 1-8
RADIATOR SHROUD 1-4
REAR FENDER 1-11
REAR FRAME 1-12
RIGHT CRANKCASE OVER COVER 1-10
SEAT 1-3
SEAT SUPPORT BASE 1-3
SERVICE INFORMATION
  Frame/Body Panels 1-2
  Maintenance 2-2
  Setting Information 3-2
SIDE COVER 1-4
SIDESTAND
  Frame/Body Panels 1-17
  Maintenance 2-63
SPARK ARRESTER 2-69
SPARK PLUG 2-24
STEERING HEAD BEARINGS 2-70
SUSPENSION 2-64
SUSPENSION ADJUSTMENT GUIDELINE 3-26
SUSPENSION SETTING 3-5
SWINGARM/CUSHION LINKAGE 2-64
THROTTLE OPERATION 2-19
TOP SHELTER 1-11
TROUBLESHOOTING
  Frame/Body Panels 1-2
VALVE CLEARANCE 2-25
WHEELS/TIRES 2-70
WIRING DIAGRAM 3-30

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